PROJECT APPROVALS

UTILITY COMPANY NARRATIVE

6C.3.3 - 02

6C.3.3 – 02a

ELECTRIC LOAD LETTER – UTILITY COMPANY

May 12, 2023

Mr. Vladimir Lyubetsky
DRA Architects
260 Charles Street, Suite 300
Waltham, MA 02453

RE: Northeast Metro Technical High School
Project: 60-20-409

Dear Vladimir,

This is to acknowledge that we sent to WMGLD a work order application, load letter, and site plan locating their utility feeders, manholes, and pad mounted transformers for the new electric services for Northeast Metro Technical High School. They have acknowledged receipt of this information and have also acknowledged that there will be new services for this project. Attached at the end of this load letter is our most recent e-mail correspondence regarding the loads.

Very truly yours,

Zachary M. Barrett, P.E.

BALA CONSULTING ENGINEERS

Main Building Services

Electrical Connected Loads

Normal Power

Lighting (0.81W/sf plus 10kW site lighting)	323	kW
Receptacles (3W/sf)	1161	kW
Electric Vehicle Charging (Separately metered)	29	kW
Mechanical:		
• Miscellaneous Electric Heat FTUs and EUHs	176	kW
• Energy Recovery Ventilators (ERVs)	73	kW
• VRF Fan Coil Units	60	kW
• VRF Condensing Units	1373	kW
• Rooftop Units RTUs (2) and HRUs (5)	578	kW
• Makeup Air Units (2)	369	kW
• Indoor Air Handling Units (11)	1597	kW
• Exhaust Fans	90	kW
• Air Cooled Condensing Units (ACCUs)	162	kW
• Miscellaneous AC Split Systems	66	kW
• Dehumidifiers	189	kW
Plumbing:		
• Electric Hot Water Heaters	646	kW
• Miscellaneous Pumps	15	kW
• Air Compressors	121	kW
• Domestic Water Booster Triplex Pump (3 at 10hp)	30	kW
• Miscellaneous	25	kW
Kitchen (Gas)	300	kW
Miscellaneous Equipment	250	kW

Normal Power Total (Before Adding EM/Standby Total):	7,633kW 8,035kVA

Emergency Power (Backed Up By Generator)

Lighting	35	kW
Fire Alarm	30	kW
Fire Pump (50 hp)	30	kW

Standby Power (Backed Up By Generator)

Elevators (two at 40 hp)	80	kW
Telecom Equipment	75	kW

Emergency/Standby Power Total:	250kW 263kVA
All Normal Power Loads Total:	7,883kW 8,298kVA

Electrical Connected Normal Power Loads with Code Applied Demand Factor:

First 1,161kVA at 100%	1,161kVA
Plus	
Next 7,137kVA at 75%	5,353kVA

Demand Total: 6,514kVA

Site Lighting/Locker Building Service

Electrical Connected Loads

Normal Power

Lighting	7	kW
Sports Lighting	85	kW
Receptacles (3 watt / SF)	25	kW
Electric Vehicle Charging (separately metered)	14	kW
Mechanical	84	kW

Plumbing	90	kW
Telecom	15	kW

Normal Power Total: 320kW
337kVA

Note: The locker building (120 kW of total) and concessions building (75 kW of total) are currently add alternates. Another possible future connection to this transformer is a future maintenance building planned for the eastern side of the site (estimated load 100 kVA).

Normal Power Total Without Locker and Concessions Buildings: 125kW
139kVA

Farm Road Electrical Service

Electrical Connected Loads

Normal Power

Lighting	2	kW
Miscellaneous Telecom/Signage	10	kW

Normal Power Total: 12kW
13kVA

Based on projected connected loads with code applied demand, calculated estimated demand load is 7,835Amps at 480Volts, 3-phase.

Proposed secondary service will be sufficient to serve this calculated ampacity. Final utility transformer quantity and size to be determined by Utility Company. Two 2500kVA normal power transformers and one 300kVA emergency transformer are requested.

Additionally, we are requesting a 300kVA transformer and 480V service to supply site power to the eastern portion of the site and the football field area (750kVA if the locker room building and concession building are constructed (currently add-alternates)). Lastly, we are requesting a 112.5kVA, 480V service to the new school message board area near Farm Road.

(NOTE - This does not include any PV generation.)

Project will be supported by a utility-supplied standby generator that will provide a dedicated emergency service to the building.

Zachary M. Barrett

From: Vincent McMahon <vmcmahon@wmgld.com>
Sent: Friday, April 28, 2023 7:20 AM
To: Zachary M. Barrett; Sean P. Sullivan; Dave Polson
Cc: vlyubetsky@draws.com; Dino D. Buro; Thomas R. Mehaffey
Subject: RE: BALA - Northeast Metrotech Electrical Loads

Hi Zach,

I spoke with Mark Tucker from Gilbane yesterday about temp services. I think we're all set – he will be talking to you about it. For the Eastern part of the project, which is happening in Phase 3 it seems, we'll use the athletic building transformer for temp service. The site trailers will have a separate, smaller temp service that we'll hook up sometime soon.

Vinnie

From: Zachary M. Barrett <zmb@bala.com>
Sent: Wednesday, April 26, 2023 3:27 PM
To: Vincent McMahon <vmcmahon@wmgld.com>; Sean P. Sullivan <sps@bala.com>; Dave Polson <dpolson@wmgld.com>
Cc: vlyubetsky@draws.com; Dino D. Buro <ddb@bala.com>; Thomas R. Mehaffey <trm@bala.com>
Subject: RE: BALA - Northeast Metrotech Electrical Loads

Thanks a lot Vinnie.

Since the two sides of the site are fairly far apart, the voltage drop for temp power is a consideration. It is a safe assumption right now that temp power would be needed on the eastern side of the site too, albeit probably not as much. You might want to carry a XFMR for temp on that side of the site as well, but we'll have to coordinate with others on preferred location of each of those.

Thanks again,

Zachary M. Barrett, PE
Electrical Engineer | zmb@bala.com | 857 444 8623

BALA CONSULTING ENGINEERS
52 Temple Place | Boston, MA 02111 | Main: 617 357 6060 | www.bala.com

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From: Vincent McMahon <vmcmahon@wmgld.com>
Sent: Tuesday, April 25, 2023 1:05 PM
To: Zachary M. Barrett <zmb@bala.com>; Sean P. Sullivan <sps@bala.com>; Dave Polson <dpolson@wmgld.com>
Cc: vlyubetsky@draws.com; Dino D. Buro <ddb@bala.com>; Thomas R. Mehaffey <trm@bala.com>
Subject: RE: BALA - Northeast Metrotech Electrical Loads

Hi Zach,

Most of this seems to align with what we have already planned. We will be going out to bid for the main transformers soon (likely 2000kVA each and 300kVA for the emergency). I'll bump up the size of the athletic building xfmr to a 500kVA, which should be more than enough and will give us some space for future installations such as car chargers and the maintenance building. We already have the overhead transformers for Farm St in stock.

The only thing not answered here: what transformer will be providing your temp service? I'd suggest installing a pad near the edge of your site and running a primary feed directly to it from one of the manholes. This is not a transformer you'd have to pay us for, just want to make sure it's included in the plans. I'm not sure what size transformer you'll need for temp power, I am tentatively going to use a 300kVA though.

This is all fine with me!

Vinnie

From: Zachary M. Barrett <zmb@bala.com>
Sent: Monday, April 24, 2023 4:02 PM
To: Vincent McMahon <vmcmahon@wmgld.com>; Sean P. Sullivan <sps@bala.com>; Dave Polson <dpolson@wmgld.com>
Cc: vlyubetsky@draws.com; Dino D. Buro <ddb@bala.com>; Thomas R. Mehaffey <trm@bala.com>
Subject: BALA - Northeast Metrotech Electrical Loads

Hi Vinnie,

Attached please find our revised electrical load estimate for the Northeast Metro Tech project. As per the attached letter, we are requesting the following utility services:

- Two (2) 2500kVA utility transformers supplying two (2) 4000Amp, 480Y/277V, 3-phase, 4-wire services to the main school building.
- A separate 300kVA utility transformer, 480Y/277V, 3-phase, 4-wire dedicated to supplying the building's emergency life safety loads.
- A 300kVA utility transformer, 480Y/277V, 3-phase, 4-wire dedicated to supplying power to the football field area (750kVA if the locker room building and concession building are constructed [currently add-alternates]).
- A 112.5kVA utility service, 480Y/277V, 3-phase, 4-wire to support the area near the school's new message board off Farm Road.

Once you have reviewed the revised loads, we would like your ruling and comments regarding the service requirements. The proposed locations and layouts of the incoming services will, of course, continue to be coordinated with your team.

Please let us know if you have any questions.

Thank you,

Zachary M. Barrett, PE
Electrical Engineer | zmb@bala.com | 857 444 8623

BALA CONSULTING ENGINEERS
52 Temple Place | Boston, MA 02111 | Main: 617 357 6060 | www.bala.com

6C.3.3 – 02b

GAS COMPANY LETTER – UTILITY COMPANY

May 12, 2023

Mr. Vladimir Lyubetsky
DRA Architects
260 Charles Street, Suite 300
Waltham, MA 02453

Re: Northeast Metro Technical High School
Bala Project No. 60-20-409

Dear Vladimir:

This is to acknowledge that Bala has sent a load letter and site plan featuring the proposed gas line routing and proposed gas meter location to WMGLD, the local gas company. They have acknowledged receipt of this information and have also acknowledged that there will be a new gas service for this project.

Very truly yours,

Richard Rivera, EIT

BALA CONSULTING ENGINEERS

Projected Connected Gas Loads

Cafeteria Cooking Loads	850
Culinary Arts Cooking Loads	2,000
Paint Spray Booth Heating Loads	3,250
Plumbing/HVAC Shop Loads	3,050
Preliminary/Anticipated Total Connected Load	9,150 CFH

(NOTE: The gas company has stated that this proposed gas service for Design Development can handle the previous Schematic Design load of 20,950 CFH)

WMGLD
P.O. BOX 190 480 North Ave.
Wakefield, MA 01880
Tel. (781) 246-6363 Fax (781) 246-0419

Peter D. Dion, General Manager

April 26, 2023

Richard Rivera, EIT
Plumbing & Fire Protection Designer
Bala Consulting Engineers
522 Temple Place
Boston, MA 02111

RE: Northeast Metrotech Regional High School
Gas Service Availability & Coordination
Bala Project No. 60-20-409

Dear Richard,

Wakefield Gas has reviewed the most recent Load Letter regarding the installation of a gas line to the new Northeast Metrotech Regional High School and our responses to your stated questions can be found below:

1. Confirm that the gas company will still be able to extend the gas main for this new service, as stated in previous correspondence.

Yes, Wakefield Gas is still available to extend the gas main for the service to the new high school.

2. Confirm that the proposed gas routing is acceptable, with the understanding that WMGLD will confirm final routing once a contractor is selected, as stated in previous correspondence.

Yes, the proposed route is acceptable with the understanding that a final route is not able to be determined at this time and will be confirmed once a contractor is selected.

3. Provide an updated cost for this scope of work, based on the revised location of the gas service. Please refer to the attached site plan as needed.

The estimated cost to install this gas service is $250,000.

4. Confirm that the total connected load of 9,150 CFH be available to supply the new school. Previous correspondence confirmed a connected load of 20,950 CFH.

Yes, the line will be able to supply the total connected load of 9,150 CFH. Additionally, the line can support the previous connected load of 20,950 CFH should it become necessary to do so.

5. Confirm that the gas company will deliver a guaranteed gas pressure of 14" w.c. at the outlet of the gas meter.

Yes, the line will maintain at least 14" W.C. at the outlet of the gas meter.

6. Confirm if vehicle access is required for the gas meter.

Vehicle access is not required but 24hr foot access is required. Additionally, the meter must also be protected from vehicle traffic.

7. Confirm size of the meter assembly based on the total connected load and delivery pressure. Provide cut sheets of meter assembly for coordination.

The approximate size of the meter assembly is 21" x 8" x 7". The CAD drawing of the meter is included at the end of this letter. The model that will be used for this project is 3M (referenced in the dimensions table). Please note – the meter assembly must be set at least three (3) feet from any other feature including vents, windows, and electric lines.

8. Confirm the size of the gas pipe to be provided at the gas meter inlet.

The size of the pipe leading up to the meter set will be 4". At the riser, the line will be reduced to 3".

If you have any further questions, please feel free to contact us.

Sincerely,

Jim Brown

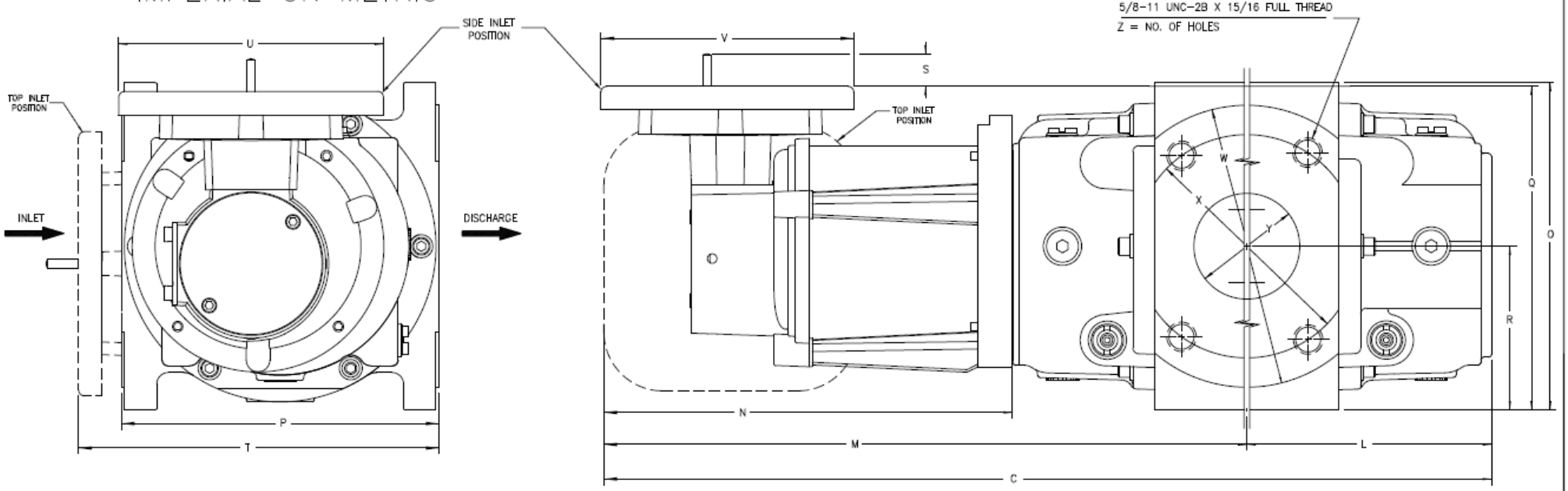
Jimmy Brown
Gas Superintendent

Cc: Raven Fournier – WMGLD
Vladimir Lubetsky – DRA
SPS, GC, DDB, Bala

MODEL	CAPACITY	DIMENSIONS																	APPROX. OIL CAPACITY		APPROX	MAX. WORK
		UNIT	C	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	SIDE INLET	TOP INLET	WEIGHT	PRESSURE
2M	2000 cfh	IN	19 25/32	5 21/32	14 1/8	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	6	4 3/4	2 1/4	4	1.25 oz.	7.6 oz.	28.5 lbs.	SEE NAMEPLATE
	57 m^3/h	mm	503	144	359	221	177	172	175	88,5	17,5	195	143	137	153	120,65	57,15	4	37 ml.	225 ml.	12,9 kg.	
3M	3000 cfh	IN	20 31/32	6 1/4	14 23/32	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	6	4 3/4	2 1/4	4	1.25 oz.	7.6 oz.	31.0 lbs.	SEE NAMEPLATE
	85 m^3/h	mm	533	159	374	221	177	172	175	88,5	17,5	195	143	137	153	120,65	57,15	4	37 ml.	225 ml.	13,9 kg.	
5M	5000 cfh	IN	23 27/32	7 11/16	16 5/32	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	7 1/2	6	3 5/16	4	1.25 oz.	7.6 oz.	37.0 lbs.	SEE NAMEPLATE
	141,5 m^3/h	mm	606	195	411	221	177	172	175	88,5	17,5	195	143	137	190,5	152,4	84,14	4	37 ml.	225 ml.	16,8 kg.	
G40	2295 cfh	IN	19 25/32	5 21/32	14 1/8	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	6	4 3/4	2 1/4	4	1.25 oz.	7.6 oz.	28.5 lbs.	SEE NAMEPLATE
	65 m^3/h	mm	503	144	359	221	177	172	175	88,5	17,5	195	143	137	153	120,65	57,15	4	37 ml.	225 ml.	12,9 kg.	
G65	3531 cfh	IN	20 31/32	6 1/4	14 23/32	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	6	4 3/4	2 1/4	4	1.25 oz.	7.6 oz.	31.0 lbs.	SEE NAMEPLATE
	100 m^3/h	mm	533	159	374	221	177	172	175	88,5	17,5	195	143	137	153	120,65	57,15	4	37 ml.	225 ml.	13,9 kg.	
G100	5650 cfh	IN	23 27/32	7 11/16	16 5/32	8 11/16	6 31/32	6 3/4	6 7/8	3 31/64	11/16	7 21/32	5 5/8	5 3/8	7 1/2	6	3 5/16	4	1.25 oz.	7.6 oz.	37.0 lbs.	SEE NAMEPLATE
	160 m^3/h	mm	606	195	411	221	177	172	175	88,5	17,5	195	143	137	190,5	152,4	84,14	4	37 ml.	225 ml.	16,8 kg.	

SERIES B3
ROOTS® METER
2M(G40)/3M(G65)/5M(G100)
WITH CD* OR TD**
IMPERIAL OR METRIC

*CD = DISPLACED VOLUME COUNTER WITH INSTRUMENT DRIVE.
**TD = TEMPERATURE COMPENSATED VOLUME COUNTER WITH INSTRUMENT DRIVE.



02/2007 | D054431-000

REVISIONS			
REV	REVISION NO.	DATE	
A	7851	13MAY98	
B	ADD 2	13NOV98	
C	7944	15SEP00	
D	8931	31MAR07	

DMD DIVISION
MEASUREMENT OPERATION
DRESSER INDUSTRIES, INC.
HOUSTON, TEXAS U.S.A.

DIMENSIONAL ASSEMBLY
ROOTS® METERS SERIES B-3
2/3/5M G40/65/100 CD/TD

DRAWN BY	CHECKED	DESIGNED	APPROVED	DRAWING NUMBER
JDM	JDM	SMM	TRL	D054431-000
SCALE	DATE	QUALITY RELEASED		
NTS	28MAY97			