JOSLIN, LESSER + ASSOCIATES, INC.

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MEMORANDUM

To: Kathleen Smith, City of Haverhill

From: William G. Cunniff - Joslin, Lesser + Associates, Inc.

Date: February 16, 2016

Re: Construction Contingency Approval: Caleb Dustin Hunking School

Cc: James F. Scully; Jeffery Luxenberg; Adam Sniegocki

Enclosed for approval and processing, please find the following commitments:

1) Construction Contingency Approval Request: Change Request No. 005 (CR-005): This request to use Construction Contingency funds is the result of CCD-002 issued by the designer, JCJ. The cost of this work was calculated as Time and Material and was tracked by the CM and the JLA/NV5 onsite representative. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

CCD-02: Revise Dimensions of RTU 4 & 10 and expand roof screen - Description of Work	Value $
This CCD was issued to provide details on both expanding the roof screen and also modifying the structural steel at HVAC Roof Top Units (RTUs) 4 & 10, in order to account for revised unit dimensions/locations. These RTUs were procured by the Trade contractor, whose contract was awarded (07.14.16) after the release and fabrication of the early package structural steel (06.18.16). The early package structural steel was awarded, in order to ensure an earlier weather-tight structure, heading into the winter of 2015-2016. Subsequent submittals by the HVAC contractor verified correct dimensions/location (08.06.15), resulting in the re-work of the structural steel and the expansion of the roof screen. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.	$ 38,763.00
	$ 38,763.00

2) Construction Contingency Approval Request: Change Request No. 008 (CR-008): This request to use Construction Contingency funds is the result of RFI-215 and PR-11 issued by the designer, JCJ. The cost of this work was calculated as Time and Material and was tracked by the CM and the JLA/NV5 onsite representative. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

PR-11: Add Passage door at Storage room A125; Add Light per RFI-215- Description of Work	Value $
PR-11 was issued to provide details to add a new exterior new passage door to egress from Storage Room A-125, to the exterior. As designed, the only room access/egress was through the automatic overhead coiling door. Concern was raised as to the potential safety situation that could arise if this door was disabled. The owner decided that it would be pertinent to add an additional door for health and safety. RFI-215 also added an exterior light for the passage door, also for safety considerations.	$ 4,253.00
	$ 4,253.00

3) Construction Contingency Approval Request: Change Request No. 010 (CR-010): This request to use Construction Contingency funds is the result of RFI-151R1 issued by the designer, JCJ. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

Add Soffits per RFI-151R1 - Description of Work	Value $
This RFI was issued to provide details to modify the ceiling height adjacent to the exterior windows. Adding a metal stud/drywall soffit allows full height window glass clearance, without necessitating remedial work to previously installed mechanical and electrical systems.	$ 5,065.00
	$ 5,065.00

4) Construction Contingency Approval Request: Change Request No. 056 (CR-056): This request to use Construction Contingency funds is the result of PR-023 issued by the designer, JCJ. The cost of this work will be calculated as Time and Material and tracked by the CM and the JLA/NV5 onsite representative. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

Guard House Allowance per PR-023 - Description of Work	Value $
This PR was issued to provide the necessary detailed designs and specifications to construct the Guard House at the driveway entrance to the Hunking School. Adding this Guard House will provide added security and traffic control to the site.	$ 104,599.00
	$ 104,599.00

5) Construction Contingency Approval Request: Change Request No. 058 (CR-058): This request to use Construction Contingency funds is the result of PR-022 issued by the designer, JCJ. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

Provide an Active Shooter System per PR-22 - Description of Work	Value $
This PR was issued to provide the necessary detailed designs and specifications to furnish and install the Active Shooter system, as previously approved by the SBC on 01.26.16	$ 109,158.00
	$ 109,158.00

6) Construction Contingency Approval Request: Change Request No. 061 (CR-061): This request to use Construction Contingency funds is the result of the enhanced scope and subsequent increased cost of the maintenance building, above the budget line item, which was carried in the GMP. The cost of this work will be calculated as Time and Material and tracked by the CM and the JLA/NV5 onsite representative. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

Maintenance Building Allowance - Description of Work	Value $
This change order request is to fund the incremental increase in costs of the maintenance building, above the value carried in the budget line of the GMP construction budget. This improved design offers the necessary and required storage and service bay capabilities to the Haverhill Public School facilities department.	$ 248,692.00
	$ 248,692.00

7) Construction Contingency Approval Request: Change Request No. 070 (CR-070): This request to use Construction Contingency funds is the result of the recently approved Adaptive Technology Infrastructure enrichment. The cost of this work was calculated on a unit price basis per location. The funds for this work will be re-allocated from the Construction Contingency budget line item, to the Construction Change Order line item. A Budget Revision Request will follow.

Adaptable Technology Infrastructure - Description of Work	Value $
This change order request is to provide augmented technology infrastructure (power, communication, A/V) to (70) classroom locations. This Adaptable Technology Infrastructure was approved at the 01.26.16 SBC meeting. Providing this Adaptable Technology Infrastructure at this point ensures the most economical cost option to meet future District needs.	$ 88,128.00
	$ 88,128.00

he items listed above are consistent with the Total Project Budget and, to the best of our knowledge, are possibly eligible for reimbursement from the Massachusetts School Building Authority. Joslin, Lesser + Associates/NV5 recommends that these items be approved and paid. Note: If you have any questions, please feel free to contact the Owner's Project Manager, Joslin, Lesser + Associates/NV5.

SHAWMUT
Design and Construction

Change Request CR005

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: February 4, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: CCD 002; Revise Dimensions of RTU 4 and 10 and expand roof screen

Item Description	Amount
CBA; Revise Dimensions of RTU 4 and 10	$29,261
Greenwood; Revise Dimensions of RTU 4 and 10	$7,441
Fee	$1,413
GL Insurance	$290
Builder's Risk	$69
Bond	$289
Total:	**$38,763**

Type: Lump sum proposal
Schedule Impact: This change will add **0** day(s) to the contract completion date.
Overtime: Project OT Not Required
Notes:

By: William Cunniff, Joslin Lesser & Assoc — **Date:** 2/8/16

By: Joseph Pollock, Shawmut Design & Construction — **Date:** 2/8/16

By: Katy Lillich, JCJ Architecture, Inc. — **Date:** 2.8.16

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**05**
DESCRIPTION:	**Revise Dimensions at RTU 4 & 10 and Expand the Roof Screen per CCD-02**
DATE:	**02/08/16**
REFERENCE	**CCD-02**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	**Direct Costs**	**Non-Direct Costs**	**Total Costs**
Beauce Atlas	$ 21,932.64	$ 7,328.36	$ 29,261
Greenwood Industries	$ 6,326.52	$ 1,114.48	$ 7,441
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 28,259.16	$ 8,442.84	$ 36,702.00

SECTION II - CM MARK-UPS				**Total Costs**
Subcontract Direct Costs		$	28,259.16	
CM Fee on Direct Costs Only	5.00%	$	1,413.00	
Subcontract Non-Direct Costs		$	8,442.84	
				$ 38,115
General Liability Insurance	0.76%	$	290.00	
Builder's Risk	0.18%	$	69.00	
				$ 38,474
Payment and Performance Bond	0.75%	$	289.00	
		TOTAL CHANGE ORDER AMOUNT:		**$ 38,763**

SHAWMUT
Design and Construction

Change Request CR008

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: January 28, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: PR 11; Add Passage door at Storage room A125; Add Light per RFI #215

Item Description	Amount
PR 11; Add Passage door at Storage room A125	$1,859
PR 11; Add Passage door at Storage room A125	$544
Add Light per RFI #215	$1,607
Fee	$171
GL Insurance	$32
Builder's Risk	$8
Bond	$32
Total:	**$4,253**

Type: Lump sum proposal
Schedule Impact: This change will add **0** day(s) to the contract completion date.
Overtime: Project OT Not Required
Notes:

By: William Cunniff, Joslin Lesser & Assoc — **Date:** 2/8/16

By: Joseph Pollock, Shawmut Design & Construction — **Date:** 1/28/16

By: Katy Lillich, JCJ Architecture, Inc. — **Date:** 2.8.16

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**008**
DESCRIPTION:	**Add Passage Door at Storege Room A125; Add Light at Storeage Room per RFI #215**
DATE:	**01/28/16**
REFERENCE	**PR #11 & RFI #215**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	Direct Costs	Non-Direct Costs	Total Costs
Galeno Associates	$ 1,690.00	$ 169.00	$ 1,859
Angelini	$ 420.30	$ 123.70	$ 544
LeVangie	$ 1,308.40	$ 298.60	$ 1,607
			$ -
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 3,418.70	$ 591.30	$ 4,010.00

SECTION II - CM MARK-UPS				Total Costs
Subcontract Direct Costs		$	3,418.70	
CM Fee on Direct Costs Only	5.00%	$	171.00	
Subcontract Non-Direct Costs		$	591.30	
				$ 4,181
General Liability Insurance	0.76%	$	32.00	
Builder's Risk	0.18%	$	8.00	
				$ 4,221
Payment and Performance Bond	0.75%	$	32.00	
		TOTAL CHANGE ORDER AMOUNT:		**$ 4,253**

SHAWMUT
Design and Construction

Change Request CR010

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: January 28, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: Add Soffits per RFI 151R1

Item Description	Amount
Add Soffits per RFI 151R1	$4,792
Fee	$188
GL Insurance	$38
Builder's Risk	$9
Bond	$38
Total:	**$5,065**

Type: Lump sum proposal
Schedule Impact: This change will add 0 day(s) to the contract completion date.
Overtime: Project OT Not Required

Notes:
Add soffits in five (5) rooms to accommodate window/.ceiling heights.

By: Katy Lillich, JCJ Architecture, Inc. Date: 2.8.16

By: Joseph Pollock, Shawmut Design & Construction Date: 1/27/16

By: William Cunniff, Joslin Lesser & Assoc Date: 2/8/16

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**010**
DESCRIPTION:	**Add Drywall Soffits per RFI #151R1**
DATE:	**01/11/16**
REFERENCE	**RFI #151R1**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	Direct Costs	Non-Direct Costs	Total Costs
Angelini Plastering, Inc	$ 3,751.66	$ 1,040.34	$ 4,792
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 3,751.66	$ 1,040.34	$ 4,792.00

SECTION II - CM MARK-UPS			Total Costs
Subcontract Direct Costs		$ 3,751.66	
CM Fee on Direct Costs Only	5.00%	$ 188.00	
Subcontract Non-Direct Costs		$ 1,040.34	
			$ 4,980
General Liability Insurance	0.76%	$ 38.00	
Builder's Risk	0.18%	$ 9.00	
			$ 5,027
Payment and Performance Bond	0.75%	$ 38.00	
		TOTAL CHANGE ORDER AMOUNT:	**$ 5,065**

SHAWMUT
Design and Construction

Change Request CR056

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: February 10, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: Guard House Allowance per PR#023

Item Description	Amount
Site Work for Guard House	$42,000
Electric Work for Guard House	$21,903
Concrete Base for Guard House	$7,162
Pre-Fabricated Guard House and Install	$26,890
Fee	$4,898
GL Insurance	$782
Builder's Risk	$185
Bond	$779
Total:	**$104,599**

Type: Lump sum proposal
Schedule Impact: This change will add **0** day(s) to the contract completion date.
Overtime: Project OT Not Required
Notes:

By: Katy Lillich, JCJ Architecture, Inc. Date: 2.10.16

By: Joseph Pollock, Shawmut Design & Construction Date: 2/10/16

By: William Cunniff, Joslin Lesser & Assoc Date: 2/10/16

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**056**
DESCRIPTION:	**Guard Shack Allowance per PR#023**
DATE:	**02/10/16**
REFERENCE	**CR#056 and PR#023**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	**Direct Costs**	**Non-Direct Costs**	**Total Costs**
S+F Concrete	$ 7,162.00		$ 7,162
LeVangie	$ 21,903.00		$ 21,903
J. Derenzo	$ 42,000.00		$ 42,000
Guard House and Install	$ 26,890.00		$ 26,890
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 97,955.00	$ -	$ 97,955.00

SECTION II - CM MARK-UPS				**Total Costs**
Subcontract Direct Costs		$	97,955.00	
CM Fee on Direct Costs Only	5.00%	$	4,898.00	
Subcontract Non-Direct Costs		$	-	
				$ 102,853
General Liability Insurance	0.76%	$	782.00	
Builder's Risk	0.18%	$	185.00	
				$ 103,820
Payment and Performance Bond	0.75%	$	779.00	
		TOTAL CHANGE ORDER AMOUNT:		**$ 104,599**

SHAWMUT
Design and Construction

Change Request CR058

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: February 8, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: Provide an Active Shooter System per PR-22

Item Description	Amount
Provide an Active Shooter System	$102,822
Fee	$4,514
GL Insurance	$816
Builder's Risk	$193
Bond	$813
Total:	**$109,158**

Type: Lump sum proposal
Schedule Impact: This change will add 0 day(s) to the contract completion date.
Overtime: Project OT Not Required

Notes:
Please note that this pricing does not include the Network Switches or POE Switches as they are Owner Supplied.

By: William Cunniff, Joslin Lesser & Assoc — Date: 2/8/16

By: Joseph Pollock, Shawmut Design & Construction — Date: 2/8/16

By: Katy Lillich, JCJ Architecture, Inc. — Date: 2.8.16

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**058**
DESCRIPTION:	**Provide an Active Shooter System per PR-22**
DATE:	**02/08/16**
REFERENCE	**PR-22**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	Direct Costs	Non-Direct Costs	Total Costs
LeVangie Electric	$ 90,270.34	$ 12,551.66	$ 102,822
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 90,270.34	$ 12,551.66	$ 102,822.00

SECTION II - CM MARK-UPS				Total Costs
Subcontract Direct Costs			$ 90,270.34	
CM Fee on Direct Costs Only	5.00%		$ 4,514.00	
Subcontract Non-Direct Costs			$ 12,551.66	
				$ 107,336
General Liability Insurance	0.76%		$ 816.00	
Builder's Risk	0.18%		$ 193.00	
				$ 108,345
Payment and Performance Bond	0.75%		$ 813.00	
		TOTAL CHANGE ORDER AMOUNT:		**$ 109,158**

SHAWMUT
Design and Construction

Change Request CR061

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: February 9, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: Maintenance Building Allowance

Item Description	Amount
Maintenance Building	$234,448
Fee	$10,179
GL Insurance	$1,982
Builder's Risk	$403
Bond	$1,680
Total:	**$248,692**

Type: Lump sum proposal
Schedule Impact: This change will add **0** day(s) to the contract completion date.
Overtime: Project OT Not Required
Notes:

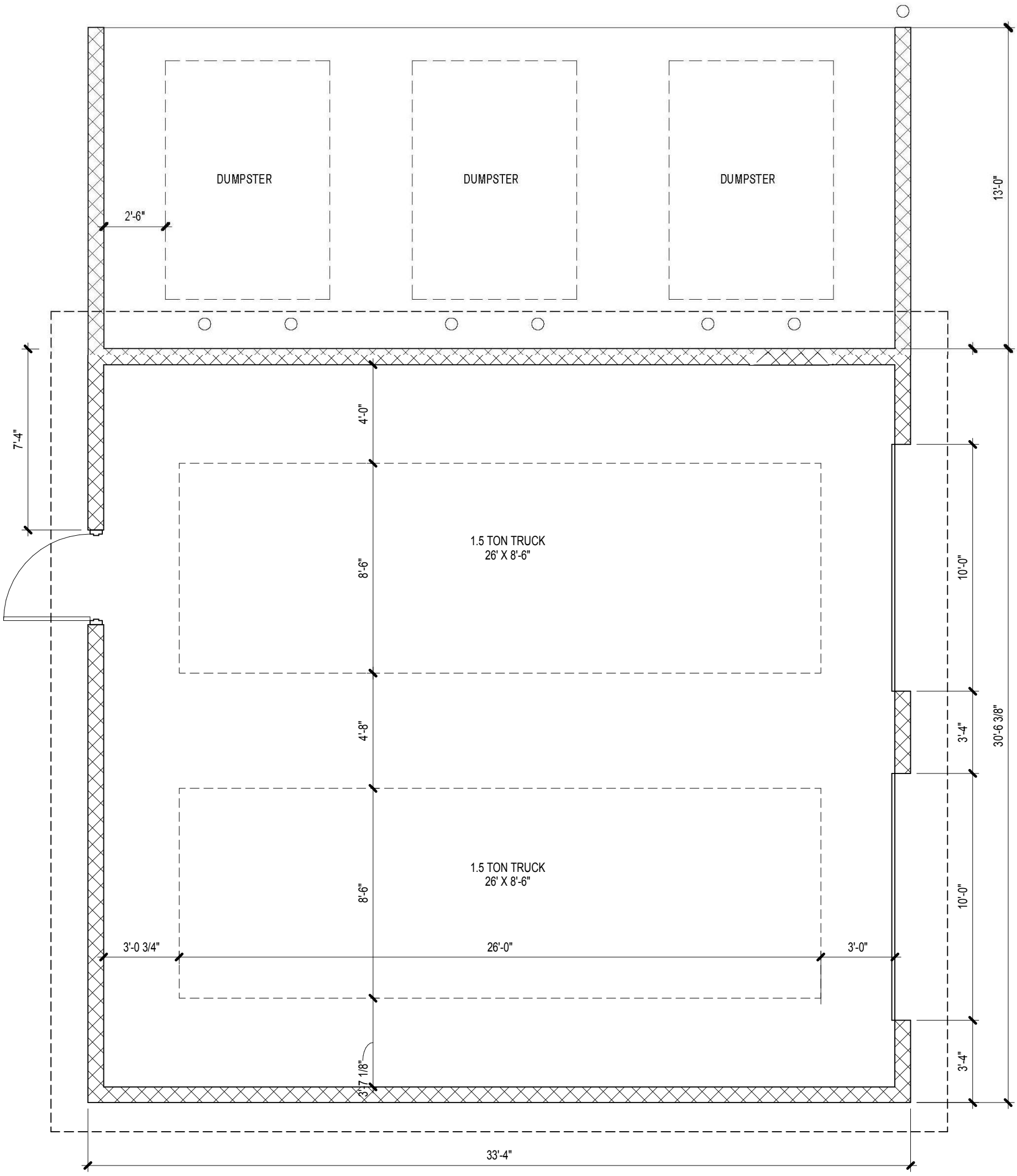
By: William Cunniff, Joslin Lesser & Assoc — **Date:** 2/11/16

By: Joseph Pollock, Shawmut Design & Construction — **Date:** 2/9/16

By: Katy Lillich, JCJ Architecture, Inc. — **Date:** 2.10.16

Maintenance Building - Budget - 3 Options

	Option 1	Option 2	Option 3
Budget	$ 462,038.55	$ 523,935.55	$ 681,338.05
Current Budget in GMP	$ (300,000.00)	$ (300,000.00)	$ (300,000.00)
Net	**$ 162,038.55**	**$ 223,935.55**	**$ 381,338.05**
FEE	$ 7,365.39	$ 10,178.89	$ 17,333.55
General Liabilit	$ 1,231.49	$ 1,701.91	$ 2,898.17
Builders Risk	$ 291.67	$ 403.08	$ 686.41
P&P Bond	$ 1,215.29	$ 1,679.52	$ 2,860.04
Contingency	$ 8,101.93	$ 11,196.78	$ 19,066.90
Total Net Add	**$ 180,244.32**	**$ 249,095.73**	**$ 424,183.11**



1 MAINTENANCE BUILDING - Option 1

1/4" = 1'-0"

JCJARCHITECTURE
38 PROSPECT STREET
HARTFORD, CT 06103
860.247.9226

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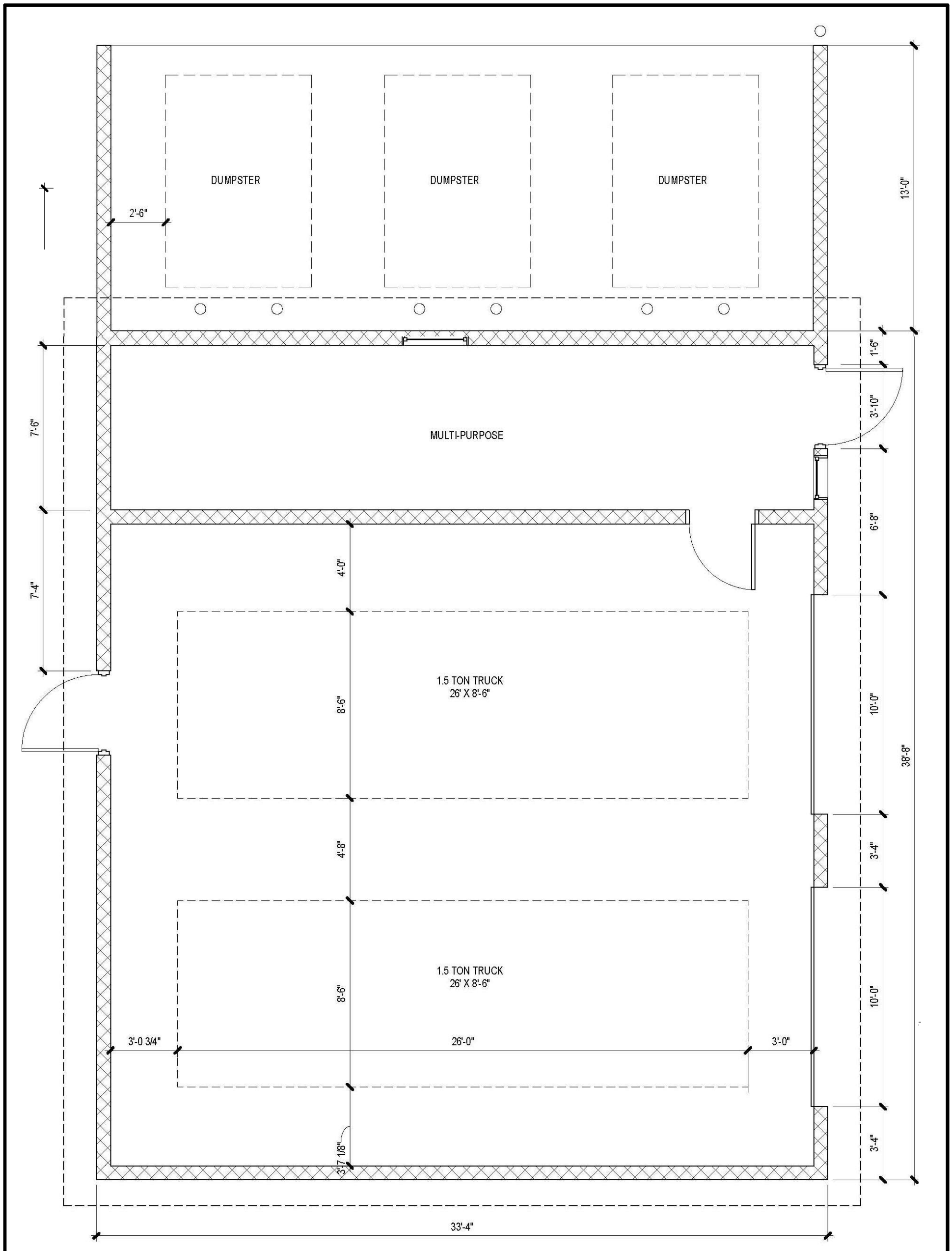
CALEB DUSTIN HUNKING SCHOOL

DRAWING REFERENCE:	MB-1
DATE:	12/28/15
PROJECT:	B13020.01
DRAWN:	KKL
SCALE:	1/4" = 1'-0"

MB-1



1 MAINTENANCE BUILDING - Option 2

1/4" = 1'-0"

JCJARCHITECTURE
38 PROSPECT STREET
HARTFORD, CT 06103
860.247.9226

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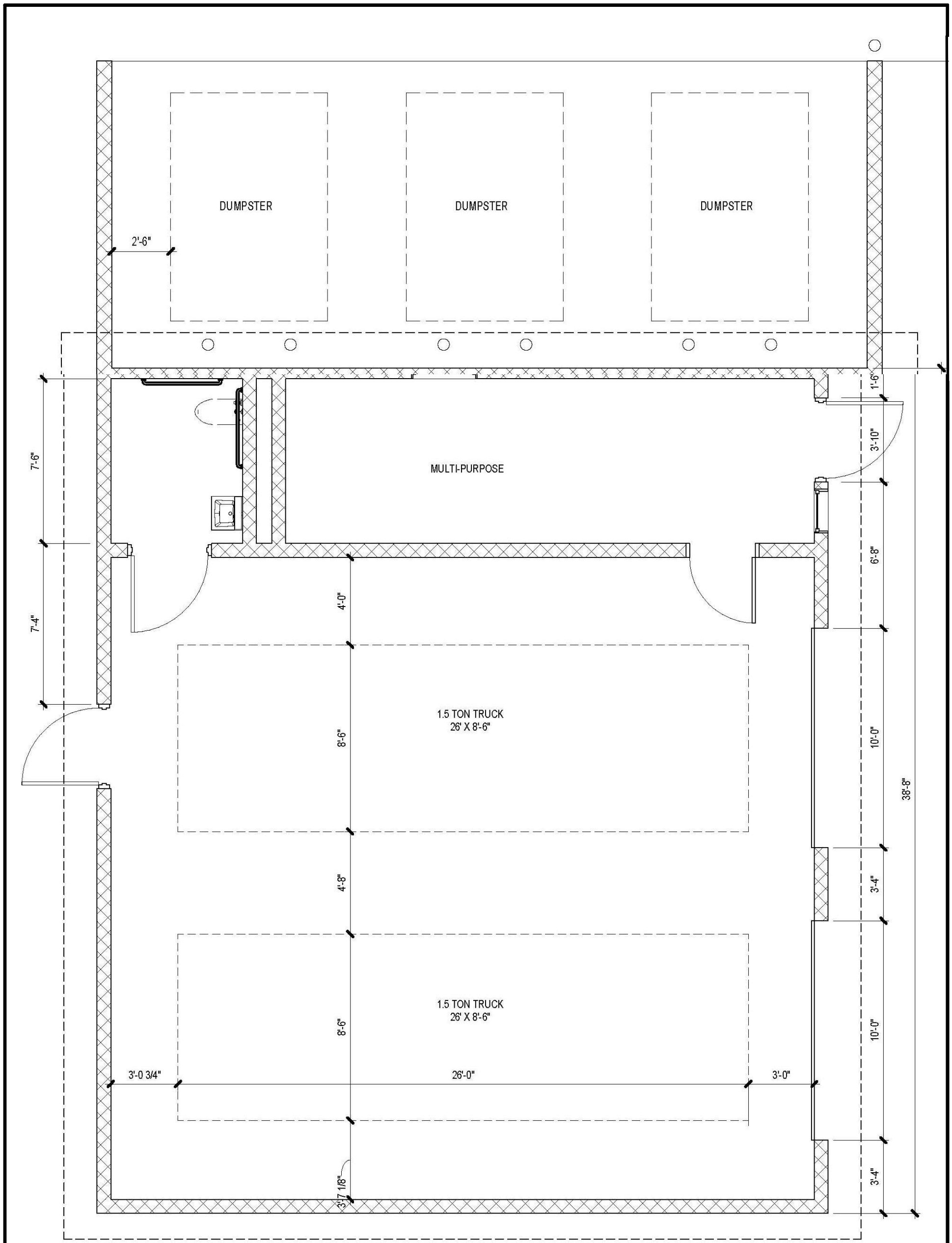
CALEB DUSTIN HUNKING SCHOOL

DRAWING REFERENCE:	MB-2
DATE:	12/28/15
PROJECT:	B13020.01
DRAWN:	KKL
SCALE:	1/4" = 1'-0"

MB-2



1 MAINTENANCE BUILDING - Option 3 A

1/4" = 1'-0"

JCJARCHITECTURE
38 PROSPECT STREET
HARTFORD, CT 06103
860.247.9226

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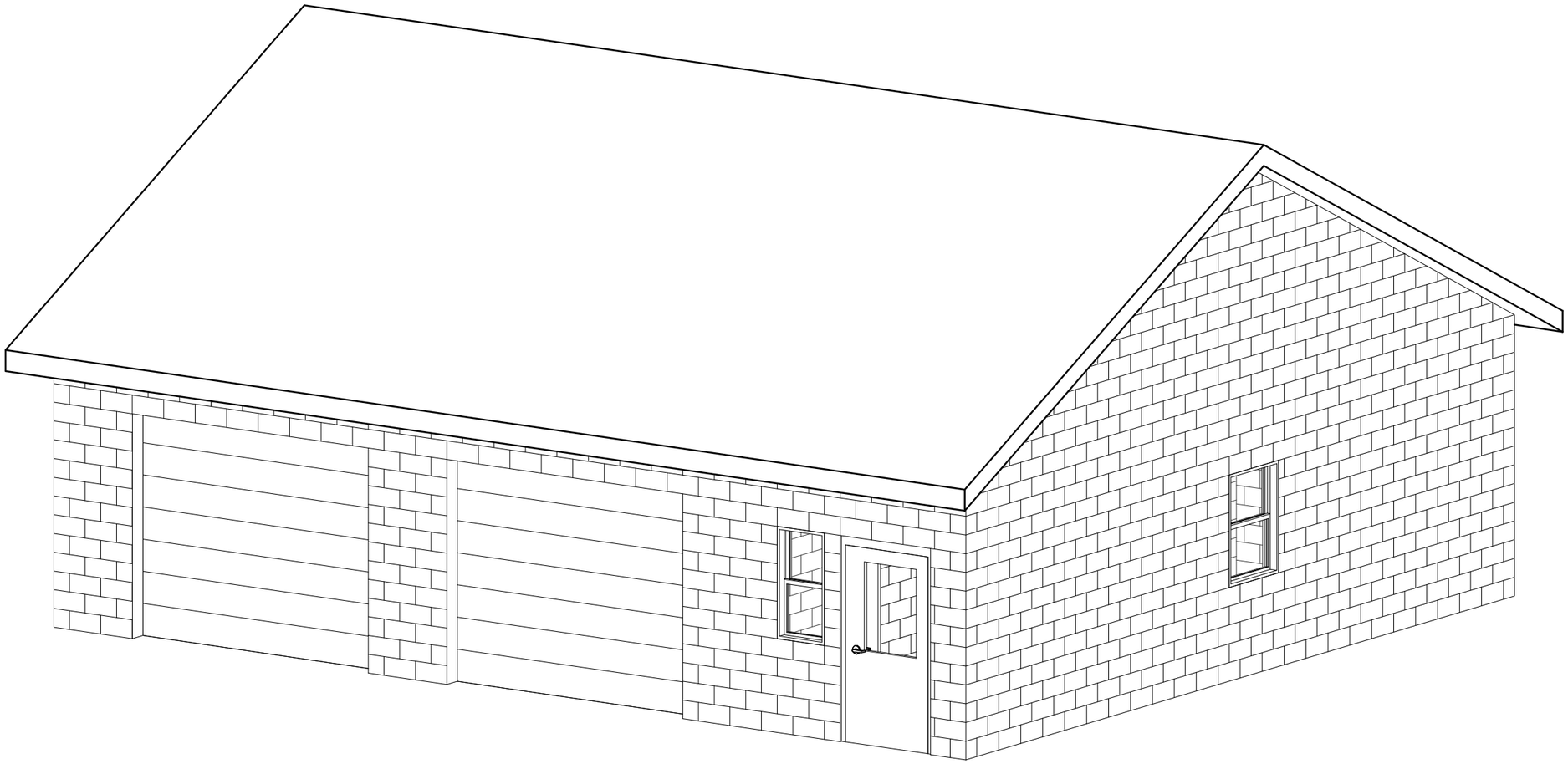
CALEB DUSTIN HUNKING SCHOOL

DRAWING REFERENCE:	MB-3
DATE:	12/28/15
PROJECT:	B13020.01
DRAWN:	KKL
SCALE:	1/4" = 1'-0"

MB-3



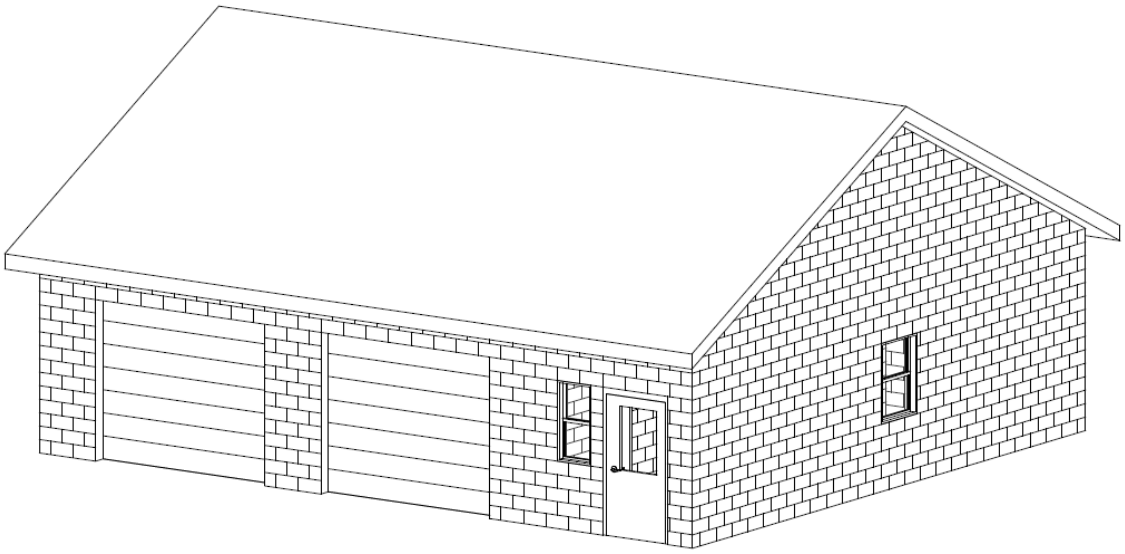
HUNKING SCHOOL

MAINTENANCE BUILDING

PRELIMINARY DESIGN NARRATIVE

JCJARCHITECTURE

September 21, 2015 (Revised January 25, 2016)
JCJ Project Number: B13020.01



Preliminary Axonometric of the proposed Maintenance Building (Option 2 &3, Option 1 Similar)

INTRODUCTION

At the request of the Owner, JCJ has developed this preliminary Design Narrative for the addition of a maintenance building at the Caleb Dustin Hunking School project site. The intent of this document is to describe the Owner's program and the initial design intents for the purpose of developing an order of magnitude cost-estimate. Such an estimate is to be executed by the Owner's Construction Manager, Shawmut Design and Construction.

The Owner is presently considering three (3) possible configurations with the cost of each option a significant determiner as to which option they may elect to proceed with. The Owner's ideal program includes the following elements;

- Storage for two (2) vehicles. Two (2) 1-1/2 ton dump-trucks are presently the largest vehicles the new structure should accommodate.
- A small work area adjacent to vehicular storage
- Storage for small gas or electric powered equipment (i.e. lawnmower, snow blower, etc)
- A single-use unisex toilet room for use by the public

ARCHITECTURAL

The design concept of the new maintenance building is to use the same or similar materials as what's presently included in the School Building. Elements not specifically described in this section will match those of like materials that are part of the school building. This includes such elements as hollow metal doors and frames. The interior of the bathroom shall be the exposed ground-faced cmu block and concrete slab-on-grade floor. Ceiling in bathroom shall be a weather-resistant drywall with lockable access panels as may be required.

ROOF CONSTRUCTION

The roof construction shall consist of pressure treated, prefabricated wood roof trusses spaced 24-inches on center. Steel beams and/or angle will provide structural support over openings in the masonry wall construction. The roof system will consist of a vented, nailable insulated sheathing for the deck, with a self-adhering sheet underlayment for the ridge, eave and rake edges of the roof; and laminated asphalt shingle with a 50 year NDL warranty. A ridge vent will run the length of the roof and perforated vinyl soffit panels will be located on both sides of the structure.

The edge of the roof shall have aluminum gutters and leaders to collect rain water. The leaders shall be connected to an underground piping system to deliver the storm water to the sites storm water collection system.

WALLS

The envelope of the building shall consist of an integrally insulated CMU unit (i.e. NRG insulated block or equivalent, with the face of the unit to match the color and texture of the school building.

The edge trim of the roof eave and rake shall be clad in cellular PVC boards, equivalent to Azek or Versatex.

LAYOUT OPTIONS (Plans at end of Document)

As indicated above, three layout options are under consideration.

- Option #1 is the simplest of the options and the program includes only two garage bays. This option is approximately 1,015 GSF in size. Each of the two other options builds from that baseline.
- Option #2 adds approximately 270 GSF in the form of a separated room to serve multiple functions. 1,285 is the total approximate GSF

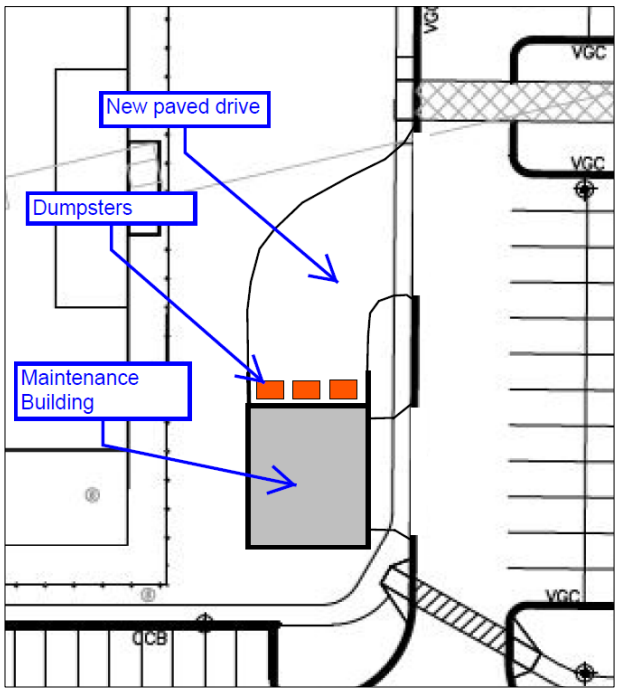
- Option #3 is also 1,285 GSF however; a portion of the multi-use room is dedicated to serve as a toilet room. We note that this configuration assumes that the District will receive a variance from Building Inspectional Services and the Plumbing Inspector in specific for construction of a single uni-sex toilet given the intended, occasional use by maintenance staff. We note the code would otherwise require a toilet for each gender. We further assume the toilet would not be available to the general public.

CIVIL

UTILITIES

Water

(Water service will only be required should the Owner elect Option #3) The water line size and location into the building will be determined by the MEP engineer. The new line will connect to the 8 inch water line on the south side of the school building.



Sewer

(A sewer line will only be required should the Owner elect Option #3) The size and location of the sewer line exiting the structure will be determined by the MEP engineer. The new sewer line service will connect to the 8-inch PVC line proposed for the new school building with a new wye connection.

Gas

If the Owner chooses gas heating a new gas line connection will be necessary. Shawmut shall provide a price for either a gas-fired or electric heating units. If gas is elected, the location of the new gas line connection will be determined by the MEP engineer. The easiest connection would probably come from inside the south side of the school building. Whether by gas or electric, heating of some kind for the toilet room will be required in the case the Owner elects Option #3.

Electric

An underground electric line would likely connect to a service panel inside the south side of the school building..

STORM DRAINAGE

Once the exact size of the building and associated pavement is designed and the amount of new impervious area is determined, calculations can be done to determine if the additional runoff volume can be added to the drainage system for the new school area. If additional infiltration area is needed, a small infiltration system can be designed on the east side of the new maintenance building.

At a minimum, at least one floor drain will be required within the vehicle storage bays to pick up any run-off from the vehicles such as rain or snow. By code an exterior oil-gas separator will be required for all options. Should the Owner elect not to heat the building in the case of Options 1 & 2, then a water-based trap primer for the floor drain will be required. This would require a discussion with the local plumbing inspector for their approval of this approach. It is possible the Inspector may require the Owner to seek a variance from the Plumbing Board on this issue. A Zurn TG33 & Z-415 or similar product shall be included in this cost estimate.

SITE IMPROVEMENTS

Pavement

A curb cut would be installed to accommodate a bituminous concrete driveway for two garage doors. Additional pavement is proposed to the west of the new to accommodate a new dumpster pad enclosure area. (See plan above for approximate scope)

Sidewalks

Additional sidewalks connecting the structure to the proposed sidewalk network will be required.

Dumpster Enclosure

Two wing walls (As shown in the site plan) shall be provided as a dumpster enclosure area

STRUCTURAL

SUBSTRUCTURE

Foundations

Based on the foundations of the existing and newly constructed nearby structures reinforced masonry structural walls would bear on cast in place reinforced concrete strip footings extending at least 4'-0" below grade. The exterior foundation walls would be 14" to 16" thick, reinforced cast-in-place concrete walls on 24" to 36" wide continuous reinforced concrete strip footings around the perimeter of the building extending a minimum of 4'-0" below finished grade. Exterior columns would be supported on concrete piers and 5'-0"x5'-0" spread footings extending a minimum of 4'-0" below finished grade.

Slabs-On-Grade

Based on the existing school construction, the lowest level of the proposed building would be a 5" thick air-entrained concrete slab on grade reinforced with welded wire fabric over a vapor barrier on 2" thick rigid insulation on 8" of compacted granular structural fill and a base course of 12" of compacted gravel.

SUPERSTRUCTURE

ROOF CONSTRUCTION

Typical Roof Construction

The roof construction would be 5/8" thick plywood roof deck spanning between prefabricated wood trusses spaced at 2'-0" on center. Steel beams would be over openings and at mechanical equipment support. Steel beams would be supported on steel columns.

VERTICAL FRAMING ELEMENTS

Walls

Walls will be reinforced masonry walls with continuous horizontal reinforced and solid grouted bond beams at 4'-0" on center. Main vertical reinforcing will be #8 bars at 36" on center, with additional detailing reinforcing around openings.

Interior masonry partition walls would be clipped to the roof structure.

Columns

Columns will be hollow structural steel columns. Typical columns would be HSS 8 x 8 columns.

Lateral Load-Resisting System

The lateral load resisting system would be comprised of reinforced masonry shear walls.

MECHANICAL

Only Option #3 is assumed to require heating. Utilizing Electric heating for this building would have a much higher operational cost than gas-heating. Therefore in terms of operating efficiency we would recommend gas heating.

Based on an assumption that extending the gas line to the building is possible, the proposed HVAC system would be as follows:

- Provide (2) Gas fired ceiling suspended horizontal type unit heaters for the Vehicle Bays; including concentric flue and intake vents through the building roof and associated gas piping and controls.

- Provide (1) Gas fired ceiling suspended horizontal type unit heaters for the Multi-Purpose Room; including concentric flue and intake vents through the building roof and associated gas piping and controls.
- Provide an electric wall mounted convector heater for the Restroom.
- Provide general exhaust sidewall propeller type exhaust air fan for the vehicle bays and a wall mounted intake louver and damper assembly with associated fan switch and thermostat control.
- Provide ceiling type exhaust air fan for the restroom.
- Provide general exhaust ventilation fan system for the multi-purpose room.

ELECTRICAL

Assume that all elements described will be the same as those items specified for the main building.

Power

- General purpose receptacles (including in bathroom)
- Wiremold power along interior of East wall and above counter in multi-purpose room
- Dedicated power for any special equipment (TBD by Owner)
- Roll-up doors to be powered

Lighting

- LED vapor tight fixtures. (Interior)
- Exterior lighting to match main building (Assume lighting on all four sides)

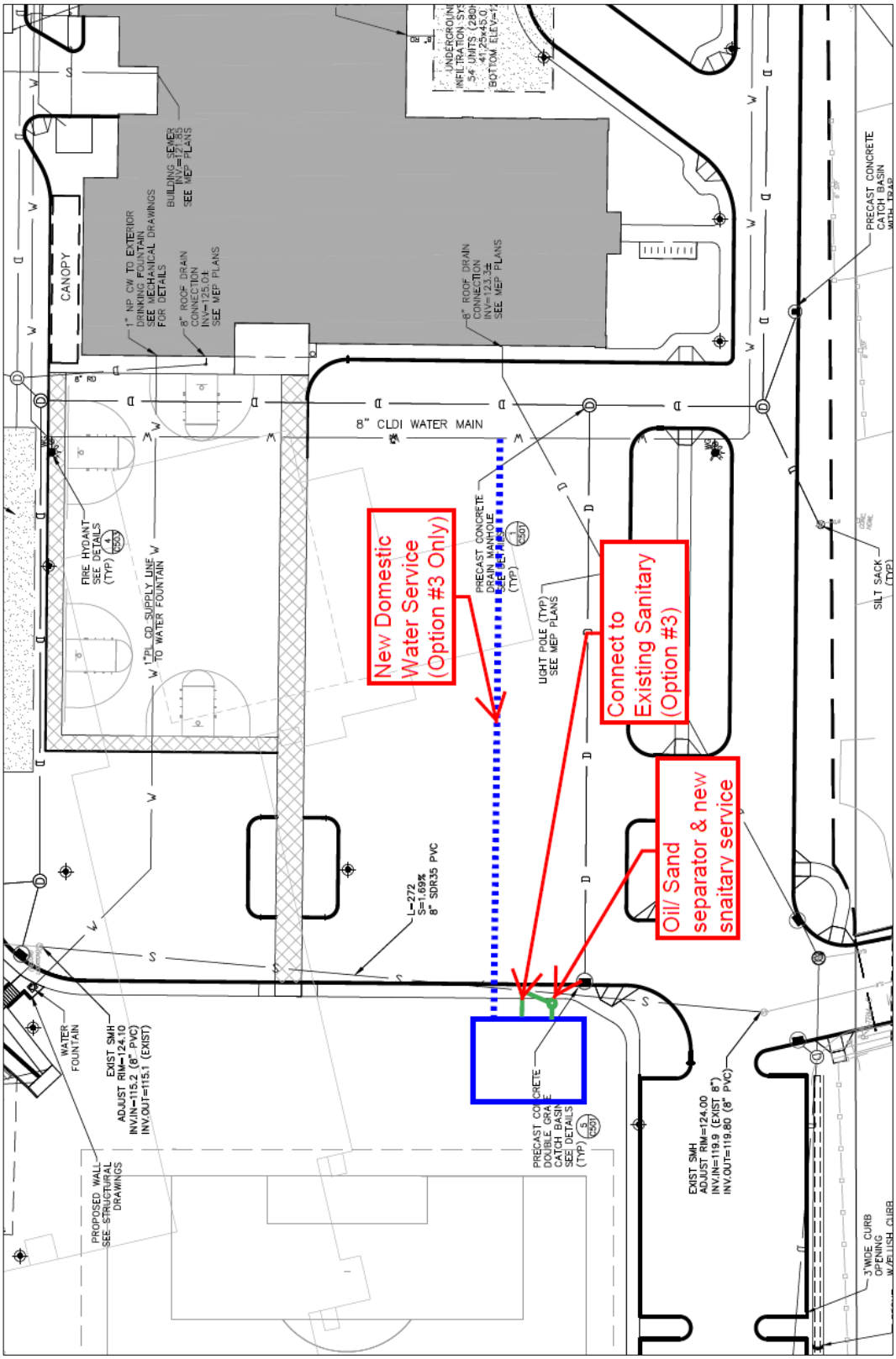
Heating

- If the heating source is gas then a 100Ampere 120/208V 3phase service will be fine. If the heat source electric a 200 or 250Ampere service may be needed.

PLUMBING

Plumbing for a bathroom is only required should Option #3 is elected by the owner.

- Assuming we'll be providing a new water service to this building.
- Floor drains in the building which will be connected to an exterior gas/sand separator (similar to A125H Storage room design.) That interceptor needs to be connected to the sanitary system.
- We assume to connect new sanitary to the existing sanitary main that cuts through the site.
- The drains in the building will need trap primers.
- If gas service to the building is desired by the owner, we'll have to investigate to see if the gas company is willing to extend the school service and set a meter at the outbuilding. Shawmut may wish to show this option as an alternate cost.



Plumbing Scope Notations

TECHNOLOGY

Assume a budget of $10K to $12K which would include:

- A controller/panel and access control
- Access control on the people door
- Two (2) security cameras inside
- Two (2) security cameras outside

End of Design Narrative

SHAWMUT
Design and Construction

Change Request CR070

To: William Cunniff
Joslin Lesser & Assoc
44 Pleasant Street
Watertown, MA 02472

Date: February 8, 2016
Project #: 131411
Project: MSBA - Haverhill Caleb Dustin MS

Description: Adaptable Technology Infrastructure

Item Description	Amount
Adaptable Technology Infrastructure	$83,316
Fee	$3,341
GL Insurance	$659
Builder's Risk	$156
Bond	$656
Total:	**$88,128**

Type: Lump sum proposal
Schedule Impact: This change will add 0 day(s) to the contract completion date.
Overtime: Project OT Not Required
Notes:

K Lillich — 2.10.16
By: Katy Lillich, JCJ Architecture, Inc. **Date:**

JPL — 2/8/16
By: Joseph Pollock, Shawmut Design & Construction **Date:**

2/10/16
By: William Cunniff, Joslin Lesser & Assoc **Date:**

CONSTRUCTION MANAGER CHANGE ORDER SUMMARY SHEET

PROJECT#:	**131411 - Hunking School**
CR#:	**070**
DESCRIPTION:	**Adaptable Technology Infrastructure**
DATE:	**02/08/16**
REFERENCE	**Adaptable Technology Infrastructure**
CONSTRUCTION MANAGER:	**Shawmut Design and Construction**

SECTION I - SUBCONTRACTORS	Direct Costs	Non-Direct Costs	Total Costs
LeVangie Electric	$ 66,826.74	$ 16,489.26	$ 83,316
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
			$ -
TOTALS	$ 66,826.74	$ 16,489.26	$ 83,316.00

SECTION II - CM MARK-UPS				Total Costs
Subcontract Direct Costs			$ 66,826.74	
CM Fee on Direct Costs Only	5.00%		$ 3,341.00	
Subcontract Non-Direct Costs			$ 16,489.26	
				$ 86,657
General Liability Insurance	0.76%		$ 659.00	
Builder's Risk	0.18%		$ 156.00	
				$ 87,472
Payment and Performance Bond	0.75%		$ 656.00	
		TOTAL CHANGE ORDER AMOUNT:		**$ 88,128**