# School District No. 8 (Kootenay Lake) 2012/2013 Capital Plan October 22, 2012

CP-2 Five Year Capital Plan Summary	(Page 2)
CP-1 Proposed Projects with a High Ranking 1. New Trafalgar Elementary/Middle School	(Pages 3-6)
<ol><li>Boiler Upgrades at 5 Sites: ARES, WEG, LVR, MSSS, Central</li></ol>	(Pages 7-15)
3. Hume Elementary Mechanical System Upgrade	(Pages 16-25)
4. JV Humphries Mechanical System Upgrade	(Pages 26-35)
5. Replacement of 4-72 Passenger Buses	(Pages 36-45)
CP-3 Summary of Capacities & Projected Enrolment	(Pages 46-53)
Project Identification Report – Trafalgar Middle School (note: Updated Appendix C and Appendix L)	(Page 54)

Priority No.

2

3

5

116036

116419

116072

116418

116417

#### CP2 - Five Year Capital Plan Summary

22 OCT 2012 14:10:23 kim morris (PRD01)

Version: rder0320.05

School	District:	ΛR	Koc
SCHOOL	DISTRICT.	υo	NOC

Reference No.

100

153

150

152

207

**Existing Project School District** 

otenay Lake

SCHOOL

MECHUP - VARIOUS FACILITIES

Project Title

REPLACE - TRAFALGAR MIDDLE SCHOOL REPLACE EXISTING TRAFALGAR ELEMENTARY/MIDDLE

MECHUP - J V HUMPHRIES ELEM -SECONDARY JV HUMPHRIES ELEM-SECONDARY MECHANICAL UPGRADE

REPLACE 4-72 PASSENGER BUSES (2089, 2080, 1082, 1083)

BOILER UPGRADE PROGRAM - VARIOUS SITES

MECHUP - HUME ELEMENTARY SCHOOL

HUME MECHANICAL SYSTEM UPGRADE

BUSREP - REPLACEMENT SCHOOL BUS

Capital Plan Yo

\$0

\$0

\$0

\$434,520

\$1,525,000

Year

One

/ear: 2012/2013		Capital Plan Su	22- OCT- 2012	
Year Two	Year Three	Year Four	Year Five	Total Funding
\$0	\$26,552,231	\$0	\$0	\$26,552,231
\$0	\$0	\$0	\$0	\$1,525,000
\$1,425,000	\$0	\$0	\$0	\$1,425,000
\$500,000	\$0	\$0	\$0	\$500,000
\$0	\$0	\$0	\$0	\$434,520

Total:

\$1,959,520	\$1,925,000	\$26,552,231	\$0	\$0	\$30,436,751

37. Planning Costs in Planning Phase:

Total Esitmated Budget:

765,621

38. In Completion Phase:

#### **Capital Project Request Form**

RDER0310 V.4.06

'kim morris' (PRD01)

Project No: 116036

09 OCT 2012 12:10:35

Hidden: District Priority:

District Ranking:

High

Request Type: Update Ministry Priority: HIGH Part A - Project Identification 1. Capital Plan Year: 2012/2013 2. SD Ref. No.: 100 3. Last Modified: Oct. 9, 2012 4. Submitted On: unsubmitted

5. SD No.: 08	6. SD	Name	Kootenay Lake	7. Municipality:	NELSON	8. Asset No.: 100246
9. Facility No.: 07	7005	10. Facility Name:	TRAFALGAR M	IDDLE SCHOOL	Facility Type:	
13. Proj. Cd. REPL	ACE	14. Project Descrip	otion: KISTING TRAFALGAR ELEMENT	ARY/MIDDLE	11. Current:	Junior Middle School
15. Proj. Type: MAJ0	12. Proposed	∃lementary-Secondary Sch				
Part B - Capacity	, Area Fa	actors and Allowa	nces			
Nominal Capacity:		Kind	ergarten Grades 1 - 7 G	Grades 8 - 12 7.	Grade Configuration	
1. Actual Existing:			0 375	200	6-8	
2. Capcity Adjustme	ents:		0 125	-50		
3. Proposed Higher	r Priority	Additions:	0 0	0		
4. Total Existing:		[	0 500	150		
<ol><li>Proposed Addition</li></ol>	on:		0 0	0		
6. Proposed Total (	Capcity:		0 500	150 8.	K-8	
Site Area (ha):		A	Allowable BuildIng Area (sq.m.)	Allov	vable Renovation Area (s	sq.m.)
9. Required Size:		0.0	2. Total Allowable Area: 6	942.0 16.	Renovations Associated	5.5
10. Existing Area:		0.0	3. Existing Area:	0.0	With Additions (%):	
11. Total New Aera	a:	0.0	4. Area to be demolished:	0.0	Renovation Area:	0.00
			5. Area of New Space: 6	942.0 18. F	Renovation Unit Rate	0
Construction Cost	Factors:				Equipment Allo	wance (%):
19. Base Unit Rate	:	1785.00 20. Ai	r Conditioning: 0 L	FA: 0.00 MF: 1	.00 24. New Space	e: 17.3
21. Project Size Fa	ctor:	0.981 22. Lo	ocation Factor: 1.15 2	3.Ground Factor:	1.00 25. Freight All	owance: 8.609
Part C - Estimated	Budget					
Part C - Estimated	Budget					Subtotal
Part C - Estimated  Site Acquisition:	Budget	1. Purcha	se: 0	2. Other Cost: 1	86,701	Subtotal 3. 186,701
Site Acquisition:		1. Purcha		2. Other Cost: 1	86,701	
Site Acquisition:		1. Purcha	ges: 0	2. Other Cost: 1	86,701	
Site Acquisition:	4. Deve	1. Purcha	ges: 0			3. 186,701
Site Acquisition:	4. Deve	1. Purcha lopment Cost Charç 5. Offsite Cos	ges: 0 sts: 0 ent: 1,171,058 466,			
Site Acquisition:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme	ges: 0   sts: 0   ent: 1,171,058   466,	000 New Building o	on Existing Site	3. 186,701
Site Acquisition: Site Development:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S	ges: 0   sts: 0   ent: 1,171,058   466,000   eta: 6,942.0   Renovati	000 New Building o	on Existing Site	3. 186,701
Site Acquisition: Site Development:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Cos sted Site Developme 7. Supplementary S 9. New Ard	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovation te: 2,588.5157	New Building o	on Existing Site  Area: 0.00 ate: 0	3. 186,701
Site Acquisition: Site Development:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Ard	ges: 0	000 New Building oons: 13. Renovation A	on Existing Site  Area: 0.00  ate: 0  total: 0	3. 186,701
Site Acquisition: Site Development:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subto	ges: 0	New Building ons:  13. Renovation A  14. Renovation Unit R	Area: 0.00 late: 0 lotal: 0 losts: 0	3. 186,701
Site Acquisition: Site Development:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subto	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati te: 2,588.5157 tal: 17,969,476 eng: 0	New Building of the property o	Area: 0.00 ate: 0 total: 0 tots: 0 tots: 0	3. 186,701
Site Acquisition: Site Development:  New Construction:	4. Deve	1. Purcha lopment Cost Charg 5. Offsite Cost sted Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subtoo	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati te: 2,588.5157 tal: 17,969,476 eg: 0	New Building of Sensor 13. Renovation A  14. Renovation Unit R  15. Subtle 16. Supplementary Construction 17. Other Construction Constr	Area: 0.00 ate: 0 total: 0 tots: 0 tots: 0	3. 186,701 8. 1,171,058
Site Acquisition: Site Development:  New Construction:	4. Deve 6. Adjus 1 12. Si	1. Purcha lopment Cost Charg 5. Offsite Cost sted Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subtot upplementary Buildin 18. Build Total	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati te: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476 eng: 10.176 21. New A	New Building of the Supplementary Construction And Supplementary Construction And Supplementary Construction And Area Supplementary Construction And Area Supplementary Construction And S	Area: 0.00 Late: 0 Lotal: 0 Lots: 0 Lots: 0 Lots: 0 Lots: 0 Lots: 0 Lots: 0	3. 186,701 8. 1,171,058
Site Acquisition: Site Development:  New Construction:  Building Costs:  Equipment Allowan New Fee Re	4. Deve 6. Adjus 1 12. So ce: E	1. Purcha lopment Cost Charg 5. Offsite Cost sted Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subtot upplementary Buildin 18. Build Total	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati te: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476 c. % 10.176 21. New Antitled to Equipment Replacement	New Building of Supplementary Constant Processing Constant Process	Area: 0.00 ate: 0 total: 0 total: 0 total: 0 total: 0 Allowance 249,224 0	3. 186,701 8. 1,171,058 20. 17,969,476
Site Acquisition: Site Development:  New Construction:  Building Costs:  Equipment Allowan  New Fee Re 0.0927	4. Deve 6. Adjus 1 12. Se 12. Se 10. Fee 1.1600	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Ard 10. Adjusted Unit Ra 11. Subtof upplementary Buildin 18. Build Total ffective Equip. Allow 22. Area En	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati tte: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476  1. % 10.176 21. New A entitled to Equipment Replacement 23. Eq	000 New Building of 13. Renovation A 14. Renovation Unit R 15. Subtraction 16. Supplementary Control 17. Other Control 19. Reno Control 19. Re	Area: 0.00 Late: 0 Lotal: 0 Lots: 0 Lots: 0 Lots: 0 Lots: 0 Allowance 249,224 0 Lot: 21,456	3. 186,701 8. 1,171,058 20. 17,969,476
Site Acquisition:  Site Development:  New Construction:  Building Costs:  Equipment Allowan  New Fee Re 0.0927 Construction:	4. Deve 6. Adjus 1 12. Se 12. Se 10. Fee 1.1600	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Art 10. Adjusted Unit Ra 11. Subtot upplementary Buildit 18. Build Total: ffective Equip. Allow 22. Area Er	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovati te: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476 entitled to Equipment Replacement 23. Eq	000 New Building of 13. Renovation Area  14. Renovation Unit R 15. Subt 16. Supplementary C 17. Other C 19. Reno ( Area  1,372.00  0.00  uipment Freight Allowance 27. Renovat	Area: 0.00 ate: 0 oosts: 0 costs: 0 Allowance 249,224 0 e: 21,456 cion: 0	3. 186,701  8. 1,171,058  20. 17,969,476  24. 270,680  28. 1,774,327
Site Acquisition: Site Development:  New Construction:  Building Costs:  Equipment Allowan  New Fee Re 0.0927 Contingency:	4. Deve 6. Adjus 1 12. St 13. St 14. Deve	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developmentary S 9. New Ard 10. Adjusted Unit Ra 11. Subtoo upplementary Buildin 18. Build Total ffective Equip. Allow 22. Area En	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovation te: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476 entitled to Equipment Replacement 23. Equiv.: 1,665,770 ex: 574,216	000 New Building of 13. Renovation A 14. Renovation Unit R 15. Subtraction 16. Supplementary Control 17. Other Control 19. Reno Control 19. Re	Area: 0.00 ate: 0 oosts: 0 costs: 0 Allowance 249,224 0 e: 21,456 cion: 0	3. 186,701 8. 1,171,058 20. 17,969,476
Site Acquisition: Site Development:  New Construction:  Building Costs:  Equipment Allowan  New Fee Re 0.0927 Contingency:	4. Deve 6. Adjus 12. St 12. St 10. Ce: E 10. 1600 V.: 1	1. Purcha lopment Cost Charg 5. Offsite Costed Site Developme 7. Supplementary S 9. New Art 10. Adjusted Unit Ra 11. Subtot upplementary Buildit 18. Build Total: ffective Equip. Allow 22. Area Er	ges: 0 sts: 0 ent: 1,171,058 466, ite: 0 ea: 6,942.0 Renovation te: 2,588.5157 tal: 17,969,476 eng: 0 17,969,476 entitled to Equipment Replacement 23. Equiv.: 1,665,770 ex: 574,216	000 New Building of 13. Renovation Area  14. Renovation Unit R 15. Subt 16. Supplementary C 17. Other C 19. Reno ( Area  1,372.00  0.00  uipment Freight Allowance 27. Renovat	Area: 0.00 ate: 0 total: 0 total: 0 total: 0 total: 0 Allowance 249,224 0 e: 21,456 tion: 0	3. 186,701  8. 1,171,058  20. 17,969,476  24. 270,680  28. 1,774,327

39. 26,552,231

Project No.	Project Title	AD MIDDLE 00110			Capital Plan Year SD No. SD	
16036	REPLACE - TRAFALGA	AR MIDDLE SCHO	OCL		2012/2013 08	100
art D - Schedule	and Funding		·			
Project Cost Sched	tule:	Site	Planning	Completion		
	1. Year:	2014/2015	2014/2015	2014/2015	]	
	2. Cost:	186,701	765,621	25,599,909		
Funding Source:	3. Bylaw Capital:	186,701	765,621	25,599,909		
	4. Capital Reserve:	0	0	0	]	
	5. Land Reserve:	0		0		
	6. Local Capital:	0	0	0		
art E - Approved	Funding					
Dhara Otal	4.01.1					
Phase Status:	1. Status:	Requested	Requested	Requested		
Approved:	2. Bylaw Capital:	0	0	0		
	<ol><li>Capital Reserve:</li></ol>	0	0	0		
	4. Land Reserve:	0		0		
	5. Local Capital:	0	0	0		
Variance:	6. Variance	186,701	765,621	25,599,909	]	
Net Request:	7. Bylaw Capital:	186,701	765,621	25,599,909	]	
<del></del> -	8. Capital Reserve:	0	0	0	]	
	9. Land Reserve:	0	0	0	]	
	10 Land Carital	0	0	0	]	
	10. Local Capital:				<del>-</del>	

## Design Aid Sheet For Middle/Secondary Schools

RDER0311.05.RDF

Capital Plan Year: 2012/2013

Project No.: 116036

Project Title: REPLACE - TRAFALGAR MIDDLE SCHOOL

SD Ref. No.: 100 SD No.

80

SD Name Kootenay Lake

SCHOOL

Facility No.: 07005
Facility Name: TRAFALGAR MIDDLE

Prop. H Total Ex Propose 'kim morris' (PRD01)

Nominal Capacity:	Kindergarten	Grades 1-7	Grades 8-12	Grade Config
Actual Existing:	0	375	200	6-8
Capacity Adjustments:	0	125	-50	
Prop. Higher Priority Addn.:	0	0	0	
Total Existing:	0	500	150	
Proposed Addition:	0	0	0	
Proposed Total Capacity:	0	500	150	K-8

Allowance: Existing Proposed Differences 1.00 Elective Modules: 1.00 0.00 Total Modules: 27.00 27.00 0.00 Instr. Space: 2500.00 2500.00 0.00

Space		A-EX	ISTING			B-M	ODULES	C-I	NEW CO	DRE			D-NE	W ELEC			
Function	Description	Roo m	No. of Std Rooms Area		Mods.	Core	Surplus/ (Deficit)	Description	No. of Rooms	Std. / Area		Mods.	Description	No. of Rooms	Std. Area	Actual Area	Mods
Business Education						1	(1.00)	Business Education	1	100	100	1.00					
Fine Arts						1	(1.00)	Music	1	160	160	1.00	Drama and Theatre	1	120	120	1.00
Home Economics						1	(1.00)	Combined Clothing/	= 1	140	140	1.00					
Industrial Education						1	(1.00)	General Shop	1	155	155	1.00					
Science						1	(1.00)	Science	1	100	100	1.00					
Other										<u> </u>							
General Instruction	Other Rooms		80	0	0.00	E 20 S 1	(21.00)	General Instruction	21	80	1680	21.00					
Subtotal				0.00	0.00		(26.00)			2	335.00	26.00			_1	20.00	1.00

Project No.: 116036 Project Title: REPLACE - TRAFALGAR MIDDLE SCHOOL Capital Plan Year: 2012/2013 SD No.: 08 SD Ref. No. 100 Part Two - Service/Activity Part Four - Comments SPACE FUNCTION E-EXISTING F-ALLOWABLE G-DEFICIT H-NEW Other - DAS Admin/Health 0.00 190.00 190.00 190.00 Part Two - Other of 1,212 is Counselling 0.00 50.00 50.00 50.00 2 x Kindergarten @ (90 s.m. + 20 s.m. design space) Strong Start @ (90 s.m. + 20 s.m. design space) General Storage 0.00 90.00 90.00 90.00 Neighbourhood Learning Centre at 15% of 5880 x.m. = 882 s.m. Gym Activity 0.00 600.00 600.00 600.00 Gym Ancillary 0.00 150.00 150.00 150.00 Media/Tech Centre 0.00 320.00 320.00 320.00 Multi-Purpose 0.00 160.00 160.00 160.00 Special Education 0.00 320.00 320.00 320.00 Mechanical 0.00 170.00 170.00 170.00 Other - DAS Design Space 0.00 1225.00 1225.00 1225.00 Kindergarten Nominal Capacity for the new school = 40 Industrial Ed. Mezz./Stor. 0.00 0.00 0.00 0.00 Strong Start Centre 0.00 90.00 90.00 0.00 Other 0.00 0.00 0.00 1212.00 SUBTOTAL 0 3365.00 3365.00 4487.00 Part Three - Total Areas N-EXISTING P-NEW Existing A/V 0.00 Core A/V Additions 2335.00 Elective A/V Additions 120.00 0.00 4487.00 Service / Activity 0.00 Subtotal 6942.00 Total Gross Allowable Area 6942.00

. 41 - 180국 3. . . 19 . 1월

## Capital Project Request Form

RDER0310 V.4.06

'kim morris' (PRD01)

Total Esitmated Budget:

Project No: N/A

Request Type: New

No

Hidden: District Priority: District Ranking: Ministry Priority: High 2

- 위 : - [1922년 - 1 월 1 명]

09 OCT 2012 12:10:39

		110,000110: 11//1	request type.	. INCW	IVIII II S	try Friority.
Part A - Project Identifica	tion					
1. Capital Plan Year: 2012	/2013 2. SD Ref. No	.: 153	3. Last Modified:	Oct. 9, 2012	4. Submitted	On: unsubmitted
5. SD No.: 08 6. SD	) Name	Kootenay Lake	7. Municipality:	NEL	SON	8. Asset No.:
9. Facility No.:	10. Facility Name:		N/A		Facility Type:	
13. Proj. Cd. MECHUP	<ol> <li>Project Description BOILER UPGRA</li> </ol>	n: .DE PROGRAM - VARIOUS	SITES		11. Current:	
15. Proj. Type: MAJOR					12. Proposed:	
Part B - Capacity, Area I	actors and Allowance	es				
Nominal Capacity:	Kinderg	arten Grades 1 - 7	Grades 8 - 12	7. Grade C	onfiguration	
1. Actual Existing:		0 0	0	U	oninguration	
2. Capcity Adjustments:		0 0	0			
3. Proposed Higher Priority	y Additions:	0 0	0			
4. Total Existing:		0 0	0			
5. Proposed Addition:		0 0	0			
6. Proposed Total Capcity:		0 0	0	8. U		
Site Area (ha):	Allov	wable BuildIng Area (sq.m.)	_	Allowable Ren	novation Area (sq	ı. <b>m</b> .)
9. Required Size:	0.0 12.	Total Allowable Area:	0.0		ons Associated	
10. Existing Area:	0.0 13.	Existing Area:	0.0	With Addit		
11. Total New Aera:	0.0	Area to be demolished:	0.0	17. Renovatio		0.00
	15	Area of New Space:	0.0	18. Renovatio	n Unit Rate	0
Construction Cost Factors	:				Equipment Allow	rance (%):
19. Base Unit Rate:	0 20. Air C	onditioning: 0	] LFA: 0.00 M	F: 1.00	24. New Space	: 0.0
21. Project Size Factor:	1.000 22. Locat	ion Factor: 1.15	23.Ground Factor:	1.00	25. Freight Allo	wance: 8.609
Part C - Estimated Budge	t					
						Subtotal
Site Acquisition:	1. Purchase:	0	2. Other Cost:	0	_ · ;	3. 0
Site Development: 4. Dev	elopment Cost Charges	0				
	5. Offsite Costs:	0				
6. Adju	usted Site Development:	0	0 None		8.	. 0
	7. Supplementary Site:	0				
New Construction:	9. New Area:	0.0 Renov	vations: 13. Renovat	tion Area:	0.00	
	10. Adjusted Unit Rate:		14. Renovation U	Init Rate:	0	
	11. Subtotal:	0		Subtotal:	0	
12. §	Supplementary Building:	0	16. Supplementa	-	0	-
Dellalla a Octobr	40 D 71 T			er Costs:	0	
Building Costs:	18. Build Total:	0		eno Cost:		20. 0
Equipment Allowance:		21. Ne	Area w Area: 0.00	All	owance 0	
	22. Area Entitle	ed to Equipment Replaceme			0	
New Fee         Reno Fee           0.0000         0.1600			Equipment Freight Allov	vance:		24. 0
Fees: 25. Site Dev.:	0 26. New:	0	27. Rer	novation:	0	28. 0
Contingency:	29. New:	0		enovation:		31. 0
Other: 32.	oiler Upgrades at LV Ro	gers Sec, Mt Sentinet Sec,	Adam Robertson, Centr	al, WE Grahan	n	33. 1,525,000
Phases: 34. Site:	0 35. Plan:	0	36.00	ompletion:	1,525,000	
	Costs in Planning Phase:	0	38. In Completi	-	0	

39. 1,525,000

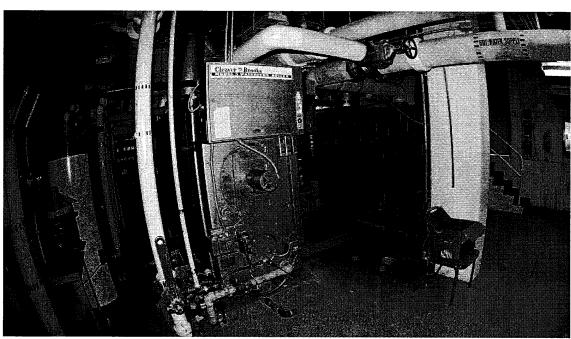
Project No.	Project Title			C	apital Plan Year SD 2012/2013 0	No. SD Ref. No. 8 153
Part D - Schedule	and Funding					
Project Cost Sched Funding Source:	1. Year: 2. Cost: 3. Bylaw Capital: 4. Capital Reserve: 5. Land Reserve: 6. Local Capital:	Site  2012/2013  0  0  0  0  0  0	Planning  2014/2015  0  0  0  0	Completion  2012/2013  1,525,000  1,525,000  0  0  0		
Part E - Approved	Funding					
Phase Status: Approved:	<ol> <li>Status:</li> <li>Bylaw Capital:</li> <li>Capital Reserve:</li> <li>Land Reserve:</li> <li>Local Capital:</li> </ol>	Requested  0  0  0  0  0	Requested 0 0 0	Requested  0  0  0  0  0		·
Variance: Net Request:	<ul><li>6. Variance</li><li>7. Bylaw Capital:</li><li>8. Capital Reserve:</li><li>9. Land Reserve:</li><li>10. Local Capital:</li></ul>	0 0 0 0	0 0 0 0 0 0	1,525,000 1,525,000 0 0		
Part F - Comments  Category: Genera  MUNICIPALITI FACILITY NUM		SLOCAN, CREST( 3, 07025,	ON & CRESCEN	T VALLEY IN ADDI	TION TO NELSON	

# **Boiler Upgrade Program**

Nelson, B.C

School District No. 8 (Kootenay Lake) Boiler Systems Assessment Report

LV Rogers Secondary School
Mt. Sentinel Secondary School
Adam Roberson Elementary School
Central Elementary School
WE Graham Elementary School
25 September 2012



#### Vintage Boilers at LV Rogers that is oversized

#### 1.0 Executive Summary

- The schools appear to be well utilized and are well populated.
- The existing mechanical systems are in FAIR to POOR condition. Many systems are nearing the end of the service life.
- The existing mechanical systems use a disproportionate amount of ENERGY.
- Significant upgrades to boiler systems are required to bring systems to good design practices, guidelines and standards.
- A GSHP will save 178 tonnes of CO2 Per Year

Page 1 of 3 **Poole and Associates Mechanical Engineering Ltd.** 25 September 2012

## 2.0 Description of Existing Building

Area of building:

<ul> <li>LV Rogers Secondary School</li> </ul>	10,080 m <sup>2</sup>
<ul> <li>Mt. Sentinel Secondary School</li> </ul>	6,415 m <sup>2</sup>
<ul> <li>Adam Robertson Elementary School</li> </ul>	4,155 m <sup>2</sup>
<ul> <li>Central Elementary School</li> </ul>	4,052 m <sup>2</sup>
<ul> <li>WE Graham Elementary School</li> </ul>	2,799 m <sup>2</sup>

## 3.0 Discussion of Existing Mechanical Systems

## **Primary Energy Systems**

LV Rogers Secondary School. The hydronic heating system is power draft	The boilers will need to be
Cleaver Brooks boiler. These boilers are oversized. This system was	upgraded to a sealed
installed in 1986. This system is near the end of the service life. This	combustion condensing
system is inefficient and has significant standby losses.	style boiler.
Mt Sentinel Secondary School. The hydronic heating system is natural draft Hydrotherm boiler. This system was installed in 2001. This system is inefficient and has significant standby losses.	The boilers will need to be upgraded to a sealed combustion condensing style boiler.
Adam Robertson Elementary School. The hydronic heating system is natural draft Super Hot boiler. This system was recently installed. This system is inefficient and has significant standby losses.	The boilers will need to be upgraded to a sealed combustion condensing style boiler.
Central Elementary School. The hydronic heating system is natural draft Hydrotherm boiler. This system was installed in 1988. This system is near the end of the service life. This system is inefficient and has significant standby losses.	The boilers will need to be upgraded to a sealed combustion condensing style boiler.
WE Graham School. The hydronic heating system is natural draft Hydrotherm boiler. This system was installed in 1990. This system is near the end of the service life. This system is inefficient and has significant standby losses.	The boilers will need to be upgraded to a sealed combustion condensing style boiler.

#### **Controls**

WE Graham. The building is serviced by first generation or unsupported	Control system will need to
digital control systems. These systems are very difficult to service or	be upgraded to DDC.
renovate. These systems are difficult to program for energy savings.	

#### 4.0 Considerations for Mechanical System Upgrade

Caveat. This review is intended to provide a quick review of the conditions and configuration of the existing mechanical systems where they are apparent. The main purpose of this report is to identify and then develop budgets for upgrades to mechanical systems. If a condition exist but is not apparent, then it may not be addressed in this report. This report must be review by staff familiar with the building to indicate and address any conditions not presented here.

A boiler upgrade to the existing mechanical system will improve the operation, comfort, energy consumption and maintenance of the facility.

We recommend sealed combustion condensing boiler that can operate at higher temperatures for now and lower temperatures when the building are converted to Geothermal. To eliminate the combustion air louver, we recommend replacing any natural gas fired hot water heating systems with electric. Where the controls systems are not up to date, we recommend upgrading the control system as much as needed, to allow the hot water heating systems operating in an optimal manner.

Don Poole P.Eng.

No:	NAME: 5 School		HV.	AC Type: Natur	al D	raft Boilers	Ι	1	Ι	<u> </u>	Т	$\top$	
ID	Item	Comment	Qty		Qty		Qty	Location	Qty	Location		Qty Req	
PRIMAR'	Y HVAC SYSTEMS Boiler	LV Rogers Secondary School	10	Mech			þ	1		l I	1	) JU	
	Const	Mt. Sentinel Secondary School Adam Roberson Elementary School	7	Mech		<b> </b>	E		=		7	U	Jnit
		Central Elementary School WE Graham Elementary School	4	Mech	Ė		t				4	U	Jnit Jnit
	Major Circ Pumps	VVE Granam Elementary School	10	Mech Mech			L		Ŀ			U	
	Main Circulation Piping Outside Air Unit		100	Mech Mech	L.	Roof	t				0		Jnit
	Multi-Zone Relief Air Gooseneck			Roof Roof	+		E					U	Jnit Jnit
	Other AL HVAC SYSTEMS							1	L		0		Jnit
	Roof Top Unit - Large - Heat/Cool Roof Top Unit - Large - Heat Only		$\vdash$	Gym Gym		Shop Shop		Theater			0	U	Jnit Jnit
	Roof Top Unit - Small Heat Pump		<u> </u>	Class	$\vdash$		$\vdash$		1		0		Jnit Jnit
	Vertical Unit Ventilator Fan Coil - 4 Pipe		$\vdash$	Class	-		F		F		0	U	Jnit Jnit
	Furnace Reheat Coil - Hydronic			Class	F				F			U	
	Minor Circ Pumps Reheat Coil - Electric			Mech Class	F		F				0	U	Init Init
	Split System AC Electric Heat - Force Flow, Unit Heat			Class Entry/Stair	F	Server Storage	-				0	U	
	Baseboard Low Level Retrum		F	Office All	ļ.,		F		-		0	U	Init Init
	Transfer/ Door Grille Other			All			L				0	U	Init Init
DEDICAT	ED EXHAUST PICKUP Small Ceiling Grille			Elect Rm		Server	ļ	l Stames Sm		W/R - Single	0		
B B	Large Ceiling Grille Range Hood - Residential			Gang WR Home Ec	F	photocopy Staff	F	Storage - Sm. general		- with a switgle	0	Ū	Init Init
C	Range Hood - Commercial			Kitchen	t	Servery		<del> </del>			0	U	lnit lnit
D	Hood - Forge & Melting Crucible Slotted Back - Pick Up Articulating Arm			Metal Welding		Paint		Varsol	L		0	U	Init Init
D	CO - Overhead Flexible			Welding Auto	L	Solder	E				0	U	Init Init
E	Science Furne Hood (ASHRAE 110) Wood Shop - Equipment Pick-Up			Science Woodshop		Prep Tech					0	U	Init Init
EXHAUS	Other F SYSTEMS							1			0		Init
В	In-Line Fan c/w Gooseneck Square Panel - Roof Mount			in Room Roof	┢		E				0	U	nit nit
D	Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount			Roof	$\vdash$		-		-		0		nit nit
	Sawdust Collector Sawdust Collector Recirculation Systems			Outside Inside	-		-				0	U	nit nit
	Sawdust Collector - Vent If Enclosed Other		-	Inside			F				0	Ū	nit nit
ADDITIO	NAL CONTROL SYSTEMS WE Graham		1					.' T					llow
	CO2 Sensors Motion Detectors		_				F				0	Ü	nit nit
	Variable Speed Drive Other		_		-						0	U	nit nit
GENERA	L PLUMBING SYSTEMS DHW Tank - Residential Electric (60 gal)			Mech						,	5		nit
	DHW Tank - Storage (120 gal) DHW Recirc Pump			Mech Mech			F				0	U	
	Custodian Sink - Floor Mount - Trim Laundry Tub		Ī	Custodian		Art					0	U	nit
	Drinking Fountain - Bubbler Drinking Fountain - Wall Mount - Bot Fill (	an file )		Class		Home Ec					0	Uı	nit nit
	Hand Wash (54") New Hand Lav - New IR Trim	no mg.,		Corridor Shops		Change		Weights			0	U	nit nit
	Hand Lav OK - New IR Trim			Gang W/R Gang W/R		Change Rm Change Rm		Staff Staff			0	Uı	nit
	New Wall Mount Urinal - New IR Trim Urinal OK - New IR Trim			Gang W/R Gang W/R		Change Rm Change Rm		Staff Staff			0		nit
1	WC - Fixture OK - New IR Trim Acid Waste Piping		-	Gang W/R Science		Change Rm		Staff			0	Fi	nit ixtur
	Replace Galvanized with Copper Drain Pipe in-Slab (Sawcutting Required)										0	M	letre letre
EMERGE	Other NCY PLUMBING FIXTURES					l					0	Uı	nit
	Eyewash - New, TMV - New Eyewash - OK, TMV - New			Woodshop Woodshop		Tech Ed Tech Ed	_	Electricity Electricity		Physics Physics	0		nit nit
	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New			Metalshop Metalshop	-	Autoshop Autoshop		Science Science		Chem Prep Chem Prep	0		nit nit
NATURAI	Other L GAS ISOLATION							I			0	Ür	
	Emegency Shut Down - Valve Emegency Shut Down - Electronic			Science Science	-	Forge						Ur	
CROSS C	Other ONTAMINATION				659			I			0	Uı	nit
	Large DCVA - Fire Protection Systems Small RPBP			Sprinkler Boiler		Premise Tower		Irrigation	П		0		nit nit
	Standard Vacuum Breaker Lab Fixture Vacuum Breaker			Custodian Science	F	Hose Bibb Science Prep	F	Darkroom		Hair Wash	000	Ur	nit
INTERCE	Other PTOR AND ACID NEUTRALIZER										Ó		
	Acid Neutralizer Grease Interceptor			Science Teaching Kitchen		Boiler		Darkroom			0	Ur	nit
	Oil Interceptor Used Oil Storage Tank			Autoshop							0	Ur	nit
Ţ	Plaster Interceptor Other			Autoshop Pottery								Ur	nit
FLAMMA	Other BLE STORAGE CABINET New Cabinet - New 2" Sched 40 Steel Ver	nt Thru Poef		Cham Ct		l Ia. — ·		lessa:				Ur	
	Cabinet OK - New 2" Sched 40 Steel Vent	t Thru Roof		Chern Storage Chern Storage		Autoshop Autoshop		Finishing Finishing		Art Art	0	Ur	nit
FIRE PRO	Other DIECTION SYSTEMS							1				Ur	
	Replace Glycol System With Dry System Replace Wet Valve with Flow Switch			Sprinkler Station Sprinkler Station	E						0	Ur	nit
	Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting	Crucible		All Forge					Ξ		0	Ur	
	Other										0		
BUILDING	ENVELOPE			T ec - communication (1992)	T-4000		r	r	-240000		0	Sc	<u>ą.m.</u>
BUILDING	GENVELOPE Re and Re T-Bar New T-Bar			<u>.                                    </u>			$\overline{}$		1	1	0		
BUILDING	S ENVELOPE Re and Re T-Bar										0	Ür	nit
BUILDING	S ENVELOPE Re and Re T-Bar New T-Bar Single Glazing		1								0	Ur Ur Ur	nit nit nit
BUILDING MISC	S ENVELOPE Re and Re T-Bar New T-Bar New T-Bar Single Glazing Chronic Hot / Cold Spots Potential for Extreme Infiltration asbestos		1								0 0 0	Ur Ur Ur all	nit nit nit low
BUILDING	S ENVELOPE Re and Re T-Bar New T-Bar New T-Bar Single Glazing Chronic Hot / Cold Spots Potential for Extreme Infiltration asbestos Permits & Inspection Fees Demolition		1								0 0 0 1 28 10%	Ur Ur all	nit nit low nit
BUILDING	S ENVELOPE Re and Re T-Bar New T-Bar Single Glazing Chronic Hot I Cold Spots Potential for Extreme Infiltration asbestos Permits & Inspection Fees Demolition Bonding OTAL	Sq.m.:	1								0 0 0 1	Ur Ur all	nit nit low nit

No:	NAME: 5 School Item	Equip. Cost	Duct Install	Pipe Instal	Insul.	Bal. & Comm.	Control	Rate Elect	Cut & Patch	Roof		erali Rate
PRIMAR	Y HVAC SYSTEMS  Boiler	\$10,000	\$5,000	\$5,000		\$150	\$1,500	\$2,000	\$1,500	\$500	\$26,150	) /Unit
		\$10,000 \$10,000	\$5,000	\$5,000	\$500	\$150	\$1,500	\$2,000		\$500 \$500	\$26,150	/Unit
		\$10,000 \$10,000	\$5,000	\$5,000	\$500	\$150	\$1,500	\$2,000	\$1,500	\$500	\$26,150	/Unit
	Major Circ Pumps	\$3,000		\$1,500	\$500	\$100			\$1,500 \$500	\$500	\$9,600	/Unit
	Main Circulation Piping Outside Air Unit	\$0	\$0	\$160	\$40 \$2,500		\$3,000	\$5,000	\$2,500	\$2,000	\$200 \$15,200	/Metr
	Multi-Zone Relief Air Gooseneck	\$0 \$2,000			\$2,500 \$1,000			\$5,000	\$2,500 \$500	\$2,000 \$500	\$15,300	/Unit
TEOMN.	Other AL HVAC SYSTEMS	7-12-1				1	1000	_	4000	4000		/Unit
	Roof Top Unit - Large - Heat/Cool	\$0								\$2,000	\$18,700	/Unit
	Roof Top Unit - Large - Heat Only Roof Top Unit - Small	\$0 \$5,000			\$1,500	\$200	\$3,500		\$2,500 \$1,000	\$2,000 \$1,000		
	Heat Pump Vertical Unit Ventilator	\$3,600 \$8,000		\$1,500 \$2,000		\$100 \$100	\$2,500 \$3,500	\$1,500	\$500 \$500	\$500	\$16,200 \$22,600	
	Fan Coil - 4 Pipe Furnace	\$2,000 \$2,500		\$2,000	\$1,500	\$100 \$100	\$3,000	\$1,500		\$1,000	\$15,100	/Unit
	Reheat Coil - Hydronic	\$1,800	\$900	\$900	\$500	\$100	\$1,000		\$2,000	\$1,000	\$5,200	/Unit
	Minor Circ Pumps Reheat Coil - Electric	\$800	\$750	\$500		\$100	\$1,500 \$1,500	\$1,000 \$1,000			\$4,400 \$3,250	/Unit
	Split System AC Electric Heat - Force Flow, Unit Heat	\$1,500	\$1,500	\$2,000	\$500		\$1,000 \$1,000				\$7,500 \$2,000	/Unit
	Baseboard Low Level Retrum	\$250	\$500			\$25	\$1,000		\$1,500		\$1,500	/Unit
	Transfer/ Door Grille	\$100				φ2.5			\$1,500			/Unit
	Other TED EXHAUST PICKUP			l	l	I		l			\$0	//Unit
3	Small Ceiling Grille Large Ceiling Grille	\$50 \$50	\$50 \$50			\$25 \$25	\$500 \$500					/Unit
3	Range Hood - Residential Range Hood - Commercial	\$100 \$0				\$25 \$300	\$500	\$250 \$1,000	\$250		\$1,225	/Unit
	Hood - Forge & Melting Crucible	\$12,000	\$12,000			\$100	\$500	\$1,000 \$1,000	\$2,000		\$1,300 \$27,600	/Unit
)	Slotted Back - Pick Up Articulating Arm	\$1,000 \$1,200	\$1,200			\$100 \$100	\$500				\$2,600 \$3,000	/Unit
	CO - Overhead Flexible Science Furne Hood (ASHRAE 110)	\$2,400 \$13,000	\$2,400			\$100 \$150	\$500	\$1,500	\$1,000		\$5,400 \$28,650	/Unit
	Wood Shop - Equipment Pick-Up Other	\$1,000				\$25		.,,	,		\$2,525	
KHAUS	T SYSTEMS		· ·	1			,_,		,			
3	In-Line Fan c/w Gooseneck Square Panel - Roof Mount	\$200 \$600	\$600		\$500 \$500	\$100	\$500	\$750	\$250 \$250	\$500 \$500	\$3,800	/Unit
5	Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount	\$2,000 \$3,500			\$2,000 \$500	\$100 \$100	\$0 \$500	\$1,500 \$1,500	\$500 \$1,000	\$1,000 \$1,000	\$9,100 \$11,600	/Unit
	Sawdust Collector Sawdust Collector Recirculation Systems	\$0	\$0		\$500	\$100	\$500	\$5,000	\$5,000		\$11,100	/Unit
	Sawdust Collector - Vent If Enclosed	\$5,000 \$0	\$5,000 \$0		\$500 \$0	\$0 \$0			\$1,000 \$2,000		\$11,500 \$2,000	/Unit
	Other NAL CONTROL SYSTEMS	L				1	\$500	Per Point			\$0	/Unit
	WE Graham CO2 Sensors						\$55,000 \$1,200		-	************	\$55,000 \$1,200	/allow
	Motion Detectors						\$500				\$500	/Unit
	Variable Speed Drive Other						\$4,500		-		\$4,500 \$0	/Unit
	L PLUMBING SYSTEMS DHW Tank - Residential Electric (60 gal)	\$500	l	\$500	l	l	l	\$1,500	\$500		\$3,000	l/Unit
	DHW Tank - Storage (120 gal) DHW Recirc Pump	\$1,000 \$250		\$1,000 \$250			\$500	\$500			\$2,000 \$1,500	/Unit
	Custodian Sink - Floor Mount - Trim	\$350		\$350			\$500	\$500	\$500		\$1,200	/Unit
	Laundry Tub Drinking Fountain - Bubbler	\$200 \$250		\$200 \$250					\$100			/Unit
	Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	\$1,600 \$4,200		\$1,600 \$4,200				\$750	\$500 \$2,000		\$4,450 \$10,400	
	New Hand Lav - New IR Trim Hand Lav OK - New IR Trim	\$700 \$450		\$700 \$450					\$500		\$1,900	/Unit
	New Wall Mount Urinal - New IR Trim	\$550		\$550					\$1,500		\$2,600	
	Urinal OK - New IR Trim WC - Fixture OK - New IR Trim	\$350 \$350		\$350 \$350					\$500		\$1,200 \$700	/Unit
	Acid Waste Piping Replace Galvanized with Copper	\$0		\$2,500 \$30	\$20						\$2,500 \$50	/Fixtu
	Drain Pipe In-Slab (Sawcutting Required) Other	\$0		\$30					\$250		\$280	/Metre
MERGE	NCY PLUMBING FIXTURES											/Unit
	Eyewash - New, TMV - New Eyewash - OK, TMV - New	\$1,200 \$800		\$1,200 \$800							\$2,400 \$1,600	
	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New	\$2,400 \$1,100		\$2,400 \$1,100							\$4,800 \$2,200	
	Other L GAS ISOLATION											/Unit
1	Emegency Shut Down - Valve	\$50		\$150								/Unit
	Emegency Shut Down - Electronic Other	\$200		\$300		\$100	\$2,000				\$2,600 \$0	/Unit
	CONTAMINATION Large DCVA - Fire Protection Systems	\$2,500	I	\$5,000							\$7,500	/Unit
	Small RPBP Standard Vacuum Breaker	\$500 \$100		\$500 \$100							\$1,000	/Unit
	Lab Fixture Vacuum Breaker Other	\$25		\$50							\$75	/Unit
NTERCE	PTOR AND ACID NEUTRALIZER			l							\$0	/Unit
	Acid Neutralizer Grease Interceptor	\$5,000 \$3,000		\$5,000 \$3,000				-	\$5,000 \$2,000		\$15,000 \$8,000	/Unit
	Oil Interceptor Used Oil Storage Tank	\$3,000		\$3,000					\$2,000		\$8,000	/Unit
	Plaster Interceptor	\$8,000 \$800		\$1,000 \$800					\$500	-	\$9,500 \$1,600	/Unit
LAMMA	Other BLE STORAGE CABINET							Т	T			/Unit
	New Cabinet - New 2" Sched 40 Steel Ve Cabinet OK - New 2" Sched 40 Steel Ven	\$2,000		\$500 \$500					\$250 \$250	\$250 \$250	\$3,000 \$1,000	
	Other DIECTION SYSTEMS			7000					4250	<b>\$2.50</b>		/Unit
	Replace Glycol System With Dry System			\$10,000							\$10,000	
	Replace Wet Valve with Flow Switch Sprinkler Remainder of Building			\$2,500 \$30							\$2,500 \$30	/Unit /Sq.m
	Remove Sprinkler Near Aluminum Melting Other			\$500							\$500	/Unit
UILDING	G ENVELOPE											
	Re and Re T-Bar New T-Bar								\$10 \$50		\$10 \$50	/Sq.m
	Single Glazing Chronic Hot / Cold Spots								\$1,000 \$5,000		\$1,000 \$5,000	/Unit
	Potential for Extreme Infiltration asbestos								\$20,000		\$20,000	/Unit
lisc									\$100,000		\$100,000	/allow
1	Permits & Inspection Fees Demolition	bour		\$500								-
	Bonding	tal								***		
	TOTAL											

No:	NAME: 5 School	Equip.	Duct	Pipe	Insul,	Splits Bal.	Control	Elect	Cut &	Roof	Sub	10% Location	10% Contin	12% Fee &	12% Taxes	PROJECT TOTAL
PRIMAP	HVAC SYSTEMS	Cost \$310,000	Install	Install \$171,000		\$5,200	\$57.000	\$81,000	Patch \$47,000		3 \$848,200	Escal 2500 \$85,100	gency	Disb. \$102,100		
	Boiler		\$50,000	\$50,000 \$35,000		\$1,500	\$15,000	\$20,000	\$15,00	\$5,00	0 \$261,500	\$26,200	\$26,200	\$31,400	\$31,400	\$376,70
		\$40,000	\$20,000	\$20,000	\$2,000 \$2,000		\$6,000	\$8,000	\$6,00	\$2,00	0 \$104,600	\$10,500	\$10,500	\$12,600 \$12,600	\$12,600	\$263,85 \$150,80
	Major Circ Pumps	\$30,000	\$15,000	\$15,000	\$1,500 \$5,000	\$450	\$4,500	\$6,000	\$4,50	\$1,50	0 \$78,450	\$7,900	\$7,900		\$9,500	\$150,80 \$113,25 \$138,40
	Main Circulation Piping Outside Air Unit	\$0	\$0	\$16,000	\$4,000	\$0	\$0	\$0	\$1	0 \$1	0 \$20,000	\$2,000	\$2,000	\$2,400		\$28,80
	Multi-Zone Relief Air Gooseneck	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$1	0 \$1	0 \$0	\$0	\$0	\$0	\$0	\$1
	Other L HVAC SYSTEMS	\$0 \$0			\$0 \$0								\$0	\$0 \$0		\$6
	Roof Top Unit - Large - Heat/Cool Roof Top Unit - Large - Heat Only	\$0 \$0			\$0 \$0										\$0 \$0	\$4
	Roof Top Unit - Small Heat Pump	\$0 \$0			\$0 \$0								\$0	\$0	\$0 \$0	\$0
	Vertical Unit Ventilator Fan Coil - 4 Pipe	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$(	D \$0	0 \$0		\$0	\$0		\$0
	Furnace Reheat Coil - Hydronic	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	50	0 \$6	0 \$0	\$0	\$0	\$0	\$0	\$0
	Minor Circ Pumps Reheat Coil - Electric	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	D \$(	0 \$0	\$0	\$0	\$0	\$0	\$0
	Split System AC Electric Heat - Force Flow, Unit Heat Baseboard	\$0 \$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$(	) \$(	0 \$0	\$0	\$0	\$0	\$0	\$0 \$0
	Low Level Retrurn Transfer/ Door Grille	\$0 \$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$(	5 \$0	0 \$0	\$0	\$0	\$0	\$0	
	Other ED EXHAUST PICKUP	\$0 \$0			\$0 \$0											\$0 \$0
A B	Small Ceiling Grille Large Ceiling Grille	\$0 \$0			\$0 \$0				) \$0		0 \$0	\$0				\$0 \$0
B C	Range Hood - Residential Range Hood - Commercial	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	) \$(	0 \$0	\$0	\$0	\$0	\$0	\$C \$C
D D	Hood - Forge & Melting Crucible Slotted Back - Pick Up	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$C	\$0	) \$C	) \$( ) \$(	\$(	0 \$0	\$0	\$0	\$0	\$0	
D D	Articulating Arm CO - Overhead Flexible	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$C	\$C	\$0	\$(	) \$( ) \$(	0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Science Furne Hood (ASHRAE 110) Wood Shop - Equipment Pick-Up	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$(	\$0 \$0	0 \$0	\$0	\$0 \$0	\$0	\$0	\$0
<b>EXHAUS</b>	Other SYSTEMS	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0
В	In-Line Fan c/w Gooseneck Square Panel - Roof Mount Grease Extraction - Roof Mount	\$0 \$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	0 \$0	\$0	\$0		\$0	\$C \$C
D	Industrial Vent Set - Roof Mount Sawdust Collector	\$0 \$0	\$0	\$0	\$0 \$0	\$0	. \$C	\$0	\$0	50	0 \$0	\$0	\$0	\$0	\$0 \$0	\$0
	Sawdust Collector Recirculation Systems Sawdust Collector - Vent If Enclosed	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$(	0 \$0	\$0	\$0	\$0	\$0 \$0	\$C \$C
	Other NAL CONTROL SYSTEMS	\$0 \$0			\$0 \$0			\$0						\$0 \$6,600	\$0 \$0 \$6,600	\$0 \$0 \$79,200
	WE Graham CO2 Sensors	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$C	\$55,000	\$0	\$0	\$0	\$55,000	\$5,500	\$5,500		\$6,600 \$0	\$79,200 \$79,200 \$0
	Motion Detectors Variable Speed Drive	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$C
GENERA	Other PLUMBING SYSTEMS	\$0 \$2,500	\$0 \$0	\$0 \$2,500	\$0 \$0	\$0 \$0	\$0	\$7,500	\$2,500	\$0 \$0				\$0 \$1,800		\$21,600
	DHW Tank - Residential Electric (60 gal) DHW Tank - Storage (120 gal)	\$2,500 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$(	\$0	\$0	\$0	\$1,800 \$0	\$1,800 \$0	\$21,600 \$0
-	DHW Recirc Pump Custodian Sink - Floor Mount - Trim	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	50	\$0	\$0	\$0	\$0	\$0 \$0
	Laundry Tub Drinking Fountain - Bubbler Drinking Fountain - Wall Mount - Bot Fill (I	\$0 \$0	\$0		\$0 \$0 \$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Hand Wash (54") New Hand Lav - New IR Trim	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0
	Hand Lav OK - New IR Trim New Wall Mount Urinal - New IR Trim	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0
	Urinal OK - New IR Trim VVC - Fixture OK - New IR Trim	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Acid Waste Piping Replace Galvanized with Copper	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0
	Drain Pipe In-Slab (Sawcutting Required) Other	\$0 \$0		\$0 \$0	\$0 \$0		\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
EMERGE	NCY PLUMBING FIXTURES Eyewash - New, TMV - New	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0				\$0 ) \$0	\$0   \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	<b>\$0</b> \$0
	Eyewash - OK, TMV - New Eyewash/Shower - New, TMV - New	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Eyewash/Shower - OK, TMV - New Other GAS ISOLATION	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0			\$0	\$0	\$0		\$0			\$0 \$0
	Emegency Shut Down - Valve Emegency Shut Down - Electronic	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0								\$0 \$0	\$0 \$0 \$0	\$0 \$0
	Other ONTAMINATION	\$0 \$0			\$0 \$0									\$0 \$0	\$0 \$0	\$0 \$0
	Large DCVA - Fire Protection Systems Small RPBP	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0				\$0		\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Standard Vacuum Breaker Lab Fixture Vacuum Breaker	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0						\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
INTERCE	Other PTOR AND ACID NEUTRALIZER	\$0 \$0	50	\$0	\$0 \$0	\$0	\$0	<b>\$</b> 0	\$0	\$0	50	\$0	\$0	\$0 \$0	\$0 \$0	\$0 <b>\$0</b>
	Acid Neutralizer Grease Interceptor Oil Interceptor	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Used Oil Storage Tank Plaster Interceptor	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
)	Plaster Interceptor Other BLE STORAGE CABINET	\$0 \$0		\$0 \$0	\$0 \$0 \$0	\$0 \$0								\$0 \$0		\$0 \$0 \$8
	New Cabinet - New 2" Sched 40 Steel Ver Cabinet OK - New 2" Sched 40 Steel Ven	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0						\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$8 \$0 \$0
FIRE PRO	Other TECTION SYSTEMS	\$0 \$0			\$0 \$0	\$0 \$0								\$0 \$0	\$0 \$0	\$0 \$0
	Replace Glycol System With Dry System Replace Wet Valve with Flow Switch	\$0 \$0			\$0 \$0	\$0 \$0					\$0			\$0 \$0	\$0 \$0	\$0 \$0
	Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
BUILDING	Other ENVELOPE	\$0 \$0	\$0	\$0	\$0 \$0	\$0 <b>\$</b> 0	\$0	\$0 \$0	\$00,000 \$100,000	\$0 \$0	\$190,000	\$0 \$10,000	\$10,000		\$0 \$12,000	\$0 \$144,000
	Re and Re T-Bar New T-Bar	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Single Glazing Chronic Hot / Cold Spots	\$0 \$0		\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0
	Potential for Extreme Infiltration asbestos	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$100,000	\$0	\$100,000	\$10,000	\$10,000			\$1 \$144,000
	Permits & Inspection Fees Demolition	SO	\$7,000	\$22,700 \$14,000 \$8,700	\$0	aU	\$0	\$0	\$0	\$0	\$39,900 \$14,000				\$4,900 \$1,700	\$57,909 \$20,200
	Bonding	\$312,500	\$10,200		\$23,000	\$5.20	\$112000	\$88,500	\$140 enn	K44.000	\$15,700 \$10,200 \$1,058,100	\$1,100	\$1,100	\$1,300	\$1,900 \$1,300 \$1,27,400	\$22,700 \$15,000
Area: Zones:		\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$127,400 \$0 \$0	\$127,400 \$0 \$0	\$1,525,300 \$0 \$0
			ΨU	30	ΨU	<b>⇒</b> 0	- 30	\$U	, 50	1 30	<u>1</u>	\$0	L_ \$0	20	20	\$0

··													SD 8	Boller P	rogram														
											Evnect	ed Anni	al Utility Co	neumni	ion Bass	d on 20	44/2042 De	ıta .		_					_				25-Sep
											Ехроо	.cu / lillio					11/2012 De											_	_
	Facility					N	latural G	is					EXISU	ng Conn	guration	Electrici	ifv				n			· · · · · ·	Total				
	sq.m		GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sg.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sg.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m
LV Rogers Secondary School	10,080	NG	3,963	1,100,921	196.8	0.39	109	\$44,000	\$11.10	\$0.040		3,045	846,000	18.7	0.30	84	\$90,000	\$29.55	\$0.106		7,008	1,946,921	215.5	0.70	193	\$134,000		\$0.069	
Mt. Sentinel Secondary School	6,415	NG	2,786	773,951	138.3	0.43	121	\$47,000	\$16.87	\$0.061	\$7.33	1,634	454,000	10.0	0.25	71	\$54,000	\$33.04	\$0.119	\$8.42	4,420	1,227,951	148.4	0.69	191	\$101,000	\$22.85	\$0.082	\$15.74
Adam Roberson Elementary School	4,155	NG	2,046	568,379	101.6	0.49	137	\$32,000	\$15.64	\$0.056	\$7.70	565	157,000	3.5	0.14	38	\$18,000	\$31.85	\$0.115	\$4.33	2,611	725,379	105.1	0.63	175	\$50,000	\$19.15	\$0.069	\$12.03
Central Elementary School	4,052	NG	1,521	422,534	75.5	0.38	104	\$24,000	\$15.78	\$0.057	\$5.92	756	210,000	4.6	0.19	52	\$24,000	\$31.75	\$0.114	\$5.92	2,277	632,534	80.2	0.56	156	\$48,000	\$21.08	\$0.076	\$11.85
WE Graham Elementary School	2,799	Propane	1,080	300,000	63.9	0.39	107	\$31,000	\$28.71	\$0.103	\$11.08	421	117,000	2.6	0.15	42	\$13,000	\$30.87	\$0.111	\$4.64	1,501	417,000	66.5	0.54	149	\$44,000	\$29.31	\$0.106	\$15.72
OTAL Consumption	27,501		11,396	3,165,785	565.8	0.41	115	\$178,000	\$15.62	\$0.056	\$6.47	6,422	1,784,000	39.5	0.23	65	\$199,000	\$30.99	\$0.112	\$7.24	17,818	4,949,785	605.3	0.65	180	\$377,000	\$21,16	\$0.076	\$13.71

												Upgrade	to Conden	sing Sea	iled Com	bustion	Boiler					-							
	Facility					N	Vatural Ga	15								Electrici	ty								Total				
	sq.m	Rate	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sa.m	GJ	kWhr	Tonne CO2	GJ/ sa.m.	kWhr/ sa.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m
LV Rogers Secondary School	10,080	40%	2,378	660,553	118.1	0.24	66	\$26,400	\$11.10	\$0.040	\$2.62	3,045	846,000	18.7	0.30	84	\$90,000	\$29.55		\$8.93	5,423	1,506,553	136.8	0.54	149	\$116,400	T		\$11.55
Mt. Sentinel Secondary School	6,415	20%	2,229	619,161	110.7	0.35	97	\$37,600	\$16.87	\$0.061	\$5.86	1,634	454,000	10.0	0.25	71	\$54,000	\$33.04	\$0.119	\$8.42	3,863	1,073,161	120.7	0.60	167	\$91,600	\$23.71	\$0.085	\$14.28
Adam Roberson Elementary School	4,155	40%	1,228	341,027	61.0	0.30	82	\$19,200	\$15.64	\$0.056	\$4.62	565	157,000	3.5	0.14	38	\$18,000	\$31.85	\$0.115	\$4.33	1,793	498,027	64.4	0.43	120	\$37,200	\$20.75	\$0.075	\$8.95
Central Elementary School	4,052	20%	1,217	338,027	60.4	0.30	83	\$19,200	\$15.78	\$0.057	\$4.74	756	210,000	4.6	0.19	52	\$24,000	\$31.75	\$0.114	\$5.92	1,973	548,027	65.1	0.49	135	\$43,200	\$21.90	\$0.079	\$10.66
WE Graham Elementary School	2,799	30%	756	210,000	44.7	0.27	75	\$21,700	\$28.71	\$0.103	\$7.75	421	117,000	2.6	0.15	42	\$13,000	\$30.87	\$0.111	\$4.64	1,177	327,000	47.3	0.42	117	\$34,700	\$29.48	\$0.106	\$12.40
OTAL Consumption	27,501		7,807	2,168,768	387.6	0.28	79	\$124,100	\$15.90	\$0.057	\$4.51	6,422	1,784,000	39.5	0.23	65	\$199,000	\$30.99	\$0.112	\$7.24	14,229	3,952,768	427.1	0.52	144	\$323,100	\$22.71	\$0.082	\$11.75

												Saving	ıs														$\neg$
					Vatural Ga	s								Electricit	у								Total				
i i	GJ	kWhr	Tonne	GJ/	kWhr/	•	\$/	\$/	\$/	GJ	kWhr	Tonne	GJ/	kWhr/		\$/	\$/	\$/	GJ	1350	Tonne	GJ/	kWhr/		\$/	\$/	\$/
I			CO2	sq.m.	sq.m	*	GJ	kWhr	sq.m	99	KVVIII	CO <sub>2</sub>	sq.m.	sq.m	·	GJ	kWhr	sq.m	GJ	kWhr	CO2	sq.m.	sq.m	\$	GJ	kWhr	sq.m
New Consumption	3,589	997,017	178.2	0.36	99	\$53,900	\$11.10		\$5.35	0	0	0.0	0.00	0	\$0	\$30.99	\$0.112	\$0.00	3,589	997,017	178.2	0.36	99	\$53,900	\$15.02	\$0.054	\$5.35
	31%		31%							0%									20%		29%						

Boiler Upgrade Cost \$1,525,000

\$/sq.m \$55 Simple Payback 28

Poole and Associates

#### **Capital Project Request Form**

RDER0310 V.4.06

'kim morris' (PRD01)

Total Esitmated Budget:

Request Type: Update 09 OCT 2012 12:10:02

Hidden: District Priority: District Ranking:

Nο High

Project No: 116072 HIGH Ministry Priority: Part A - Project Identification 1. Capital Plan Year: 2012/2013 2. SD Ref. No.: 150 3. Last Modified: Oct. 9, 2012 4. Submitted On: unsubmitted 5. SD No.: 08 6. SD Name Kootenay Lake 7. Municipality: **NELSON** 8. Asset No.: 100242 9. Facility No .: 07004 10. Facility Name: **HUME ELEMENTARY SCHOOL** Facility Type: 14. Project Description: 13. Proj. Cd. MECHUP 11. Current: Elementary School HÚME MECHANICAL SYSTEM UPGRADE 15. Proj. Type: MINOR 12. Proposed: Elementary School Part B - Capacity, Area Factors and Allowances Nominal Capacity: Grades 8 - 12 Kindergarten Grades 1 - 7 7. Grade Configuration 1. Actual Existing: 20 250 K-5 2. Capcity Adjustments: 0 0 0 3. Proposed Higher Priority Additions: 0 0 0 4. Total Existing: 20 250 0 5. Proposed Addition: 0 0 0 6. Proposed Total Capcity: 20 0 250 K-5 Site Area (ha): Allowable BuildIng Area (sq.m.) Allowable Renovation Area (sq.m.) 9. Required Size: 0.0 12. Total Allowable Area: 0.0 16. Renovations Associated 20 With Additions (%): 10. Existing Area: 0.0 13. Existing Area: 0.0 17. Renovation Area: 0.00 14. Area to be demolished: 0.0 11. Total New Aera: 0.0 18. Renovation Unit Rate 0 15. Area of New Space: 0.0 Construction Cost Factors: Equipment Allowance (%): 19. Base Unit Rate: 1765.00 20. Air Conditioning: 0 LFA: 0.00 MF: 1.00 24. New Space: 13.0 21. Project Size Factor: 1.050 22. Location Factor: 1.15 23.Ground Factor: 1.00 25. Freight Allowance: 8.609 Part C - Estimated Budget Subtotal Site Acquisition: 1. Purchase: 0 2. Other Cost: 0 n Site Development: 4. Development Cost Charges: 0 5. Offsite Costs: 0 6. Adjusted Site Development: 0 0 None 0 0 7. Supplementary Site: New Construction: 9. New Area: 0.0 Renovations: 13. Renovation Area: 0.00 0.0000 10. Adjusted Unit Rate: 14. Renovation Unit Rate: 0 11. Subtotal: 0 15. Subtotal: 0 12. Supplementary Building: 0 16. Supplementary Costs: 0 17. Other Costs: 0 **Building Costs:** 18. Build Total: 0 19. Reno Cost: 0 20. 0 Area Allowance Equipment Allowance: 21. New Area: 0.00 0 22. Area Entitled to Equipment Replacement 0.00 0 New Fee Reno Fee 0.0000 0.1600 23. Equipment Freight Allowance: 24. 0 0 Fees: 25. Site Dev.: n 26 New 0 27. Renovation: 0 28. 0 0 Contingency: 29. New: 30. Renovation: 0 31. 0 MECHANICAL SYSTEM UPGRADE Other: 1,425,000 35. Plan: Phases: 34. Site: 0 36. Completion: 1,425,000 37. Planning Costs in Planning Phase: 0 38. In Completion Phase: 0

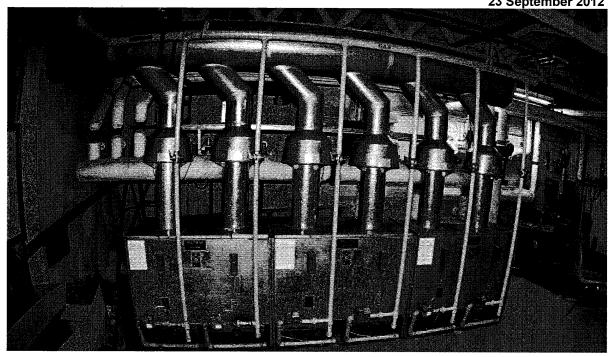
1,425,000

Project No.	Project Title MECHUP - HUME ELE	MENTARY SCHOO	DL.	c	apital Plan Year SD No. \$ 2012/2013 08	SD Ref. No. 150
Project Cost Sched		Site 2014/2015	Planning 2014/2015	Completion 2013/2014 1,425,000		
Funding Source:	<ul><li>3. Bylaw Capital:</li><li>4. Capital Reserve:</li><li>5. Land Reserve:</li><li>6. Local Capital:</li></ul>	0 0	0 0	1,425,000 0 0		
Part E - Approved	Funding					
Phase Status: Approved:	<ol> <li>Status:</li> <li>Bylaw Capital:</li> <li>Capital Reserve:</li> <li>Land Reserve:</li> <li>Local Capital:</li> </ol>	Requested  0  0  0  0  0	Requested 0 0	Requested  0  0  0  0  0		-
Variance: Net Request:	<ul><li>6. Variance</li><li>7. Bylaw Capital:</li><li>8. Capital Reserve:</li><li>9. Land Reserve:</li><li>10. Local Capital:</li></ul>	0 0 0 0	0 0 0 0 0 0	1,425,000 1,425,000 0 0 0		
Part F - Comments	6					

## **Hume Elementary School**

## School District No. 8 (Kootenay Lake) **HVAC Systems Assessment Report**

23 September 2012



#### 1.0 **Executive Summary**

- The school appears to be well utilized and is well populated.
- The existing mechanical systems are in FAIR to POOR condition. Many systems are at the end of the service life.
- The existing mechanical systems do not comply with CODES, STANDARDS or GUIDELINES.
- The existing mechanical systems do not comply with present ASHRAE 90.1 energy requirements
- The existing mechanical systems do not deliver adequate FRESH AIR.
- The existing mechanical systems are not **CONFIGURED** to good engineering practice.
- The existing mechanical systems do not have the appropriate CAPACITY to meet the building loads.
- The existing mechanical systems cannot be **CONTROLLED** to match the loads.
- The existing mechanical systems are not configured for ease of MAINTENANCE.
- The existing mechanical systems use a disproportionate amount of **ENERGY**.
- Significant upgrades to HVAC systems are required to bring systems to good design practices, guidelines and standards.

- A GSHP will save 75 tonnes of CO2 Per Year.

Page 1 of 4 Poole and Associates Mechanical Engineering Ltd. 23 September 2012

#### 2.0 Description of Existing Building

- Area of building: 3,254 m<sup>2</sup>
- Original building date: 1923. Additions were added in 1966 and 1991.
- Description of existing building: The bulk of the building is a three storey classroom block using a
  masonry façade. The style of building could be considered heritage and is in very good shape
  considering its vintage.

#### 3.0 Discussion of Existing Mechanical Systems

#### **Primary Energy Systems**

The hydronic heating system is natural draft Hydrotherm boiler. This system was installed in 1980. This system has 10 more years of service life.

These boilers are not compatible with energy saving systems like Ground Source Heat Pumps (GSHP) Systems.

The boilers will need to be upgraded to a sealed combustion condensing style boiler that will be compatible with a GSHP system.

#### **Energy Transportation Systems**

The hydronic piping and pumping systems are original. The configuration of the piping systems is inadequate for the purpose it serves. The additions to the HVAC system over the life of the building were not done in an orderly or thoughtful manner.

Piping systems are not compatible with energy saving systems like Ground Source Heat Pumps (GSHP) Systems

Piping and pumping systems will need to be upgraded.

## **Terminal Equipment**

Terminal equipment for occupied areas is based on blend of roof top units, constant volume reheat and perimeter radiation. Some system do not provide adequate fresh air .These systems were installed in 1966. These systems are at the end of the service life.	Terminal units will need to be upgraded.
Many zones have high ceilings (10 feet and higher). Stratification (heat migrating to the ceiling in heating season) is an effect that causes cool conditions to occur in the occupied zone (cool complaints). As well, excessive energy usage occurs as the hot supply air is short-circuited to the return openings.	Duct system will need to be upgraded to include low level returns.
The zoning or temperature control is very poor for the building. Many zones are served by one unit or many units serve one zone.	Zone control will need to be upgraded so that one terminal unit serves one zone.

## **Controls**

The building is mostly serviced by pneumatic controls. These systems are very difficult to service or renovate. These systems are difficult to program	Control system will need to be upgraded to DDC.
for energy savings.	, as ap <b>g</b>
The building has not been provided with carbon dioxide sensors in the occupied zones. Carbon dioxide sensors can be used to optimize and maintain appropriate outside air levels.	Control systems will need to be upgraded with CO <sub>2</sub> Sensors.
The electric heating systems are not controlled though the DDC. Energy can be saved by controlling these heating systems through DDC otherwise they will roll back to night setback temperatures with the remainder of the building.	Electric heated need to be upgraded to DDC System.

#### **Exhaust Air Systems**

General Exhaust – dedicated exhaust systems should be provided to zones	General exhaust system
where objectionable odours should be captured at the source.	will need to be upgraded in
	a few areas.

#### 4.0 Considerations for Mechanical System Upgrade

Caveat. This review is intended to provide a quick review of the conditions and configuration of the existing mechanical systems where they are apparent. The main purpose of this report is to identify and then develop budgets for upgrades to mechanical systems. If a condition exist but is not apparent, then it may not be addressed in this report. This report must be review by staff familiar with the building to indicate and address any conditions not presented here.

A conventional upgrade to the existing mechanical system will improve the operation, comfort, energy consumption and maintenance of the facility.

We recommend a conventional heat pump system that can be easily upgraded to geothermal.

Utilizing a geothermal system to provide the bulk of the primary energy will nearly eliminate the fossil fuel consumption and will take great strides toward reducing the carbon footprint.

Don Poole P.Eng.

No: ID	NAME: Hume Item	Comment	HV/ Qty	AC Type: RTU +	Qty	-RH + Rad Location	Qty	Location	Qty	Location		Qty
	/ HVAC SYSTEMS										R	eq'd
	Boiler Fluid Cooler (or Cooling Tower)	TO THE THE PARTY OF THE PARTY O	3	Mech Outside	-							Unit
	Chiller - W to W (or W to Air) Heat Pump - W to W (or W to Air)			Mech Mech	-						0	Unit
	Ground Source HX (Vert, Horiz or Ditch)		40	Field							40	Unit
	Major Circ Pumps Main Circulation Piping		200	Mech Mech								
	Outside Air Unit Multi-Zone		1	Mech	H	Roof			_		0	Unit
	Relief Air Gooseneck Other			Roof			F		_		0	Unit Unit
TERMINA	kt HVAC SYSTEMS Roof Top Unit - Large - Heat/Cool		1	lo		Ch		   Th 4				
	Roof Top Unit - Large - Heat Only		Ľ	Gym Gym		Shop Shop		Theater Theater			0	Unit Unit
	Roof Top Unit - Small Heat Pump		19	Class	-		-		-		19	Unit
	Vertical Unit Ventilator Fan Coil - 4 Pipe			Class Class							0	Unit
	Furnace Reheat Coil - Hydronic			Class Class							0	Unit
	Minor Circ Pumps Reheat Coil - Electric			Mech Class							0	Unit
	Split System AC			Class		Server	-				0	Unit Unit
	Electric Heat - Force Flow, Unit Heat Baseboard		8	Entry/Stair Office	-	Storage			-		8	Unit
	Low Level Retrurn Transfer/ Door Grille		20	All							0	Unit Unit
	Other ED EXHAUST PICKUP										0	Unit
A	Small Ceiling Grille			Elect Rm		Server		Storage - Sm.		W/R - Single	0	Unit
В	Large Ceiling Grille Range Hood - Residential		┢	Gang WR Home Ec	4	photocopy Staff	H	general	$\exists$		0	Unit
C	Range Hood - Commercial Hood - Forge & Melting Crucible		Е	Kitchen Metal		Servery			$\exists$		0	Unit Unit
D	Slotted Back - Pick Up Articulating Arm		_	Welding Welding		Paint Solder	F	Varsol			0	Unit
D	CO - Overhead Flexible			Auto		Solder		-			0	Unit
E	Science Furne Hood (ASHRAE 110) Wood Shop - Equipment Pick-Up			Science Woodshop	H	Prep Tech	_		$\exists$		0	Unit Unit
EXHAUS	Other TSYSTEMS										0	Unit
Α [	In-Line Fan c/w Gooseneck Square Panel - Roof Mount			In Room Roof	00000000						0	Unit
C	Grease Extraction - Roof Mount			Roof							0	Unit Unit
E	Industrial Vent Set - Roof Mount Sawdust Collector		-	Roof Outside			-		_		0	Unit
	Sawdust Collector Recirculation Systems Sawdust Collector - Vent If Enclosed			Inside Inside			_				0	Unit
	Other NAL CONTROL SYSTEMS				87868						ō	Unit
	V3 Upgrade or Main Panel		1				****					Site
	CO2 Sensors Motion Detectors		20		_				$\dashv$		20	Unit
	Variable Speed Drive Other		2				_				2	Unit
GENERA	L PLUMBING SYSTEMS DHW Tank - Residential Electric (60 gal)			Mech								
	DHW Tank - Storage (120 gal)			Mech							0	Unit
	DHW Recirc Pump Custodian Sink - Floor Mount - Trim		-	Mech Custodian	_	Art			-			Unit
	Laundry Tub Drinking Fountain - Bubbler			Mech Class		Home Ec						Unit
	Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	no frig.)		Corridor		Change		Weights	$\exists$		0	Unit
	New Hand Lav - New IR Trim			Shops Gang W/R		Change Rm		Staff			0	Unit Unit
- 1	Hand Lav OK - New IR Trim New Wall Mount Urinal - New IR Trim		-	Gang W/R Gang W/R	_	Change Rm Change Rm	_	Staff Staff			00	Unit
	Urinal OK - New IR Trim WC - Fixture OK - New IR Trim			Gang W/R Gang W/R		Change Rm Change Rm		Staff Staff				Unit
	Acid Waste Piping Replace Galvanized with Copper			Science		onango run			_		0	Fixtu
	Drain Pipe In-Slab (Sawcutting Required)		_									Metre
EMERGE	Other NCY PLUMBING FIXTURES									l	0	Unit
	Eyewash - New, TMV - New Eyewash - OK, TMV - New			Woodshop Woodshop		Tech Ed Tech Ed		Electricity Electricity	_	Physics Physics	0	Unit
	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New			Metalshop Metalshop		Autoshop		Science Science		Chem Prep	0	Unit
	Other			Wetalshop		Autoshop	-	Science		Chem Prep	_	Unit Unit
	GAS ISOLATION Emegency Shut Down - Valve		I	Science		Forge			Ī		0	Unit
!	Emegency Shut Down - Electronic Other			Science					٠.,		0	Unit
CROSS C	ONTAMINATION Large DCVA - Fire Protection Systems			Sprinkler		O		1				
						Premise		Irrigation			0	Unit Unit
	Small RPBP			Boiler		Tower				Hair Wash	0	Unit
	Small RPBP Standard Vacuum Breaker Lab Fixture Vacuum Breaker					Tower Hose Bibb Science Prep		Darkroom	$\dashv$			Unit
1	Small RPBP Standard Vacuum Breaker Lab Fixture Vacuum Breaker Other			Boiler Custodian		Hose Bibb	-	Darkroom			0	Unit Unit
NTERCE	Small RPBP Standard Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Acid Neutralizer			Boiler Custodian Science Science		Hose Bibb		Darkroom Darkroom			0	Unit
NTERCE	Small RPBP Standard Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor			Boiler Custodian Science Science Teaching Kitchen Autoshop		Hose Bibb Science Prep					0 0 0 0	Unit Unit Unit Unit
NTERCE	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank			Boiler Custodian Science Science Teaching Kitchen		Hose Bibb Science Prep					0 0 0 0 0	Unit Unit Unit
NTERCE	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Cher PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET			Boiler Custodian Science Science Teaching Kitchen Autoshop Autoshop		Hose Bibb Science Prep					0 0 0 0 0 0	Unit Unit Unit Unit Unit
NTERCE FLAMMA)	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Chter PTOR AND ACID NEUTRALIZER ACID Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet - New Z' Sched 40 Steel Ve New Cabinet - New Z' Sched 40 Steel Ve	nt Trux Roof		Boiler Custodian Science Science Teaching Kitchen Autoshop Pottery Chem Storage		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit
NTERCE FLAMMAI	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Oil Interceptor Oil Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet OK - New Z' Sched 40 Steel Ver Cabinet OK - New Z' Sched 40 Steel Ver Other	nt Thru Roof T Thru Roof		Boiler Custodian Science Science Teaching Kitchen Autoshop Pottery		Hose Bibb Science Prep Boiler		Darkroom			0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit
NJERCE CAMMA	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER ACID Neutralizer Grease Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet - New Z Sched 40 Steel Ver Other Other Other OK - New Z Sched 40 Steel Ver Other Othe	nt Thru Roof T Thru Roof		Boiler Custodian Science Science Facching Kitchen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NTERCE	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Cither PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet - New 2" Sched 40 Steel Ver Cabinet Of New 2" Sched 40 Steel Ver Other TITECTION SYSTEMS Replace Glycol System With Dry System Replace Wet Valvo with Flow Switch	nt Thru Roof T Thru Roof		Boiler Custodian Science Science Teaching Kitchen Autoshop Pottery Chem Storage Chem Storage		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NTERCE	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Cither PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet OK - New 2" Sched 40 Steel Ver Cabinet OK - New 2" Sched 40 Steel Ver Other WECTION SYSTEMS Replace Wet Videw with Flow Switch Sprinkder Remainder of Building Kennows Sprinker Near Aluminum Melting Kennows Sprinker Near Aluminum Melting	t Thru Roof		Boiler Custodian Science Chem Storage Chem Storage Sprinder Station Sprinder Station		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
EUIL DING	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Chter PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Oil Interceptor Oil House of Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet OK. New 2" Sched 40 Steel Ver Cabinet OK. New 2" Sched 40 Steel Ver Other HECTION SYSTEMS Replace Glycol System With Dry System Kreplace Wet Valve with Flow Switch Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting Other	t Thru Roof		Boiler Custodian Science Science Science Teaching Ritchen Autoshop Autoshop Autoshop Chem Storage Chem Storage Sprinder Station Sprinder Station Sprinder Station		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NJERCE	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Acid Neutralizer Grease Interceptor Oil Interceptor Disade Oil Storage Tank Plaster Interceptor Other BLE STORAGE CABINET New Cabinet - New 2" Sched 40 Steel Ver Other TIFECTION SYSTEMS. Replace Glycol System With Dry System Replace Wet Valve with Flow Switch Sprinker Remainder of Building Remove Sprinker Near Aluminum Melting Other ENWELOPE. Re and Re T-Bar New T-Bar	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NJERCE LAMMA LAMMA FIRE PRO	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Pleaster Interceptor Other Bus E STORAGE CABINET New Cabinet - New Z' Sched 40 Steel Ver Other Other Of the Cabinet - New Z' Sched 40 Steel Ver Other Other Of the Cabinet - New Z' Sched 40 Steel Ver Other Street Street - New Z' Sched 40 Steel Ver Other Street Street - New Z' Sched 40 Steel Ver Other FREGUEN SYSTEMS Replace Olycol System With Dry System Replace Olycol System With Dry System Replace With Valve with Flow Switch Sprinker Remainder of Building Remove Sprinkler Near Atuminum Melting Other SENVELOPE Re and Re T-Bar New T-Bar Single Glazing	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NIERCE CLAMMAI FIRE PRO	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Lab Fixture Vacuum Breaker Cher PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Pleaster Interceptor Other Bus E STORAGE CABINET New Cabinet - New Z* Sched 40 Steel Vecabinet OK - New Z* Sched 40	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NTERCE  LAMMA  FIRE PRO  BUILDING	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Cher PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Used Oil Storage Tank Pleaster Interceptor Other Bus E STORAGE CABINET New Cabinet - New Z Sched 40 Steel Ver Chier Street Storage Tank WIECTION SYSTEMS Replace Glycol System With Dry System Replace Wet Valve with Flow Switch System System System System Replace Sycol System With Dry System Replace Wet Valve with Flow Switch System System System System Replace Glycol System With Dry System Replace Wet Valve with Flow Switch Sprinder Remainder of Building Remove Sprinder Near Aluminum Melting Other SENVELOPE Re and Re T-Bar New T-Bar Single Glazing Choterital for Extreme Infiltration asbestos	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NTERCE LAMMAI	Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Lab Fixture Vacuum Breaker Cher PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Oil Interceptor Used Oil Storage Tank Pleaster Interceptor Other Bus E STORAGE CABINET New Cabinet - New Z* Sched 40 Steel Vecabinet OK - New Z* Sched 40	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit
NTERCE LAMMA  LAMMA  SULUNG	Small RPBP Small RPBP Sandard Vacuum Breaker Lab Fixture Vacuum Breaker Unter Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER Add Neutralizer Grease Interceptor Ulaidrocytor Ulaidrocytor Ulaidrocytor Ulaidrocytor Ulaidrocytor BLE STORAGE CABINET New Cabinet OK - New Z' Sched 40 Steel Ver Cabinet OK - New Z' Sched 40 Steel Ver Other STECTION SYSTEMS Replace Glycol System With Dry System Replace Wet Valve with Flow Switch Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting Other SENVELOPE Re and Re T-Bar Vew T-Bar Single Glazing Chronic Hot / Cold Spots Poternial for Extreme Infiltration asbestos Permits & Inspection Fees Demolition Bonding	t Thru Roof		Boiler Custodian Science Science Science Teaching Richen Autoshop Autoshop Pottery Chem Storage Chem Storage Sprinder Station Sprinder Station All Forge		Hose Bibb Science Prep Boiler		Darkroom Finishing		Art	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit Unit Unit Unit Unit Unit Unit Unit

369.3... Y

[전字 전... 건..

No:	NAME: Hume	Equip.	Duct	Pipe Instal	Insul.	Item Bal. &	ized Unit	Rate	Cut &	Roof	Overall
		Cost	Install	i ipo inida	11301.	Comm.	Control	Lieut	Patch	Rooi	Unit Rate
PRIMAR	Y HVAC SYSTEMS  Boiler	\$10,000								\$500	\$26,150 /Unit
	Fluid Cooler (or Cooling Tower) Chiller - W to W (or W to Air)	\$0 \$0		_ \$0 _ \$0	\$500		\$2,500	\$5,000	\$1,500		\$43,150 /Unit \$9,650 /Unit
	Heat Pump - W to W (or W to Air) Ground Source HX (Vert, Horiz or Ditch)	. \$0		\$5,000		\$150			\$1,000		\$10,150 /Unit \$6,000 /Unit
	Major Circ Pumps Main Circulation Piping	\$3,000		\$1,500 \$160	\$40			I			\$9,600 /Unit \$200 /Metre
	Outside Air Unit Multi-Zone	\$0 \$0	\$0		\$2,500 \$2,500	\$300	\$3,000	\$5,000			\$15,200 /Unit \$15,300 /Unit
	Relief Air Gooseneck Other	\$2,000	\$2,000		\$1,000	\$200	\$500		\$500	\$500	\$6,700 /Unit \$0 /Unit
TERMIN	AL HVAC SYSTEMS Roof Top Unit - Large - Heat/Cool	\$12,000					\$5,000				\$42,700 /Unit
	Roof Top Unit - Large - Heat Only Roof Top Unit - Small	\$5,000	\$5,000	\$1,000	\$1,500		\$3,500	\$1,500	\$1,000		\$17,200 /Unit \$19,700 /Unit
	Heat Pump Vertical Unit Ventilator	\$8,500 \$8,000	\$5,000	\$2,000	\$1,500		\$3,500	\$1,500	\$500	\$500	\$21,100 /Unit \$22,600 /Unit
	Fan Coil - 4 Pipe Furnace	\$2,000 \$2,500	\$5,000	\$1,500				\$1,500			\$15,100 /Unit \$16,600 /Unit
	Reheat Coil - Hydronic Minor Circ Pumps	\$1,800 \$800	\$900	\$900 \$500	\$500	\$100	\$1,000				\$5,200 /Unit \$4,400 /Unit
	Reheat Coil - Electric Split System AC	\$1,500	\$750		\$500		\$1,500 \$1,000	\$1,000			\$3,250 /Unit \$7,500 /Unit
	Electric Heat - Force Flow, Unit Heat Baseboard						\$1,000	\$1,000			\$2,000 /Unit \$1,500 /Unit
	Low Level Retrurn Transfer/ Door Grille	\$250 \$100				\$25	<b>V</b> 1,000	4000	\$1,500 \$200		\$2,275 /Unit \$300 /Unit
DEDICA	Other TED EXHAUST PICKUP										\$0 /Unit
A B	Small Ceiling Grille Large Ceiling Grille	\$50 \$50				\$25 \$25					\$625 /Unit \$625 /Unit
B	Range Hood - Residential Range Hood - Commercial	\$100 \$0	\$100			\$25 \$300	\$500				\$1,225 /Unit \$1,300 /Unit
D D	Hood - Forge & Melting Crucible Slotted Back - Pick Up	\$12,000 \$1,000	\$12,000			\$100 \$100	\$500	\$1,000			\$27,600 /Unit \$2,600 /Unit
D D	Articulating Arm CO - Overhead Flexible	\$1,200 \$2,400	\$1,200			\$100 \$100	\$500				\$3,000 /Unit \$5,400 /Unit
D E	Science Fume Hood (ASHRAE 110) Wood Shop - Equipment Pick-Up	\$13,000 \$1,000	\$13,000			\$150 \$150		\$1,500	\$1,000		\$28,650 /Unit \$2,525 /Unit
EXHAUS	Other ST SYSTEMS	7.,550	3,,550			<del>42</del> 3	4000				\$2,525 /Unit
В	In-Line Fan c/w Gooseneck Square Panel - Roof Mount	\$200 \$600			\$500 \$500	\$50 \$100		\$500 \$750			\$2,700 /Unit \$3,800 /Unit
C	Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount	\$2,000 \$3,500	\$2,000		\$2,000 \$500	\$100 \$100	\$0	\$1,500	\$500	\$1,000	\$9,100 /Unit \$11,600 /Unit
E	Sawdust Collector Sawdust Collector Recirculation Systems	\$0 \$5,000	\$0		\$500	\$100	\$500	\$5,000	\$5,000		\$11,100 /Unit
	Sawdust Collector - Vent If Enclosed Other	\$5,000	\$5,000 \$0		\$500 \$0	\$0 \$0			\$1,000 \$2,000		\$11,500 /Unit \$2,000 /Unit
ADDITIO	NAL CONTROL SYSTEMS			l T			\$500	Per Paint			\$0 /Unit
	V3 Upgrade or Main Panel CO2 Sensors						\$5,000 \$1,200				\$5,000 /Site \$1,200 /Unit
	Motion Detectors Variable Speed Drive						\$500 \$4,500				\$500 /Unit \$4,500 /Unit
GENERA	Other AL PLUMBING SYSTEMS										\$0 /Unit
	DHW Tank - Residential Electric (60 gal) DHW Tank - Storage (120 gal)	\$500 \$1,000		\$500 \$1,000				\$1,500	\$500		\$3,000 /Unit \$2,000 /Unit
	DHW Recirc Pump Custodian Sink - Floor Mount - Trim	\$250 \$350		\$250 \$350			\$500	\$500	\$500		\$1,500 /Unit \$1,200 /Unit
	Laundry Tub Drinking Fountain - Bubbler	\$200 \$250		\$200 \$250				_	\$100		\$400 /Unit \$600 /Unit
	Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	\$4,200		\$1,600 \$4,200				\$750	\$500 \$2,000		\$4,450 /Unit \$10,400 /Unit
	New Hand Lav - New IR Trim Hand Lav OK - New IR Trim	\$700 \$450		\$700 \$450					\$500		\$1,900 /Unit \$900 /Unit
	New Wall Mount Urinal - New IR Trim Urinal OK - New IR Trim	\$550 \$350		\$550 \$350					\$1,500 \$500		\$2,600 //Unit \$1,200 //Unit
-	WC - Fixture OK - New IR Trim Acid Waste Piping	\$350		\$350 \$2,500							\$700 /Unit \$2,500 /Fixture
	Replace Galvanized with Copper Drain Pipe In-Slab (Sawcutting Required)	\$0 \$0		\$30 \$30	\$20				\$250		\$50 /Metre \$280 /Metre
EMERGE	Other NCY PLUMBING FIXTURES		,								\$0 /Unit
	Eyewash - New, TMV - New Eyewash - OK, TMV - New	\$1,200 \$800		\$1,200 \$800							\$2,400 /Unit \$1,600 /Unit
	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New	\$2,400 \$1,100		\$2,400 \$1,100							\$4,800 /Unit \$2,200 /Unit
NATURA	Other L GAS ISOLATION										\$0//Unit
	Emegency Shut Down - Valve Emegency Shut Down - Electronic	\$50 \$200		\$150 \$300		\$100	\$2,000				\$200 /Unit \$2,600 /Unit
CROSS (	Other CONTAMINATION										\$0 /Unit
	Large DCVA - Fire Protection Systems Small RPBP	\$2,500 \$500		\$5,000 \$500							\$7,500 /Unit \$1,000 /Unit
	Standard Vacuum Breaker Lab Fixture Vacuum Breaker	\$100 \$25		\$100 \$50							\$200 /Unit \$75 /Unit
	Other PTOR AND ACID NEUTRALIZER										\$0 /Unit
	Acid Neutralizer Grease Interceptor	\$5,000 \$3,000		\$5,000 \$3,000					\$5,000 \$2,000		\$15,000 /Unit \$8,000 /Unit
	Oil Interceptor Used Oil Storage Tank	\$3,000 \$8,000		\$3,000 \$1,000					\$2,000 \$500		\$8,000 /Unit \$9,500 /Unit
	Plaster Interceptor Other	\$800		\$800		-					\$1,600 /Unit \$0 /Unit
FLAMMA	ABLE STORAGE CABINET  New Cabinet - New 2" Sched 40 Steel Ve	\$2,000		\$500					\$250	\$250	\$3,000 //Unit
	Cabinet OK - New 2" Sched 40 Steel Ven Other			\$500					\$250	\$250	\$1,000 /Unit \$0 /Unit
FIRE PRO	OTECTION SYSTEMS  Replace Glycol System With Dry System			\$10,000							\$10,000 /Unit
	Replace Wet Valve with Flow Switch Sprinkler Remainder of Building			\$2,500 \$30							\$2,500 /Unit
	Remove Sprinkler Near Aluminum Melting			\$500							\$30 /Sq.m. \$500 /Unit
							l				\$0 /Unit
BUILDIN	Other G ENVELOPE	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		1				<u> </u>	\$10 \$50		\$10 /Sq.m.
BUILDIN	G ENVELOPE Re and Re T-Bar New T-Bar										\$50 /Sq.m.
BUILDIN	G ENVELOPE Re and Re T-Bar New T-Bar Single Glazing Chronic Hot / Cold Spots								\$1,000 \$5,000		\$1,000 /Unit \$5,000 /Unit
BUIL CIN	G ENVELOPE Re and Re T-Bar New T-Bar Single Glazing				700000000000000000000000000000000000000				\$1,000		\$1,000 /Unit
BUIL DIN	G ENVELOPE Re and Re T-Bar New T-Bar Single Glaszing Chronic Hot / Cold Spots Potential for Extreme Infiltration asbestos  Permits & Inspection Fees			\$500					\$1,000 \$5,000 \$20,000		\$1,000 /Unit \$5,000 /Unit \$20,000 /Unit
BUIL CIN	© ENVELOPE Re and Re T-Bar New T-Bar Single Glazing Chronic Hot I Cold Spots Potential for Extreme Infiltration asbestos  Permits & Inspection Fees Demolition Bonding	bour tal		\$500					\$1,000 \$5,000 \$20,000		\$1,000 /Unit \$5,000 /Unit \$20,000 /Unit
BUIL DIN	© ENVELOPE Re and Re T-Bar New T-Bar Single Glazing Chronic Hot I Cold Spots Potential for Extreme Infiltration asbestos  Permits & Inspection Fees Demolition Bonding			\$500					\$1,000 \$5,000 \$20,000		\$1,000 /Unit \$5,000 /Unit \$20,000 /Unit

No:	NAME: Hume					Splits					Sub	5%	10%	12%	12%	PROJECT	P	PHASE	PHASE
ID	Item	Equip. Cost	Duct Instali	Pipe Install	Insul.	Bal.	Control	Elect	Cut & Patch	Roof	Total	Escal ation	Contin gency	Fee & Disb.	Taxes	TOTAL	H A S E	PHASE 1	2
PRIMAR	/ HVAC SYSTEMS Boiler	\$36,000			\$13,000 \$1,500	\$850 \$450	\$10,500					\$19,800 \$4,000	\$39,500	\$47,400				\$213,350	\$333,600
	Fluid Cooler (or Cooling Tower) Chiller - W to W (or W to Air)	\$0	\$0	\$0	\$0	\$0	\$0	\$(	0 \$0	\$0	\$0	\$0	\$0	\$9,500	\$0		\$0 \$0	\$109,350 \$0 \$0	\$0
	Heat Pump - W to W (or W to Air) Ground Source HX (Vert, Horiz or Ditch)	\$0	\$0 \$0		\$0	\$0	\$0	\$(	D \$(	\$0	\$0	\$0	\$Ö	\$0	\$0		\$0	\$0	\$0
	Major Circ Pumps Main Circulation Piping	\$6,000	\$0	\$32,000	\$1,000 \$8,000	\$200 \$0	\$3,000	\$5,000 \$0	\$1,000	\$0	\$19,200 \$40,000	\$1,000 \$2,000		\$2,400	\$2,400	\$27,00	00 1	\$27,000	\$0
	Outside Air Unit Multi-Zone	\$0 \$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$1,600 \$0	\$0	\$0		\$0	\$21,400 \$0	\$0
	Relief Air Gooseneck Other  J. HVAC SYSTEMS	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	50	\$0	\$0	\$0	\$0 \$0	\$0	\$0		\$0 \$0	\$(	\$0
	Roof Top Unit - Large - Heat/Cool Roof Top Unit - Large - Heat Only	\$175,500 \$12,000 \$0	\$12,000	\$1,500		\$200	\$5,000	\$5,000	\$2,500	\$2,000	\$42,700	\$2,200		\$56,700 \$5,200 \$0	\$5,200	\$59,60		\$653,600 \$59,600	
	Roof Top Unit - Small Heat Pump	\$0 \$161,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$48,200	\$0		\$0 \$0	\$0 \$0 \$557,500	\$0
	Vertical Unit Ventilator Fan Coil - 4 Pipe	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		50 50	\$(	\$0
	Furnace Reheat Coil - Hydronic	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	) \$C	\$0		\$0	\$0	\$0	\$0	3	50 50	\$0	\$0
	Minor Circ Pumps Reheat Coil - Electric	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	1	50 50	\$0 \$0	\$0
	Split System AC Electric Heat - Force Flow, Unit Heat Baseboard	\$0 \$0	\$0	. \$0	\$0	\$0	\$4,000	\$4,000	\$0	\$0	\$8,000	\$400			\$1,000	\$11,20		\$11,200	\$0
	Low Level Retrurn Transfer/ Door Grille	\$2,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,200 \$0 \$600	\$1,500 \$0 \$800	\$0		50	\$16,800 \$0 \$8,500	\$0
DEDICAT	Other ED EXHAUST PICKUP	\$0 \$0											\$000 \$0				50	\$6,500 \$0	\$0 \$0
A B	Small Ceiling Grille Large Ceiling Grille	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0			\$0		\$0 \$0	\$0 \$0			50 50	\$0 \$0	\$0
B C	Range Hood - Residential Range Hood - Commercial	\$0 \$0	\$0	\$0	\$0	\$0	- \$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	1	00 00	\$0 \$0	\$0
ם ם	Hood - Forge & Melting Crucible Slotted Back - Pick Up Articulating Arm	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0		00 00	\$( \$(	\$0
D	CO - Overhead Flexible Science Furne Hood (ASHRAE 110)	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0		00	\$0	\$0
E	Wood Shop - Equipment Pick-Up Other	\$0 \$0	\$0	\$0	\$0	\$0	\$0	SC	\$0	\$0	\$0	<b>\$</b> D	\$0 \$0	\$0 \$0 \$0	\$0	\$	00	\$0 \$0	\$0
EXHAUS A	FSYSTEMS In-Line Fan c/w Gooseneck	\$2,400 \$0	\$2,400 \$0	\$0 \$0	\$2,000 \$0	\$400 \$0	\$2,000	\$3,000	\$1,000	\$2,000	\$15,200	\$800	\$1,600 \$0 \$0	\$1,900 \$0	\$1,900	\$21,400	60) 	\$21,400 \$0	\$0
С	Square Panel - Roof Mount Grease Extraction - Roof Mount	\$2,400 \$0	\$0	\$0		\$400 \$0	\$2,000	\$3,000	\$1,000	\$2,000	\$15,200	\$800	\$1,600 \$0		\$1,900	\$21,40	00 1	\$21,400	\$0
	Industrial Vent Set - Roof Mount Sawdust Collector	\$0 \$0		\$0		\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	3	0 0	\$0 \$0	\$0
	Sawdust Collector Recirculation Systems Sawdust Collector - Vent If Enclosed Other	\$0	\$0	\$0			\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0		00	\$C	\$0
ADDITIO	Other NAL CONTROL SYSTEMS V3 Upgrade or Main Panel	\$0 \$0 \$0	\$D	\$0	\$0 \$0 \$0	\$0 <b>\$</b> 0 \$0	\$38,500	\$0	50	\$0	\$38,500	\$2,100	\$0 \$3,900 \$500	\$0 \$4,700	\$4,700	\$53,900	60   60 4 1	\$53,900	\$0
	CO2 Sensors Motion Detectors	\$0 \$0	\$0	\$0	\$0 \$0		\$24,000	\$0	\$0	\$0	\$24,000	\$1,200	\$2,400 \$100	\$600 \$2,900 \$100	\$2,900	\$33,40		\$7,000 \$33,400 \$900	\$0
	Variable Speed Drive Other	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$9,000	\$0	\$0	\$0	\$9,000	\$500	\$900 \$0	\$1,100	\$1,100	\$12,60		\$12,600 \$0	\$0
	PLUMBING SYSTEMS DHW Tank - Residential Electric (60 gal)	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	50	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$Ø \$0	\$0	\$0	ioi	\$ <b>0</b>	\$0
)	DHW Tank - Storage (120 gal) DHW Recirc Pump	\$0 \$0	\$0	\$0		\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0		0 0	\$0 \$0	\$0 \$0
	Custodian Sink - Floor Mount - Trim Laundry Tub	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0		60 60	\$0 \$0	\$0 \$0
	Drinking Fountain - Bubbler Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	\$0 i \$0	\$0	\$0	\$0	\$0 \$0	\$0		\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0		30 30	\$C	\$0
	New Hand Lav - New IR Trim Hand Lav OK - New IR Trim	\$0 \$0 \$0	\$0	\$0	\$0 \$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0 \$0	\$0		0 0 0	\$0 \$0	\$0
	New Wall Mount Urinal - New IR Trim Urinal OK - New IR Trim	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0		0 0	\$0 \$0	\$0
	WC - Fixture OK - New IR Trim Acid Waste Piping	\$0 \$0	\$0	\$0		\$0 \$0	\$0		\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	\$	50	\$0	\$0
	Replace Galvanized with Copper Drain Pipe In-Slab (Sawcutting Required)	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	5	50 50	\$0	\$0
EMERGE	Other NCY PLUMBING FIXTURES	\$0 \$0	50	\$0	\$0	\$0	\$0	50	\$6	<b>\$</b> 0	50	\$0	\$0 \$0	\$0 <b>\$</b> 0	\$0	\$0	io	\$0 \$0	
	Eyewash - New, TMV - New Eyewash - OK, TMV - New	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	5	0	\$0 \$0	\$0
	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New Other	\$0 \$0 \$0	\$0	\$0	\$0	\$0 \$0	_ \$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	S	i0   i0	\$0 \$0	\$0
NATURA	GAS ISOLATION Emegency Shut Down - Valve	\$0   \$0	50	50	\$0 \$0	\$0 \$0	\$0	\$0	50	\$0	50	\$0	\$0 <b>\$0</b> \$0	\$0 \$0 \$0	\$0	\$0	;o] ] ;o] [	\$0 \$0	\$0
	Ernegency Shut Down - Electronic Other	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$D	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	\$	iO	\$0 \$0	\$0
	ONTAMINATION Large DCVA - Fire Protection Systems	\$0 \$0	\$6 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$6 \$0	\$0 \$0	\$0 \$0	\$0 \$0	<b>50</b> \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$	;o	<b>\$0</b>	\$0
	Small RPBP Standard Vacuum Breaker	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0			\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	, s	i0 i0	\$0 \$0	\$0 \$0
!	Lab Fixture Vacuum Breaker Other PTOR AND ACID NEUTRALIZER	\$0 \$0 \$0	\$0 \$0		\$0 \$0	\$0 \$0 \$0	\$0	\$0		\$0	\$0		\$0 \$0	\$0 \$0	\$0	S	i0 i0	\$0 \$0	\$0
	Acid Neutralizer Grease Interceptor	\$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	\$0 \$0		\$0 \$0 \$0			\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0			0	\$0 \$0	
	Oil Interceptor Used Oil Storage Tank	\$0 \$0		\$0	\$0 \$0	\$0 \$0	\$0		\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	\$	iO .	\$0 \$0 \$0	\$0
	Plaster Interceptor Other	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	\$	0	\$0 \$0	\$0
FLAMMA	BLE STORAGE CABINET New Cabinet - New 2" Sched 40 Steel Ve Cabinet OK - New 2" Sched 40 Steel Ven	\$0	\$8 \$0	\$0 \$0	<b>\$0</b> \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	<b>30</b> \$0	\$0 \$0	<b>\$0</b> \$0	\$0 \$0	\$8 \$	io	\$0 \$0	\$0 \$0
	Cabinet OK - New 2" Sched 40 Steel Ven Other ITECTION SYSTEMS	\$0			\$0 \$0	\$0 \$0			\$0	\$0		\$0	\$0 \$0	\$0 \$0	\$D	\$	0	\$0 \$0	\$0 \$0
	Replace Glycol System With Dry System Replace Wet Valve with Flow Switch	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0		\$0 \$0				\$0 \$0	\$8 \$0	\$0 \$0			:0	\$C \$0	
	Replace Wet Valve with Flow Switch Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0		\$0 \$0 \$0	\$0	\$0			\$0 \$0	\$0 \$0	\$0	\$	0	\$0 \$0	\$0
	Other SENVELOPE	\$0 \$0				\$0 \$0							\$0 \$0 \$7,500	\$0 \$9,000	\$0		0	\$0 \$0 \$104,300	
	Re and Re T-Bar New T-Bar	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0		\$0 \$0	\$0		\$0		\$0 \$0	\$0 \$0 \$0	\$0	\$	0	\$104,300 \$0	\$0
	Single Glazing Chronic Hot / Cold Spots	\$D \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$	0	\$0 \$0	\$0
	Potential for Extreme infiltration asbestos	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$75,000	\$0 \$0	\$0 \$75,000	\$0 \$3,800	\$0 \$7,500	\$0 \$9,000	\$0 \$9,000	\$ \$104,30	0	\$0 \$104,300	\$0 \$0
	Permits & Inspection Fees	\$0	\$16,300	\$16,500 \$2,500	so	\$0	\$0	<b>\$</b> D	\$0	50	\$32,800 \$2,500	\$1,800 \$200	\$3,400 \$300	\$4,000 \$300		\$46,000 \$3,60	O all	\$35,100 \$2,800	\$10,900 \$800
	Demolition Bonding	£242 002	\$6,300 \$10,000 \$140,700	\$14,000 \$296,500	\$46,000	42 OEA	E146 PA-	ecn en-	#14F 00-	***	\$20,300 \$10,000	\$1,100 \$500	\$2,100 \$1,000	\$2,500 \$1,200	\$1,200		0	\$21,700 \$10,600	\$3,300
Area: Zones:	3254	\$213,900 \$66 \$10,695	\$43	\$91	\$46,000 \$14 \$2,300	\$3,350 \$1 \$168	\$35	\$19		\$2		\$16	\$32	\$38		\$43	8	\$1,081,650 \$332	
	20	₩.U,083	φ1,U33	φ1 <del>~</del> 1,0∠5	¥2,300	\$ 10d	_ ψυ,//S	ψ0,0∠5	ı ∌≀,∪∪0	<b>\$3/5</b>	\$51,198	J∠,095	\$5,145	\$6,185	\$6,185	\$71,30	ان	\$54,083	\$17,225

												Hum	ne Eleme	ntary Sc	hool												
3,254	sq m																										_23-Sep-12
		-								Exp	ected An	nual Uti	lity Cons	umption	Based o	on 2012 [	Data										
												Ex	isting Co	nfigurat	ion												
					latural Ga	18								Electricity	/								Total				
	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m
Existing Consumption	2,000	555,600	99.3	0.61	171	\$31,000	\$15.50	\$0.056	\$9.53	486	135,000	3.0	0.15	41	\$15,000	\$30.87	\$0.111	\$4.61	2,486	690,600	102.3	0.76	212	\$46,000	\$18.50	1	\$14.14

												Option 1	l - Conve	entional	Upgrade												
					latural Ga	15								Electricit	у								Total				
1	GJ	kWhr	Tonne	GJ/	kWhr/	8	\$/	\$/	\$/	GI	kWhr	Tonne	GJ/	kWhr/	•	\$/	\$/	\$/	GJ	kWhr	Tonne	GJ/	kWhr/		\$/	\$/	\$/
			CO2	sq.m.	sq.m		GJ	kWhr	sq.m		KVVIII	CO <sub>2</sub>	sq.m.	sq.m	Ψ	GJ	kWhr	sq.m	_ G3	KVVIII	CO <sub>2</sub>	sq.m.	sq.m	Þ	GJ	kWhr	sq.m
New Consumption	1,800	500,040		0.55	154	\$27,900	\$15.50	\$0.056	\$8.57	486	135,000	l	0.15	41	\$15,000	\$30.87	\$0.111	\$4.61	2,286	635,040	92.4	0.70	195	\$42,900	\$18.77	\$0.068	\$13.18
Savings	200	55,560	9.9	0.06	17	\$3,100	\$15.50	\$0.056	\$0.95	0	0	0.0	0.00	0	\$0	\$30.87	\$0.111	\$0.00	200	55,560	9.9	0.06	17	\$3,100	\$15,50	\$0.056	\$0.95
	10%							·		0%									8%		10%						
						···			,												•	Conventi	onal Cost	\$1,080,000		\$/sq.m	\$332

			•								Option	n 2 - Gro	und Sou	rce Heat	Pump -	Adder										-	
					latural G	as								Electricit	у								Total				$\overline{}$
	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sg.m
New Consumption	500	138,900	24.8	0.15	43	\$7,750	\$15.50	\$0.056	\$2.38	462	128,250	2.8	0.14	39	\$14,250	\$30.87	\$0.111	\$4.38	962	267,150	27.7	0.30	82	\$22,000	\$22.88	\$0.082	\$6.76
Savings	1,500	416,700	74.5	0.46	128	\$23,250	\$15.50	\$0.056	\$7.15	24	6,750	0,1	0.01	2	\$750	\$30.87	\$0.111	\$0.23	1,524	423,450	74.6	0.47	130	\$24,000	\$15.74	\$0.057	\$7.38
	75%									5%									61%		73%						
																				(	Convention	nal and G	SHP Cost	\$1,425,000 Simple		\$/sq.m For GSHP	

Poole and Associates

Total Esitmated Budget:

#### **Capital Project Request Form**

RDER0310 V.4.06

'kim morris' (PRD01)

Project No: N/A

Request Type:

09 OCT 2012 12:10:22

Hidden: District Priority: District Ranking: No High 4

Ministry Priority: New Part A - Project Identification 1. Capital Plan Year: 2012/2013 2. SD Ref. No.: 152 3. Last Modified: 4. Submitted On: unsubmitted Oct. 9, 2012 6. SD Name 5. SD No.: 08 Kootenay Lake **KASLO** 7. Municipality: 8. Asset No.: 120384 9. Facility No .: 10. Facility Name: J V HUMPHRIES ELEM -SECONDARY Facility Type: 14. Project Description: 13. Proj. Cd. MECHUP 11. Current: Elementary-Secondary Sch JV HUMPHRIES ELEM-SECONDARY MECHANICAL **UPGRADE** 15. Proj. Type: MINOR 12. Proposed Elementary-Secondary Sch Part B - Capacity, Area Factors and Allowances Nominal Capacity: Kindergarten Grades 1 - 7 Grades 8 - 12 7. Grade Configuration 1. Actual Existing: 20 200 150 K-12 2. Capcity Adjustments: 0 0 0 3. Proposed Higher Priority Additions: 0 0 0 4. Total Existing: 20 200 150 5. Proposed Addition: 0 0 0 6. Proposed Total Capcity: 20 200 150 K-12 Site Area (ha): Allowable BuildIng Area (sq.m.) Allowable Renovation Area (sq.m.) 9. Required Size: 0.0 12. Total Allowable Area: 0.0 16. Renovations Associated 21 With Additions (%): 10. Existing Area: 0.0 0.0 13. Existing Area: 17. Renovation Area: 0.00 0.0 14. Area to be demolished: 11. Total New Aera: 0.0 18. Renovation Unit Rate 0 15. Area of New Space: 0.0 Construction Cost Factors: Equipment Allowance (%): 19. Base Unit Rate: 1785.00 20. Air Conditioning: 0 LFA: 0.00 MF: 1.00 24. New Space: 17.3 21. Project Size Factor: 1.050 22. Location Factor: 1.15 23. Ground Factor: 25. Freight Allowance: 1.00 8.609 Part C - Estimated Budget Subtotal Site Acquisition: 1. Purchase: O 2. Other Cost: 0 3. 0 Site Development: 4. Development Cost Charges: 0 5. Offsite Costs: 0 6. Adjusted Site Development: 0 0 None 0 7. Supplementary Site: 0 New Construction: 9. New Area: 0.0 Renovations: 13. Renovation Area: 0.00 10. Adjusted Unit Rate: 0.0000 14. Renovation Unit Rate: 0 11. Subtotal: 0 0 15. Subtotal: 12. Supplementary Building: 0 16. Supplementary Costs: 0 17. Other Costs: 0 **Building Costs:** 18. Build Total: 0 19. Reno Cost: 0 20. 0 Area Allowance Equipment Allowance: 21 New Area: 0.00 0 0.00 22. Area Entitled to Equipment Replacement 0 New Fee Reno Fee 24. 0.0000 0.1600 23. Equipment Freight Allowance: 0 0 Fees: 25. Site Dev.: 0 26. New: 0 27. Renovation: 0 28. 0 Contingency: 29. New: 0 0 30. Renovation: 31. 0 Mechanical Upgrade - HVAC Other: 32. 33. 500,000 35. Plan: 500,000 Phases: 34. Site: 36. Completion: 37. Planning Costs in Planning Phase: 0 38. In Completion Phase: 0

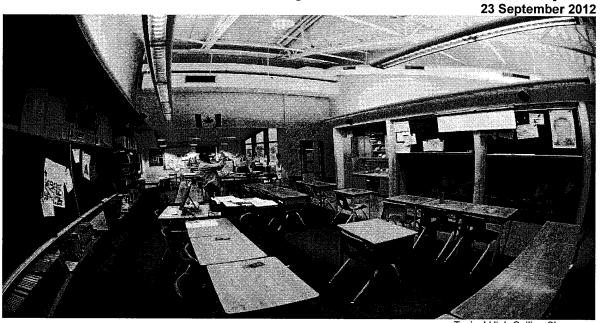
500,000

MECHUP - JY HUMPHRIES ELEM - SECONDARY   2012/2013   08	
1. Year:   2014/2015   2014/2015   2013/2014   2013/	52
1. Year:   2014/2015   2013/2014   2. Cost:   0   0   500,000	
4. Capital Reserve: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
1. Status:   Requested   Requested   Requested	
proved: 2. Bylaw Capital: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
let Request: 7. Bylaw Capital: 0 0 500,000 8. Capital Reserve: 0 0 0 0 9. Land Reserve: 0 0 0 0 10. Local Capital: 0 0 0 0 rt F - Comments	
8. Capital Reserve: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

# JV Humphries Elementary Secondary School

Kaslo, B.C.

# School District No. 8 (Kootenay Lake) HVAC Systems Assessment Report



Typical High Ceiling Classroom

#### 1.0 Executive Summary

- The school appears to be well utilized and is well populated.
- The existing mechanical systems are in FAIR condition.
- The existing mechanical systems do not comply with present ASHRAE 90.1 energy requirements
- The existing mechanical systems are not CONFIGURED to good engineering practice.
- The existing mechanical systems do not have the appropriate **CAPACITY** to meet the building loads properly as they are significantly oversized.
- The existing mechanical systems cannot be **CONTROLLED** to match the loads.
- The existing mechanical systems are not configured for ease of MAINTENANCE.
- The existing mechanical systems use a disproportionate amount of **ENERGY**. This problem is compounded by the heating source is propane, and propane cost are significantly higher than other energy sources.
- Significant upgrades to ventilation and plumbing systems are required to bring systems to good design practices, guidelines and standards.
- A upgrade to the mechanical systems will save 77 tonnes of CO2 Per Year

#### 2.0 Description of Existing Building

- Area of building: 6,200 m²
- Original building date: 1993.
- Description of existing building: The building is single storey with non-combustible construction. The lower floor is slab on grad. The roof structure is made up of insulation on Q-deck supported with open web steel joists. The roof structure is sloped for the bulk of the building.

#### 3.0 Discussion of Existing Mechanical Systems

#### **Primary Energy and Air Handling Systems**

The hydronic heating system is natural draft super hot boiler. This system was installed in 1993. This system does not modulate well and is oversized.	The boilers will need to be upgraded to a sealed combustion condensing
The boiler heating is supplemented with a cascading style geothermal system.	style boiler.
The primary cooling system is air cooled condensing unit that serves the central core of the building. This system was installed in 1993.	
The air handing units are Scott Springfield hydronic heated systems. These systems were installed in 1993.	

### **Energy Transportation Systems**

The hydronic piping and pumping systems are original. The configuration	Piping and pumping
of the piping systems is inadequate for the purpose it serves as all the	systems will need to be
systems are oversized and cannot be controlled well to match the loads.	upgraded.

## **Terminal Equipment**

Terminal equipment for occupied areas are based on constant volume reheats with radiant ceiling panels. These systems were installed in 1993. These systems are not performing well.  The radiant ceiling panels were positioned at very high level and are not effective at heating the lower levels. To change the elevation of these panels will be problematic as the configuration of the room does not lend well to this modification. It will be better to modify the reheat coil.  The reheat coils were undersized to handle the full heating requirements of the space. The coils should he upgraded to a higher capacity.	Terminal heating coils will need to be upgraded.  Radian Ceiling panels should be removed.
Terminal units for unoccupied areas such as entry ways and perimeter ancillary are hydronic force flow, unit heater or baseboard heating systems.	
Many zones have high ceilings (10 feet and higher). Stratification (heat migrating to the ceiling in heating season) is an effect that causes cool conditions to occur in the occupied zone (cool complaints). As well, excessive energy usage occurs as the hot supply air is short-circuited to the high level return openings.	Duct system will need to be upgraded to include low level returns.
The zoning or temperature control is very poor for the building. Many zones are served by one unit or many units serve one zone.	Zone control will need to be upgraded so that one terminal unit serves one zone.
There are certain zones that are chronically hot in summer or cool in the winter. The capacity of the system is not capable of meeting the loads for the zones. This is mainly for the zones at the end of the wings. Devices will need to be placed on terminal systems so that systems can be properly balanced. All systems will need to be rebalanced so heating effect is shared to all zones.	A complete rebalancing of the systems is required.

#### **Controls**

The building is serviced by first generation or unsupported digital control	Control system will need to
systems. These systems are very difficult to service or renovate. These	be upgraded to more
systems are difficult to program for energy savings.	modern DDC.
The building has not been provided with carbon dioxide sensors in the	Control systems will need
occupied zones. Carbon dioxide sensors can be used to optimize and	to be upgraded with CO <sub>2</sub>
maintain appropriate outside air levels.	Sensors.

#### 4.0 Considerations for Mechanical System Upgrade

A upgrade to the existing mechanical system will improve the operation, comfort, energy consumption and maintenance of the facility.

The configuration of the mechanical systems for this building did not take into account the high ceilings in the building and much of the heat generated by the terminal systems is short circuited away from the occupied zone. The primary heating systems are over taxed.

We recommend reconfiguring the bulk of the existing systems to eliminate stratification, provide proper zoning and proper capacity in the terminal systems. This will include eliminating radiant ceiling panels as they have proven to be in effective.

Don Poole P.Eng.

ID	NAME: JV Humprhries Item	Comment	HV.	AC Type: CV +	RV a		Ceil	ing Panel Location	Qty	Location	-	Qty
55B												ed,
*CIMAR	Y HVAC SYSTEMS Boiler		3	Mech	projection in the second	I	Ç.	l	r		3	Ur
	Fluid Cooler (or Cooling Tower)		Ė	Outside	L		F				0	Ur
	Chiller - W to W (or W to Air) Heat Pump - W to W (or W to Air)		$\vdash$	Mech	+	-	+	<del></del>			0	Ur
	Ground Source HX (Vert, Horiz or Ditch) Major Circ Pumps		_	Field			Γ		Е		0	Un
	Main Circulation Piping			Mech Mech	$\vdash$		╁╌		-			Ur M
	Outside Air Unit Multi-Zone		Ε	Mech	L	Roof	F				0	Ur
	Relief Air Gooseneck	<u> </u>	$\vdash$	Roof	+-		$\vdash$		$\vdash$		0	Ur
OBBS	balancing all systems AL HVAC SYSTEMS		1		L.		<u> </u>					AI
EKMINA	Roof Top Unit - Large - Heat/Cool		yaas	Gym	ļ.,	Shop		Theater			0	Uı
	Roof Top Unit - Large - Heat Only	3	ļ <u>.</u>	Gym		Shop		Theater			0	U
-	Roof Top Unit - Small Heat Pump		-	Class	-		╀					U
	Vertical Unit Ventilator			Class							0	Ü
	Fan Coil - 4 Pipe Furnace			Class	-		H					U
	Reheat Coil - Hydronic		29	Class		<u> </u>						U
	Minor Circ Pumps Reheat Coil - Electric			Mech Class	-							U
	Split System AC			Class	Ė	Server			$\vdash$			υ
	Electric Heat - Force Flow, Unit Heat Baseboard		-	Entry/Stair Office	Į.	Storage					٥	U
	Low Level Retrurn		29	All	┢		$\vdash$		Н			U
	Transfer/ Door Grille Other		-	All	F						0	U
	ED EXHAUST PICKUP		b		ļ		l	1			0	U
	Small Ceiling Grille			Elect Rm		Server	1	Storage - Sm.		W/R - Single		Ü
	Large Ceiling Grille Range Hood - Residential	<u> </u>		Gang WR Home Ec	-	photocopy Staff	+-	general	$\vdash$			U
	Range Hood - Commercial			Kitchen		Servery					0	U
	Hood - Forge & Melting Crucible Slotted Back - Pick Up			Metal Welding	$\vdash$	Paint		Varsol	П		0	U
	Articulating Arm			Welding		Solder	┢	• 31 001			0	U
	CO - Overhead Flexible Science Fume Hood (ASHRAE 110)			Auto					口		Ō	U
	Wood Shop - Equipment Pick-Up		<u> </u>	Science Woodshop	+-	Prep Tech	$\vdash$		-			U
	Other T SYSTEMS			-	L					000000000000000000000000000000000000000		U
	I SYSTEMS In-Line Fan c/w Gooseneck			In Room		T			,		0	U
	Square Panel - Roof Mount		ļW.	Roof							0	U
	Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount		<u> </u>	Roof	F		F		H			U
	Sawdust Collector			Outside							0	Ū
	Sawdust Collector Recirculation Systems Sawdust Collector - Vent If Enclosed			Inside	F						0	U
	Other			made	-				$\vdash$		0	U
DITIO	NAL CONTROL SYSTEMS V3 Upgrade or Main Panel											
	CO2 Sensors		33		-		-		-			S
	Motion Detectors								I		Ö	Ų
	Variable Speed Drive Other	<u></u>	2		$\vdash$	-	Ë		L-Ţ			Ü
NERA	L PLUMBING SYSTEMS											٥
Т	DHW Tank - Residential Electric (60 gal) DHW Tank - Storage (120 gal)		2	Mech Mech	<u> </u>							U
	DHW Recirc Pump			Mech	L-	<u> </u>			H			Uı
	Custodian Sink - Floor Mount - Trim Laundry Tub			Custodian		Art					ō	Ur
	Drinking Fountain - Bubbler			Mech Class	-	Home Ec	-					Ur
	Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	no frig.)		Corridor		Change		Weights			0	Ur
	New Hand Lav - New IR Trim			Shops Gang W/R		Change Rm	$\vdash$	Staff	$\vdash$			Ur
	Hand Lav OK - New IR Trim			Gang W/R		Change Rm		Staff			0	Ur
	New Wall Mount Urinal - New IR Trim Urinal OK - New IR Trim		-	Gang W/R Gang W/R		Change Rm Change Rm	$\vdash$	Staff Staff	1			Ur
	WC - Fixture OK - New IR Trim			Gang W/R		Change Rm		Staff	_		0	j
	Acid Waste Piping Replace Galvanized with Copper			Science	H		П		$\dashv$		0	Fi
	Drain Pipe in-Slab (Sawcutting Required)		L				Н		$\dashv$			M
	Other NCY PLUMBING FIXTURES		e desperan		200000			000000000000000000000000000000000000000				Ur
	NCY PLUMBING FIXTURES Eyewash - New, TMV - New			Woodshop		Tech Ed		Electricity		Physics	0	Ur
	Eyewash - OK, TMV - New			Woodshop		Tech Ed		Electricity	- 19	Physics	0	υ
-+	Eyewash/Shower - New, TMV - New Eyewash/Shower - OK, TMV - New		-	Metalshop Metalshop		Autoshop Autoshop	H	Science Science		Chem Prep		Ü
	Other					, anounh		MOINE		Chem Prep	0	
	GAS ISOLATION  Emegency Shut Down - Valve			Salanaa		E			W#			
	Emegency Shut Down - Electronic			Science Science	H	Forge			-		0	
- 1	Other ONTAMINATION										0	
	Large DCVA - Fire Protection Systems			Sprinkler		Premise		Irrigation		,	0	U
	Small RPBP			Boiler		Tower			_		0	U
	Standard Vacuum Breaker Lab Fixture Vacuum Breaker			Custodian Science		Hose Bibb Science Prep		Darkroom	7	tair Wash	0	U
	Other			- CHEILE	$\exists$	ocience Prep	$\vdash$		+			U
	PTOR AND ACID NEUTRALIZER Acid Neutralizer	7		Salanas		Dalla-			m¢			
	Grease Interceptor			Science Teaching Kitchen	$\dashv$	Boiler	-	Darkroom	-			U
,	Oil Interceptor			Autoshop							0	Üı
	Used Oil Storage Tank Plaster Interceptor		-	Autoshop Pottery	-		$\vdash$		4			Uı
	Other											Ur
mMAI	BLE STORAGE CABINET New Cabinet - New 2" Sched 40 Steel Ver	nt Thru Roof		Chem Storage		Autoshen		Finishing 1		Art .		×
	Cabinet OK - New 2" Sched 40 Steel Vent	Thru Roof		Chem Storage		Autoshop Autoshop		Finishing Finishing		Art		Uı
	Other TECTION SYSTEMS								Ţ			U
	Replace Glycol System With Dry System			Sprinkler Station	w.	1		T		r	0 1	Ür
	Replace Wet Valve with Flow Switch			Sprinkler Station							0 (	Ur
	Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting	Crucible		All Forge	$\dashv$		_7		7		0 8	Sc
-	Other	v. 44.070	$\exists$	- orge	-		-+		+			Ür
	ENVELOPE											
-	Re and Re T-Bar New T-Bar				-1		_		<b>-</b> T		0 1	Sc
	Single Glazing		$\equiv$		$\exists$				$\dashv$		0 0	Ur
- 17	Chronic Hot / Cold Spots						$\exists$		$\dashv$		0 1	Ur
	Potential for Extreme Infiltration Other				+					T		Ur Ur
1												
C					-1						3 l	ίĨε
c	Permits & Inspection Fees				$\rightarrow$				$\rightarrow$			
C I	Demolition Bonding						=		+		10%	%
ISC I	Demolition Bonding										1	10%

No:	NAME: JV Humprhries Item	Equip.	Duct	Pipe Instal	I insul.	Item Bal. &	ized Unit	Rate	Cut &	Roof	Ove	rall
OBINS -	/ HVAC SYSTEMS	Cost	Install			Comm.			Patch		Unit F	
	Boiler	\$10,000		\$5,000	\$500	\$150	\$1,500	\$2,000	\$1,500	\$500	\$26,150	/Unit
- 1	Fluid Cooler (or Cooling Tower) Chiller - W to W (or W to Air)	\$0 \$0		\$0 \$0		\$150 \$150	\$6,000	\$5,000	\$30,000		\$43,150 \$9,650	/Unit
	Heat Pump - W to W (or W to Air) Ground Source HX (Vert, Horiz or Ditch)	\$0		\$0	\$500	\$150	\$3,000	\$5,000	\$1,500		\$10,150	/Unit
	Major Circ Pumps	\$0 \$3,000		\$0 \$1,500			\$1,000		\$5,000 \$500		\$6,500 \$7,600	/Unit
	Main Circulation Piping Outside Air Unit	50	so.	\$160	\$40 \$2,500						\$200	/Metre
	Multi-Zone	\$0	\$0		\$2,500	\$300	\$3,000	\$5,000	\$2,500	\$2,000	\$15,200 \$15,300	/Unit
	Relief Air Gooseneck balancing all systems	\$2,000	\$2,000		\$1,000	\$20,000			\$500	\$500	\$6,700 \$20,000	
TERMINA	L HVAC SYSTEMS Roof Top Unit - Large - Heat/Cool	\$0	\$0	<b>54</b> F00								
	Roof Top Unit - Large - Heat Only	\$0	\$0	\$1,500 \$1,500	\$2,500	\$200 \$200				\$2,000 \$2,000	\$18,700 \$17,200	/Unit /Unit
	Roof Top Unit - Small Heat Pump	\$5,000 \$3,600		\$1,000 \$1,500		\$200 \$100			\$1,000	\$1,000	\$19,700 \$16,200	/Unit
	Vertical Unit Ventilator	\$8,000	\$5,000	\$2,000	\$1,500	\$100	\$3,500	\$1,500	\$500		\$22,600	/Unit
ı	Fan Coil - 4 Pipe Furnace	\$2,000 \$2,500		\$2,000 \$1,500	\$1,500 \$1,500	\$100 \$100				\$1,000	\$15,100 \$16,600	
	Reheat Coil - Hydronic Minor Circ Pumps	\$600 \$800		\$300 \$500	\$500	\$100 \$100	\$500				\$2,300	/Unit
	Reheat Coil - Electric		\$750			\$100	\$1,500	\$1,000			\$4,400 \$3,250	/Unit
	Split System AC Electric Heat - Force Flow, Unit Heat	\$1,500	\$1,500	\$2,000	\$500		\$1,000 \$1,000			1	\$7,500 \$2,000	
	Baseboard Low Level Retrum	£250	PEOD				\$1,000				\$1,500	/Unit
	Transfer/ Door Grille	\$250 \$100	\$500			\$25	-		\$1,500 \$200		\$2,275 \$300	
	Other ED EXHAUST PICKUP										\$0	/Unit
	Small Ceiling Grille	\$50	\$50			\$25					\$625	
3  F	Large Ceiling Grille Range Hood - Residential	\$50 \$100	\$50 \$100			\$25 \$25			\$250		\$625 \$1,225	
) F	Range Hood - Commercial Hood - Forge & Melting Crucible	\$0 \$12,000	\$0 \$12,000			\$300 \$100		\$1,000 \$1,000			\$1,300	/Unit
) [	Slotted Back - Pick Up	\$1,000	\$1,000			\$100	\$500	\$1,000	<b>a</b> ∠,000		\$27,600 \$2,600	/Unit
) /	Articulating Arm CO - Overhead Flexible	\$1,200 \$2,400	\$1,200 \$2,400			\$100 \$100					\$3,000 \$5,400	/Unit
) [5	Science Fume Hood (ASHRAE 110)	\$13,000	\$13,000			\$150		\$1,500	\$1,000		\$28,650	/Unit
	Wood Shop - Equipment Pick-Up Other	\$1,000	\$1,000			\$25	\$500				\$2,525 \$0	/Unit /Unit
	TSYSTEMS In-Line Fan c/w Gooseneck	\$200	\$200		\$500	\$50	\$500	\$500	\$250	\$500	\$2,700	
	Square Panel - Roof Mount	\$600	\$600		\$500	\$100	\$500	\$750	\$250	\$500	\$3,800	/Unit
1	Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount	\$2,000 \$3,500	\$2,000 \$3,500		\$2,000 \$500	\$100 \$100	\$500	\$1,500 \$1,500	\$1,000	\$1,000 \$1,000	\$9,100 \$11,600	/Unit
	Sawdust Collector Sawdust Collector Recirculation Systems	\$0 \$5,000	\$0 \$5,000		\$500 \$500	\$100 \$0	\$500	\$5,000 \$0	\$5,000 \$1,000		\$11,100	/Unit
	Sawdust Collector - Vent If Enclosed	\$5,000	\$5,000		\$500	\$0 \$0		\$0			\$11,500 / \$2,000 /	/Unit
DDITION	Other IAL CONTROL SYSTEMS						\$500	Per Paint		]	\$0 /	/Unit
\	V3 Upgrade or Main Panel CO2 Sensors						\$5,000				\$5,000	
N	Motion Detectors						\$1,200 \$500				\$1,200 / \$500 /	/Unit
	Variable Speed Drive Other						\$4,500				\$4,500 /	
	PLUMBING SYSTEMS	<b>*</b> Enn		•			1					
	DHW Tank - Residential Electric (60 gal) DHW Tank - Storage (120 gal)	\$500 \$1,000		\$500 \$1,000				\$1,500	\$500		\$3,000 / \$2,000 /	
	DHW Recirc Pump Custodian Sink - Floor Mount - Trim	\$250 \$350		\$250			\$500	\$500	****		\$1,500 /	/Unit
L	aundry Tub	\$200		\$350 \$200					\$500		\$1,200 / \$400 /	
	Drinking Fountain - Bubbler Drinking Fountain - Wall Mount - Bot Fill (I	\$250 \$1,600		\$250 \$1,600				\$750	\$100 \$500		\$600 / \$4,450 /	/Unit
-	Hand Wash (54")	\$4,200		\$4,200				¥130	\$2,000		\$10,400 /	/Unit
F	New Hand Lav - New IR Trim Hand Lav OK - New IR Trim	\$700 \$450		\$700 \$450			-		\$500	<b>-</b>	\$1,900 / \$900 /	
	New Wall Mount Urinal - New IR Trim Urinal OK - New IR Trim	\$550 \$350		\$550 \$350					\$1,500 \$500		\$2,600 /	/Unit
V	NC - Fixture OK - New IR Trim	\$350		\$350					\$500		\$1,200 / \$700 /	/Unit
F	Acid Waste Piping Replace Galvanized with Copper	\$0		\$2,500 \$30	\$20		-				\$2,500 / \$50 /	/Fixture /Metre
. [	Orain Pipe In-Slab (Sawcutting Required) Other	\$0		\$30					\$250		\$280 /	/Metre
WERGEN	ICY PLUMBING FIXTURES		J									/Unit
	Eyewash - New, TMV - New Eyewash - OK, TMV - New	\$1,200 \$800		\$1,200 \$800					-		\$2,400 / \$1,600 /	
E	yewash/Shower - New, TMV - New yewash/Shower - OK, TMV - New	\$2,400		\$2,400							\$4,800 /	/Unit
C	Other	\$1,100		\$1,100						100	\$2,200 / \$0 /	
	GAS ISOLATION Emegency Shut Down - Valve	\$50	i	<b>\$</b> 150								
E	megency Shut Down - Electronic	\$200		\$300		\$100	\$2,000		·		\$200 / \$2,600 /	/Unit
1085 CC	Other ONTAMINATION									I	\$0 /	/Unit
L s	arge DCVA - Fire Protection Systems	\$2,500 \$500		\$5,000 \$500					···· manusadhi		\$7,500 / \$1,000 /	(Unit
S	Standard Vacuum Breaker	\$100		\$100							\$200 /	(Unit
C	ab Fixture Vacuum Breaker Other	\$25		\$50							\$75 / \$0 /	Unit
TERCEP	PTOR AND ACID NEUTRALIZER	<b>\$</b> E 005										
G	Acid Neutralizer Grease Interceptor	\$5,000 \$3,000		\$5,000 \$3,000					\$5,000 \$2,000		\$15,000 // \$8,000 /	Unit Unit
	Oil Interceptor Used Oil Storage Tank	\$3,000 \$8,000		\$3,000 \$1,000					\$2,000 \$500		\$8,000 / \$9,500 /	Unit
P	Plaster Interceptor	\$800		\$800					\$500		\$1,600 /	Unit
AMMAB	ILE STORAGE CABINET							]		I	\$0//	Unit
N	New Cabinet - New 2" Sched 40 Steel Ve Cabinet OK - New 2" Sched 40 Steel Ven	\$2,000		\$500 \$500					\$250 \$250	\$250	\$3,000 //	Unit
	Other			4000	200000000000000000000000000000000000000				\$250	\$250	\$1,000 // \$0 //	
R	TECTION SYSTEMS Replace Glycol System With Dry System		T	\$10,000	1		T			Ť	\$10,000 /	
R	Replace Wet Valve with Flow Switch			\$2,500							\$2,500 /	Unit
	Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting			\$30 \$500							\$30 /s	
S R											\$0 /	
S R	Other ENVELOPE				T				\$10		\$10 <i>/</i> :	Sq.m.
S R C III. CVING R	ENVELOPE Re and Re T-Bar								\$50		\$50 /	Sq.m.
S R C JILDING R	ENVELOPE Re and Re T-Bar New T-Bar										\$1,000	Linit
R R D JIL CHING R N S C	ENVELOPE ke and Re T-Bar lew T-Bar single Glazing Chronic Hot / Cold Spots								\$1,000 \$5,000		\$1,000 // \$5,000 //	Unit Unit
R C JIL DING R N S C P	ENVELOPE Re and Re T-Bar New T-Bar Single Glazing								\$1,000		\$1,000 //	Unit Unit Unit
R C JILCHNG R N S C P O	ENVELOPE te and Re T-Bar leve T-Bar leve T-Bar lingle Glazing Promoic Hot/ Cold Spots rotential for Extreme Infiltration Other			\$500					\$1,000 \$5,000		\$1,000 // \$5,000 // \$20,000 //	Unit Unit Unit
S R C CUIL CHING R N S C P C S C P D D	ENVELOPE  ke and Re 7-Bar  kew T-Bar  ingle Glazing  hronic Hot / Cold Spots  otential for Extreme Infiltration  Other  remits & Inspection Fees  permittide in the sees of th	20UIT		\$500					\$1,000 \$5,000		\$1,000 // \$5,000 // \$20,000 //	Unit Unit Unit
S R C CUIL CHING R N S C P C S C P D D	ENVELOPE Re and Re 7-Bar leav T-Bar leav T-B	DOUT al		\$500					\$1,000 \$5,000		\$1,000 // \$5,000 // \$20,000 //	Unit Unit Unit

No:	NAME: JV Humprhries	Equip.	Duct	Pipe	Insul.	Splits Bal.	Control	Elect	Cut &	Roof	Sub	20% Escal	10% Contin	12% Fee &	12% Taxes	PROJECT TOTAL
PRIMAR	YHVAC SYSTEMS	Cost \$36,000	Install \$15,000	Install \$25,200	\$4,300	\$20,650	\$5,500	\$9,000	Patch \$5,500	\$1,500	\$122,650	ation \$24,600	gency \$12,400	Disb. \$14,900		\$189,450
	Boiler Fluid Cooler (or Cooling Tower)	\$30,000	\$15,000	\$15,000 \$0	\$1,500	\$45	0 \$4,500	\$6,000	\$4,500	\$1,500	\$78,450	\$15,700	\$7,900	\$9,500	\$9,500	\$121,050 \$1
	Chiller - W to W (or W to Air) Heat Pump - W to W (or W to Air)	\$0 \$0	\$0		\$0	\$1	0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	Si
	Ground Source HX (Vert, Horiz or Ditch) Major Circ Pumps	\$6,000											\$0	\$0	\$0	\$23,700
	Main Circulation Piping Outside Air Unit	\$0 \$0	\$0	\$0	\$0	\$(	\$0	\$0	\$0	\$0	\$0			\$1,100	\$1,100	\$13,90 \$
	Multi-Zone Relief Air Gooseneck	\$0 \$0	\$0	\$0	\$0	\$	0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$
TERMIN	balancing all systems AL HVAC SYSTEMS	\$24,650	\$23,200	\$8,700	\$14,500	\$3,625	\$14,500	\$0	\$43,500	\$0	\$132,675	\$26,600	\$13,300	\$16,100	\$16,100	\$30,80 <b>\$204,775</b>
	Roof Top Unit - Large - Heat/Cool Roof Top Unit - Large - Heat Only Roof Top Unit - Small	\$0 \$0 \$0	\$0	\$0 \$0	\$0	\$(	D \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Heat Pump Vertical Unit Ventilator	\$0	\$0	\$0	\$0	\$0	0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$i \$i
	Fan Coil - 4 Pipe Furnace	\$0 \$0	\$0	\$0	\$0	\$(	0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$(
	Reheat Coil - Hydronic Minor Circ Pumps	\$17,400 \$0	\$8,700	\$8,700	\$14,500	\$2,900	\$14,500	\$0	\$0	\$0	\$66,700	\$13,400	\$6,700	\$8,100	\$8,100	\$103,000
	Reheat Coil - Electric Split System AC	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0						\$( \$(
	Electric Heat - Force Flow, Unit Heat Baseboard	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0
	Low Level Retrum Transfer/ Door Grille Other	\$7,250 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$101,775 \$0
DEDICA	TED EXHAUST PICKUP	\$0 \$0 \$0	50	50	50	20	\$0	\$0	\$0	50	50	50	\$0	\$0	\$0	\$0 \$0
B	Large Ceiling Grille Range Hood - Residential	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C D	Range Hood - Commercial Hood - Forge & Melting Crucible	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0 \$0 \$0
D D	Slotted Back - Pick Up Articulating Arm	\$0 \$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	. \$0	\$0	\$0	\$0
D D	CO - Overhead Flexible Science Fume Hood (ASHRAE 110)	\$0 \$0	\$0	\$0	\$0 \$0	\$0	) \$C	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
E	Wood Shop - Equipment Pick-Up Other	\$0 \$0			\$0	\$0	) \$C	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$C
EXHAUS A	T SYSTEMS In-Line Fan c/w Gooseneck	\$0 \$0					\$0   \$0									<b>\$0</b>
C	Square Panel - Roof Mount Grease Extraction - Roof Mount Industrial Vent Set - Roof Mount	\$0 \$0 \$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0		\$0	\$0	\$0	\$0 \$0
Ē.	Sawdust Collector Sawdust Collector Recirculation Systems	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0			\$0	\$0	\$0	\$0 \$0 \$0
	Sawdust Collector - Vent If Enclosed Other	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ADDITIO	NAL CONTROL SYSTEMS V3 Upgrade or Main Panel	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$53,600	50	<b>\$</b> D	\$0	\$53,600 \$5,000	\$10,800	\$5,400	\$6,500 \$600	\$6,500	\$82,800 \$7,700
	CO2 Sensors Motion Detectors	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,600 \$0	\$8,000 \$0		\$4,800 \$0	\$4,800 \$0	\$61,200 \$0
	Variable Speed Drive Other L PLUMBING SYSTEMS	\$0 \$0		\$0			\$0	\$0	\$0		\$0	\$1,800 \$0	\$0	\$1,100 \$0	\$1,100 \$0	\$13,900 \$0
GENERA	DHW Tank - Residential Electric (60 gal) DHW Tank - Storage (120 gal)	\$1,000 \$1,000 \$0	\$0 \$0	\$1,000 \$1,000 \$0							\$6,000 \$6,000		\$600 \$600	\$800		\$9,460 \$9,400
	DHW Recirc Pump  Custodian Sink - Floor Mount - Trim	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0		\$0	\$0 \$0 \$0
	Laundry Tub Drinking Fountain - Bubbler	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0
	Drinking Fountain - Wall Mount - Bot Fill ( Hand Wash (54")	s0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$C	\$0	\$0 \$0	\$0 \$0	\$0		\$0	\$0	\$0	\$0	\$0 \$0
	New Hand Lav - New IR Trim Hand Lav OK - New IR Trim	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0
	New Wall Mount Urinal - New !R Trim Urinal OK - New IR Trim WC - Fixture OK - New IR Trim	\$0 \$0 \$0	. \$0	\$0 \$0 \$0	\$0	\$C	\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0 \$0
	Acid Waste Piping Replace Galvanized with Copper	\$0 \$0	\$0		\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0		\$0	\$0 \$0	\$0 \$0
	Drain Pipe In-Slab (Sawcutting Required) Other		\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0 \$0
EMERGE	NCY PLUMBING FIXTURES  Eyewash - New, TMV - New	\$0 \$0	\$.0	\$0 \$0	50	\$G \$C	\$0	\$0	\$0	50	\$0	\$0	50	50	\$0 \$0   \$0	\$0 <b>\$0</b> \$0
	Eyewash - OK, TMV - New Eyewash/Shower - New, TMV - New	\$0 \$0		\$0 \$0		\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0		\$0 \$0	\$0 \$0
***************************************	Other Other	\$0 \$0		\$0 \$0		\$0	\$0	\$0	\$0		\$0				\$0	\$0 \$0
	L GAS ISOLATION Emegency Shut Down - Valve Emegency Shut Down - Electronic	\$6 \$0		\$0 \$0 \$0		\$0 \$0					\$6 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Other CONTAMINATION	\$0 \$0				\$0 \$0					\$0 \$0	\$0 \$0 \$0		\$0		\$0 \$0
	Large DCVA - Fire Protection Systems Small RPBP	\$0 \$0		\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0		\$0 \$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	<b>\$0</b> \$0 \$0
	Standard Vacuum Breaker Lab Fixture Vacuum Breaker	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0		\$0		\$0 \$0	\$0 \$0
INTERCE	Other PTOR AND ACID NEUTRALIZER	\$0 <b>\$</b> 0	<b>\$</b> 0	\$0 \$0	50	\$0	\$0	\$0	\$0	\$C	\$0 \$0		\$0 <b>\$0</b>		\$0 \$0	\$0 <b>\$0</b>
	Acid Neutralizer Grease Interceptor Oil Interceptor	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0 \$0		\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Used Oil Storage Tank Plaster Interceptor	\$0 \$0		\$0 \$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0		\$0 \$0		\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Other BLE STORAGE CABINET	\$0 \$0				\$0 \$0					\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0 <b>\$0</b>
	New Cabinet - New 2" Sched 40 Steel Ve Cabinet OK - New 2" Sched 40 Steel Ven	SO	\$0	\$0 \$0		\$0 \$0				\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
FIRE PRO	Other DIECTION SYSTEMS	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0					\$0 \$0				\$0 \$0	\$0 \$0
	Replace Glycol System With Dry System Replace Wet Valve with Flow Switch	\$0 \$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0				\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Sprinkler Remainder of Building Remove Sprinkler Near Aluminum Melting	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0
	Other S ENVELOPE Re and Re T-Bar	\$0 \$0 \$0	\$0	\$0 <b>\$0</b>	\$0	\$0	\$0	\$0	<b>SD</b>	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	New T-Bar Single Glazing	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0	\$0 \$0 \$0	\$0	\$0	\$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Chronic Hot / Cold Spots Potential for Extreme Infiltration	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0		\$0	\$0	\$0 \$0	\$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0	\$0 \$0 \$0
MISC	Other	\$0 \$0	\$0 \$5,200	\$0 \$3,300	\$0 \$0						\$0 \$8,500		\$0 \$1,000	\$0 \$1,100	\$0 \$1,100	\$0 \$13,500
	Permits & Inspection Fees Demolition		\$2,000	\$1,500							\$1,500 \$3,800	\$300 \$800	\$200 \$400	\$200 \$500	\$200 \$500	\$2,400 \$6,000
GRAND 1		\$61,650	\$3,200 \$43,400	\$38,200	\$18,800	\$24,275	\$73,600	\$12,000	\$50,000	\$1,500	\$3,200 \$323,425	\$700 \$65,000	\$400 \$32,700	\$400 \$39,400	\$400 \$39,400	\$5,100 <b>\$499,925</b>
Area: Zones:	6200 33	\$10 \$1,868		\$6 \$1,158	\$3 \$570	\$4 \$736			\$8 \$1,515	\$0 \$45	\$52 \$9,801	\$10 \$1,970	\$5 \$991	\$6 \$1,194	\$6 \$1,194	\$81 \$15,149

								•			JV Hur	mphries	Element	ary Sec	ondary S	chool											
6,200	sq m									Expect	ed Annua	al Utility	Consum	ption B	ased on 2	2011/201	2 Data				-						23-Sep-12
	1				Propane				1	r		Exis	sting Co	nfigurat Electricit					1				Total			-	
	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m
Existing Consumption	3,240	900,000	191.6	0.52	145	\$92,000	\$28.40	\$0.102	\$14.84	1,476	410,000	9.1	0.24	66	\$46,000	\$31.17	\$0.112	\$7.42	4,716	1,310,000	200.7	0.76	211	\$138,000	\$29.26	\$0.105	\$22.26

												Me	chanica	l Upgrad	le			****								•	
Propane													Electricit	у			Total										
	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	⇔ ය	\$/ kWhr	\$/ sq.m	GJ	kWhr .	Tonne CO2	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m	GJ	kWhr	Tonne CO <sub>2</sub>	GJ/ sq.m.	kWhr/ sq.m	\$	\$/ GJ	\$/ kWhr	\$/ sq.m
New Consumption	1,944	540,000	115.0	0.31	87	\$55,200	\$28.40	\$0.102	\$8.90		389,500	8.6	0.23	63	\$43,700	\$31.17	\$0.112	\$7.05	3,346	929,500	123.6	0.54	150	\$98,900	\$29.56	\$0.106	
Savings	1,296 40%	360,000	76.7	0.21	58	\$36,800	\$28.40	\$0.102	\$5.94	74	20,500	0.5	0.01	3	\$2,300	\$31.17	\$0.112	\$0.37		380,500	77.1	0.22	61	\$39,100	\$28.55	\$0.103	\$6.31
Propane		kJ/Liter								5%					-			1	29%		38% Convention	l nal and G	SHP Cost	**************************************	Payback F	\$/sq.m For GSHP	\$81 13

Poole and Associates

#### **Capital Project Request Form**

RDER0310 V.4.06

09 OCT 2012 12:10:57

High

Hidden: District Priority: District Ranking: Ministry Priority: 'kim morris' (PRD01) Project No: N/A Request Type: New Part A - Project Identification 1. Capital Plan Year: 2012/2013 2. SD Ref. No.: 207 3. Last Modified: Oct. 9, 2012 4. Submitted On: unsubmitted 5. SD No.: 08 6. SD Name Kootenay Lake 7. Municipality: **NELSON** 8. Asset No.: 9. Facility No.: 10. Facility Name: N/A Facility Type:

13. Proj. Cd. BUSREP  14. Project Description: REPLACE 4-72 PASSENGER BUSES (2089, 2080, 1082,	
15. Proj. Type: MINOR 1083) 12. Proposed:	
Part B - Capacity, Area Factors and Allowances	
Nominal Capacity: Kindergarten Grades 1 - 7 Grades 8 - 12 7. Grade Configuration  1. Actual Existing: 0 0 0 U	
2. Capcity Adjustments: 0 0	
3. Proposed Higher Priority Additions: 0 0	
4. Total Existing: 0 0	
5. Proposed Addition: 0 0	
6. Proposed Total Capcity: 0 0 8. U	
Site Area (ha):  Allowable BuildIng Area (sq.m.)  Allowable Renovation Area (sq.m.)	
9. Required Size: 0.0 12. Total Allowable Area: 0.0 16. Renovations Associated With Additions (%):	
17. Pagetation Area:	_
11. Total New Aera: 0.0 14. Area to be demoished. 0.0 18. Renovation Unit Rate 0	
15. Area of New Space: 0.0 Equipment Allowance (%):	
19. Base Unit Rate: 0 20. Air Conditioning: 0 LFA: 0.00 MF: 1.00 24. New Space: 0.0	
21. Project Size Factor: 1.000 22. Location Factor: 1.15 23.Ground Factor: 1.00 25. Freight Allowance: 8.60	
Part C - Estimated Budget	
Subtotal	
Site Acquisition:         1. Purchase:         0         2. Other Cost:         0         3.         0	
Site Development: 4. Development Cost Charges: 0	
5. Offsite Costs: 0	
6. Adjusted Site Development: 0 0 None 8. 0	
7. Supplementary Site: 0	
New Construction: 9. New Area: 0.0 Renovations: 13. Renovation Area: 0.00	
10. Adjusted Unit Rate: 14. Renovation Unit Rate: 0	
11. Subtotal: 0 15. Subtotal: 0	
12. Supplementary Building: 0 16. Supplementary Costs: 0	
17. Other Costs: 0	
Building Costs:         18. Build Total:         0         19. Reno Cost:         0         20.         0	
Area Allowance	
Equipment Allowance: 21. New Area: 0.00 0	
New Fee Reno Fee 22. Area Entitled to Equipment Replacement 0.00 0  0.0000 0.0000 23. Equipment Freight Allowance: 0 24. 0	
Fees:         25. Site Dev.:         0         26. New:         0         27. Renovation:         0         28.         0	7
Contingency:         29. New:         0         30. Renovation:         0         31.         0	
Other: 32. 4-70 Passenger Buses 33. 434,520	_
Phases: 34. Site: 0 35. Plan: 0 36. Completion: 434,520	
37. Planning Costs in Planning Phase: 0 38. In Completion Phase: 0	

Project No.	Project Title				Capital Plan Year SD No. SD	Ref. No.
V/A					2012/2013 08	207
Part D - Schedule	and Funding					
Project Cost Sche	dule:	Site	Planning	Completion		
	1. Year:	2014/2015	2014/2015	2012/2013		
	2. Cost:	0	0	434,520		
Funding Source:	3. Bylaw Capital:	0	0	434,520		
-	Capital Reserve:	0	0	0		
	5. Land Reserve:	0		0		
	6. Local Capital:	0	0	0		
Part E - Approved	Funding					
are 2 Approved	- Tuntaning					
Phase Status:	1. Status:	Requested	Requested	Requested		
Approved:	2. Bylaw Capital:	0	0	0		
	3. Capital Reserve:	0	0	0		
	4. Land Reserve:	0		0		
	5. Local Capital:	0	0	0		
Variance:	6. Variance	_0	0	434,520		
	7. Bylaw Capital:	0	0	434,520		
Net Request:				0		
Net Request:	8. Capital Reserve:	0	0			
Net Request:	<ul><li>8. Capital Reserve:</li><li>9. Land Reserve:</li></ul>	0	0	0		

Ministry of Fransportation

Inspection Report

#### FINAL INSPECTION CONFIRMATION NUMBER



DECAL EXPIRYDATE 207

8642612

PJ15297

30 SEP 2013

					ON STADT DATE	INCRECT	ON COMPLETE	DATE
'NSPECTION RESULT:	Pass	WORK	ORDER#		2012 08:00		EP 2012 11	
INSPECTION TYPE:	Complete	L		19 367	2012 00.00	. 15 31		
REASON FOR INSPECTI			REASON NO	OTE:				
COLLISION REPAIR FAC			TECHNICIAN			PHONE #:		
INSPECTOR'S NUMBER:	M05909-006	OWNER/	Board of	Education	of S.D. #8			
INSPECTOR'S NAME:	PETERSON, GARY BRUCE	ADDRESS:	570 Johns	stone Rd.				
LICENCE EXPIRY DATE:	28 FEB 2014	CITY:	Nelson		PROV: BC	POSTA	L CODE: V1L6	6J2
FACILITY NUMBER:	P4638-022	REGISTRAT	ION #: 01200	6511	VEH. JURISDICTI	ON: BC	PLATE: 2570	)FL
FACILITY NAME:	SD NO. 8(KOOTENAY LAKE)	YEAR:	2003	MAKE: B	LUEBIRD	мо	DEL:	
		BODY STYL	E: BUS		vin: 1HVB	BAAN73H5	63839	
INSPECTION CLASS:	5 - School Bus	ODOMETER	074400	KM	FUEL TYPE: Die	sel		
•		UNIT/FLEET	(9)	2089	BRAKE TYPE: A	ir		
"F"	Failed "R" Repaired Same Day "P" Pass	sed "PC" Pa	ssed With Caut	ion "O" Ou	t Of Service "NA"	Not Applicable	) Deportugacy comment	
	F R	P PC O NA	Pressure Fue	H			F R P PC	ONA
Section 1 - Power Train		<u> </u>	Liquid Prop				<u> </u>	
		<u> </u>	,	ed Natural Gas Fuel Inspector		-		<b>⊥ ∨</b>
Section 2 - Suspension	<u> </u>		Name & No					
		······································	Air I Axle # 1	Brake Chambi 2	er Type, Size and P 3 4 5		Measurement 7 8	(mm) 9
Section 3 - Hydraulic B	rakes	_!!	Туре: Clamp	Clamp				
O di a O di Dada		<del></del>	Size: 201. Slack: Auto	24LL Auto				
Section 3A - Air Brakes		<b>C</b>	Left: 35	38				
Section 4 - Steering			Right: 35 Comments:	38				
oscion 4 - occaring			Comments.					
Section 5 - Instruments	, Auxillary Equipment			Air Brak	ce Camshaft Rotation	on Measuremen	t (degrees)	
			Axle# 1	2 40	3 4 5		7 8	9
Section 6 - Lamps			Left: 65 Right: 75	40				
			Comments:					
Section 7 - Electrical Sy	ystem		]					
			Axte # 1	2	Brake Lining/Pad I		nm) 78	9
Section 8 - Body & Fran	ne		Type: Lining (	S Lining (S				
			Left: 14 Right: 14	18 18				
Section 9 - Tires & Whe	els		Comments:	,0		,		
Section 10 - Couplers &	Hitches				Rotor/Drum Me	asurement (mm	-	
		<del></del>	Axle# 1	2 Drum	3 4	6	7 8	9
Section 10 - Special Use	e Vehicle Components		Left: 0	0				
			Right: 0	0				
			Comments: 1	- Drums not re	emoved; 2 - Drums n	ot removed		_
General Inspection C	omments:							1

Inspector's Name PETERSON, GARY BRUCE

Signature

The Inspector's signature above is certification that this vehicle has been inspected to the requirements of the Motor Vehicle Act and Regulations.

NOTICE: KEEP THIS VEHICLE INSPECTION REPORT WITH VEHICLE REGISTRATION

The personal information collected under the authority of section 216 of the Motor Vehicle Act and Division 25 of the Motor Vehicle Act Regulations. It is collected for the purpose of processing this vehicle inspection and for generally administering the Vehicle Inspection Program and the Mational Safety Code (e.g., regulating carriers, authorized inspectors, and designated inspection facilities). If you have any questions about the collection of this information, you may contact the Sr. Manager, NSC/VIP at the Commercial Vehicle Safety Enforcement Branch, by writing to P.O. Box 9250, Stn Prov. Gov't, Victoria, BC VBW 9.12, by e-mailing to vehicle.inspections@gov.bc.ca or calling 250-952-9577.

and infrastructure

Ministry of Tiarrspolitation inspection identifier: MV913\_20120507\_1322

CVSA decal:

#### SCHOOLBUS INSPECTION REPORT / NOTICE and ORDER

Vehicle(s) inspected this 07 of MAYYR 2012 at 13:22 (24hr Clock) at

Nelson

Inspection Type: Reinspection

inspected By: MV913 R.RICHARDSON

Violation Ticket #:

**INSPECTION RESULT: Pass** 

Owner:

**BOARD OF ED OF SD 8** 

Address:

**570 JOHNSTONE RD** 

City:

NELSON

Prov: BC Postal Code: V1L6J2

NSC #:

200641461

Registration: 01206511 Make:

Body Style: BUS

Seating Capacity:

**BLUEBIRD** 

Plate #: Year:

2570FL

Jur:

Model:

2003

Unit/Fleet: 2089

Fuel Code: Diese!

Mobility Aid:

Odometer: 271940 KM

BC

rage 1.1

VIN:

1HVBBAAN73H563839

CVIP decal: PH09117

CVIP Jur: BC

INSPECTION RESULTS

**NO VIOLATIONS IDENTIFIED** 

**BRAKE INFORMATION** 

\*\*\* BRAKE DETAILS NOT APPLICABLE FOR THIS INSPECTION \*\*\*

**ADDITIONAL COMMENTS:** 

Recairs complete

Peace Officer (Inspector): R.RICHARDSON

Number: MV913

2 - 310 Ward St Nelson V1L 5S4

Assist:

The information on this form is collected under the authority of the Motor Vehicle Act, Section 217. The information will be used to process your vehicle inspection and/or Notice and Order. If you have any questions please contact the issuing Officer or call CVSE at (250) 952-0577. Visit www.cvse.ca

MV3028E (012011)

THIS REPORT MUST BE RETAINED BY THE CARRIER FOR FOUR YEARS



Ministry of tansportation and infrastructure

Commercial Vehicle

Inspection Report

# FINAL INSPECTION CONFIRMATION NUMBER

11272

DECAL EXPIRY DATE

8430935

PJ15272

31 MAR 2013

ASPECTION RESULT:	Pass Complete		ON COMPLETE DATE AR 2012 14:15
REASON FOR INSPECTION COLLISION REPAIR FAC		REASON NOTE: TECHNICIAN NAME: PHONE #	
INSPECTOR'S NUMBER: INSPECTOR'S NAME: LICENCE EXPIRY DATE: FACILITY NUMBER: FACILITY NAME:	M05909-006 PETERSON, GARY BRUCE 28 FEB 2014 P4638-021 SCHOOL DISTRICT NO. 8	REGISTRATION #: 00877802 VEH. JURISDICTION: BC	DDEL:
INSPECTION CLASS:	5 - School Bus	ODOMETER: 254964 KM FUEL TYPE: Diesel UNIT/FLEET #: 72 2080 BRAKE TYPE: Air	324043
"F"	Failed "R" Repaired Same Day "P" Pa	sed "PC" Passed With Caution "O" Out Of Service "NA" Not Applicab	le
Section 1 - Power Train Section 2 - Suspension	F   R	P PC O NA Pressure Fuel  Liquid Propane Gas  Compressed Natural Gas  Pressure Fuel Inspector's Name & Number	F R P PC O NA
Section 3 - Hydraulic Br	akes	Air Brake Chamber Type, Size and Push Rod Strok	e Measurement (mm) 7 8 9

Clamp Clamp Type: Size: 24LL Section 3A - Air Brakes Slack: Auto Auto New rear drums and shoes 38 Left: 36 Right: 36 38 Section 4 - Steering Comments: replaced RH tie rod Section 5 - Instruments, Auxillary Equipment Air Brake Camshaft Rotation Measurement (degrees) Axle# 2 5 6 g Left: 25 65 Section 6 - Lamps Right: 65 25 Comments: Section 7 - Electrical System Brake Lining/Pad Measurement (mm) 9 Axle # 2 5 6 Section 8 - Body & Frame Type: Lining (S Lining (S Left: 15 21 21 Right: 16 Section 9 - Tires & Wheels Comments: 2 - New lining Section 10 - Couplers & Hitches Rotor/Drum Measurement (mm) Axle # 2 3 5 6 Drum Drum Туре: Section 10 - Special Use Vehicle Components ٥ O eff: 0 0 Right: Comments: 1 - drums not removed; 2 - New Drums General Inspection Comments: inspector's Name PETERSON, GARY BRUCE Signature

The Inspector's signature above is certification that this vehicle has been inspected to the requirements of the Motor Vehicle Act and Regulations.

NOTICE: KEEP THIS VEHICLE INSPECTION REPORT WITH VEHICLE REGISTRATION

The personal information collected on this form is collected under the authority of section 216 of the Motor Vehicle Act and Division 25 of the Motor Vehicle Act Regulations. It is collected for the purpose of processing this vehicle inspection and for generally administering the Vehicle Inspection Program and the National Safety Code (e.g. regulating carriers, authorized inspectors, and designated inspection facilities). If you have any questions about the collection of this information, you may contact the Sr. Manager, NSC/VIP at the Commercial Vehicle Safety Enforcement Branch, by writing to P.O. Box 3250, Stn Prov. Cov1, Victoria, BC V8W 9J.2, by e-mailing to vehicle.inspections@gov.bc.ca or calling 250-952-0577.

Owner:

City:

NSC#:

Address:

Minerry or Transportance: and leftusing time

indication denoted (W910\_20111128\_1188

CVSA decal

#### SCHOOLBUS INSPECTION REPORT / NOTICE and ORDER

ehicle(s) inspected this 28 of	NOV YR 2011 at 10:38 (24hr Clock) at Ne	ison
pection Type: Complete	Inspected By: MV913 R.RICHARDSON	Violation Ticket #:

INSPECTION RESULT: Pass

Prov: BC Postal Code: V1L6J2

Plate #:

6223EM

Jur: BC

Make:

BLUEBIRD

Year:

2002

Model:

Body Style: BUS

Fuel Code: Diesel

Unit/Fleet: 2080

Seating Capacity:

Mobility Aid:

Odometer: 247725 KM

VIN:

1HVBBAAN62H524643

CVIP decal: PH09088

Registration: 00877802

CVIP Jur: BC

#### **INSPECTION RESULTS**

NELSON

200641461

BOARD OF ED OF SD 8

570 JOHNSTONE RD

#### NO VIOLATIONS IDENTIFIED

ВЯ	AKE INFO	RMAT	ION			•		
	Axle #	<u>. L</u>	Brake Type	Chamber Type	Chamber Size	Slack Type	Left	Right
<u>.</u> .	1		Air	Clamp	20L	Automatic	1 1/4	1 3/8
L	2		Air	Clamp	24L	Automatic	 1 1/2	1 1/2

Peace Officer (Inspector): R.RICHARDSON

Number: MV913

310 Ward St Nelson V1L 5S4

Assist:

.ne information on this form is collected under the authority of the Motor Vehicle Act, Section 217. The information will be used to process your vehicle inspection and/or Notice and Order. If you have any questions please contact the issuing Officer or call CVSE at (250) 952-0577. Visit www.cvse.ca

MV3028E (012011)

THIS REPORT MUST BE RETAINED BY THE CARRIER FOR FOUR YEARS



Vilnistry of Transportation and Infrastructure

OLUMBIA | Commercial Vehicle
Inspection Report

# FINAL INSPECTION CONFIRMATION NUMBER

13269

DECAL EXPIRY DATE

8405570

PJ15269

28 FEB 2013

INSPECTION RESULT:	Pass Complete	WORK ORDER # INSPECTION START DATE INSPECTION COMPLETE DATE 24 FEB 2012 10:45 24 FEB 2012 13:32
REASON FOR INSPECTION COLLISION REPAIR FAC		REASON NOTE: TECHNICIAN NAME: PHONE #:
INSPECTOR'S NUMBER:	M05909-006 PETERSON, GARY BRUCE	OWNER/ LESSEE: Board of Education of S.D. # 8 ADDRESS: 570 Johnstone Rd.
LICENCE EXPIRY DATE:	28 FEB 2014	CITY: Nelson PROV: BC POSTAL CODE: V1L6J2
FACILITY NUMBER:	P4638-021	REGISTRATION #: 00716372 VEH. JURISDICTION: BC PLATE: 6179EM
FACILITY NAME:	SCHOOL DISTRICT NO. 8	YEAR: 2001 MAKE: BLUEBIRD MODEL:
INSPECTION CLASS:	5 - School Bus	BODY STYLE: BUS  VIN: 1HVBBAAN51H415430  ODOMETER: 287971 KM FUEL TYPE: Diesel  UNIT/FLEET #: 7Z 1082 BRAKE TYPE: Air
"F"	Failed "R" Repaired Same Day "P" Pa	ssed "PC" Passed With Caution "O" Out Of Service "NA" Not Applicable

R P		xle # 1 2 3 4  ype: Clamp Clamp  ize: 20L 24LL  lack: Auto Auto  eft: 35 36  light: 35 38  comments:	Push Rod Stroke Measurement (mm) 5 6 7 8 9  tion Measurement (degrees) 5 6 7 8 9
		Compressed Natural Gas Pressure Fuel Inspector's Name & Number  Air Brake Chamber Type, Size and xle # 1 2 3 4  /pe: Clamp Clamp ize: 20L 24LL iack: Auto Auto ent: 35 36 ight: 35 38 ight	tion Measurement (degrees)
		Pressure Fuel Inspector's Name & Number  Air Brake Chamber Type, Size and xle # 1 2 3 4  ype: Clamp Clamp ze: 20L 24LL lack: Auto Auto eft: 35 36 light: 35 38  comments:  Air Brake Camshaft Rota xle # 1 2 3 4	tion Measurement (degrees)
		Name & Number  Air Brake Chamber Type, Size and xle # 1 2 3 4  ype: Clamp Clamp  ize: 20L 24LL  lack: Auto Auto eft: 35 36  light: 35 38  formments:  Air Brake Camshaft Rota xle # 1 2 3 4	tion Measurement (degrees)
		xle # 1 2 3 4  ype: Clamp Clamp  ize: 20L 24LL  lack: Auto Auto eft: 35 36  light: 35 38  comments:  Air Brake Camshaft Rota  xle # 1 2 3 4	tion Measurement (degrees)
		ype: Clamp Clamp ize: 20L 24LL lack: Auto Auto eft: 35 36 ight: 35 38 comments:  Air Brake Camshaft Rota xle # 1 2 3 4	ition Measurement (degrees)
		Air Brake Camshaft Rota	
		Air Brake Camshaft Rota	
		Air Brake Camshaft Rota	
		xle# 1 2 3 4	
I		NOT I	5 6 / 6 9
TAT		BIL 70 30	
<b>X</b>			
$\square \bigvee$	П		
		-	d Measurement (mm) 5 6 7 8 9
		ype: Lining (S Lining (S	
		•	
		Pater/Orum V	leasurement (mm)
			5 6 7 8 9
		ype: Drum Drum	
		Right: 0 0	not removed
			<u></u>
			Right: 70 90 Comments:  Axle # 1 2 3 4 Type: Lining (S Lining (S Left: 16 14 Right: 16 14 Comments:  Rotor/Drum M Axle # 1 2 3 4 Type: Drum Drum Left: 0 0 Right: 0 0 Comments: 1 - Drums not removed; 2 - Drums

The Inspector's signature above is certification that this vehicle has been inspected to the requirements of the Motor Vehicle Act and Regulations.

NOTICE: KEEP THIS VEHICLE INSPECTION REPORT WITH VEHICLE REGISTRATION

The personal information collected on this form is collected under the authority of section 216 of the Motor Vehicle Act and Division 25 of the Motor Vehicle Act Regulations. It is collected for the purpose of processing this vehicle inspection and for generally administering the Vehicle Inspection Program and the National Safety Code (e.g. regulating carriers, authorized inspections about the collection of this information, you may contact the Sr. Manager, NSCNIP at the Commercial Vehicle Safety Enforcement Branch, by writing to P.O. Box 9250, Stn Prov. Gov't, Victoria, BC V8W 9J2, by e-mailing to vehicle.inspections@gov.bc.ca or calling 250-952-0577.

Madistry of Tamispatianien. and infastructure

Tisoaction legitifier - WV913\_20120312 1542

OVSA decat:

SCHOOLBUS INSPECTION REPORT / NOTICE and ORDER

'ehicle(s) inspected this 12 of MAR'	YR 2012 at 15:42 (24hr Clock) at Net	son
nection Type: Complete	Incorporated Day 181040 D DIGILL DOG CAL	

Inspected By: MV913 R.RICHARDSON

Violation Ticket #:

INSPECTION RESULT: Pass

Owner:

BOARD OF ED OF SD 8

Address: City:

NSC #:

**570 JOHNSTONE RD NELSON** 200641461

Prov: BC Postal Code: V1L6J2

Registration: 00716372 Make: **BLUEBIRD**  Plate #: Year:

6179EM 2001

Jur:

Model:

Fuel Code: Diesel

Unit/Fleet: 1082

Body Style: BUS Seating Capacity:

Mobility Aid:

Odometer: 289048 KM

8C

VIN:

1HVBBAAN51H415430

CVIP Jur: BC

CVIP decal: PJ15269

**INSPECTION RESULTS** 

**BRAKE INFORMATION** 

i							
	Axle #	Brake Type	Chamber Type	Chamber Size	Slack Type	Left	Right
İ	11	Air	Clamp	20L	Automatic	1 1/4	1 1/4
<u> </u>	2	Air	Clamp	20L	Automatic	1 1/2	1 5/8

Peace Officer (Inspector): R.RICHARDSON

Number: MV913

310 Ward St Nelson V1L 5S4

Assist:

The information on this form is collected under the authority of the Motor Vehicle Act, Section 217. The information will be used to process your vehicle inspection and/or Notice and Order. If you have any questions please contact the issuing Officer or call CVSE at (250) 952-0577. Visit www.cvse.co

MV3028E (012011)

THIS REPORT MUST BE RETAINED BY THE CARRIER FOR FOUR YEARS



Ministry of Transportation and infrastructure

Commercial Vehicle

FINAL INSPECTION CONFIRMATION NUMBER

DECAL EXPIRY DATE

Inspection Report 8417851

PJ15270

31 MAR 2013

NSPECTION RESULT:	Pass		WORK	ORDER	# ;	INSPEC	TION START (	DATE	INSPECT	ON COMP	LETE DA	TE
INSPECTION TYPE:	Complete		:		ļ	06 M	AR 2012	00:80	06 M	AR 201	2 14:1	5
REASON FOR INSPECT	ом: Annual			REAS	ON NO	TE:						
COLLISION REPAIR FAC	ILITY:					NAME:			PHONE #:			
INSPECTOR'S NUMBER:	M05909-006		OWNER/	Boar	d of E	Education	on of S.D.	#8				
INSPECTOR'S NAME:	PETERSON, GARY BRUC		LESSEE: ADDRESS:	<b>5</b> 70 J	ohns	stone R	d.					
LICENCE EXPIRY DATE:	28 FEB 2014	(	CITY:	Nelse	on		PRO	ov: BC	POSTA	L CODE: V	/1L6J2	2
FACILITY NUMBER:	P4638-021	. 8	REGISTRATI	ON#: (	0716	3269	VEH. JUR	ISDICTION:		PLATE: 6		
FACILITY NAME:	SCHOOL DISTRICT NO. 8		YEAR:	2001			BLUEBIR	D		DEL;		
			BODY STYLE	: BUS	<b>S</b>		VIN: 1	HVBBA	AN71H4	15431		
INSPECTION CLASS:	5 - School Bus		ODOMETER:		0280	KM	FUEL TYPE					
			UNIT/FLEET	_	. (	1083		YPE: Air				
"F"	Failed "R" Repaired Same Day "R	P" Passed	PC" Pas	sed Wit	n Cauti	on "0" (	out Of Service	"NA" No	t Applicable	<del></del>	-	<del>,</del>
Section 1 - Power Train	F	RP	PC O NA		re Fuel					F R P	PC O	NA
Section 1 - Power Train			!			ane Gas			Ĺ		++	Y
Section 2 - Suspension	•					d Natural G uel Inspect			Ĺ		1	~
Section 2 - Suspension	L		' '-		e & Nu	mber						
Section 3 - Hydraulic Bo	akes			Axle #	1	trake Cham 2	ber Type, Siz	e and Push 5	Rod Stroke 6	Measurer 7	nent (mr 8	n) 9 ,
			-	Type: (	Clamp 9	Clamp 6						
Section 3A - Air Brakes				Size: Stack:	Auto	Auto						
ľ				Left:	32	34						
Section 4 - Steering				Right: Comme	34 nts:	34						
			ĺ									
Section 5 - Instruments,	Auxillary Equipment						ake Camshaft			t (degrees		
				Axle # Left:	1 55	2 30	3 4	5	6	7 8	3	9
Section 6 - Lamps replace low air bulb				Right:	55	30						
replace for all outs				Comme	nts:							
Section 7 - Electrical Sys	stem											
		T 7 "T		Axle #	1	2	Brake Linin	g/Pad Meas 5	urement (m 6		3	9
Section 8 - Body & Frame new wiper blade				•		Lining (S 20						
Out of Wind Bath		<del></del>	,	Right:	16 16	20						
Section 9 - Tires & Wheel				Comme								
Section 10 - Couplers & F	litches	<del>, , , , , , , , , , , , , , , , , , , </del>					•					. <u>-</u>
			~			-		um Measure				
Section 10 - Special Use	Vehicle Components	T 1		Axle # Type:	1 Drum	2 Drum	3 4	5	6	7	8	9
				Left:	0	0						

Signature

Comments: 1 - drums not removed; 2 - drums not removed

The Inspector's signature above is certification that this vehicle has been inspected to the requirements of the Motor Vehicle Act and Regulations.

NOTICE: KEEP THIS VEHICLE INSPECTION REPORT WITH VEHICLE REGISTRATION

The personal information collected on this form is collected under the authority of section 216 of the Motor Vehicle Act and Civision 25 of the Motor Vehicle Act Regulations. It is collected for the purpose of processing this vehicle inspection and for generally administering the Vehicle inspection Program and the National Safety Code (e.g. regulating carriers, authorized inspectors, and designated inspection facilities). If you have any questions about the collection of this information, you may contact the Sr. Manager, NSCIVIP at the Commercial Vehicle Safety Enforcement Branch, by writing to P.O. Box 9250, Stn Prov. Gov't, Victoria, BC V8W 9J2, by e-mailing to vehicle.inspections@gov.bc.ca or calling 250-352-0577.

General Inspection Comments:

Inspector's Name PETERSON, GARY BRUCE

Alimstry of lumsportances and infrastructure

respection identifier: MV913 20111130 1145

CVSA decal:

#### SCHOOLBUS INSPECTION REPORT / NOTICE and ORDER

Thicle(s) inspected this 30 of NOV YR 2011 at 10:45 (24hr Clock) at Playmore spection Type: Complete Violation Ticket #:

Inspected By: MV913 R.RICHARDSON

INSPECTION RESULT: Pass

Owner: **BOARD OF ED OF SD 8** Address:

**570 JOHNSTONE RD** 

City: NELSON Prov: BC Postal Code: V1L6J2

NSC #: 200641461

Registration: 00716269 Make:

Body Style: BUS

Plate #: **BLUEBIRD** Year:

2001

Fuel Code: Diesel

6178EM

Jur: BC Model:

Unit/Fleet: 1083 Odometer: 297990 KM

Mobility Aid: Seating Capacity: VIN: 1HVBBAAN71H415431

CVIP decal: PH09093

CVIP Jur. BC

INSPECTION RESULTS

BRAKE INFORMATION

;	Axle #	Brake Type	Chamber Type	Chamber Size	Slack Type	Left	Right
1	1	Air	Clamp	20L	Automatic	1 3/8	1 1/4
	2	Air	Clamp	30L	Automatic	1 1/2	: 1 1/2

Peace Officer (Inspector): R.RICHARDSON

310 Ward St Nelson V1L 5S4

Number: MV913

Assist:

The information on this form is collected under the authority of the Motor Vehicle Act, Section 217. The information will be used to process your vehicle inspection and/or Notice and Order. If you have any questions please contact the issuing Officer or call CVSE at (250) 952-0577. Visit www.cvse.ca

OCT-22-2012 14:12:34

Page 1 of 8

Report Name:

RDER0330

Report Title:

School District Summary of Capacities and Projected Enrolment

Purpose:

Report 10 years of forecasted enrolments (source 1558 report) and 2 years actual enrollments for the selected capital plan year.

#### **Selection Parameters:**

**School District:** 

Kootenay Lake 08

Capital Plan Year:

2012/2013

Source Forms: Ministry of Education: form 1701	Ministry Projections	Ministry Actuals
Inclusion/Exclusion: Standard School (type 0)	included	included
Continuing Education (type 1)	excluded	included
Distance Education Schools (type 2)	excluded	excluded
Alternate Program/School (type 3)	included	included
Provincial School (Jericho Hill) (type 4)	included	included
Youth Custody/Residential Attendance Centre (type 5)	included	included
Short Term Provincial Resource Programs (type 6)	included	included
Long Term Provincial Resource Programs (type 7)	included	included
Electronic Delivery Programs (type 8)	included	included
Open Independent Schools	_ excluded	excluded
Home School Registrations	excluded	excluded
Non- open Schools (closed or reserved)	excluded	excluded
Students Younger Than School Age	excluded	excluded
Students Older Than School Age	excluded	excluded

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

Capital Plan Year: 2012/2013 **School District:** 08 Kootenay Lake **Actual Enrolment Forecast Enrolments** Facility Facility Opening Grade Nominal Operating 2010/ 2012/ 2013/ 2019/ 2020/ 2021/ No. **School Name Status** Date Config Capacity Capacity 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 86004 ADAM ROBERTSON ELEMENTARY OPEN 09/01/1938 K-7 Comments K-H E 19 Ε 475 442 310 310 297 304 298 303 299 310 314 309 316 312 S 07016 BLEWETT ELEMENTARY SCHOOL OPEN 09/01/1962 K-5 Comments 20 19 K-H Changing to K-5 July 1/08 Ε 100 90 83 90 86 96 107 109 114 Ε 114 113 113 113 112 07033 BRENT KENNEDY ELEMENTARY OPEN 09/01/1977 K-6 Comments K-F K E 19 K-H 200 184 E 192 198 199 199 203 202 203 S S 86014 CANYON/LISTER ELEMENTARY 09/01/1961 K-7 Comments K-F 19 K-H Е 175 162 Ε 113 136 128 122 120 122 124 120 124 125 133 136 S s 08000 CONTINUING ED SD 08 OPEN 09/01/1993 8-12 Comments K-F K-H Ε Ε S



Note: A caret(^) preceding Facility Name or E Capacity indicates that the strong start center is associated with the facility, so the capacity is reduced by 25.

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

		Capital Plan	Year: 20	12/2013	O13 School District: 08 Kootenay					æ								
						Actu	ual Enro	ment	,		Fo	recast E	nrolme	nts				
Facility No.	School Name	Facility Status	Opening Date		Nominal Capacity	Operating Capacity	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
08001 CRAV	WFORD BAY ELEM-SEC	PROPOSED	N/A	K-12 K E S	20 75	K-F 19 K-H 69 E 75 S			6 42 23	6 44 22	39	39	6 41 32	6 43 32	7 40 37	7 46 27	7 47 26	7 48 26
86006 CRAV	WFORD BAY ELEM-SEC (	OLD OPEN	09/01/194	7 K-12 K E S	20 ^ 50 75	19 K-F K-H 46 E	10 45 19	52 27										
86019 ERIC Comments	KSON ELEMENTARY	OPEN	09/01/199	6 K-7 K E S	20 200	K-F 19 K-H 186 E	18	158	22 146	20 147	149	144	147	20	146	20 146	144	20
Comments CONSOLIDAT	ELINK CENTER  PED INTO SD 8 CONNECT  Program = 1 day in se			4 K-12 K E S	20 200	19 K-F 186 E S	15 103 51	90	184 62	31 184 62	31 184	31 184 62						
Comments	E ELEMENTARY SCHOOL  o K-5 July 1/08	_ OPEN	09/01/192	0 K-5 K E S	20 250	K-F 19 K-H 226 E	38 146	29 159	157	38 177	38 176	35 180	35 181	35 190	33 181	33 176	35 171	35 171



Note: A caret(^) preceding Facility Name or E Capacity indicates that the strong start center is associated with the facility, so the capacity is reduced by 25.

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

		Capital Pla	n Year: 20	12/2013		School Distri	ct:	08 Koo	tenay Lak	æ								
						Act	ual Enro	lment			Fo	recast E	nrolme	nts				
Facility No.	School Name	Facility Status	Opening Date	Grade Config		Operating Capacity	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
86018 UV Comments	HUMPHRIES ELEM -SEC	CONDA OPEN	09/01/1994	—	20	K-F 19 K-H 186 F	23	124	7	6	7	10	11	9	8	10	10	10
		<del></del>		E S		186 E	125	109	100	97	112	103	99	98	95	121 81	72 72	76
86005 JEW Comments	ETT ELEMENTARY	OPEN	09/01/1946	6 K-7 K E S	<b>-</b>	19 K-F K-H 69 E	24	23	3 18	16	19	3 19	18	3 19	19	22	21	21
99070 KOC Comments	OTENAY LAKE LEARNING	G CEN) OPEN	09/01/1998	5 8-12 K E S		K-F K-H E S	38	18										
Comments	ROGERS SECONDARY	OPEN	09/01/1956	6 9-12 K E S	725	K-F K-H E 725 S	763	733	737	684	692	671	652	662	667	651	650	666
07025 MOU Comments	INT SENTINEL SECOND	ARY OPEN	09/01/1950	7-12 K E S	50	K-F K-H 50 E	60	47	39	49	41 273	49	54	48	49	53	54	52 267

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

Capital Plan Year: 2012/2013 **School District:** 08 Kootenay Lake **Actual Enrolment Forecast Enrolments** Facility Facility Opening Grade Nominal Operating 2010/ 2012/ 2013/ 2018/ 2019/ 2020/ 2021/ No. **School Name** Status Date Config Capacity Capacity 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 86007 PRINCE CHARLES SECONDARY OPEN 09/01/1983 8-12 Comments K-F K-H K E Ε s 725 725 S 534 533 526 521 531 526 542 537 540 530 535 07035 REDFISH ELEMENTARY SCHOOL OPEN 09/01/1987 K-5 Comments 20 19 K-H 16 Changing to K-5 July 1/08 E 125 113 93 91 82 79 Ε 81 84 89 88 88 88 07018 ROSEMONT ELEMENTARY SCHOOL OPEN 09/01/1962 K-5 Comments 19 K-H Changing to K-5 July 1/08 Ë 150 135 89 75 79 86 105 Ε 94 116 118 117 118 117 116 S s OPEN 07011 SALMO ELEMENTARY SCHOOL 09/01/1953 K-6 Comments K-F 29 19 K-H Ε 250 230 150 139 154 163 163 169 Ε 133 173 174 175 176 176 s s OPEN 08036 SALMO SECONDARY 04/13/2004 7-12 Comments K-F K-H E Ε 21 28 29 S 200 200 S 93 82 80 68 64 83 92 95 118



Note: A caret(^) preceding Facility Name or E Capacity indicates that the strong start center is associated with the facility, so the capacity is reduced by 25.

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

	_	Capital Plan Y	ear: 20°	12/2013		School Distric	et:	08 Koot	enay Lak	е								
						Actu	ıal Enrol	ment			Fo	recast E	nrolme	nts				
Facility		Facility	Opening	Grade	Nominal	Operating	2010/	2011/	2012/	2013/	2014/	2015/	2016/	2017/	2018/	2019/	2020/	2021/
No.	School Name	Status	Date	Config	Capacity	Capacity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
98001 SD 0	08 CONNECT PROGRAM	OPEN	03/30/2000	K-12	]	K-F		3	5	5								
			<del></del>	٦ K E		K-H	4 44	44	53	53	53	53	53	53	53	53	53	53
				s		= s	285	192	381	381	381	381	381	381	381	381	381	381
L					<u></u>						L	LI						
07014 SOU	TH NELSON ELEMENTAR	Y OPEN	09/01/1960	) K-5	]	K-F		31	36	33	33	34	34	32	32	33	33	33
			_	<b>¬</b> к	20	19 K-H	27						$\Box$					
	to K-5 July 1/08. Clo ct approved	osing if Trafa	al	E S	200	180 E	189	151	153	141	130	114	122	125	121	120	120	119
L				<b>」゜゜</b>		。		<b> </b>	<b></b>		<u></u>	L						
07005 TRAF	ALGAR MIDDLE SCHOO	L OPEN	09/01/1920	6-8	1													
Comments				¬ к		K-F K-H												
	to 6-8 July 1/08. Char project approved.	anging to K-8	if	Ë	375	375 E	285	293	285	255	264	283	258	239	286	304	288	287
Trarargar	project approved.			s	200	200 S	153	148	136	156	129	126	138	145	113	126	160	144
07000 INE	ODALIAM COMMUNITY (	OLI d DDEN	0010414050	N 14 40	1													
07026 W.E. Comments	GRAHAM COMMUNITY S	SCHQ OPEN	09/01/1950		]	K-F	5	1	5	3	5	5	4	4	4	5	5	5
				J K	20 125	19 K-H 116 E	42	35	25	20	20	24	28	27	27	30	30	32
				s	100	100 S	22	21	20	27	23	14	5	7	10	10	10	9
99178 WILD	FLOWER	OPEN	09/01/2007	1-7	]	K-F			<del></del> 1		<del></del> 1	<del></del> 1						<del></del>
	- Cartani Diana			٦ ڏ		K-H	75	70	120	105		104		142	100	105	100	107
Located in	n Central Elementary			E S		E	75 12	79 8	120 19	125 20	124	121 34	112	40	33	105 37	33	28
					Ц	<sup>3</sup>	لستنسا	لستسا		لــــــــــــــــــــــــــــــــــــــ	لسنتسا	لسننسا	لسننسا	لـــــنـــــا	لــــــــــــــــــــــــــــــــــــــ	<u>~</u>	لــــّـــا	لــــــــــــــــــــــــــــــــــــــ

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

		Capital Plar	<b>Year:</b> 20	12/2013		School Distric	et:	08 Koo	tenay Lak	e								
	-	-				Actu	ıal Enro	lment			Fo	recast E	nrolme	nts				
Facility No.	School Name	Facility Status	Opening Date		Nominal Capacity	Operating Capacity	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
07034 WIN	NLAW ELEMENTARY SCH	HOOL OPEN	09/01/1978	K-6 K E S	20 75	K-F 19 K-H 69 E	66	68	73	72	13 79	81	77	79	79	79	80	81
86012 YAI	HK ELEMENTARY	OPEN	09/01/1956	K-6 K E S	50	K-F K-H 46 E	5 21	12	11	13	3 16	18	16	16	3 16	17	3 17	18

22 OCT 2012 14:12:34

RDER0330 (R10.3) 'kim morris' (PRD01)

( District Totals / Ministry Forecasts / Variances )

Capital Plan Year: 2012/2013

School District: 08 Kootenay Lake

		A often	al Enrolment										
·	Nominal Capacity	Actua	2010/ 2011 2011 2012			2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
District Totals:	K 340 E 3400 S 2600	K-H	2407 2397	369 0 K 369 E 2438 S 2391 5198	352 0 352 2465 2326 5143	352 0 352 2486 2298	350 0 350 2521 2277 5148	355 0 355 2531 2264 5150	345 0 345 2540 2306		349 262 226	0 350 4 260 3 230	0 350 8 2615 2 2312
Ministry Forecasts:				K 314 E 2381 S 2139	319 2363 2125 4807	316 2365 2127 4808	316 2379 2129 4824	323 2388 2137 4848	361 2407 2128 4896	369 2467 2103 4939	2536 2083	2603 3 2093	2673 2 2111
District Variances:				K 55 E 57 S 252	33 102 201	36 121 171 328	34 142 148	32 143 127	-16 133 178	-22 114 172	-25 88 183	5 210	-58 201