

Preliminary Cost Estimate

Brock Commons Phase 1 - Watermain replacement - UBC Portion of Works only
Replace existing 150mm dia CI and 200mm dia AC watermain with 200mm & 250mm dia
DI (ductile iron) watermain on Walter Gage Road and on East Lane (west side of Gage Towers)

Kamps Engineering Ltd Project : 8122

Date: September 28, 2016

Preliminary cost estimate for UBC's Cost for watermain replacement works at Brock Commons Phase 1 - all as shown on drawings prepared by Kamps Engineering Limited job 8122, sheets 200-rev 9-markup, sheet 202-rev 6 markup & sheet 211-rev3 markup, and assuming the work is constructed as part of the Brock Commons Phase 1 servicing work.

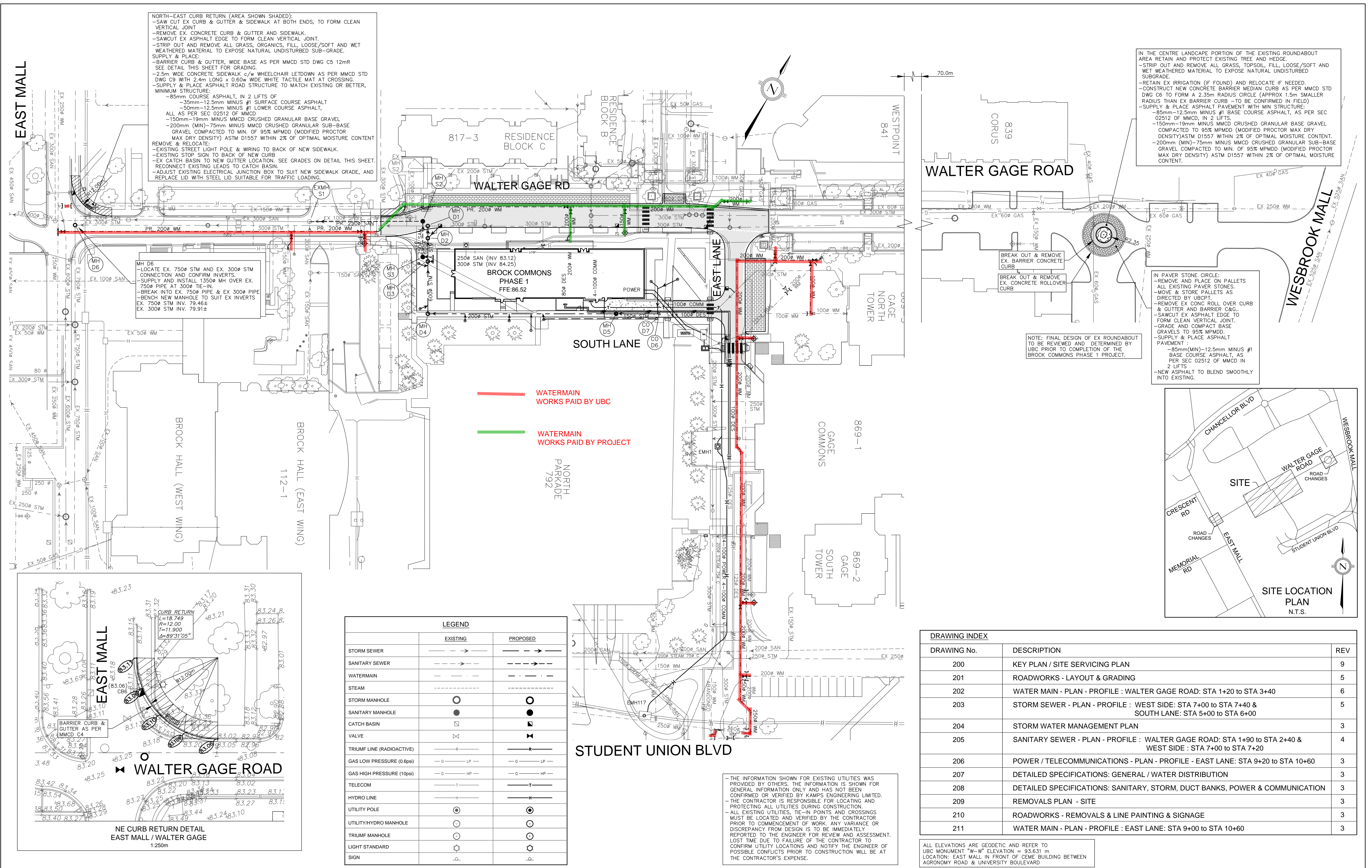
NOTE: this estimate **does not** include the portion of the Watermain works allocated to the project.

Watermain : Supply & Install		page 1 of 2		
Item	Unit	Quantity	Unit Price	Estimate
Walter Gage Road - East Mall Sta 1+24.3 to 45 degree bend Sta 2+18.8 (sheet 202)				
Tie into ex 250mm WM East Mall	ls	1	5,000	5,000
Tie into ex 150mm Service (west)	ls	1	2,500	2,500
Remove ex hydrant & valve & cap off	ls	1	1,500	1,500
Remove ex 150 dia gate valve & cap off	ls	1	1,500	1,500
150mm DI Watermain	m	5.0	400	2,000
200mm DI Watermain	m	91.6	500	45,800
Gate Valve 150mm dia	ea	2	1,500	3,000
Gate Valve 200mm dia	ea	2	2,000	4,000
Hydrant assembly	ea	1	4,000	4,000
Tee 250mm dia	ea	1	1,500	1,500
Tee 200mm dia	ea	2	1,250	2,500
Bends 100, 150 & 200mm dia	ea	3	650	1,950
Caps 150 & 200mm dia	ea	4	200	800
Temporary Blow-off assembly	ea	2	1,000	2,000
Robar Couplings 150 & 200 mm dia	ea	4	750	3,000
Asphalt re & re (90m x 2.0m)	m ²	180	50	9,000
Traffic Control	ls	1	5,000	5,000
Testing & Chlorination	ls	1.0	2,000	2,000
UBC Watermain as shown on Sheet 202 : Sub-total				97,050

Preliminary cost estimate : Brock Commons Phase 1 watermain replacement works
 continued

Kamps Engineering Ltd
 Date: September 28, 2016

Watermain : Supply & Install				page 2 of 2	
Sheet 211 : East Lane - from Walter Gage Road Sta 9+15 to Sta. 10+54.5 -(sheet 211)					
Tie into ex 200mm WM Lane north	ls	1	2,500	2,500	
Tie into ex 200mm watermain east end	ls	1	2,500	2,500	
Tie into ex 100mm Service (east)	ls	1	2,000	2,000	
Tie into ex 200mm WM Lane south-east	ls	1	2,500	2,500	
Tie into ex 250mm WM Lane south	ls	1	2,500	2,500	
Tie into ex 250's cross connect	ls	1	5,000	5,000	
100mm DI Watermain	m	16.0	350	5,600	
150mm DI Watermain	m	8.5	400	3,400	
200mm DI Watermain	m	148.0	500	74,000	
250mm DI Watermain	m	22.0	700	15,400	
Gate Valve 100mm dia	ea	1	1,500	1,500	
Gate Valve 150mm dia	ea	2	1,500	3,000	
Gate Valve 200mm dia	ea	4	2,000	8,000	
Hydrant assembly	ea	2	4,000	8,000	
Tee 250mm dia	ea	2	1,500	3,000	
Tee 200mm dia	ea	4	1,250	5,000	
Bends 100, 150 & 200mm dia	ea	9	650	5,850	
Bends 250mm dia	ea	7	800	5,600	
Temporary Blow-off assembly	ea	2	1,000	2,000	
Robar Couplings 100, 150 & 200 mm dia	ea	7	750	5,250	
Caps 150 & 200mm dia	ea	16	200	3,200	
Traffic Control	ls	1	5,000	5,000	
Asphalt re & re (150m x 2.0m)	m ²	300	50	15,000	
Testing & Chlorination	ls	1.0	2,000	2,000	
UBC Watermain as shown Sheet 211 : Sub-total				187,800	
UBC Watermain as shown on Sheet 202 : Sub-total				97,050	
Watermain Sub-total				284,850	
Engineering & Inspection 10%				28,485	
Total Preliminary Watermain Estimate				\$ 313,335	



NORTH-EAST CURB RETURN (AREA SHOWN SHADED):
 -SAW CUT EX CURB & GUTTER & SIDEWALK AT BOTH ENDS, TO FORM CLEAN VERTICAL JOINT
 -REMOVE EX. CONCRETE CURB & GUTTER AND SIDEWALK.
 -SAWCUT EX ASPHALT EDGE TO FORM CLEAN VERTICAL JOINT
 -STRIP OUT AND REMOVE ALL GRASS, ORGANICS, FILL, LOOSE/SOFT AND WET WEATHERED MATERIAL TO EXPOSE NATURAL UNDISTURBED SUB-GRADE.
 SUPPLY & PLACE:
 -BARRIER CURB & GUTTER, WIDE BASE AS PER MMCD STD DWG C5 12mR SEE DETAIL THIS SHEET FOR GRADING.
 -2.5m WIDE CONCRETE SIDEWALK c/w WHEELCHAIR LETDOWN AS PER MMCD STD DWG C9 WITH 2.4m LONG x 0.60m WIDE WHITE TACTILE MAT AT CROSSING.
 -SUPPLY & PLACE ASPHALT ROAD STRUCTURE TO MATCH EXISTING OR BETTER, MINIMUM STRUCTURE:
 -85mm COURSE ASPHALT, IN 2 LIFTS OF
 -35mm-12.5mm MINUS #1 SURFACE COURSE ASPHALT
 -50mm-12.5mm MINUS #1 LOWER COURSE ASPHALT,
 ALL AS PER SEC 02512 OF MMCD
 -150mm-19mm MINUS MMCD CRUSHED GRANULAR BASE GRAVEL
 -200mm (MIN)-75mm MINUS MMCD CRUSHED GRANULAR SUB-BASE GRAVEL COMPACTED TO MIN. OF 95% MPDD (MODIFIED PROCTOR MAX DRY DENSITY) ASTM D1557 WITHIN 2% OF OPTIMAL MOISTURE CONTENT
 REMOVE & RELOCATE:
 -EXISTING STREET LIGHT POLE & WIRING TO BACK OF NEW SIDEWALK.
 -EXISTING STOP SIGN TO BACK OF NEW CURB
 -EX CATCH BASIN TO NEW GUTTER LOCATION. SEE GRADES ON DETAIL THIS SHEET.
 -RECONNECT EXISTING LEADS TO CATCH BASIN.
 -ADJUST EXISTING ELECTRICAL JUNCTION BOX TO SUIT NEW SIDEWALK GRADE, AND REPLACE LID WITH STEEL LID SUITABLE FOR TRAFFIC LOADING.

MH D6
 -LOCATE EX. 750# STM AND EX. 300# STM CONNECTION AND CONFIRM INVERTS.
 -SUPPLY AND INSTALL 1350# MH OVER EX. 750# PIPE AT 300# TIE-IN.
 -BREAK INTO EX. 750# PIPE & EX. 300# PIPE
 -BENCH NEW MANHOLE TO SUIT EX INVERTS
 EX. 750# STM INV. 79.44±
 EX. 300# STM INV. 79.91±

IN THE CENTRE LANDSCAPE PORTION OF THE EXISTING ROUNDABOUT AREA RETAIN AND PROTECT EXISTING TREE AND HEDGE.
 -STRIP OUT AND REMOVE ALL GRASS, TOPSOIL, FILL, LOOSE/SOFT AND WET WEATHERED MATERIAL TO EXPOSE NATURAL UNDISTURBED SUBGRADE.
 -RETAIN EX IRRIGATION (IF FOUND) AND RELOCATE IF NEEDED.
 -CONSTRUCT NEW CONCRETE BARRIER MEDIAN CURB AS PER MMCD STD DWG C6 TO FORM A 2.35m RADIUS CIRCLE (APPROX 1.5m SMALLER RADIUS THAN EX BARRIER CURB - TO BE CONFIRMED IN FIELD)
 -SUPPLY & PLACE ASPHALT PAVEMENT WITH MIN STRUCTURE:
 -85mm-12.5mm MINUS #1 BASE COURSE ASPHALT, AS PER SEC 02512 OF MMCD, IN 2 LIFTS
 -150mm-19mm MINUS MMCD CRUSHED GRANULAR BASE GRAVEL COMPACTED TO 95% MPDD (MODIFIED PROCTOR MAX DRY DENSITY) ASTM D1557 WITHIN 2% OF OPTIMAL MOISTURE CONTENT.
 -200mm (MIN)-75mm MINUS MMCD CRUSHED GRANULAR SUB-BASE GRAVEL COMPACTED TO MIN. OF 95% MPDD (MODIFIED PROCTOR MAX DRY DENSITY) ASTM D1557 WITHIN 2% OF OPTIMAL MOISTURE CONTENT.

IN PAVER STONE CIRCLE:
 -REMOVE AND PLACE ON PALLETS ALL EXISTING PAVEMENT STONES.
 -MOVE & STORE PALLETS AS DIRECTED BY UBCPT.
 -REMOVE EX CONC ROLL OVER CURB & GUTTER AND BARRIER C&G.
 -SAWCUT EX ASPHALT EDGE TO FORM CLEAN VERTICAL JOINT.
 -GRADE AND COMPACT BASE GRAVELS TO 95% MPDD.
 -SUPPLY & PLACE ASPHALT PAVEMENT:
 -85mm(MIN)-12.5mm MINUS #1 BASE COURSE ASPHALT, AS PER SEC 02512 OF MMCD IN 2 LIFTS
 -NEW ASPHALT TO BLEND SMOOTHLY INTO EXISTING.

NOTE: FINAL DESIGN OF EX ROUNDABOUT TO BE REVIEWED AND DETERMINED BY UBC PRIOR TO COMPLETION OF THE BROCK COMMONS PHASE 1 PROJECT.

LEGEND	
EXISTING	PROPOSED
STORM SEWER	→
SANITARY SEWER	→
WATERMAIN	→
STEAM	→
STORM MANHOLE	○
SANITARY MANHOLE	●
CATCH BASIN	⊠
VALVE	⊞
TRIUMF LINE (RADIOACTIVE)	—R—
GAS LOW PRESSURE (0.6ps)	—G—LP—
GAS HIGH PRESSURE (10ps)	—G—HP—
TELECOM	—T—
HYDRO LINE	—H—
UTILITY POLE	⊙
UTILITY/HYDRO MANHOLE	○
TRIUMF MANHOLE	○
LIGHT STANDARD	⊙
SIGN	⊙

DRAWING INDEX		
DRAWING No.	DESCRIPTION	REV
200	KEY PLAN / SITE SERVICING PLAN	9
201	ROADWORKS - LAYOUT & GRADING	5
202	WATER MAIN - PLAN - PROFILE : WALTER GAGE ROAD: STA 1+20 TO STA 3+40	6
203	STORM SEWER - PLAN - PROFILE : WEST SIDE: STA 7+00 TO STA 7+40 & SOUTH LANE: STA 5+00 TO STA 6+00	5
204	STORM WATER MANAGEMENT PLAN	3
205	SANITARY SEWER - PLAN - PROFILE : WALTER GAGE ROAD: STA 1+90 TO STA 2+40 & WEST SIDE : STA 7+00 TO STA 7+20	4
206	POWER / TELECOMMUNICATIONS - PLAN - PROFILE - EAST LANE: STA 9+20 TO STA 10+60	3
207	DETAILED SPECIFICATIONS: GENERAL / WATER DISTRIBUTION	3
208	DETAILED SPECIFICATIONS: SANITARY, STORM, DUCT BANKS, POWER & COMMUNICATION	3
209	REMOVALS PLAN - SITE	3
210	ROADWORKS - REMOVALS & LINE PAINTING & SIGNAGE	3
211	WATER MAIN - PLAN - PROFILE : EAST LANE: STA 9+00 TO STA 10+60	3

ALL ELEVATIONS ARE GEODETIC AND REFER TO UBC MONUMENT "W-W" ELEVATION = 93.631 m
 LOCATION: EAST MALL IN FRONT OF CEME BUILDING BETWEEN AGRONOMY ROAD & UNIVERSITY BOULEVARD

NO.	DESCRIPTION	MO/DAY/YR
9	REVISED AS PER UBC REVIEW COMMENTS	09/28/2016
8	SLP 2 SUBMISSION - SERVICING & ROADWORKS	05/18/2016
7	SLP SUBMISSION	12/11/2015
6	AS PER UBC REVIEW COMMENTS IN SUPPORT OF EXCAVATION PERMIT	11/03/2015
5	ROAD CHANGES ADDED IN SUPPORT OF PERMIT & TMP	10/29/2015
4	REVISIONS AS PER UBC REVIEW FOR EXCAVATION & SHORING PERMIT	10/13/2015
3	ISSUE FOR TENDER / FOUNDATION BP	08/18/2015
2	REVISED SERVICING & ROADWORKS	07/27/2015
1	REVISED SERVICING AS PER UBC & CLIENT REQUEST	07/07/2015

KAMPS ENGINEERING LIMITED
 604-682-2020 kamps@rogers.com

UBC PROPERTIES TRUST

CLIENT: **UBC PROPERTIES TRUST**

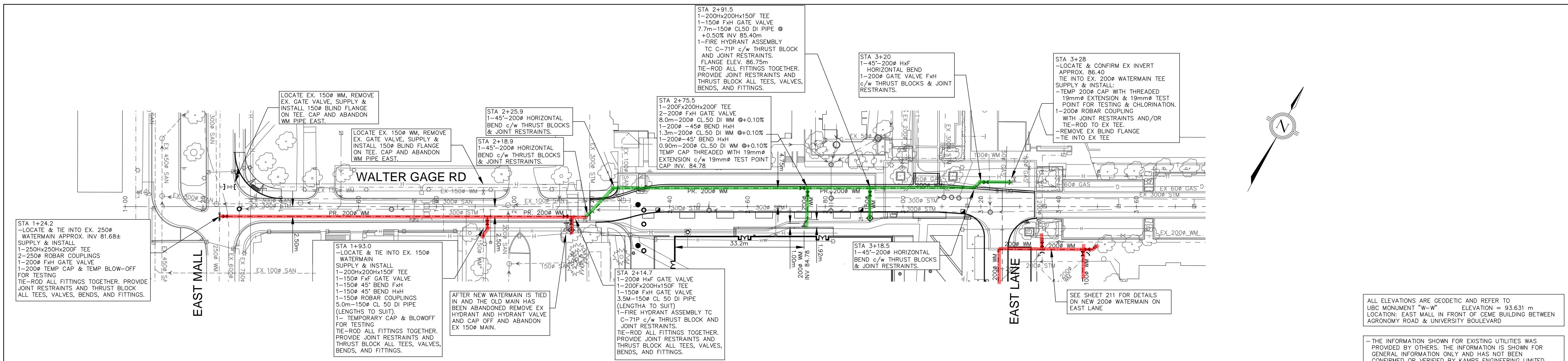
BUILDING/FACILITY:

DRAWING TITLE: **KEY PLAN / SITE SERVICING PLAN**

PROJECT TITLE: **BROCK COMMONS - PHASE 1**

DRAWN: J.N.	SCALE: HORZ: 1:500m	PROJECT No. 8122
DESIGN: M.K.	DATE: APRIL 2015	DRAWING No. 200
CHECKED:		REV. 9

THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE INFORMATION IS SHOWN FOR GENERAL INFORMATION ONLY AND HAS NOT BEEN CONFIRMED OR VERIFIED BY KAMPS ENGINEERING LIMITED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION.
 -ALL EXISTING UTILITIES, TIE-IN POINTS AND CROSSINGS MUST BE LOCATED AND VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE OR DISCREPANCY FROM DESIGN IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER FOR REVIEW AND ASSESSMENT. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTOR'S EXPENSE.

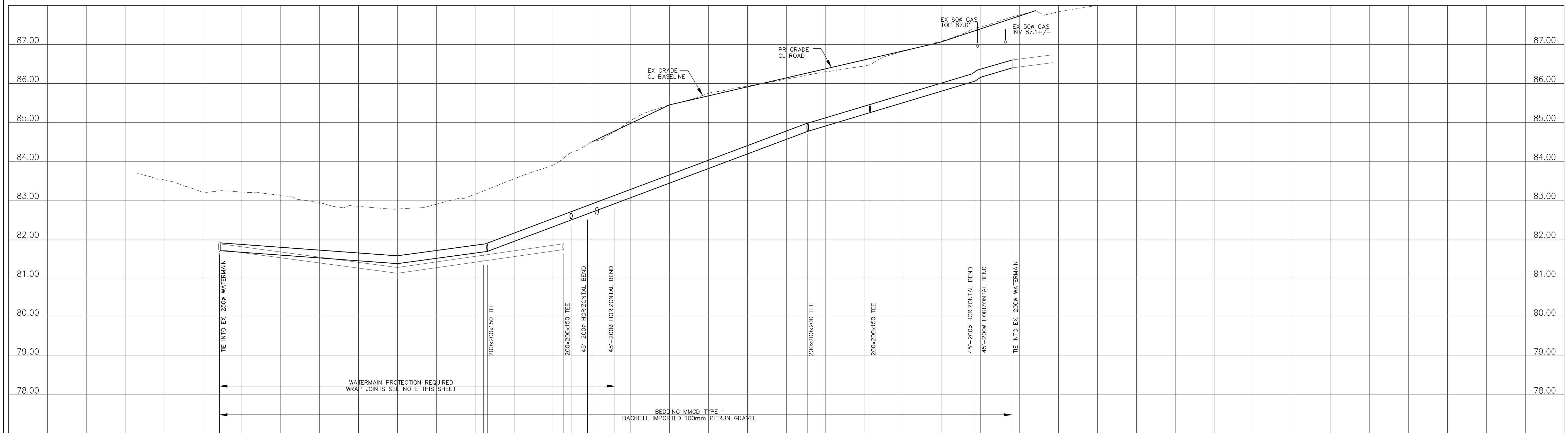


— WATERMAIN WORKS PAID FOR BY UBC
— WATERMAIN WORKS PAID BY PROJECT

WATERMAIN JOINT PROTECTION:
 WHERE WATERMANS ARE INSTALLED WITH LESS THAN 3.0m CLEARANCE (HORIZONTAL) AND 0.5m (VERTICAL) FROM STORM OR SANITARY SEWERS, AND/OR WHERE NOTED ON THE DRAWINGS, ALL JOINTS SHALL BE WRAPPED AND PROTECTED USING DENSO PROFILING MASTIC AND DENSO LT TAPE OR APPROVED EQUIVALENT.

ALL ELEVATIONS ARE GEODETIC AND REFER TO UBC MONUMENT "W-W" ELEVATION = 93.631 m LOCATION: EAST MALL IN FRONT OF CEME BUILDING BETWEEN AGRONOMY ROAD & UNIVERSITY BOULEVARD

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WATERMAIN	LENGTH, SIZE, TYPE & GRADE	ELEVATION @		CHAINAGE ALONG ROAD
		EXIST	PROP	
		83.19	83.12	1+20
		81.71	82.84	1+24.2
	45.8m-200 CL 50 DI WM @ -0.75%			1+40
		82.90		1+60
		81.37		1+70
	23.0m-200 CL 50 DI WM @ +1.35%			1+80
		83.55		1+93
		82.35		2+00
		82.33		2+14.7
	82.5m-200 CL 50 DI WM @ +3.75%			2+18.9
		84.50		2+20
		85.45		2+25.9
		85.93		2+40
		86.30		2+60
		86.82		2+75.5
		86.82		2+80
		86.82		2+84
	2.1m-200 CL 50 DI WM @ +4.80%			3+00
	43.0m-200 CL 50 DI WM @ +3.00%			3+18.5
		87.46		3+20
		86.40		3+28
	8.0m-200 CL 50 DI WM @ +3.00%			3+40
		88.12		3+60
		88.42		3+80
		89.04		4+00

REVISIONS No. DESCRIPTION MO/DAY/YR	6	REVISED VALVE LOCATION STA 2+14.7 AS PER UBC REVIEW	09/28/2016
	5	SLP 2 SUBMISSION & WATERMAIN PROTECTION STA 1+24 TO STA 2+25.9	05/18/2016
	4	REVISED WATER TO RESOLVE LOCATE CONFLICTS - STA 3+15 TO STA 3+30	05/17/2016
	3	REVISED AS PER UBC REVIEW COMMENTS	05/10/2016
	2	SLP SUBMISSION	12/11/2015
1	ISSUE FOR TENDER / FOUNDATION BP	08/18/2015	
KAMPS ENGINEERING LIMITED 604-682-2020 kamps@rogers.com			
UBC PROPERTIES TRUST		UBC PROPERTIES TRUST	
CLIENT UBC PROPERTIES TRUST		BUILDING/FACILITY BROCK COMMONS - PHASE 1	
DRAWING TITLE WATERMAIN PLAN AND PROFILE WALTER GAGE ROAD - STA 1+20 TO STA 3+40		PROJECT TITLE BROCK COMMONS - PHASE 1	
DRAWN: J.N. DESIGN: M.K. CHECKED:		SCALE: HORIZ: 1:500 m VERT: 1:50 m DATE: AUG. 2015	
PROJECT No. 8122		DRAWING No. 202	
REV.		6	

STA 3+48.7 (WALTER GAGE BASELINE)
 -LOCATE EX WATERMAIN AT TIE-IN POINT TO CONFIRM INVERT & LOCATION
 -TIE INTO EX. 200 ϕ WATERMAIN SUPPLY & INSTALL
 -TEMP 200 ϕ CAP WITH THREADED 19mm ϕ EXTENSION & 19mm ϕ TEST POINT FOR TESTING & CHLORINATION
 1-200 ϕ 45 \circ BEND (INV. 86.30m)
 1-200 ϕ ROBAR COUPLING
 CAP OFF & ABANDON EX 200 ϕ WM SOUTH-WEST
 FROM STA 3+46.2 to STA 3+48.7
 2.5m-200 ϕ CL50 DI WM @ +2.00%

STA 3+46.2 (WALTER GAGE BASELINE)
 SUPPLY & INSTALL
 1-200Hx200Hx100F TEE (INV. 86.30m)
 1-200 ϕ FxH GATE VALVE
 1-100 ϕ FxH GATE VALVE
 TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS ON ALL TEES, VALVES, BENDS & FITTINGS.

STA 3+35.8 (WALTER GAGE BASELINE)
 -LOCATE EX WATERMAIN AT TIE-IN POINT TO CONFIRM INVERT & LOCATION
 -TIE INTO EX. 200 ϕ WATERMAIN SUPPLY & INSTALL
 1-200Hx200Hx200F TEE (INV. 86.09m)
 1-200 ϕ HxH GATE VALVE
 1-200 ϕ ROBAR COUPLING
 CAP OFF & ABANDON EX 200 ϕ WM SOUTH
 REMOVE EX GATE VALVE & CAP OFF WM
 FROM STA 3+35.8 to STA 3+46.2
 10.4m-200 ϕ CL50 DI WM @ +2.00%

TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS.
 SEE SHEET 202 FOR DETAILS ON NEW 200 ϕ WATERMAIN ON WALTER GAGE ROAD

STA 3+24.5 (WALTER GAGE BASELINE)
 SUPPLY & INSTALL
 1-200 ϕ HxH 90 \circ BEND (INV. 85.86m)
 FROM STA 3+24.5 to STA 3+35.8
 11.3m-200 ϕ CL50 DI WM @ +2.00%

PROVIDE JOINT RESTRAINTS AND THRUST BLOCK ALL BENDS & FITTINGS.

NOTE:
 -WATERMAIN BEDDING SHALL BE MMCD TYPE 1
 -WATERMAIN BACKFILL SHALL BE IMPORTED 100mm PITRUN GRAVEL

GAGE TOWERS WATER SERVICE:
 -LOCATE EX 100 ϕ WATERMAIN AT TIE-IN POINT TO CONFIRM INVERT & LOCATION
 -TIE INTO EX. 100 ϕ WATERMAIN SUPPLY & INSTALL
 -TEMP 100 ϕ CAP WITH THREADED 19mm ϕ EXTENSION & 19mm ϕ TEST POINT FOR TESTING & CHLORINATION
 1-100 ϕ 90 \circ BEND (INV. 86.22m)
 1-100 ϕ ROBAR COUPLING
 FROM TEE AT STA 3+46.2 TO SERVICE
 15.8m-100 ϕ CL50 DI WM @ -0.50%
 CAP OFF & ABANDON EX 100 ϕ WM WEST
 TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS ON ALL TEES, VALVES, BENDS & FITTINGS.

STA 9+38.2
 1-200Hx200F150F TEE
 1-200 ϕ FxH GATE VALVE
 1-150 ϕ FxH GATE VALVE
 -AFTER NEW WATERMAIN IS TIED IN AND THE OLD MAIN HAS BEEN ABANDONED REMOVE EX HYDRANT & HYDRANT VALVE AND CAP OFF & ABANDON EX 200 ϕ MAIN.
 -4.5m-150 ϕ CL 50 DI PIPE
 1-FIRE HYDRANT ASSEMBLY TC C-71P c/w THRUST BLOCK AND JOINT RESTRAINTS.
 TIE-ROD ALL FITTINGS TOGETHER, PROVIDE JOINT RESTRAINTS AND THRUST BLOCK ALL TEES, VALVES, BENDS, AND FITTINGS.

STA 9+70
 1-200 ϕ 45 \circ BEND HxH HORIZ
 STA 9+71
 1-200 ϕ 45 \circ BEND HxH HORIZ
 1-200 ϕ 45 \circ BEND FxH VERT
 TIE-ROD ALL FITTINGS TOGETHER, PROVIDE JOINT RESTRAINTS AND THRUST BLOCKS

STA 10+16
 1-200Hx200F150F TEE
 1-200 ϕ FxH GATE VALVE
 1-150 ϕ FxH GATE VALVE
 -AFTER NEW WATERMAIN IS TIED IN AND THE OLD MAIN HAS BEEN ABANDONED REMOVE EX HYDRANT AND HYDRANT VALVE AND CAP OFF AND ABANDON EX 200 ϕ MAIN.
 -4.0m-150 ϕ CL 50 DI PIPE
 1-FIRE HYDRANT ASSEMBLY TC C-71P c/w THRUST BLOCK AND JOINT RESTRAINTS.

STA 10+37.7
 1-250 ϕ x250Hx200F TEE
 1-200 ϕ FxH GATE VALVE
 -LOCATE EX 200 ϕ WATERMAIN AT TIE-IN POINT TO CONFIRM INVERT & LOCATION
 -TIE INTO EX. 200 ϕ WATERMAIN SUPPLY & INSTALL
 3.0m-200 ϕ CL50 DI PIPE (LENGTH TO SUIT)
 1-200 ϕ ROBAR COUPLING WITH JOINT RESTRAINTS
 CAP OFF & ABANDON EX 200 ϕ WM EAST & WEST.
 TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS.

STA 10+45
 1-200 ϕ 45 \circ BEND HxH HORIZ

STA 10+48
 1-200 ϕ 45 \circ BEND HxH HORIZ

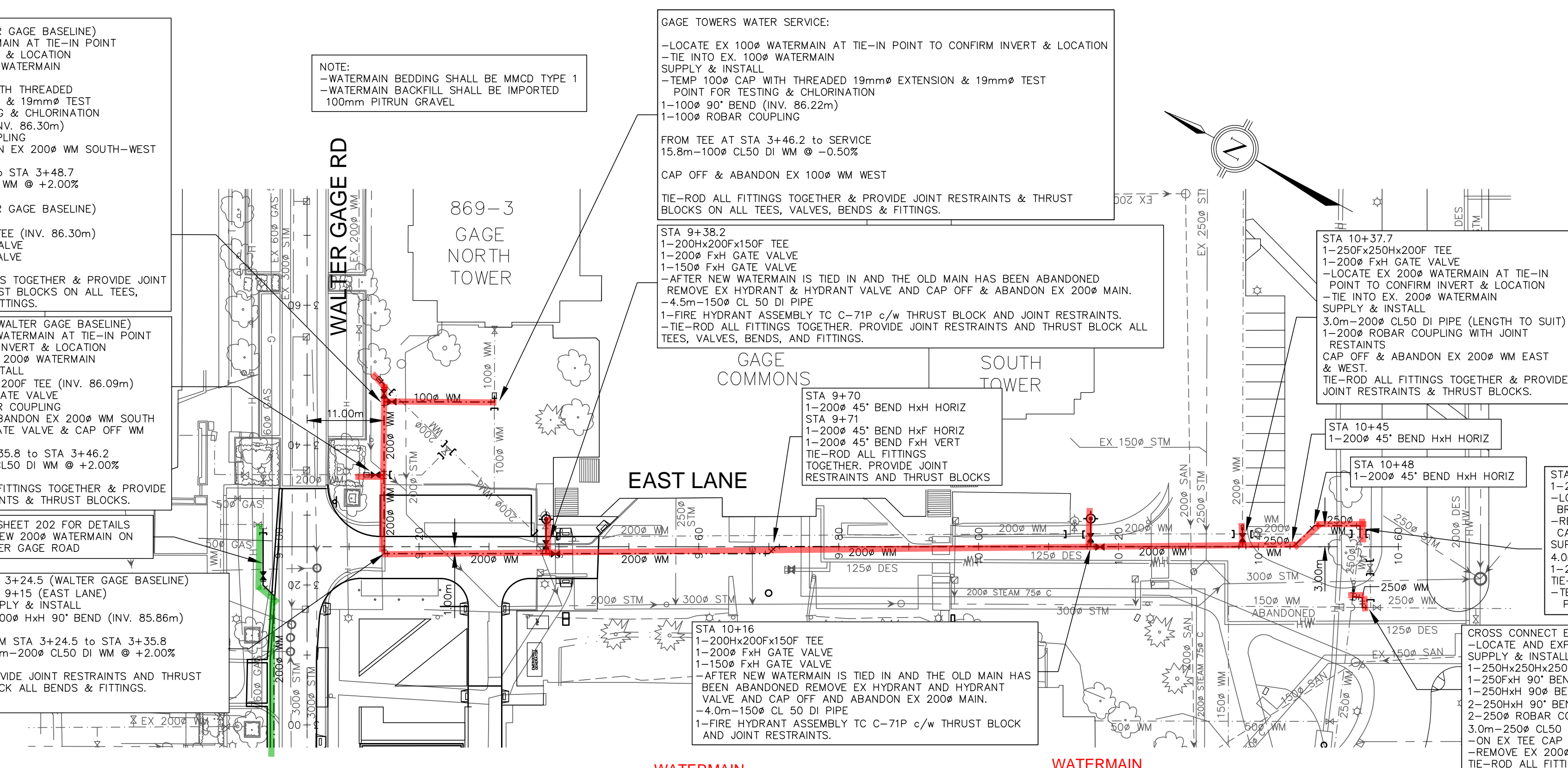
STA 10+54.5
 1-250 ϕ 90 \circ BEND HxH HORIZ
 -LOCATE EX 250 ϕ WATERMAIN AT TIE-IN POINT TO CONFIRM INVERT & LOCATION. BREAK OUT & REMOVE EX TEE.
 -REMOVE EX 200 ϕ WATERMAIN WHERE IN CONFLICT WITH PR 250 ϕ MAIN AND CAP OFF AND ABANDON.
 SUPPLY & INSTALL
 4.0m-250 ϕ CL50 DI PIPE (LENGTHS TO SUIT)
 1-250 ϕ ROBAR COUPLING
 TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS.
 -TEMP 250 ϕ CAP WITH THREADED 19mm ϕ EXTENSION & 19mm ϕ TEST POINT FOR TESTING & CHLORINATION

CROSS CONNECT EX 250 ϕ DI WATERMANS:
 -LOCATE AND EXPOSE EX 250 ϕ WATERMAIN AT TIE-IN POINTS TO CONFIRM INVERTS & LOCATION & MATERIAL SUPPLY & INSTALL:
 1-250Hx250Hx250F TEE
 1-250 ϕ HxH 90 \circ BEND HORIZ
 1-250HxH 90 \circ BEND HORIZ
 2-250HxH 90 \circ BENDS VERT (IF REQUIRED)
 3-250 ϕ ROBAR COUPLINGS WITH JOINT RESTRAINTS.
 3.0m-250 ϕ CL50 DI PIPE (LENGTHS TO SUIT)
 -ON EX TEE CAP OFF & ABANDON 200 ϕ WATERMAIN EAST
 -REMOVE EX 200 ϕ GATE VALVE AND CAP OFF & ABANDON EX 200 ϕ WATERMAIN EAST.
 TIE-ROD ALL FITTINGS TOGETHER & PROVIDE JOINT RESTRAINTS & THRUST BLOCKS.

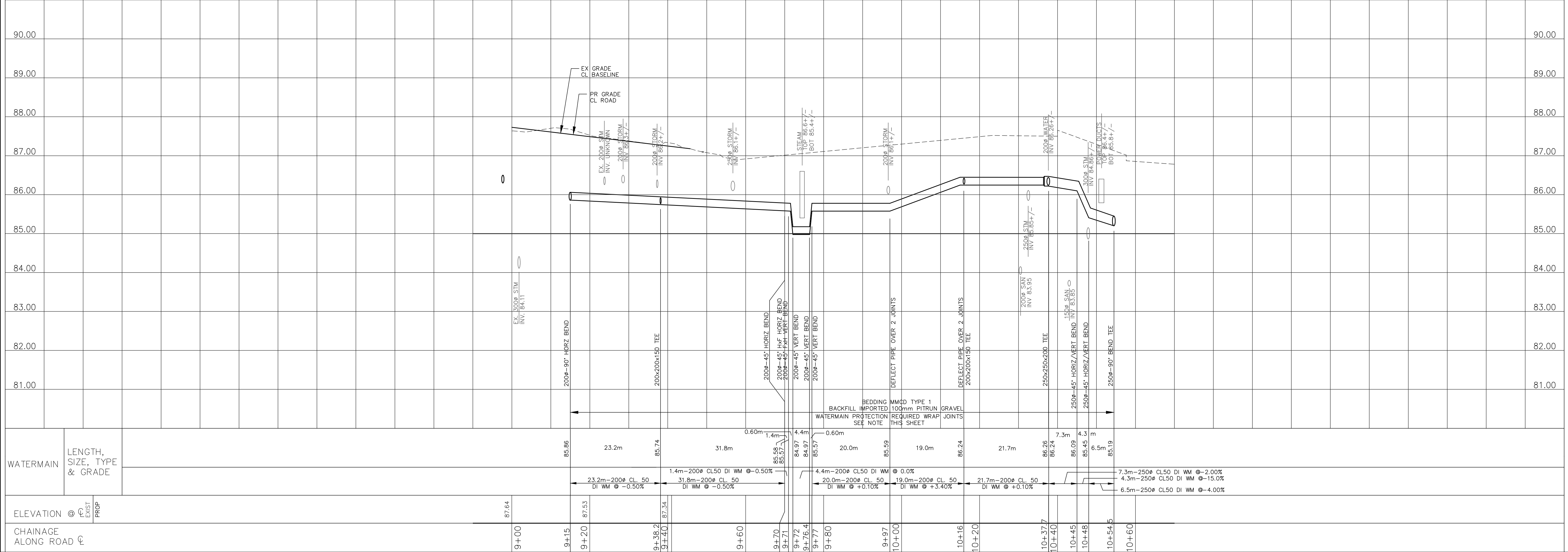
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WATERMAIN JOINT PROTECTION:
 WHERE WATERMANS ARE INSTALLED WITH LESS THAN 3.0m CLEARANCE (HORIZONTAL) AND 0.5m (VERTICAL) FROM STORM OR SANITARY SEWERS, AND/OR WHERE NOTED ON THE DRAWINGS, ALL JOINTS SHALL BE WRAPPED AND PROTECTED USING DENSO PROFILING MASTIC AND DENSO LT TAPE OR APPROVED EQUIVALENT.



WATERMAIN WORK PAID BY PROJECT (green line)
 WATERMAIN WORKS PAID BY UBC (red line)



REVISIONS	No.	DESCRIPTION	MO/DAY/YR
6			
5			
4			
3		ADD WATERMAIN ON EAST LANE AS PER UBC REVIEW COMMENTS	09/28/2016
2		SLP 2 SUBMISSION & AS PER UBC REVIEW COMMENTS	05/18/2016
1		REPLACE EX AC WM ON EAST LANE - AS PER UBC REVIEW REQUEST	05/10/2016

KAMPS ENGINEERING LIMITED
 604-682-2020 kamps@rogers.com

CLIENT: **UBC PROPERTIES TRUST**

DRAWING TITLE: **WATERMAIN PLAN AND PROFILE EAST LANE - STA 9+00 to STA 10+60**

PROJECT TITLE: **BROCK COMMONS - PHASE 1**

DRAWN: J.N. SCALE: HORIZ: 1:500 m VERT: 1:50 m PROJECT No. **8122**

DESIGN: M.K. DATE: AUG. 2015 DRAWING No. **211** REV. **3**

CHECKED: SEAL