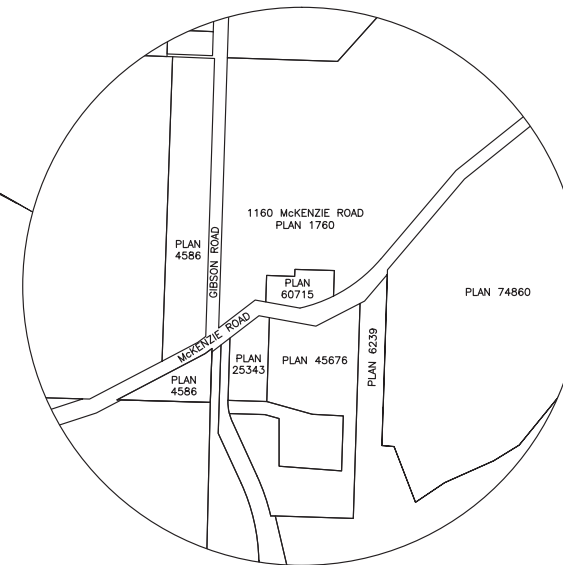
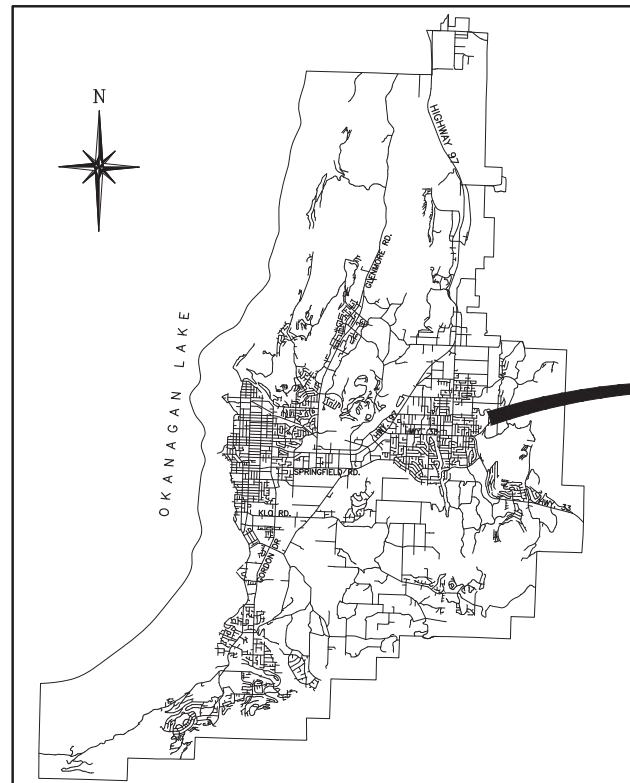


KARMA GILL 9 LOT RV PARK 1160 MCKENZIE ROAD KELOWNA, BC



SITE LOCATION
NTS

GENERAL NOTES

- CONSTRUCTION SHALL ONLY PROCEED WITH APPROVED ISSUED FOR CONSTRUCTION DRAWINGS. IT IS THE CONTRACTOR RESPONSIBILITY TO ASSURE THAT THEY ARE IN POSSESSION OF THE MOST RECENT SET OF DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT FROM DIGITAL INFORMATION. ACCURACY FROM DIGITAL FILES IS NOT GUARANTEED. LAYOUT TO CONFORM TO DISTANCES AND OFFSETS AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR TO CONFIRM THE ACCURACY OF THE LAYOUT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS FOR CONSTRUCTION & ARRANGING FOR DISPOSAL OF GROUND WATER AS REQUIRED.
- THE CONTRACTOR SHALL COORDINATE ALL TESTING REQUIRED WITH THE TESTING FIRM SPECIFIED BY THE ENGINEER.
- INITIAL TESTING COSTS TO BE BORN BY THE DEVELOPER WITH THE COST OF RETESTS OF FAILED TESTS BORN BY THE CONTRACTOR.
- THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS, UNDERGROUND, ABOVEGROUND UTILITIES & STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS. WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING AROUND LEGAL PINS TO AVOID DISTURBANCE. IF THE CONTRACTOR IS UNABLE TO AVOID DISTURBANCE OF ANY PIN BECAUSE OF PHYSICAL CONSTRAINTS OF THE SITE, THE ENGINEER SHALL BE NOTIFIED PRIOR TO DISTURBING THE SURVEY PIN. ANY SURVEY PIN DISTURBED WITHOUT NOTIFYING THE ENGINEER, SHALL BECOME THE CONTRACTOR'S RESPONSIBILITY.
- ALL HYDRO AND COMMUNICATION INSTALLATION TO CONFORM TO INDIVIDUAL UTILITY COMPANY STANDARDS & CITY OF KELOWNA STANDARDS.
- SEE UTILITY COMPANY DRAWINGS FOR DETAILED INSTALLATION PLANS. PRIOR TO STARTING SHALLOW UTILITY CONSTRUCTION THE CONTRACTOR MUST CONTACT THE INDIVIDUAL UTILITY COMPANIES (FORTIS, TERASEN, TELUS & SHAW CABLE) TO ENSURE THEY ARE IN POSSESSION OF THE MOST RECENT DRAWINGS AND SPECIFICATIONS AND ARRANGE FOR INSPECTIONS. ANY CHANGES TO THE WORK IN THE FIELD MUST BE APPROVED BY THE UTILITY COMPANIES AND RECORDED BY THE CONTRACTOR FOR AS BUILT INFORMATION.
- THE CONTRACTOR SHALL BE APPROVED BY THE CITY OF KELOWNA ENGINEERING DEPARTMENT.
- BEDDING MATERIAL AND PIPE COVER ON ALL PIPES TO BE CLEAN SAND OR 3/4" CRUSHED GRAVEL PER CITY SUPPLEMENTAL SPECIFICATIONS UNLESS OTHERWISE NOTED.
- BEDDING MATERIAL TO BE HAND TAMPED AROUND PIPES AND MACHINE TAMPED TO 95% M.P.D. FROM 300mm ABOVE PIPE TO SURFACE.
- SANITARY SEWER AND STORM SEWER MAINS TO BE VIDEO INSPECTED TO CITY OF KELOWNA STANDARDS.
- THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES HYDRANTS, SERVICE BOXES ETC. TO MATCH FINAL GRADES.
- EXISTING EDGE OF PAVEMENT ELEVATIONS TO BE CONFIRMED IN THE FIELD PRIOR TO CONSTRUCTION TO ENSURE CROSSFALL OF BETWEEN 1% - 3%.
- THE CONTRACTOR'S SURVEYOR SHALL PROVIDE ELEVATIONS OF TOP OF ASPHALT AT THE EDGE OF THE SARCUT PRIOR TO POURING CURB AND GUTTER IN ORDER THAT CURB DESIGN GRADES MAY BE CHECKED BY THE ENGINEER.
- ALL CATCH BASIN GRATE ELEVATIONS TO BE SET A MIN. OF 30mm BELOW DESIGN GUTTER ELEVATION.
- WHERE PAVEMENT IS LEFT LOW FOR FUTURE OVERLAY CATCH BASIN GRATES TO BE SET 40mm BELOW DESIGN GUTTER ELEVATIONS.
- ALL SANITARY SEWER SERVICES AND ALL STORM SEWER CONNECTIONS TO HAVE 2x4 MARKERS AT INVERTS OF PIPES TO ABOVE GROUND SURFACE WITH MARKERS TO SHOW DEPTH TO INVERT.
- SANITARY AND STORM SEWER SERVICES TO BE INSTALLED AT 2% GRADE UNLESS OTHERWISE NOTED. RISER TYPE NOT APPROVED UNLESS OTHERWISE NOTED.
- ALL WORK TO CONFORM TO THE LATEST EDITION OF M.M.C.D., CITY OF KELOWNA BYLAW #7900 AND APPLICABLE PLUMBING CODE UNLESS OTHERWISE NOTED ON DRAWING. WHERE DISCREPANCIES OCCUR THE CITY OF KELOWNA BYLAW SHALL GOVERN.
- STORM SEWER TO BE ULTRA RIB PVC (PERFORATED WHERE SHOWN).
- ALL STORM SEWER CATCH BASIN LEADS TO BE 200mm DIAMETER SDR 35 PVC.
- THE CONTRACTOR AND CONSULTANT ARE TO COMPLETE ALL TIE-INS AND DISCONNECTS FOR BMID WATER, CITY SEWER AND DRAINAGE SYSTEMS IN THE PRESENCE OF CITY/BMID PERSONNEL. THE CONTRACTOR IS TO COORDINATE THIS WITH THE UTILITY CONSTRUCTION SERVICE PERSON (250-470-0490) AT LEAST TWO (2) FULL WORKING DAYS PRIOR TO SCHEDULING. FOR WATER TIE-INS, PRIOR APPROVAL IS REQUIRED FROM BMID. PRIOR TO SCHEDULING, THE CONTRACTOR MUST OBTAIN A ROAD USAGE PERMIT AND A THIRD PARTY WORK ORDER FROM THE CITY YARD OFFICE.
- ALL NEW MANHOLES AND DRAINAGE DRYWELLS TO COME WITH FRAME AND COVER MEETING CITY OF KELOWNA STANDARD SS-S1b & CSA STANDARD A257.4-M92. CONCRETE TOP TO HAVE 762mm OPENING, STEEL FRAME TO HAVE 610mm OPENING. ALL EXISTING MANHOLES AND DRAINAGE DRYWELLS ENCOUNTERED DURING THE COURSE OF CONSTRUCTION TO HAVE THE CONCRETE TOP, AND THE STEEL FRAME & COVER UPGRADED TO THAT STANDARD.
- ALL MANHOLE FRAMES AND COVERS INSTALLED IN HARD SURFACE APPLICATIONS TO BE ADJUSTABLE (TERMINAL CITY C44A OR EQUIVALENT).

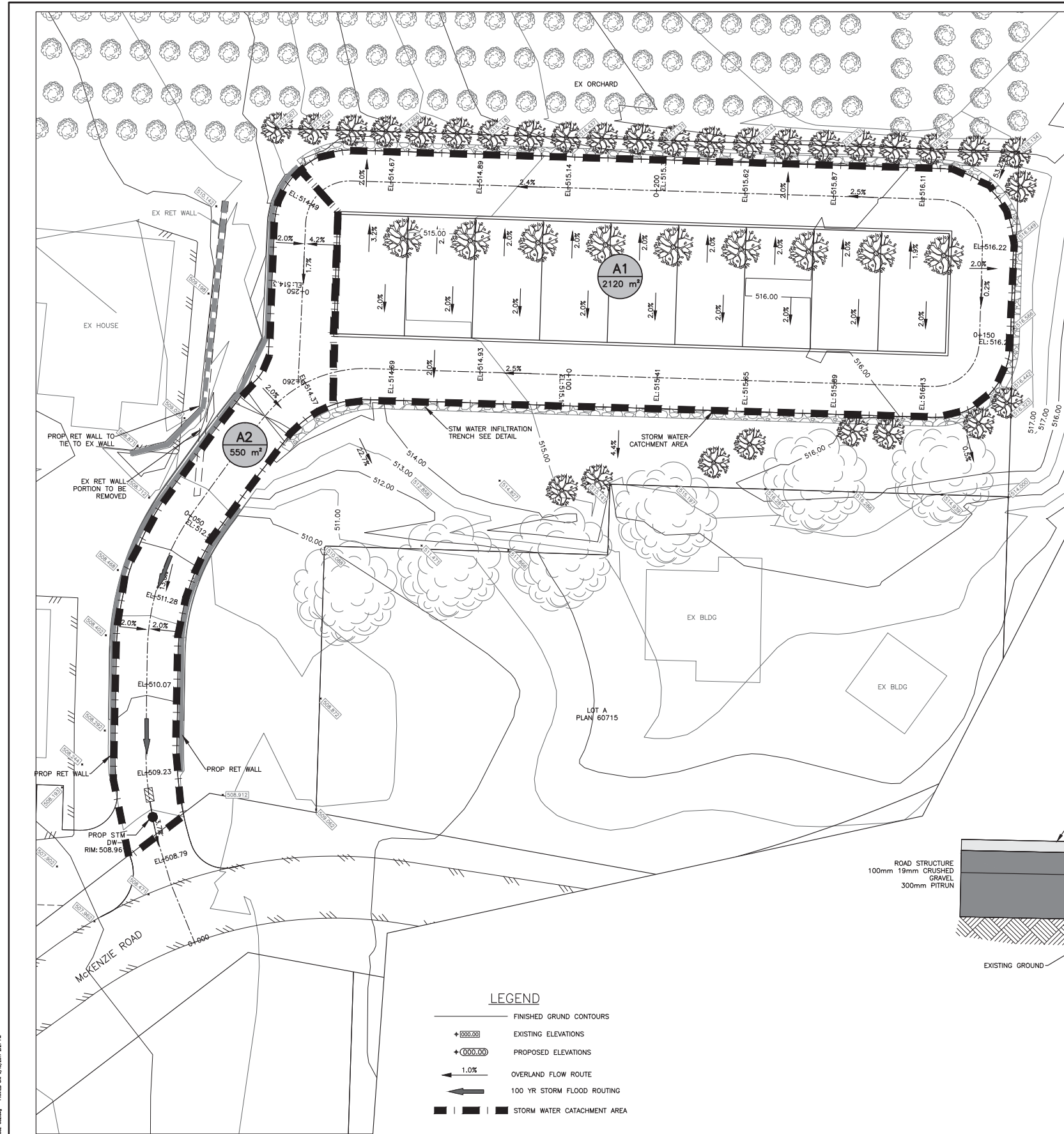
DRAWING LIST

DRAWING NO.	DRAWING DESCRIPTION
17002-00	COMPOSITE UTILITY PLAN
17002-01	SITE GRADING PLAN
17002-02	PLAN/PROFILE DRAWING
17002-03	STORM WATER MANAGEMENT PLAN
17002-04	TURNING MOVEMENTS

PROTECH
CONSULTING 2012

200 - 1461 St. Paul Street Kelowna B.C. Phone 860-1771
FAX 860-1994

Protech File: 17002
City File: --



STORM DRAINAGE CALCULATIONS (MODIFIED RATIONAL METHOD)

DEVELOPMENT LOCATION
1160 McKenzie Road - Upper Pad Area to Infiltration Trench

PRE DEVELOPMENT FLOW RATES (MODIFIED RATIONAL METHOD)
Q=0.0028CA
WHERE: Q=FLOWRATE, C=WEIGHTED RUNOFF COEFFICIENT, I=RAINFALL INTENSITY, A=AREA, Ca=ANTECEDENT PRECIPITATION COEFFICIENT

Assuming	2120 m ²	Unimproved	C= 0.15
	0 m ²	Asphalt	C= 0.80
	0 m ²	Building	C= 0.80
		Weighted C=	0.15

Area= 0.21 Ha

CALCULATING THE TIME OF CONCENTRATION USING THE AIRPORT FORMULA AS FOLLOWS:
 $T_c = 3.28 (L + 1.48 L^2)^{0.77}$

WHERE: C=WEIGHTED RUNOFF COEFFICIENT, L=WATERSHED LENGTH, S_w=WATERSHED SLOPE

Tc	12.9	5 yr Event	0.0028	C	0.15	I	33.25	A	0.21	Q ₁₀₀	0.003 m ³ /s
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POST DEVELOPMENT FLOW RATES
Q=0.0028CA
WHERE: Q=FLOWRATE, C=WEIGHTED RUNOFF COEFFICIENT, I=RAINFALL INTENSITY, A=AREA

Assuming	0 m ²	Landscaping	C= 0.15
	2120 m ²	Gravel Surface	C= 0.60
	0 m ²	Building	C= 0.90
		Weighted C=	0.60

Area= 0.21 Ha

Tc	100 yr Event	0.0028	C	0.60	I	143	A	0.21	Q ₁₀₀	0.051 m ³ /s
5		0.0028	0.60	84	0.212				0.030 m ³ /s	
10		0.0028	0.60	84	0.212				0.030 m ³ /s	
15		0.0028	0.60	84	0.212				0.030 m ³ /s	
30		0.0028	0.60	84	0.212				0.030 m ³ /s	
60		0.0028	0.60	84	0.212				0.030 m ³ /s	

INFILTRATION FLOW RATES

Drywells/Rock Pits		Perforated Pipe	
Q=0.5kA	Q=0.5kA	Q=0.5kA	Q=0.5kA
Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s
Infiltration Area A= 0.00 m ²	Infiltration Area A= 0.0 m ²	Infiltration Area A= 8.54 m ²	Infiltration Area A= 0.0 m ²
Hydraulic Gradient i= 0.91 m/m	Hydraulic Gradient i= 0.65 m/m	Hydraulic Gradient i= 0.91 m/m	Hydraulic Gradient i= 0.65 m/m
Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s
TOTAL INFILTRATION FLOW		TOTAL INFILTRATION FLOW	0.0 L/s

STORAGE VOLUME REQUIRED Q₁₀₀(POST)-Q₅(PRE) X DURATION X 10% SAFETY FACTOR

Tc	5	0.013 - 0.001	- 3.68E-05	15.705 m ³
10	0.030 - 0.003	- 0.00E+00	17.650 m ³	
15	0.022 - 0.003	- 0.00E+00	18.780 m ³	
30	0.013 - 0.003	- 0.00E+00	19.370 m ³	
60	0.007 - 0.003	- 0.00E+00	17.753 m ³	
REQUIRED VOLUME			18.4 m ³	

STORM DRAINAGE CALCULATIONS (MODIFIED RATIONAL METHOD)

DEVELOPMENT LOCATION
1160 McKenzie Road - Road Way to Drywell

PRE DEVELOPMENT FLOW RATES (MODIFIED RATIONAL METHOD)
Q=0.0028CA
WHERE: Q=FLOWRATE, C=WEIGHTED RUNOFF COEFFICIENT, I=RAINFALL INTENSITY, A=AREA, Ca=ANTECEDENT PRECIPITATION COEFFICIENT

Assuming	550 m ²	Unimproved	C= 0.15
	0 m ²	Asphalt	C= 0.80
	0 m ²	Building	C= 0.80
		Weighted C=	0.15

Area= 0.06 Ha

CALCULATING THE TIME OF CONCENTRATION USING THE AIRPORT FORMULA AS FOLLOWS:
 $T_c = 3.28 (L + 1.48 L^2)^{0.77}$

WHERE: C=WEIGHTED RUNOFF COEFFICIENT, L=WATERSHED LENGTH, S_w=WATERSHED SLOPE

Tc	12.9	5 yr Event	0.0028	C	0.15	I	33.25	A	0.06	Q ₁₀₀	0.001 m ³ /s
----	------	------------	--------	---	------	---	-------	---	------	------------------	-------------------------

POST DEVELOPMENT FLOW RATES
Q=0.0028CA
WHERE: Q=FLOWRATE, C=WEIGHTED RUNOFF COEFFICIENT, I=RAINFALL INTENSITY, A=AREA

Assuming	0 m ²	Landscaping	C= 0.15
	550 m ²	Gravel Surface	C= 0.60
	0 m ²	Building	C= 0.90
		Weighted C=	0.60

Area= 0.06 Ha

Tc	100 yr Event	0.0028	C	0.60	I	143	A	0.06	Q ₁₀₀	0.013 m ³ /s
5		0.0028	0.60	84	0.212				0.008 m ³ /s	
10		0.0028	0.60	84	0.212				0.008 m ³ /s	
15		0.0028	0.60	84	0.212				0.008 m ³ /s	
30		0.0028	0.60	84	0.212				0.008 m ³ /s	
60		0.0028	0.60	84	0.212				0.008 m ³ /s	

INFILTRATION FLOW RATES

Drywells/Rock Pits		Perforated Pipe	
Q=0.5kA	Q=0.5kA	Q=0.5kA	Q=0.5kA
Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s	Hydraulic Conductivity k= 1.0E-05 m/s
Infiltration Area A= 8.54 m ²	Infiltration Area A= 0.0 m ²	Infiltration Area A= 8.54 m ²	Infiltration Area A= 0.0 m ²
Hydraulic Gradient i= 0.91 m/m	Hydraulic Gradient i= 0.65 m/m	Hydraulic Gradient i= 0.91 m/m	Hydraulic Gradient i= 0.65 m/m
Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s	Infiltration Flow Q= 0.0 L/s
TOTAL INFILTRATION FLOW		TOTAL INFILTRATION FLOW	0.0 L/s

STORAGE VOLUME REQUIRED Q₁₀₀(POST)-Q₅(PRE) X DURATION X 10% SAFETY FACTOR

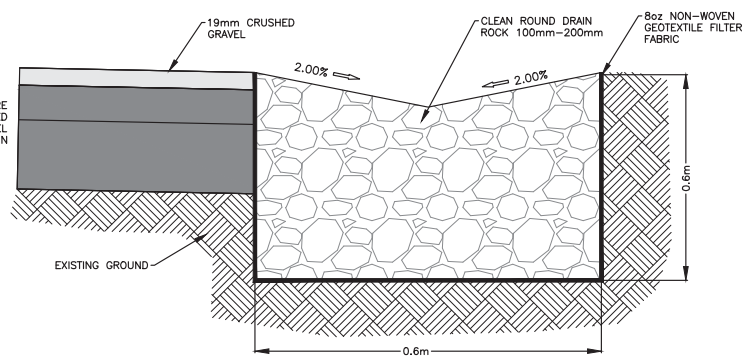
Tc	5	0.013 - 0.001	- 3.68E-05	4.002 m ³
10	0.008 - 0.001	- 3.68E-05	4.555 m ³	
15	0.006 - 0.001	- 3.68E-05	4.936 m ³	
30	0.003 - 0.001	- 3.68E-05	4.953 m ³	
60	0.002 - 0.001	- 3.68E-05	4.480 m ³	
REQUIRED VOLUME			5.9 m ³	

STORAGE VOLUME PROVIDED

C= CLOSED PIPE
P= PERF. PIPE

TOTAL IN	1 DRYWELLS AND	1 m SURROUNDING STONE	6.4 m ³
TOTAL IN	0 (1.0 300 mm PIPE AND SURROUND)		0.0 m ³
TOTAL ONSITE STORAGE			6.4 m ³

STORM TRENCH CAPACITY
165mX0.6mX0.6m=66.6m³
AT 30% VOID RATIO=19.98m³ AVAILABLE STORAGE



STORM WATER INFILTRATION TRENCH DETAIL
NTS

- LEGEND**
- FINISHED GRUND CONTOURS
 - EXISTING ELEVATIONS
 - PROPOSED ELEVATIONS
 - OVERLAND FLOW ROUTE
 - 100 YR STORM FLOOD ROUTING
 - STORM WATER CATCHMENT AREA

- LEGEND**
- WATER
 - SAN. SEWER
 - STORM SEWER
 - GAS
 - U/G UTILITY (ALIGNMENT)
 - EX. MANHOLE
 - PROP. MANHOLE
 - LAMP STANDARD
 - CATCH BASIN
 - HYDRANT
 - SURVEY MONUMENT
 - WATER CURB STOP
 - SANITARY INSPECTION CHAMBER
 - TRANSFORMER - POWER
 - SERVICE BOX

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NO.	DATE	BY	REVISION	CH'KD
0	2017.04.03	BZ	ISSUED FOR DEVELOPMENT PERMIT	

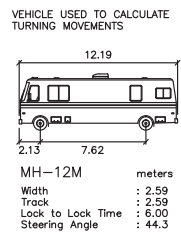
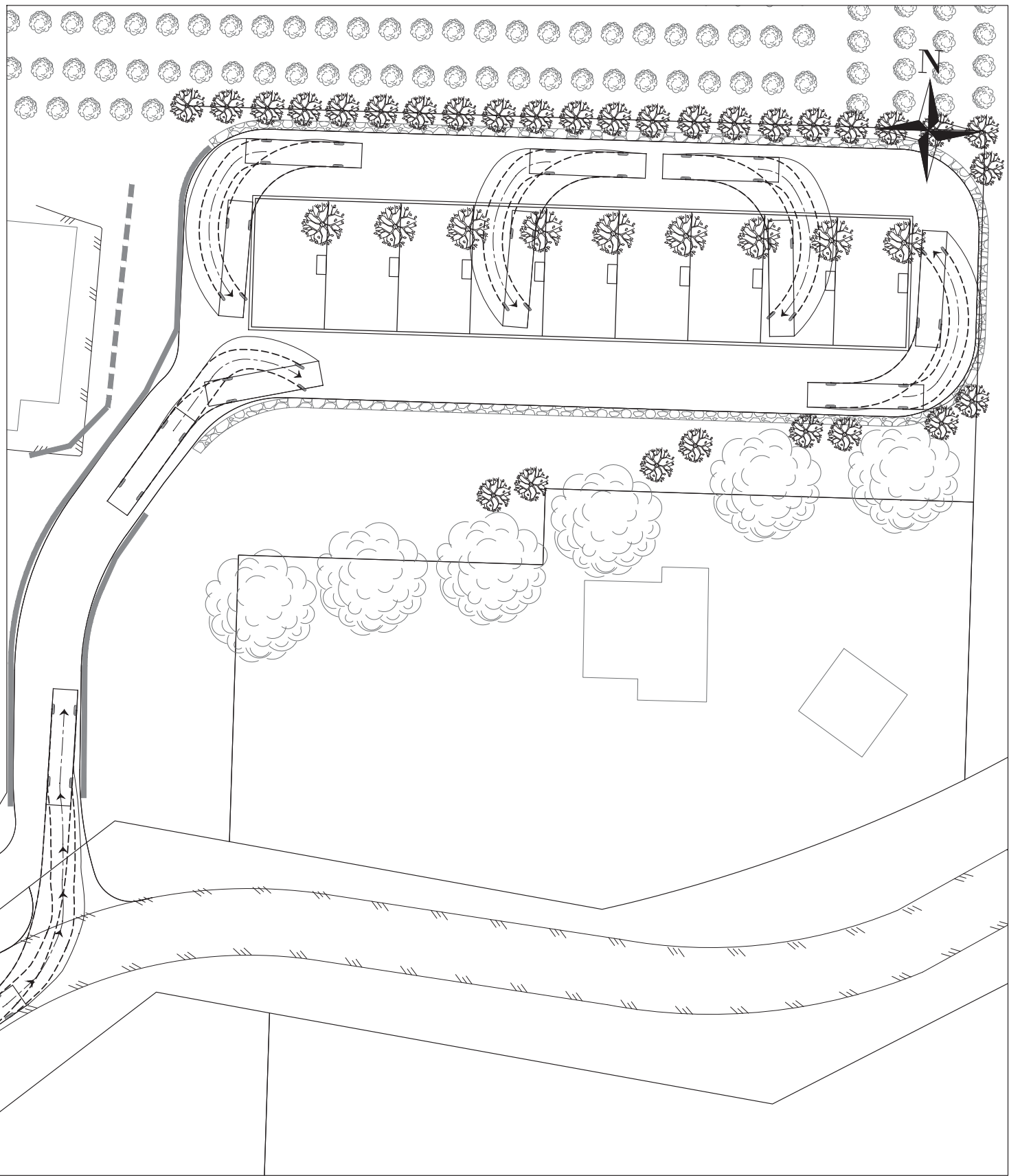
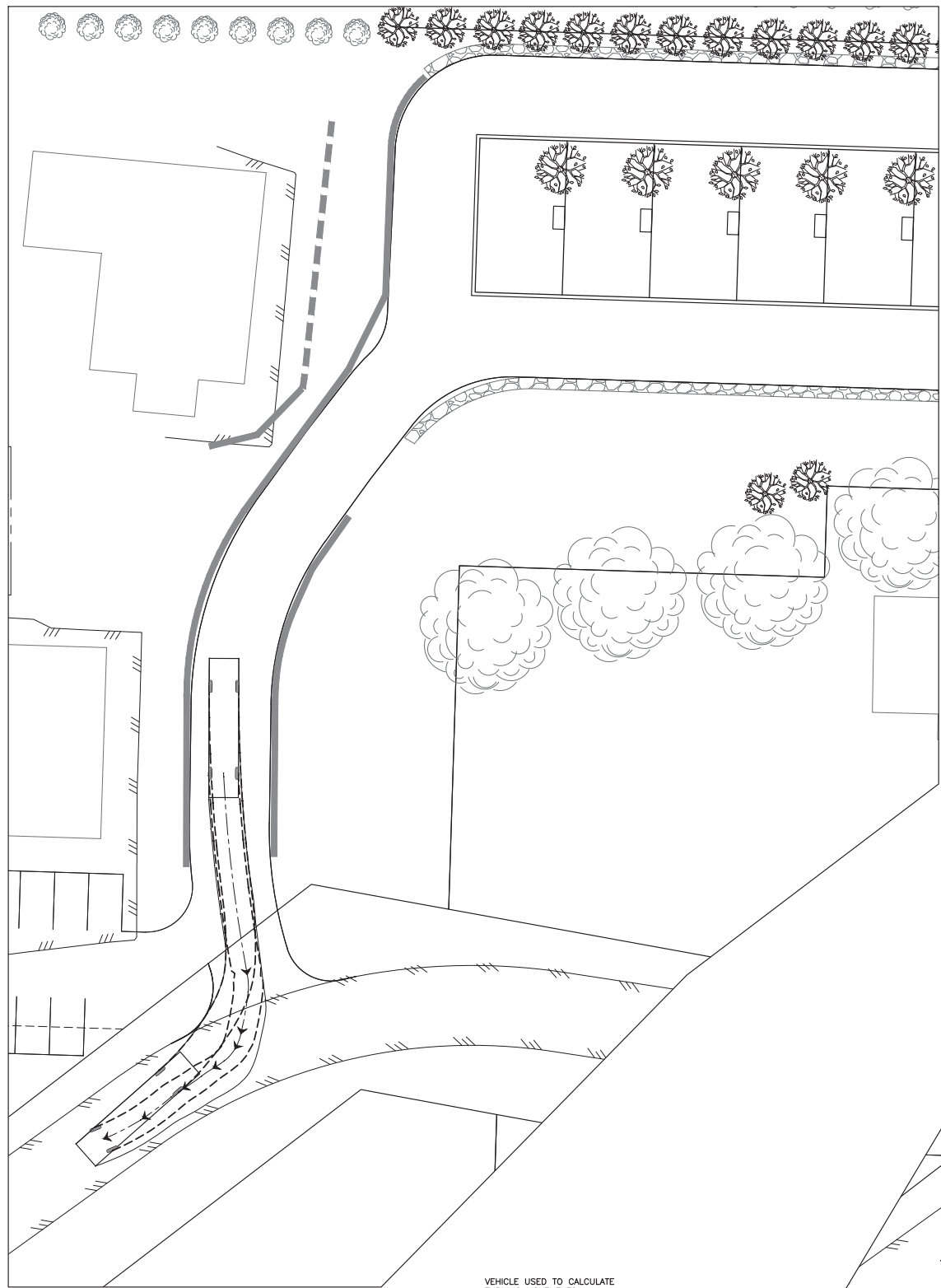
DRAWN BMZ
DESIGN BMZ
APPROVED DRP
DATE FEB 2017
SCALE HORIZ. 1:250

THE CITY OF KELOWNA
ENGINEERING DEPARTMENT
9 LOT RV PARK
1160 MCKENZIE ROAD
SITE GRADING PLAN

DIVISION	DRAWING NO.	REV. NO.
	17002-03	0

THE LONDON PLANETARY SURVEYING & DESIGN DIVISION/2022-02-04 PRINTED ON 5/17/2017 3:37 PM

THE LOCATION OF THIS DRAWING IS SUBJECT TO CHANGE WITHOUT NOTICE. PRINTED ON 5/17/2017 3:37 PM



LEGEND

WATER		EX. MANHOLE		MH #	WATER CURB STOP	
SAN. SEWER		PROP. MANHOLE		MH #	SANITARY INSPECTION CHAMBER	
STORM SEWER		POWER POLE			TRANSFORMER - POWER	
GAS		LAMP STANDARD		L.S.	SERVICE BOX	
U/G UTILITY (ALIGNMENT)		CATCH BASIN		C.B.		
		HYDRANT		H.M.D.		
		SURVEY MONUMENT				

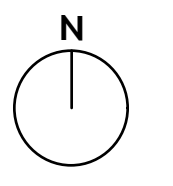
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NO.	DATE	BY	REVISION	CH'KD
0	2017.04.03	BZ	ISSUED FOR DEVELOPMENT PERMIT	

DRAWN	BMZ
DESIGN	BMZ
APPROVED	DRP
DATE	FEB 2017
SCALE	
HORIZ.	1:250

THE CITY OF KELOWNA
 ENGINEERING DEPARTMENT
9 LOT RV PARK
 1160 MCKENZIE ROAD
 TURNING MOVEMENTS

DIVISION	
DRAWING NO.	17002-04
REV. NO.	0



PROJECT TITLE
**1160 MCKENZIE ROAD
RV PARK**

Kelowna, BC

DRAWING TITLE
**CONCEPTUAL
LANDSCAPE PLAN**

ISSUED FOR / REVISION

1	17.05.15	Review
2		
3		
4		
5		

PROJECT NO 17057

DESIGN BY KG

DRAWN BY KG

CHECKED BY FB

DATE MAY 15, 2017

SCALE 1:200

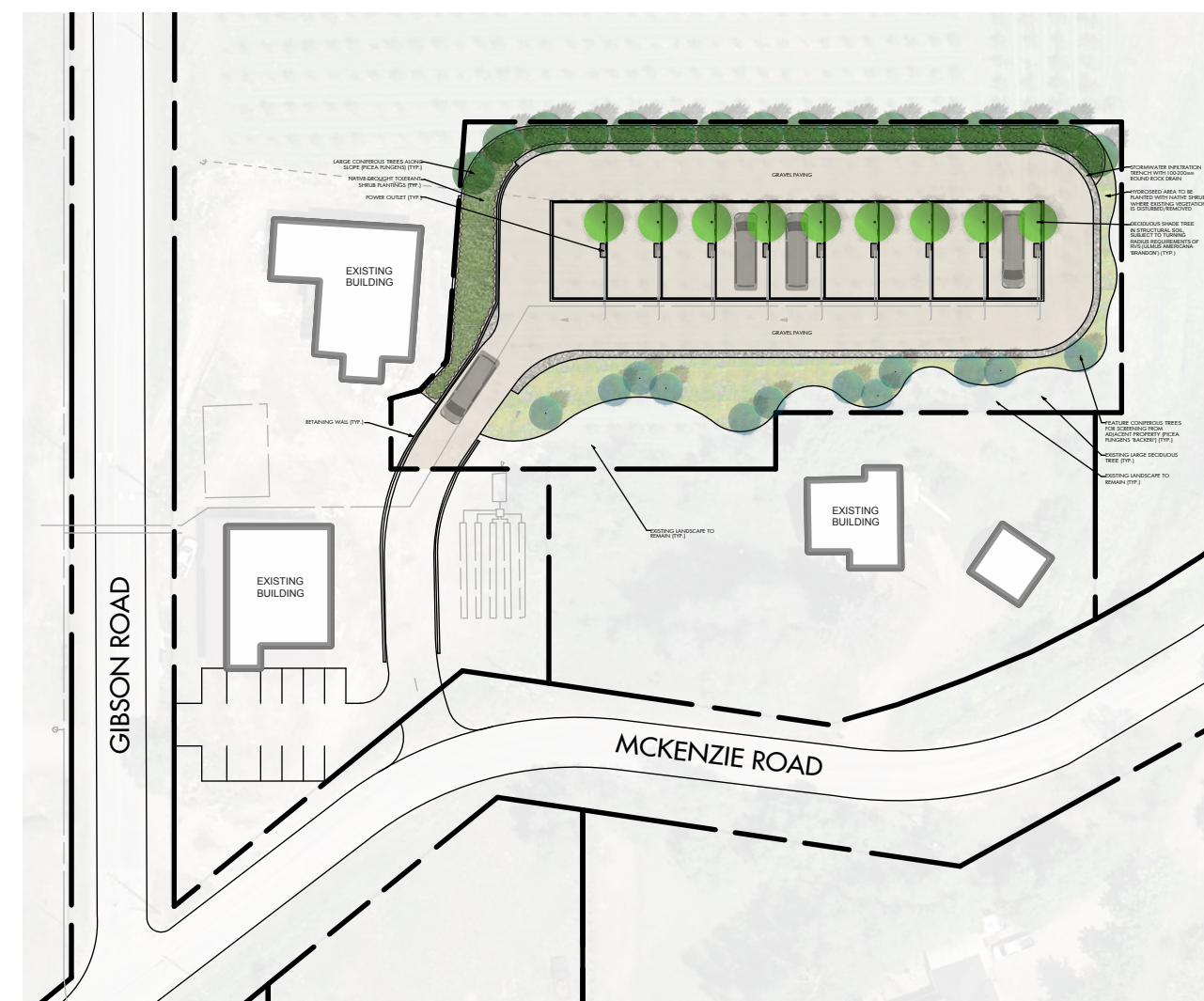
SEAL



DRAWING NUMBER

L1 / 1

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KEY MAP
SCALE: 1:5000

NOTES

1. PLANT MATERIAL AND CONSTRUCTION METHODS SHALL MEET OR EXCEED B.C.L.N.A. STANDARDS.
2. ALL SOFT LANDSCAPE AREAS SHALL BE WATERED BY A FULLY AUTOMATIC TIMED UNDERGROUND IRRIGATION SYSTEM.
3. TREE AND SHRUB BEDS TO BE DRESSED IN A MINIMUM 50mm DOUGLAS RED FIR MULCH OR ROCK MULCH, AS SHOWN IN PLANS. DO NOT PLACE WEED MAT UNDERNEATH TREE AND SHRUB BEDS.
4. TREE AND SHRUB BEDS TO RECEIVE A MINIMUM 300mm DEPTH TOPSOIL PLACEMENT.
5. SEDIMENT AND EROSION CONTROL MEASURES, SUCH AS SILT FENCING, MUST BE INSTALLED ALONG THE EAST LIMIT OF WORK TO PREVENT FINE SEDIMENTS AND SUBSTANCES THROUGHOUT CONSTRUCTION FROM BEING RELEASED INTO SENSITIVE ENVIRONMENTS. THIS FENCING MUST REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN RESTORED/REMEDIATED WITH SEEDING AND PLANTING.

6. DRYLAND SEED AREAS		
	BY WEIGHT	BY SPECIES
DRYLAND SEED MIXTURE		
BLUE BUNCH WHEATGRASS	41%	23%
ROUGH FESCUE	25%	20%
IDAHO FESCUE	15%	19%
PERENNIAL RYEGRASS	10%	7%
SANDBERG BLUEGRASS	5%	13%
JUNEGRASS	4%	18%
WILDFLOWER SEED MIXTURE		
SILKY LUPINE	30%	
BALSAM ROOT	30%	
BROWN EYED SUSAN	35%	
COMMON YARROW	5%	

APPLICATION RATE:		
SEED	WILDFLOWER SEED MIXTURE	1 KG/HECTARE
FERTILIZER	DRYLAND SEED MIXTURE	125 KG/HECTARE
MULCH	18-18-18-2, 50% SULPHUR COATED UREA	400 KG/HECTARE
TACKIFIER	CANFOR ECOFIBRE PLUS TAC GUAR	2,800 KG/HECTARE 3% OF MIX

THE PRECEDING SEED MIXTURE IS TO BE APPLIED TO THE DRYLAND SEED AREAS SHOWN ON THE DRAWINGS. SEED MIX TO BE CERTIFIED #1 GRADE BY AGRICULTURE CANADA. REFER MANUFACTURER'S SPECIFICATIONS FOR PRODUCT DELIVERY, STORAGE & PROTECTION.

PLANT LIST

BOTANICAL NAME	COMMON NAME	QTY	SIZE/SPACING & REMARKS
PICEA PUNGENS	COLORADO SPRUCE	16	2.0m HT.
PICEA PUNGENS 'BACKERI'	BAKERI SPRUCE	12	1.5m HT.
ULMUS AMERICANA 'BRANDON'	BRANDON ELM	9	6cm CAL.
SHRUBS			
CHRYSOTHAMNUS NAUSEOSUS	RABBIT BUSH	18	#01 CONT. /1.8M O.C. SPACING
CORNUS SERICEA	RED OSIER DOGWOOD	7	#01 CONT. /3.0M O.C. SPACING
MAHONIA AQUIFOLIUM	OREGON GRAPE HOLLY	18	#01 CONT. /1.5M O.C. SPACING
RIBES ALPINUM	ALPINE CURRANT	18	#01 CONT. /1.8M O.C. SPACING
ROSA WOODSII	WOOD'S ROSE	19	#01 CONT. /1.5M O.C. SPACING
SYMPHORICARPOS ALBUS	SNOWBERRY	18	#01 CONT. /1.5M O.C. SPACING





