



DGH
ENGINEERING LTD.
PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS

Sheet List Table

SHEET NUMBER	REVISION NO	SHEET TITLE
Civil		
C1	R00	SITE PLAN
L1	R00	PLAN VIEW, SECTIONS & DETAILS
L2	R00	CONSTRUCTION DETAILS & NOTES
L3	R00	DISCHARGE DETAILS

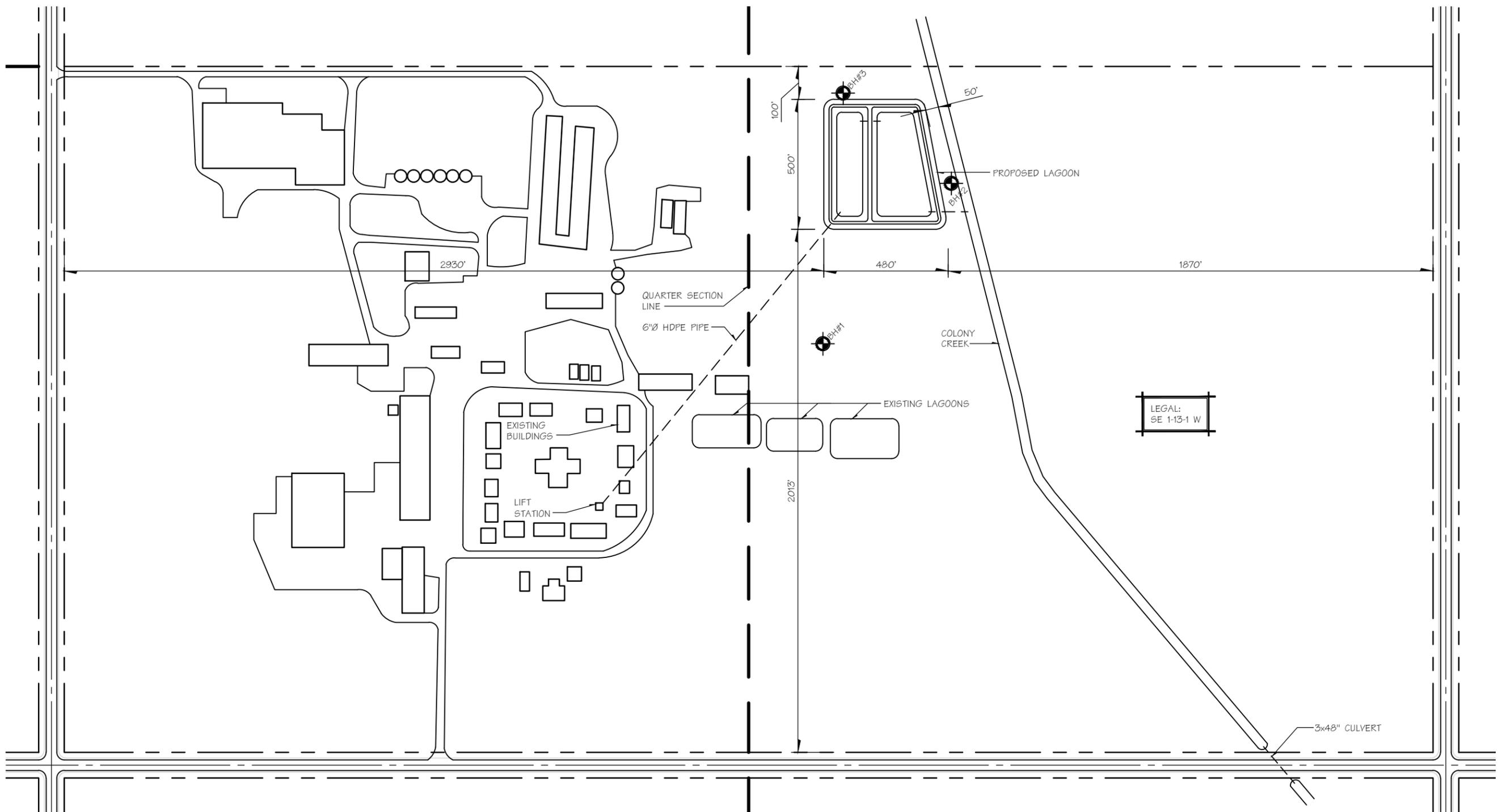
GENERAL ANNOTATION		
ITEM	SYMBOL	REMARKS
ELEVATION CALLOUT		"A" DENOTES DETAIL No., "B" DENOTES DETAIL LOCATION
DETAIL CALLOUT		"A" DENOTES DETAIL No., "B" DENOTES DETAIL LOCATION
DETAIL CALLOUT, SECTION		"A" DENOTES DETAIL No., "B" DENOTES DETAIL LOCATION
WALL SECTION CALLOUT		"A" DENOTES DETAIL No., "B" DENOTES DETAIL LOCATION
BUILDING SECTION CALLOUT		"A" DENOTES DETAIL No., "B" DENOTES DETAIL LOCATION
ROOM NUMBER CALLOUT		
DOOR NUMBER CALLOUT		
WINDOW NUMBER CALLOUT		
REVISION NUMBER CALLOUT		

ABBREVIATIONS LEGEND									
ARCH	ARCHITECTURAL	CORR	CORRIDOR	FTG	FOOTING	O/C	ON CENTRE	T.L.L.	TOP LOWER LEVEL
B.U.	BUILT-UP	DIA	DIAMETER	GALV	GALVANIZED	OD	OUTSIDE DIAMETER	T.U.L.	TOP UPPER LEVEL
B.L.L.	BOTTOM LOWER LAYER	DIAG	DIAGONAL	G.L.	GRID LINE	PRE-ENG	PRE-ENGINEERED	T&G	TONGUE & GROOVE
B.U.L.	BOTTOM UPPER LAYER	DS	DOWNSPOUT	H/C	HANDICAPPED	PREFIN	PREFINISHED	T&B	TOP & BOTTOM
BD	BOARD	DTL	DETAIL	HORIZ	HORIZONTAL	PROJ	PROJECTION	THKG	THICKENING
BLDG	BUILDING	DP	DEEP	HR	HOUR	PTD	PAINTED	THRU	THROUGH
BLKG	BLOCKING	DWG	DRAWING	HT	HEIGHT	P.L.	PROPERTY LINE	TJ	TIE JOIST
BOT	BOTTOM	E/F	EACH FACE	INSUL	INSULATION	R/W	REINFORCED WITH	T/O	TOP OF
B/W	BOTH WAYS	E/S	EACH SIDE	ID	INSIDE DIAMETER	REINF	REINFORCING	TYP	TYPICAL
BRG	BEARING	E/W	EACH WAY	INT	INTERIOR	REQD	REQUIRED	U/S	UNDERSIDE
C.L.	CENTERLINE	EL	ELEVATION	LG	LONG	SCH	SCHEDULE	UNO	UNLESS NOTED OTHERWISE
C/W	COMPLETE WITH	ELEV	ELEVATION	LOC	LOCATION	SECT	SECTION	VERT	VERTICAL
CANT	CANTILEVER	EQ	EQUIVALENT	MACH	MACHINE ROOM	SHTG	SHEATHING	W/	WITH
C.J.	CONTROL JOINT	EXT	EXTERIOR	MAX	MAXIMUM	SIM	SIMILAR	WP	WORK POINT
COL	COLUMN	F/H	FULL HEIGHT	MFR	MANUFACTURER	SQFT	SQUARE FOOT	W/R	WASHROOM
COMP	COMPACTED	F/O	FACE OF	MID	MIDDLE	SQM	SQUARE METER		
CONC	CONCRETE	FD	FLOOR DRAIN	MIN	MINIMUM	STD	STANDARD		
CONST	CONSTRUCTION	FND	FOUNDATION	NO.	NOT IN CONTRACT	STOR	STORAGE		
CONT	CONTINUOUS	FLR	FLOOR	NO.	NUMBER	STRL	STRUCTURAL		

CLIENT **ROCK LAKE HOLDING LTD.**

PROJECT **DOMESTIC WASTEWATER TREATMENT LAGOON**

ISSUED FOR CONSTRUCTION



SITE PLAN
SCALE: 1" = 400'

SITE DEVELOPMENT - GENERAL SITE	
ITEM	SYMBOL
PROPERTY LINE	---
INDICATES BORE HOLE LOCATION & NUMBER	

APEGM
Certificate of Authorization
DGH Engineering Ltd.
No. 540 Date: Dec. 20, 2012

NO.	DATE	DESCRIPTION	ISSUED BY	INITIAL
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DGH ENGINEERING LTD.
PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS
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CLIENT ROCK LAKE HOLDING LTD. BOX 10 GROSSE ISLE, MB. ROC 1G0		
DESIGNED CL	DRAWN TSS	CHECKED .
DATE DEC/2012	SCALE AS NOTED	XREF PATH(S) PROJECT/DWG

PROJECT TITLE DOMESTIC WASTEWATER TREATMENT LAGOON	
LEGAL DESCRIPTION SE 1-13-1W	
PROJECT NUMBER: 12-1-1047-009-10	
SITE PLAN	C1
	REV. 0 R00

EARTHWORK SPECIFICATIONS:

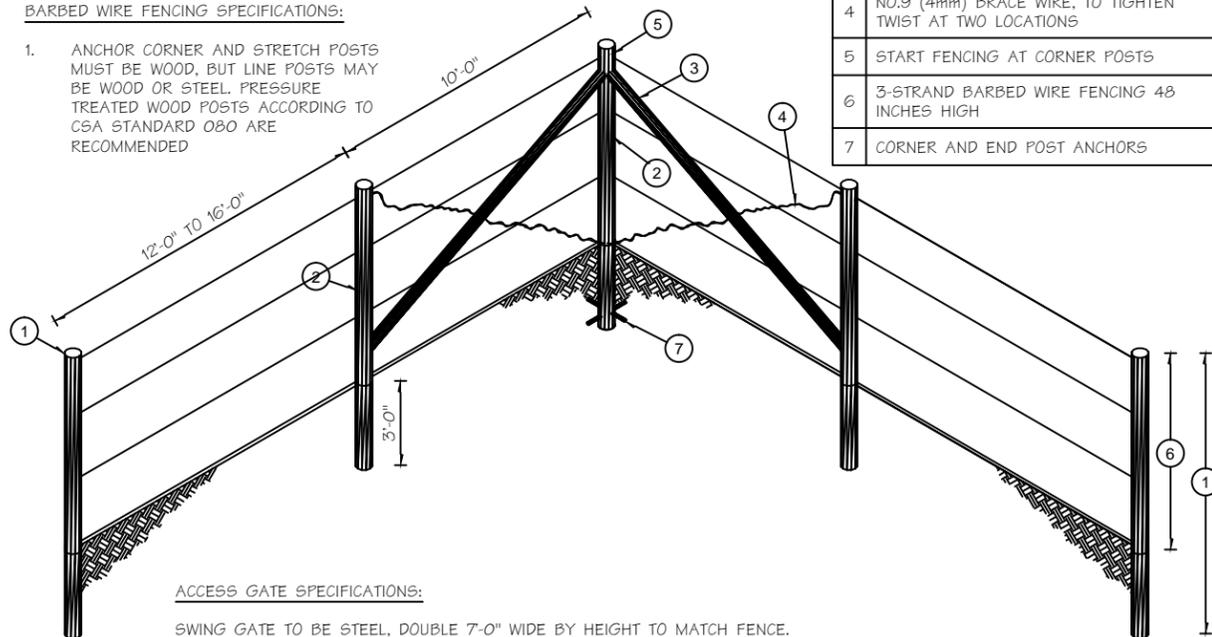
- THE EARTHEN BASIN IS TO BE CONSTRUCTED UTILIZING IN-SITU SOILS. THE LINER IS TO BE CONSTRUCTED UTILIZING IN-SITU CLAY SOILS.
- ALL TOPSOIL SHALL BE STRIPPED FROM THE LAGOON SITE INCLUDING THE BERM AREAS PRIOR TO PLACING ANY FILL. THE REMOVED TOPSOIL SHOULD BE STOCKPILED AND MAY BE USED ONLY FOR DRESSING ON THE OUTSIDE SLOPES OF THE LAGOON.
- ALL OF THE SOILS FOR THE BERMS AND THE LINER SHALL BE PLACED IN LAYERS NO THICKER THAN 6" AND EACH LIFT SHALL BE COMPACTED WITH AT LEAST THREE (3) PASSES OF A 350psi SHEEPSFOOT ROLLER. COMPACTION FEET SHALL BE SPACED TO PROVIDE AT LEAST FOUR (4) FEET FOR EACH 2.7 FT-Ø OF CYLINDRICAL SURFACE AREA. MATERIAL SHALL BE COMPACTED TO WITHIN 95% OF MAXIMUM STANDARD PROCTOR DENSITY, AT A MOISTURE CONTENT BETWEEN 0.9 & 1.2 OPTIMUM.
- TO ACHIEVE COMPACTION OF THE INTERIOR SURFACE, THE MOISTURE CONTENT OF THE CLAY SHALL BE MAINTAINED SUCH THAT A STIFF BALL THAT WILL NOT CRUMBLE CAN BE FORMED IN THE HAND.
- THE ROLLER SHALL BE EQUIPPED WITH CLEANING FINGERS TO PREVENT THE ACCUMULATION OF MATERIAL BETWEEN THE TAMPERING FEET AND TO ALLOW FULL PENETRATION OF THE FEET INTO THE LIFT BEING COMPACTED.
- TOPSOIL, FROZEN SOIL AND ROCKS LARGER THAN 6" SHALL NOT BE INCLUDED IN THE FILL.
- FINAL GRADING OF ALL SURFACES IS REQUIRED TO PROVIDE A SMOOTH, STABLE STRUCTURE.
- THE INFLUENT LINE MUST BE SEALED WITH A MINIMUM OF 3" THICK 'BENSEAL', 'HOLE-PLUG' OR OTHER APPROVED BENTONITE SEALANT AROUND AND ALONG THE ENTIRE PIPE LENGTH THRU THE LINER.

CONCRETE SPECIFICATIONS:

- ALL SPLASH PADS SHALL BE CONSTRUCTED OF 4" REINFORCED CONCRETE.
- ALL CONCRETE IS TO BE 25 MPA AIR ENTRAINED CONCRETE. REINFORCING TO CONSIST OF 10M BARS @ 18" Ø.

BARBED WIRE FENCING SPECIFICATIONS:

- ANCHOR CORNER AND STRETCH POSTS MUST BE WOOD, BUT LINE POSTS MAY BE WOOD OR STEEL. PRESSURE TREATED WOOD POSTS ACCORDING TO CSA STANDARD O80 ARE RECOMMENDED



ACCESS GATE SPECIFICATIONS:

SWING GATE TO BE STEEL, DOUBLE 7'-0" WIDE BY HEIGHT TO MATCH FENCE. LATCH FOR GATE TO BE DROP STYLE WITH HASP FOR PADLOCK.

OWNER TO SPECIFY LOCATION OF GATE PRIOR TO INSTALLATION OF FENCE.

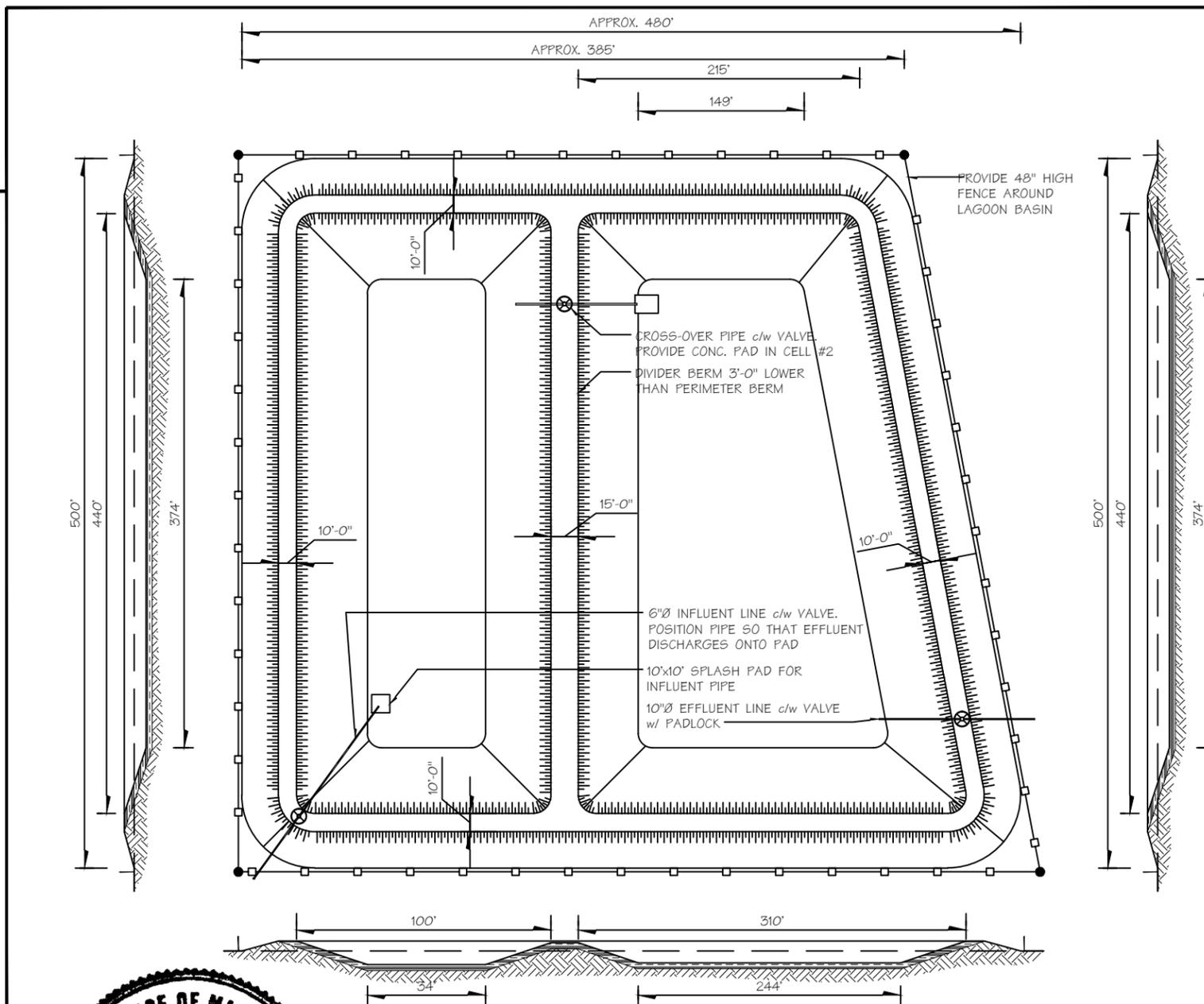
BARBED WIRE FENCE - ELEVATION VIEW

LEGEND

1	USE 5 INCH TOP DIAMETER PRESSURE TREATED WOOD POSTS OR COMMERCIAL STEEL POSTS TOTAL 7 FT POST LENGTH.
2	CORNER AND BRACE POSTS TO BE 6 INCH TOP DIAMETER
3	4 INCH DIAMETER BRACE RAIL TO BE NOTCHED AND SPIKED INTO TWO
4	NO.9 (4mm) BRACE WIRE, TO TIGHTEN TWIST AT TWO LOCATIONS
5	START FENCING AT CORNER POSTS
6	3-STRAND BARBED WIRE FENCING 48 INCHES HIGH
7	CORNER AND END POST ANCHORS

EFFLUENT DISCHARGE SPECIFICATIONS:

- EFFLUENT DISCHARGE TO BE COMBINATION OF GRAVITY FLOW & PUMP OUT FLOW.
- STONE RIP-RAP TO BE INSTALLED AT DISCHARGE LOCATION IN DITCH



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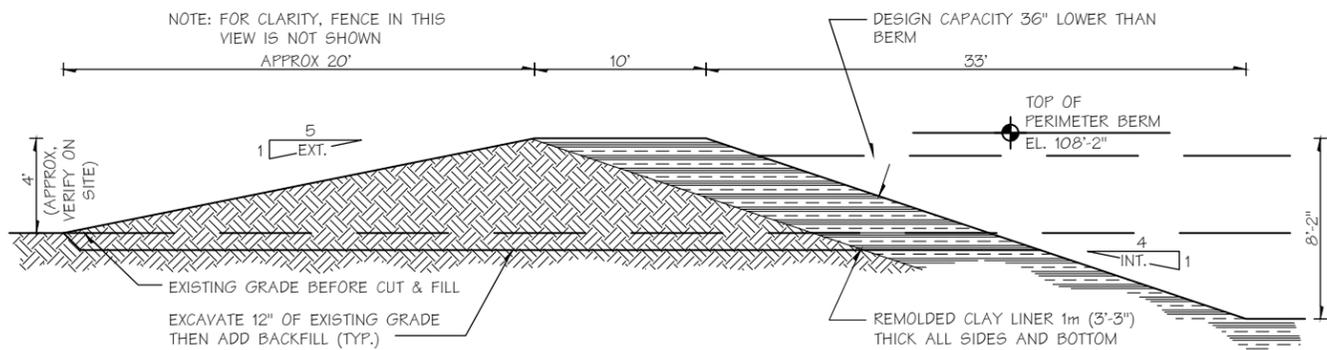
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 BOX 10
 GROSSE ISLE, MB.
 R0C 1G0

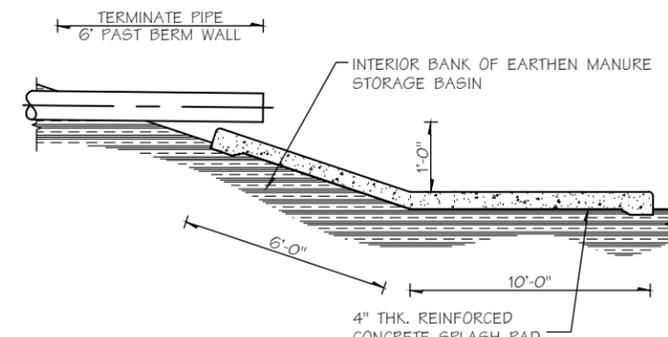
PROJECT TITLE: **DOMESTIC WASTEWATER TREATMENT LAGOON**
 LEGAL DESCRIPTION: **SE 1-13-1W**
 PROJECT NUMBER: 12-1-1047-009-10

PLAN VIEW, SECTIONS & DETAILS

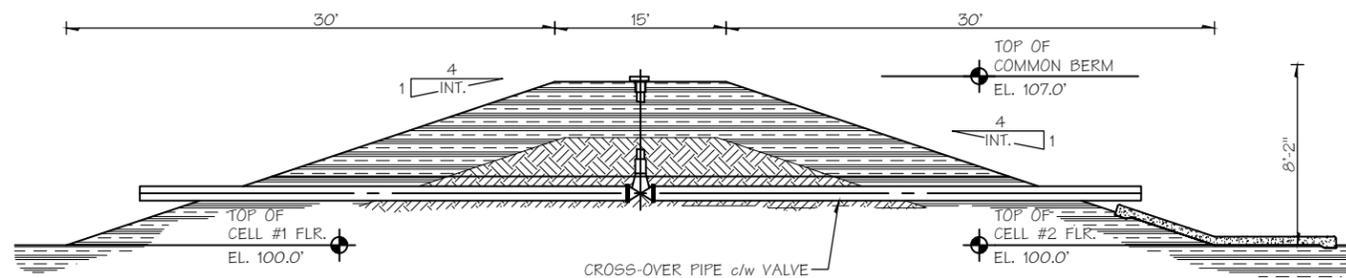
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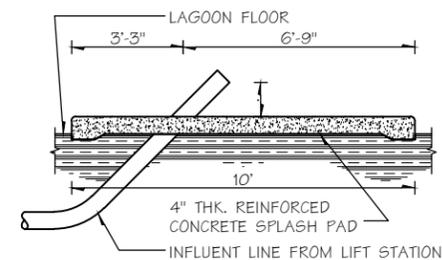
SECTION THRU PERIMETER BERM



CROSS-OVER SPLASH PAD DETAIL



SECTION THRU COMMON BERM



INFLUENT LINE PAD DETAIL

SUPERVISORY NOTES:

1. THIS DESIGN IS IN CONFORMANCE WITH DESIGN OBJECTIVES STANDARD SEWAGE LAGOONS, PUBLISHED BY MANITOBA CONSERVATION.
2. THE PROVISION OF SITE INSPECTIONS AND THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE BY DGH ENGINEERING LTD. SHALL NOT IN ANY WAY RELIEVE THE OWNER AND/OR THE CONTRACTOR OF THE LAGOON FROM FULL RESPONSIBILITY FOR CARRYING OUT OR HAVING CARRIED OUT THE WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS SUPPLIED AND SEALED BY DGH ENGINEERING LTD. AND WITH THE CONDITIONS OF THE LICENSE ISSUED BY MANITOBA CONSERVATION.
3. VERIFY ISSUANCE AND ACCURACY OF CONSTRUCTION PERMIT OR LICENSE PRIOR TO COMMENCEMENT OF WORK. CONFIRM COMPLIANCE WITH ALL STIPULATED CONDITIONS APPROPRIATE TO THE EXECUTION OF THE WORK.
4. NOTIFY THE ENGINEER OF THE DATE AND TIME OF COMMENCEMENT OF THE WORK NOT LESS THAN 48 HOURS PRIOR TO MOBILIZATION.
5. ARRANGE WITH THE ENGINEER FOR AN INSPECTION OF THE SITE WITHIN 48 HOURS OF COMMENCEMENT OF THE WORK TO VERIFY THAT CONSTRUCTION METHODS AND SOIL CONDITIONS ARE CONSISTENT WITH THE DESIGN AND THE PRELIMINARY SOIL INVESTIGATION.
6. CO-ORDINATE WITH THE ENGINEER TO SCHEDULE THE FREQUENCY AND TIMING OF INTERMEDIATE SITE VISITS TO MONITOR PROGRESS, EVALUATE MATERIALS AND CONDUCT TESTING. NOT LESS THAN TWO INSPECTIONS FOR RECOMPACTED EARTH LINERS ARE REQUIRED.
7. ADVISE THE ENGINEER OF THE COMPLETION OF EARTHWORKS AND SCHEDULE A SITE INSPECTION WHICH IS TO BE COMPLETED PRIOR TO DEMOBILIZATION.
8. A FINAL INSPECTION MUST BE COMPLETED BY THE ENGINEER AFTER ALL WORK AND EQUIPMENT INSTALLATIONS ARE COMPLETE. THE ENGINEER MUST ISSUE A LETTER OF CERTIFICATION PRIOR TO THE LAGOON BEING SET INTO USE.

SIGNAL WORD

- "DANGER"- WHITE LETTERING/RED BACKGROUND
- SAFETY ALERT SYMBOL - WHITE TRIANGLE/RED EXCLAMATION POINT
- "DANGER" SHALL BE SANS SERIF FONT IN UPPER CASE.

WORD MESSAGE

- BLACK LETTERING ON WHITE BACKGROUND OR
- WHITE LETTERING ON BLACK BACKGROUND
- FONT SHALL BE SANS SERIF

SAFETY NOTES:

1. ACCESS TO DOMESTIC STORAGE LAGOON MUST BE CONTROLLED TO INCLUDE ONLY THOSE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE LAGOON.
2. A "NO TRESPASSING" SIGN, PICTURED ABOVE, SHOULD BE PLACED AROUND THE PERIMETER, WARNING VISITORS TO STAY AWAY.
3. THE ACCESS GATE SHOULD BE LOCKED AT ALL TIMES TO PREVENT ENTRY.

GATE VALVE SPECIFICATION:

1. PROVIDE "AWWA C509" GATE VALVE WITH JOINTS COMPATIBLE TO PIPING TYPE TO BE USED ON SITE. VALVE TO SIT ON 12"x12"x6" CONCRETE BLOCK FOR SUPPORT.
2. CONNECT TO VALVE A MIN. 1"x1" EXTENTION SPINDLE HOUSED IN A PVC VALVE BOX (PROTECT AGAINST LATERAL MOVEMENT DURING BACKFILLING). LENGTH TO SUIT DEPTH OF PIPELINE. AT TOP (APPROX. 21" BELOW GRADE), PROVIDE 2"x2" OPERATING NUT AND STONE DISK.
3. PROVIDE AT GRADE A 6.4" I.D. DUCTILE IRON UPPER SECTION, MIN. LENGTH 27" c/w 7.75" DIA. x 1.25" THK. DUCTILE IRON COVER WITH "S" ENSCRIBED ON COVER TOP. SET COVER AT GRADE LEVEL.



BORDER
WHITE OR BLACK OR RED

SAFETY SIGNAGE DETAIL



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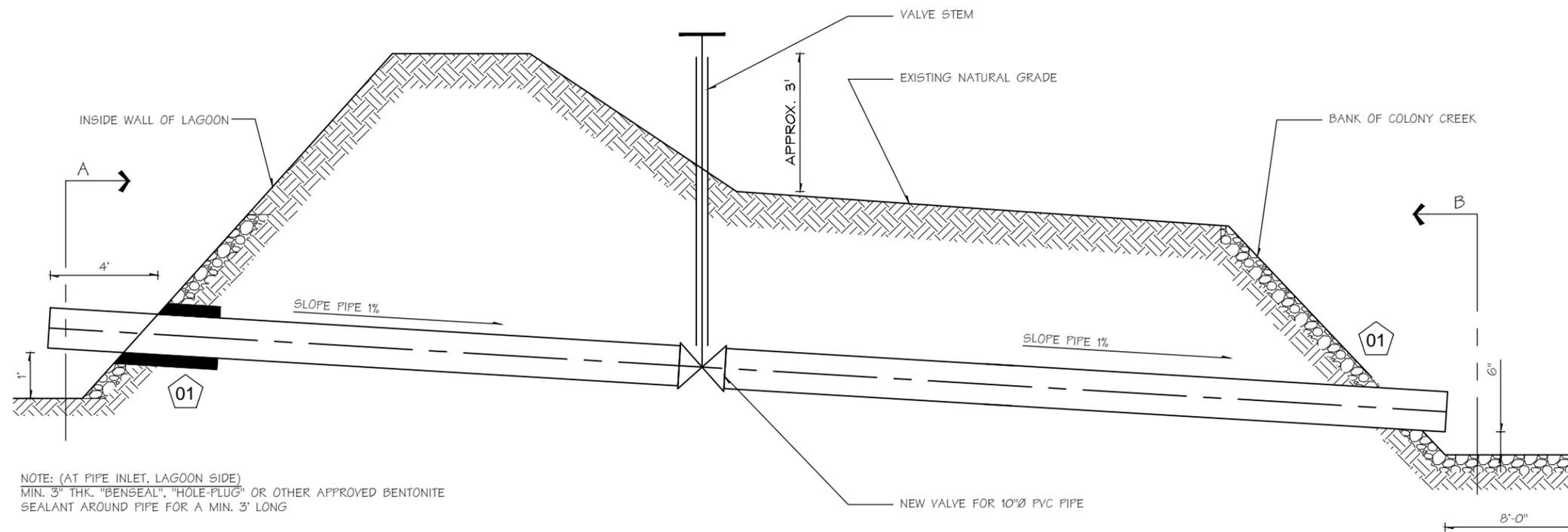
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BOX 10
GROSSE ISLE, MB.
R0C 1G0

PROJECT TITLE: **DOMESTIC WASTEWATER TREATMENT LAGOON**
LEGAL DESCRIPTION: **SE 1-13-1W**
PROJECT NUMBER: 12-1-1047-009-10

CONSTRUCTION DETAILS & NOTES

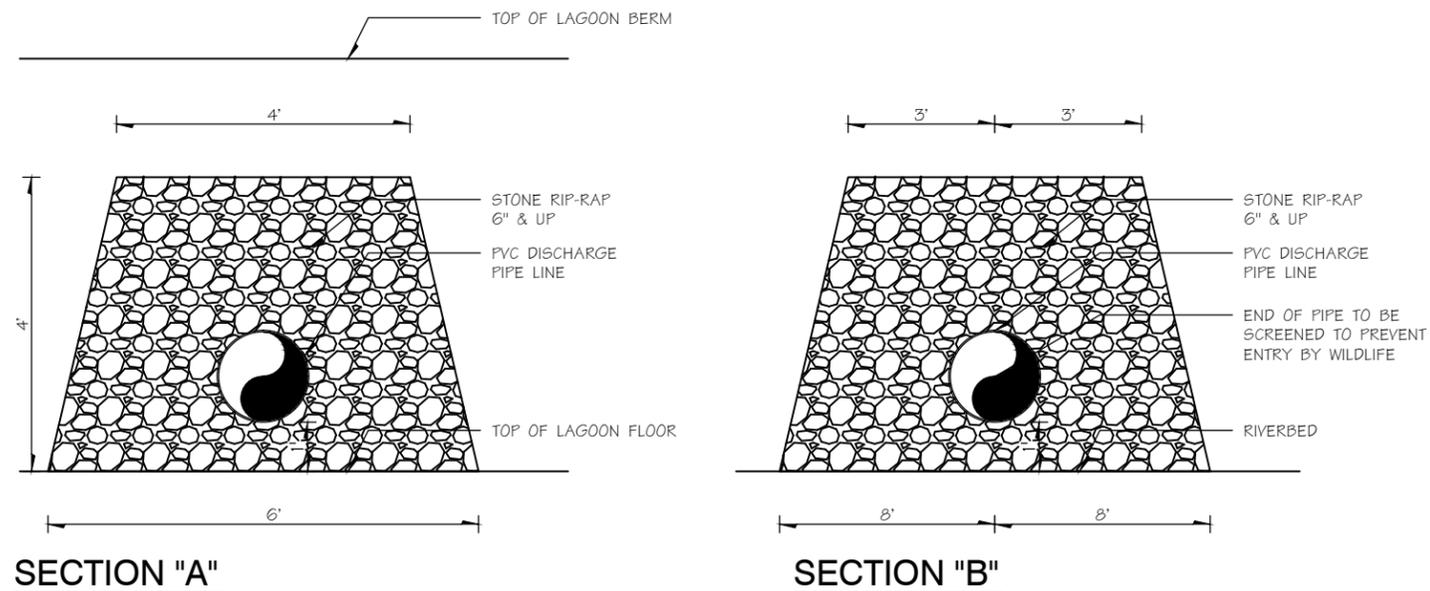
L2
REV. 0 R00



NOTE: (AT PIPE INLET, LAGOON SIDE)
 MIN. 3" THK. "BENSEAL", "HOLE-PLUG" OR OTHER APPROVED BENTONITE SEALANT AROUND PIPE FOR A MIN. 3' LONG

01

LAND PROFILE - EFFLUENT PIPE LINE



SECTION "A"

SECTION "B"

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PROVINCE OF MANITOBA
 REGISTERED PROFESSIONAL ENGINEER
C. LIU
 Member
 22982
 2012-12-20
 ISSUED FOR CONSTRUCTION

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CLIENT ROCK LAKE HOLDING LTD. BOX 10 GROSSE ISLE, MB. R0C 1G0	PROJECT TITLE DOMESTIC WASTEWATER TREATMENT LAGOON LEGAL DESCRIPTION SE 1-13-1W PROJECT NUMBER: 12-1-1047-009-10
DISCHARGE DETAILS	

L3
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