

Town of Lake Cowichan

Invitation to Bid

Date: July 26, 21

Bid Due Date: August 10, 21

Project Information: Town of Lake Cowichan - Municipal Hall
Phase 1 - Geotechnical Work

Project Description: Construction of a Flex MSE retaining wall system to replace and lock-block wall and to construct a geogrid reinforced gravel raft.

Submission of Bids: Town of Lake Cowichan
c/o BJK Architecture Inc.
2122 Brandon Rd.
Shawnigan Lk. BC V0R 2W3
Attention: Brian Kapuscinski – Architect AIBC
Email: brian@bjkarch.com
Tenders to be submitted electronically only.

Bid Documents Plans and Specifications are available on BC Bid.

Instructions to Bidders: Included with Plans and Specifications

Mandatory site visit. Only registered plan holders will be invited.

Please complete the information below and return to Joseph Fernandez
Email: jfernandez@lakecowichan.ca

Company: _____ Contact: _____

Phone: _____ Email: _____

Bidding Yes: _____ No: _____

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INSTRUCTIONS TO BIDDERS

- a. The closing of the tender is: **August 10, 2021 at 2:00pm Pacific Time (PST).**
- b. Tenders are for submission to:

Town of Lake Cowichan
c/o BJK Architecture Inc.
2122 Brandon Rd.
Shawnigan Lk. BC V0R 2W3
Attention: Brian Kapuscinski – Architect AIBC
Email: brian@bjkarch.com
Tenders to be submitted electronically only.

Electronic Submissions to be directed to BJK Architecture.

- c. Direct all queries related to the **tender** to The Town of Lake Cowichan, to the attention of:

Joseph Fernandez
Email: jfernandez@lakecowichan.ca

Deadline for enquiries: August 5, 21

- d. Direct all **technical** queries to WSP Canada Inc. to the attention of:

Dolan Stewart, M. Eng, P. Eng.
Email: stewart.dolan@wsp.com

Deadline for enquiries: August 5, 21

- e. Please make your tender submission on the given Form of Tender and fill out all requested information on the pages of Breakdown of Prices and Unit Prices. Provide additional tender information as an attachment to this given form.
- f. All Tender Documents referred to in this request for tenders will be sent directly to the invited bidders.
- g. Electronic invitations, Instructions to Bidders and Tender information will be sent out to all registered plan holders.

TERMS AND CONDITIONS OF TENDER

- a. The tenderer is solely responsible for reviewing all available project drawings, specifications, schedules, addendums, and site instructions available prior the closing date of this tender pertaining to the scoping and pricing of this tender. The tenderer is solely responsible for investigating the Project site prior to submission of tender and satisfying itself as to all conditions that might apply to the work. Arrangements for

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site access during regular business hours can be made through the Owner via email request.

- a. The form of agreement will be **CCDC 2-2008** with supplementary conditions. Tenderers should note the following:
 - a. Wrap Up Liability and Course of Construction insurance policies are provided by the Owner. Contractors will be required to provide all other necessary insurance as per contract.
 - b. Labour and Material Bond and Performance Bonds or an irrevocable Letter of Credit in lieu of Bonds are not required. The Owner is requesting these as separate prices. – Refer to Separate Prices
 - c. A 10% Bid Bond is required.
- b. Tenders are irrevocable and open for acceptance for **10** days from the Closing Time.
- c. The objective of the **Town of Lake Cowichan** is to select the tender that it considers in its sole and absolute discretion, to be most advantageous or to provide the best overall value to it. This does not necessarily mean the lowest price tender. The evaluation may include consideration of any factors considered by the Owner or WSP Canada or BJK Architecture Inc. acting as agent of the Owner to be appropriate, including but not limited to any or all of the following: price, qualifications; proposed schedule, experience, corporate history, references, perceived capacity to perform the work, proposed work force, past experience with the tenderer, and any information received from third parties.
- d. The **Town of Lake Cowichan** reserves the right, at any time and from time to time, in its sole discretion and without any liability to any tenderer:
 - i. to terminate or suspend this request for tenders.
 - ii. to modify this request for tenders in any manner, whether before or after receipt of tenders.
 - iii. to clarify any tender before or after the Closing Time by seeking further information from any or all tenderers.
 - iv. to negotiate, accept, or reject any or all tenders, for any reason or for no reason,
 - v. to accept or reject, at its sole election, a tender that is delivered after Closing Time or that is non-compliant with the instructions to tenderers, or that is incomplete, obscure or irregular or which contain omissions or corrections (regardless of whether or not such non-compliance is or is determined to be material);

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- vi. to negotiate with one or more tenderers at a time (whether serially or concurrently), and to discontinue negotiations with any tenderers and begin or continue negotiations with any other tenderers.
 - vii. to waive any requirement of this request for tenders.
- e. In consideration of the **Town of Lake Cowichan** agreeing to receive and review the tender and as a term of the submission of the tender, the tenderer does hereby waive and release the Owner, its officers, directors, employees, agents and contractors of and from all claims that arise from or any way relate to this request for tender, the evaluation, acceptance or rejection of the tender, whether such claim arises pursuant to contract, tort, statutory duty, law, equity, any actual or implied or alleged duty of fairness, duty to negotiate in good faith or duty of full disclosure, or otherwise.
- f. Construction Schedule. All work must be completed by **September 15, 2021** due to environmental requirements working adjacent to the Cowichan River.

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FORM OF TENDER

SUBMITTED BY:

Address: _____

Phone: _____ Direct: _____

Email: _____

Contact: _____

To: Town of Lake Cowichan

Having fully examined the site and all conditions affecting the work, and having carefully read and examined the Contract Documents, including the Tendering Instructions, the Form of Agreement, the Specifications and the Drawings, the Scope of Work, and Addenda / Site Instructions issued as supplements to the aforementioned documents, the undersigned hereby offers to furnish all of the work covered by the said Contract Documents for the above work for the basic tender price of:

dollars (\$_____) in lawful money of Canada and will remain in effect for a **10-day** duration.

We confirm the above stated price is inclusive of all current applicable taxes currently in force and due on this aspect of work. GST is **not** included in the Tender Price.

We are available to begin work on _____ and will take _____ calendar weeks to complete The Work.

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ADDENDA

We acknowledge receiving _____ to _____ addenda.

1. BONDING

- a. Refer to Separate Prices

2. VALUATION OF CHANGES

We agree that mark-up on extras, other than work covered by unit prices, shall be as follows:

- a. Subcontractors will receive 5% overhead and 5% profit for work performed by own forces.
- b. Contractor will receive 5% combined overhead and profit for work performed by their Subcontractors.
- c. Contractor will receive 5% overhead and 5% profit for work performed by own forces.

3. SIGNATURES

Signed, Sealed and Submitted for and on behalf of:

Registered Company Name: _____

Signature: _____

Name and Title: _____

Date: _____

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PROVIDE THE NAMES OF KEY SUBCONTRACTORS SELECTED TO PERFORM THE FOLLOWING WORKS:

	DESCRIPTION OF WORK	TRADE NAME
1.		
2.		
3.		
4.		
5.		

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UNIT RATES

Unit prices quoted shall be for additions or deductions of the supply and installation of material to the work, including associated accessories and accesses. Unit prices quoted shall remain in force until the date of substantial completion of this contract, as established by the Consultant unless otherwise agreed.

All unit prices quoted shall be held to include hoisting, conveyance, and delivery, unloading, all labour, setting, fitting and fixing in position, lapping of materials and straight cutting, and waste and including all overhead, profit, and taxes.

Hereunder is the list of unit prices as required by the specification:

Item	Description	Unit Measure	Unit Price	
			ADD	DELETE
1.	None requested		\$	\$
2.			\$	\$

(Contractor)

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SEPARATE PRICE

Separate prices are not included in the base tender price and are considered extra/over. Separate prices quoted shall remain open for acceptance for **180** days after award of this contract, as established by the Consultant unless otherwise agreed.

All separate prices quoted shall be held to include hoisting, conveyance and delivery, unloading, all labour, setting, fitting and fixing in position, lapping of materials and straight cutting and waste and including all overhead, profit and taxes.

Item	Description	Unit Measure	Unit Price
1.	None requested		\$

(Contractor)

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ALTERNATE PRICE

Alternate prices quoted shall remain open for acceptance for **10** days after award of this contract, as established by the Consultant unless otherwise agreed.


All alternate prices quoted shall be held to include hoisting, conveyance and delivery, unloading, all labour, setting, fitting and fixing in position, lapping of materials and straight cutting and waste and including all overhead, profit and taxes.

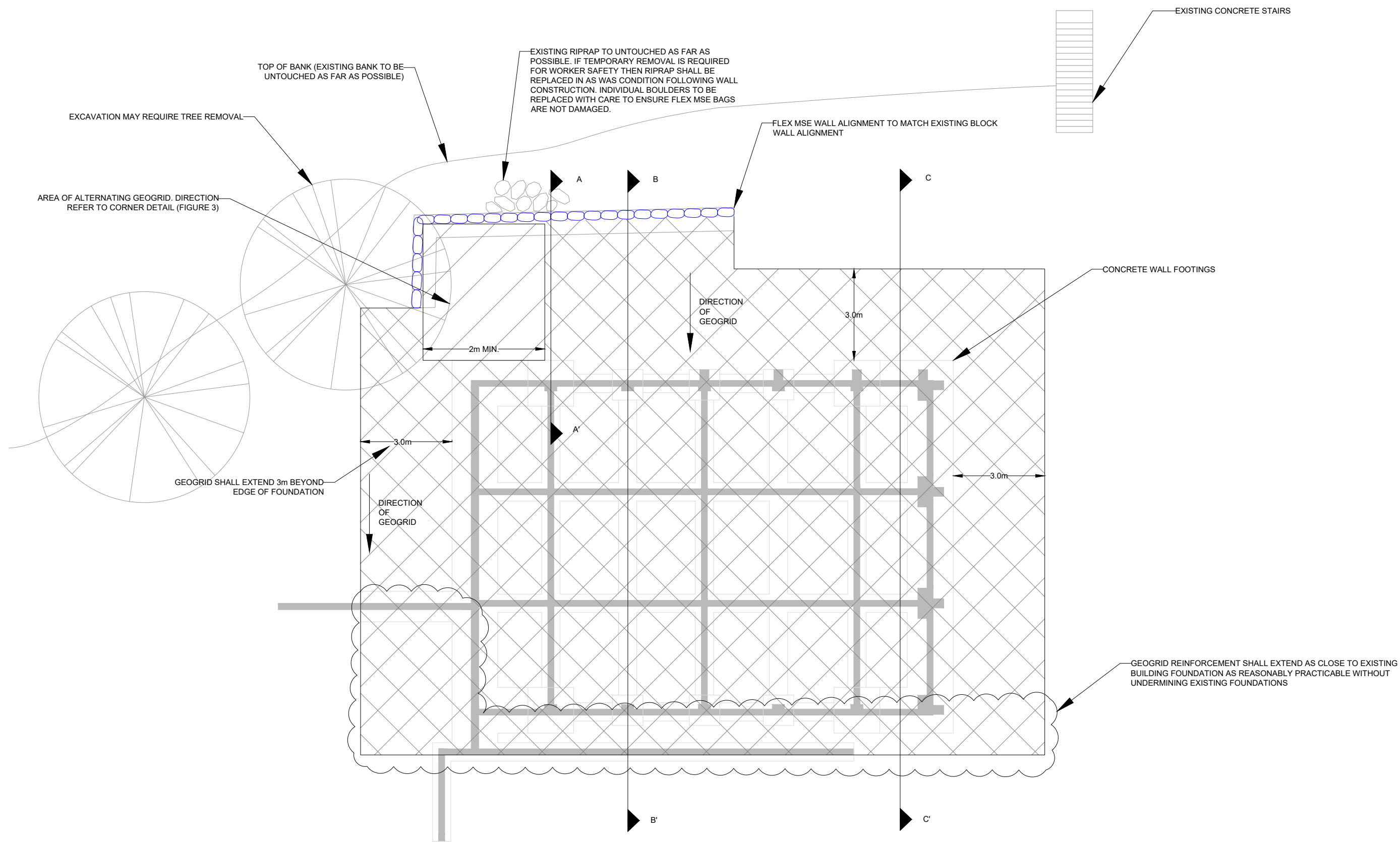
Item	Description	Unit Measure	Unit Price
1.	None requested		\$
2.			\$

(Contractor)




1. WALL DESIGN CRITERIA
 - 1.1 THE PROPOSED WORKS COMPRISE THE CONSTRUCTION OF A FLEX MSE® RETAINING WALL SYSTEM TO REPLACE AN EXISTING MODULAR CONCRETE BLOCK RETAINING WALL, AND TO CONSTRUCT A GEOGRID REINFORCED GRAVEL RAFT BELOW THE PROPOSED BUILDING FOOTPRINT TO RESIST THE EFFECTS OF LIQUEFACTION DURING AND AFTER THE DESIGN LARGE EARTHQUAKE.
 - 1.2 THIS FLEX MSE® WALL SYSTEM AND GEOGRID GRAVEL RAFT GROUND IMPROVEMENT SYSTEM HAS BEEN DESIGNED AS "POST-DISASTER" IN ACCORDANCE WITH THE 2018 BC BUILDING CODE TO RESIST THE DESIGN EARTHQUAKE WITH A 2% PROBABILITY OF EXCEEDANCE IN 50 YEARS.
 - 1.3 POST SEISMIC GROUND DEFORMATIONS
 - i. LATERAL MOVEMENTS OF 100 TO 150mm
 - ii. TOTAL SETTLEMENTS OF 50 TO 75mm VERTICAL; DIFFERENTIAL SETTLEMENTS ESTIMATED TO BE 100% OF TOTAL SETTLEMENT OVER 10M DISTANCE.
 - 1.4 WALL DESIGN ASSUMED NO TRAFFIC ALONG TOP OF WALL AND 100kPa BEARING PRESSURE FROM BUILDING FOUNDATIONS.
 - 1.5 LEVEL BACKFILL ABOVE THE WALL.
 - 1.6 ANTICIPATED SUBGRADE IS NATURAL GREY SILTY SAND.
 - 1.7 BUILDING FOUNDATIONS SHALL BE STRUCTURALLY TIED FOOTINGS.
 - 1.8 GEOGRID REINFORCEMENT SHALL COMPRISE A MINIMUM EIGHT LAYERS BELOW THE UNDERSIDE OF PROPOSED FOUNDATIONS.
 - 1.9 THESE NOTES ARE TO BE READ IN CONJUNCTION WITH WSP'S REPORT "TOWN OF LAKE COWICHAN ADDITION TO TOWN HALL - GEOTECHNICAL TEST PITTING FOR ADDITIONAL RETAINING WALL", DATED 09 JULY 2021.
2. GENERAL CONSTRUCTION NOTES
 - 2.1 THE CONTRACTOR SHALL SUBMIT AN APPROVED CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN (CEMP) TO THE OWNER FOR REVIEW A MINIMUM OF 10 WORKING DAYS BEFORE MOBILIZING TO SITE. CEMP SHALL BE PREPARED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL. THE CONTRACTOR SHALL MONITOR THE EFFECTIVENESS OF THE PLAN THROUGHOUT THE WORKS.
 - 2.2 THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING, LOCATING AND PROTECTING ALL BURIED UTILITIES BEFORE BREAKING GROUND.
 - 2.3 THE EXISTING MODULAR CONCRETE BLOCK WALL SHALL BE REMOVED AND REPLACED WITH THE FLEX MSE® WALL SYSTEM AS SHOWN ON THE PLANS.
 - 2.4 THE EXISTING RIPRAP BANK SHALL NOT BE TOUCHED AS FAR AS REASONABLY PRACTICABLE. TEMPORARY REMOVAL OF BOULDERS MAY BE REQUIRED FOR WORKER SAFETY (AS DETERMINED BY THE CONTRACTOR AS PER ITEM 2.5 BELOW) AND TO ALLOW CONSTRUCTION OF THE WALL SYSTEM AND THEN REPLACED TO AN AS WAS CONDITION FOLLOWING COMPLETION OF THE WALL. CARE SHALL BE TAKEN DURING REPLACEMENT OF THE RIPRAP BOULDERS TO ENSURE THAT THE FLEX MSE® BAGS ARE NOT DAMAGED. ANY RIPRAP BOULDERS THAT ARE TEMPORARILY REMOVED SHALL BE STORED ONSITE AND REPLACED INDIVIDUALLY, AND END DUMPING OF RIPRAP SHALL NOT BE PERMITTED. THE FINAL RIPRAP CREST, TOE AND SLOPE ANGLE SHALL NOT BE CHANGED FROM EXISTING CONDITIONS.
 - 2.5 TEMPORARY WORKS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL COMPLY FULLY WITH WORKSAFE BC REGULATIONS. GEOTECHNICAL SIGNOFF OF THE TEMPORARY WORKS (IF REQUIRED) SHALL BE PROVIDED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER.
3. MATERIALS
 - 3.1 FLEX MSE BAG - THE RETAINING WALLS HAVE BEEN DESIGNED ON THE BASIS OF FLEX MSE BAGS (0.305m IN WIDTH, 0.762m IN LENGTH, 0.14m IN HEIGHT). ACTUAL FILLED BAG DIMENSIONS MAY VARY. ALTERNATIVE METHODS OF SUPPORT SYSTEM, INCLUDING OTHER GEOBAG FACINGS, WILL REQUIRE REDESIGN OF THE WALLS BY THE ENGINEER AND MAY NOT BE SUBSTITUTED WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
 - 3.2 FLEX MSE BAG FILL MATERIAL MUST CONFORM TO SECTION 2.04 OF THE CURRENT FLEX MSE SPECIFICATION. FLEX MSE BAGS TO BE FILLED OFF SITE FOLLOWING THE MANUFACTURERS SPECIFICATION FOR BAG FILL AND IDEALLY DELIVERED PRE-FILLED BY THE MANUFACTURER. FLEX MSE VEGETATIVE BAG FILL MATERIAL IS MIXED BY VOLUME AT 66% 20mm MINUS GRANULAR CONTENT (LESS THAN 5% FINES) AND 34% HIGH QUALITY COMPOST OR COMPOST-AMENDED CLAY FREE TOPSOIL. DEVIATIONS FROM THE SPECIFICATION MUST BE APPROVED BY THE MANUFACTURER. THIS VEGETATIVE MEDIUM SPECIFICATION IS CONSIDERED PROPRIETARY TO FLEX MSE AND NON-TRANSFERABLE IN THE EVENT OF ANY MATERIAL CHANGE.
 - 3.3 FLEX MSE PLATE - FLEX MSE INTERLOCKING PLATES SHALL BE EMPLOYED BETWEEN ALL FLEX MSE GEOMODULAR BAGS.
 - 3.4 MEDIUMWEIGHT NONWOVEN GEOTEXTILE SHALL BE MIRAFI 160N OR EQUIVALENT TO BE APPROVED IN WRITING BY WSP BEFORE DELIVERING TO SITE.
 - 3.5 GEOGRID REINFORCEMENT SHALL HAVE A MINIMUM LONG-TERM DESIGN STRENGTH OF 53kN/m. THE PROPOSED PRODUCT MUST BE APPROVED IN WRITING BY WSP BEFORE DELIVERING TO SITE. THE CONTRACTOR SHALL DEMONSTRATE COMPATIBILITY BETWEEN THE PROPOSED GEOGRID PRODUCT AND THE ENGINEERED FILL TO ACHIEVE THE MINIMUM LONG TERM DESIGN STRENGTH (T_a) BY USE OF APPROPRIATE REDUCTION FACTORS BASED ON PRODUCT-SPECIFIC TEST RESULTS WITH A SIMILAR BACKFILL TYPE (AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, NINTH EDITION, 2020, SECTION 11.10.6.4.3b).
 - 3.6 BASE LEVELLING GRAVELS SHALL COMPRISE ANGULAR 25mm CLEAR CRUSHED ROCK THAT MEETS THE GRADATION REQUIREMENTS OF MMCD DRAIN ROCK.
 - 3.7 WALL BACKFILL / ENGINEERED FILL SHALL COMPRISE WELL GRADED 19mm MINUS CRUSHED GRAVEL WITH LESS THAN 5% SMALLER THAN 0.075mm THAT MEETS THE GRADATION REQUIREMENTS OF MMCD GRANULAR BASE.
 - 3.8 NO SITE WON MATERIAL MAY BE USED FOR BACKFILL NOR BAG FILL.
4. EXECUTION
 - 4.1 ALL ORGANIC SOILS AND FILLS SHALL BE REMOVED TO EXPOSE THE NATURAL SUBGRADE BELOW THE PROPOSED WALL AND BUILDING. THE MINIMUM DEPTH OF EXCAVATION SHALL BE 2m BGL, BUT DEEPER EXCAVATION MAY BE REQUIRED IF UNSUITABLE SOILS EXTEND DEEPER.
 - 4.2 IF DEEPER EXCAVATION IS REQUIRED DUE TO THICKER FILLS (i.e. >2m) THEN ONCE ALL UNSUITABLE SOILS ARE REMOVED THE EXCAVATION BASE SHALL BE WIDENED AND LENGTHENED SUFFICIENTLY AS REQUIRED TO CREATE A LEVEL BASE TO ACCOMMODATE GEOGRID REINFORCEMENT. LOCALISED POCKETS OF OVER-EXCAVATION AND FILLING SHALL NOT BE PERMITTED. ALL ENGINEERED FILL SHALL BE GEOGRID REINFORCED.
 - 4.3 THE WALL BASE SHALL BE PREPARED BY EXCAVATING 300mm BELOW FINAL GRADE TO ACCOMMODATE THE SYSTEM FACING AND DRAINAGE LAYER IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDE AND AS SHOWN ON THESE DRAWINGS.
5. VEGETATION
 - 5.1 VEGETATION ON THE FACING OR TOP OF THE WALL SHALL CONSIST OF ONLY GRASSES, FORBS, FLOWERS AND/OR SMALL TO MEDIUM SIZED BUSHES AND SHRUBS. THE PLANTING OF TREES IN THESE AREAS IS NOT PERMITTED DUE TO THE POTENTIAL FUTURE DAMAGE THAT MAY BE INFLICTED ON THE WALL AS THE TREES GROW IN SIZE.
 - 5.2 LIVE PLANTING, LIVE STAKING AND BRUSH LAYERING MUST BE COMPLETED WITH SUFFICIENT PLANT DENSITY TO GAIN FULL FACING COVERAGE (ASSUMING OPTIMAL CONDITIONS) WITHIN PREVIOUSLY ESTABLISHED TIME FRAMES.
 - 5.3 APPLY HYDROSEED MATERIALS TO THE FACE OF THE FLEX MSE STRUCTURE IN A MANNER THAT ACHIEVES COMPLETE COVERAGE OF ALL CONTOURS OF THE EXPOSED BAG FACE. MULCH TYPE MUST BE CONSISTENT WITH THE APPLICATION'S SLOPE. ENGINEERED HYDROSEED PRODUCTS FOR EXTREME SLOPES MUST BE USED IN APPLICATIONS STEEPER THAN 0.5:1 (BONDED FIBRE MATRIX AND FLEXIBLE GROWTH MEDIUM PRODUCTS). SEED MIXTURES WILL BE PURCHASED FROM ACCREDITED SOURCES WITH GUARANTEED STANDARD GERMINATION RATES. PURCHASED SEED QUALITY AND MIX CONSTITUENTS MUST BE CONFIRMED WITH A PROJECT SUPERVISOR OR ENGINEER PRIOR TO APPLICATION.
 - 5.4 FLEX MSE STRUCTURES MUST HAVE A VEGETATION PLAN IN PLACE PRIOR TO CONSTRUCTION (PREPARED BY QEP) AND BE FULLY VEGETATED ACCORDING TO THE CURRENT SPECIFICATION, INSTALLATION GUIDE AND OFFICIAL DESIGN PLANS WITHIN ESTABLISHED TIME FRAMES. CONTRACTOR TO PROVIDE ESTABLISHMENT MAINTENANCE FOR 1 YEAR PRIOR TO HANDOVER TO THE OWNER. ESTABLISHMENT MAINTENANCE WILL REQUIRE WATERING, WEEDING, AND SUBMISSION OF A MONTHLY MAINTENANCE LOG TO THE OWNER.
6. FIELD REVIEWS
 - 6.1 THE FLEX MSE® WALL SYSTEM AND GEOGRID REINFORCED GRAVEL RAFT GROUND IMPROVEMENT SHALL BE CONSTRUCTED UNDER FULL TIME REVIEW BY WSP.
 - 6.2 THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION METHODOLOGY AND SCHEDULE TO WSP AT LEAST 5 WORKING DAYS BEFORE MOBILIZING TO SITE.
7. QUALITY CONTROL
 - 7.1 MODIFIED PROCTOR TEST REPORT FOR WALL BACKFILL / ENGINEERED FILL
 - 7.2 GRADATION ANALYSIS
 - i. BAG FILL - ONE TEST PER 400m³
 - ii. BACKFILL - ONE TEST PER 800m³
 - 7.3 IN-PLACE DENSITY TESTING
 - i. WALL BACKFILL / ENGINEERED FILL - ONE TEST PER 230m² PER LIFT, WITH A MINIMUM OF ONE TEST FOR EVERY OTHER LIFT.




			PROJECT:	LAKE COWICHAN MUNICIPAL HALL	DATE:	JUL 2021	 WSP Canada Inc. 760 Enterprise Cres., Victoria, B.C. V8Z 6R4 P: 250.475.1000 www.wsp.com	
			CLIENT:	TOWN OF LAKE COWICHAN	DESIGN BY:	SK		
			TITLE:	CONSTRUCTION NOTES	DRAWN BY:	LL		
			REV. :	DESCRIPTION:	DATE :	(M/D/YR)		
1	ISSUE FOR TENDER	07/22/21	THIS DRAWING IS THE SOLE PROPERTY OF WSP CANADA INC. AND CANNOT BE USED OR DUPLICATED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN CONSENT OF WSP. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES OR OMISSIONS TO WSP.			CHECKED BY:	DK	
			SCALE:	NTS	PROJECT No.:	201-09137-01	FIGURE NO.:	1



LEGEND:

-  FLEX MSE BAG FACING
-  ALTERNATING GEOGRID REINFORCEMENT
-  GEOGRID REINFORCEMENT



PROFESSIONAL
PROVINCE OF
S. K. DOLAN
49959
BRITISH COLUMBIA
ENGINEER
2021-07-22

REV. :	DESCRIPTION:	DATE : (M/D/YR)
1	ISSUE FOR TENDER	07/22/21

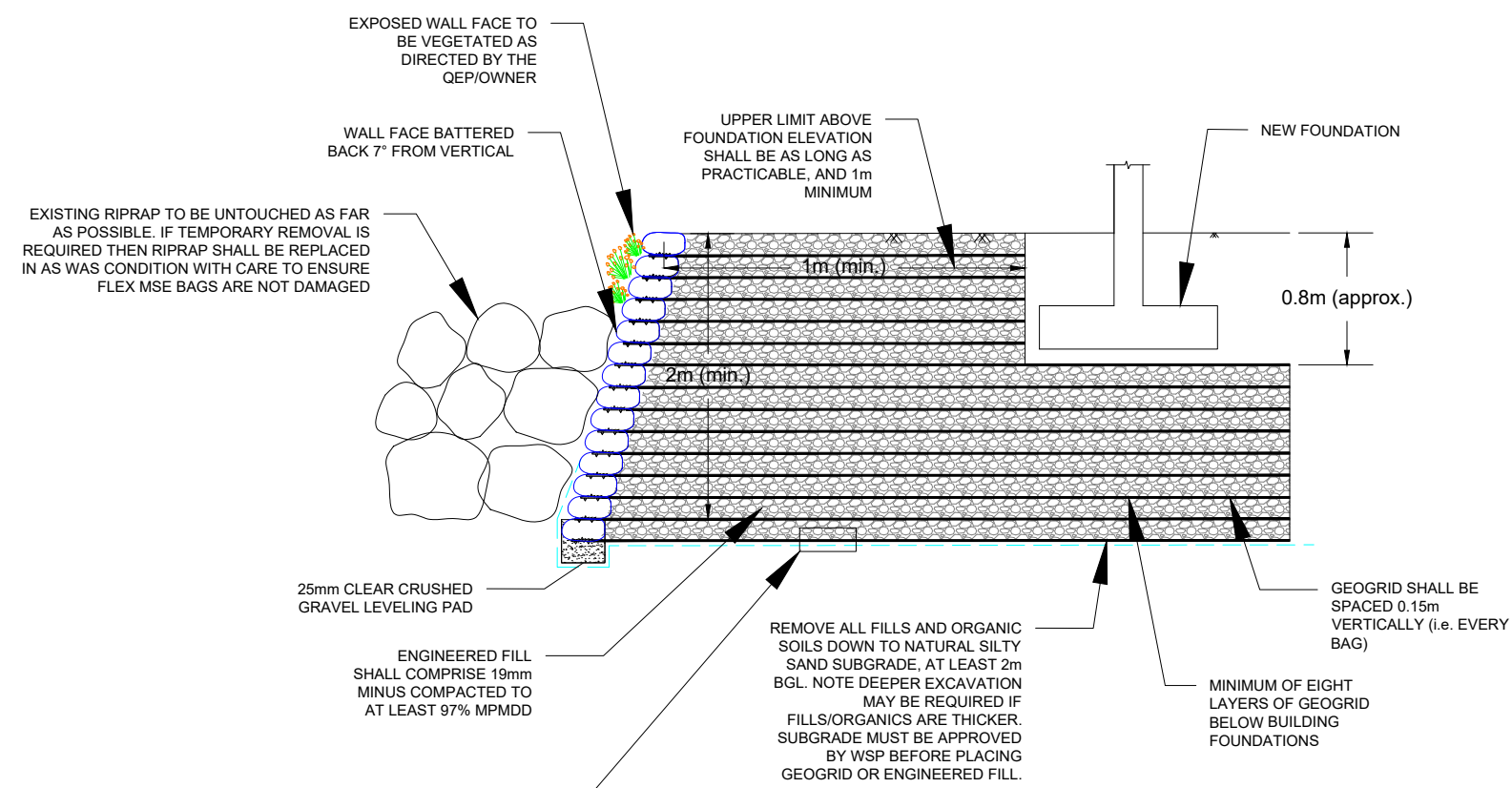
PROJECT:	LAKE COWICHAN MUNICIPAL HALL
CLIENT:	TOWN OF LAKE COWICHAN
TITLE:	SITE PLAN
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DATE:	JUL 2021
DESIGN BY:	SK
DRAWN BY:	LL
CHECKED BY:	DK
SCALE:	1:125
PROJECT No.:	201-09137-01



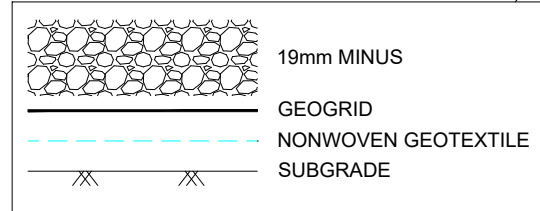
WSP Canada Inc.
760 Enterprise Cres.,
Victoria, B.C. V8Z 6R4
P. 250.475.1000
www.wsp.com

FIGURE NO.:
2

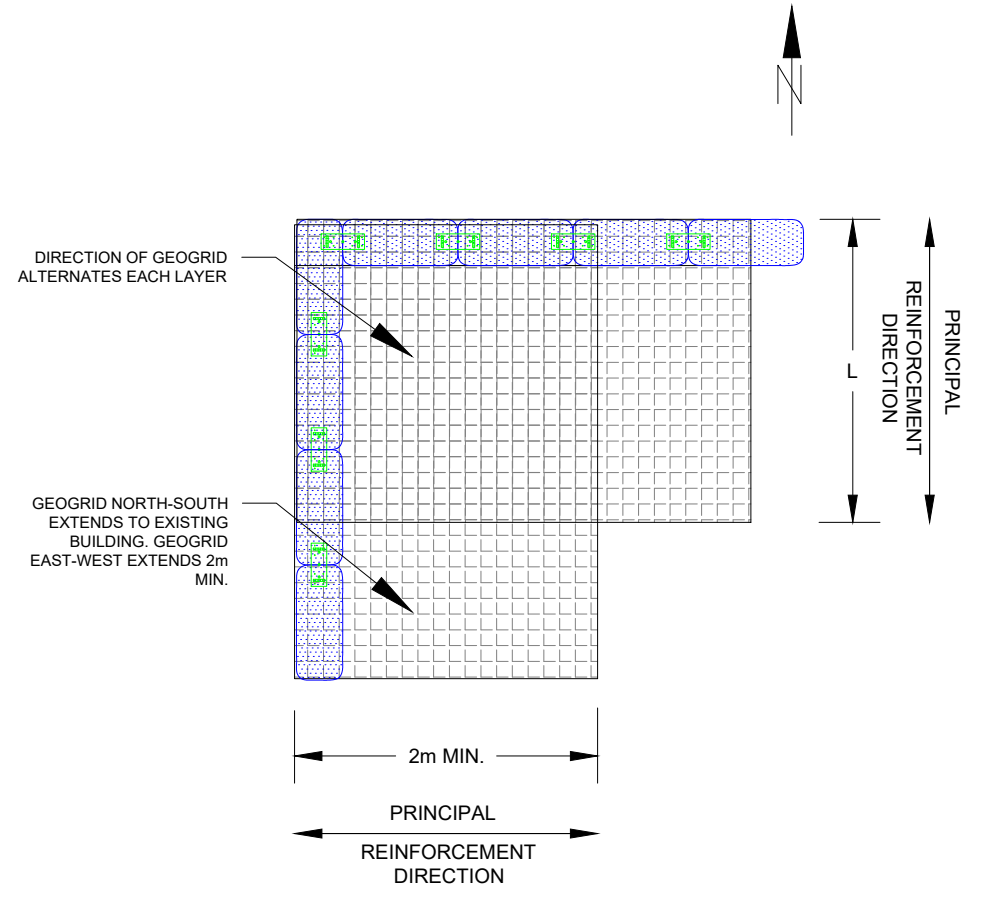


SECTION A-A': FLEX MSE WALL TYPICAL DETAILS

SCALE (m) 1:50



BASE PREPARATION DETAIL NOT TO SCALE



LEGEND:

	25mm CLEAR CRUSHED GRAVEL
	19mm MINUS CRUSHED GRAVEL
	MEDIUMWEIGHT NONWOVEN GEOTEXTILE SEPARATOR

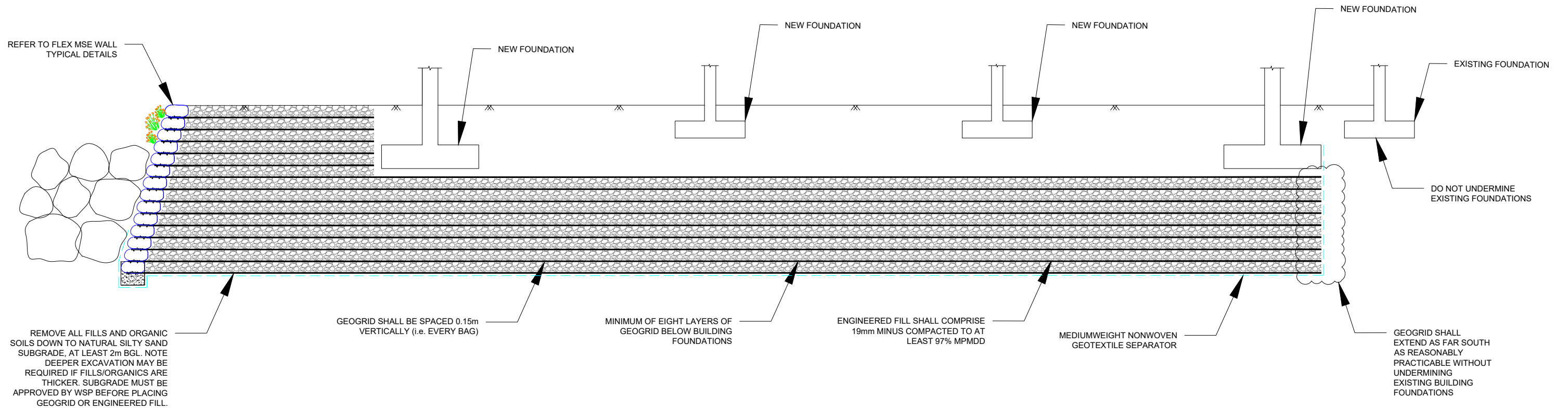


1	ISSUE FOR TENDER	07/22/21
REV. :	DESCRIPTION:	DATE : (M/D/YR)

PROJECT:	LAKE COWICHAN MUNICIPAL HALL
CLIENT:	TOWN OF LAKE COWICHAN
TITLE:	FLEX MSE WALL TYPICAL DETAILS
THIS DRAWING IS THE SOLE PROPERTY OF WSP CANADA INC. AND CANNOT BE USED OR DUPLICATED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN CONSENT OF WSP. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES OR OMISSIONS TO WSP.	

DATE:	JUL 2021
DESIGN BY:	SK
DRAWN BY:	LL
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SCALE:	1:50
PROJECT No.:	201-09137-01

FIGURE NO.: 3


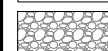
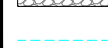


SECTION B-B': FLEX MSE WALL GEOGRID GROUND IMPROVEMENT

SCALE (m) 1:50



LEGEND:

-  25mm CLEAR CRUSHED GRAVEL
-  19mm MINUS CRUSHED GRAVEL
-  MEDIUMWEIGHT NONWOVEN GEOTEXTILE SEPARATOR



REV. :	DESCRIPTION:	DATE : (M/D/YR)
1	ISSUE FOR TENDER	07/22/21

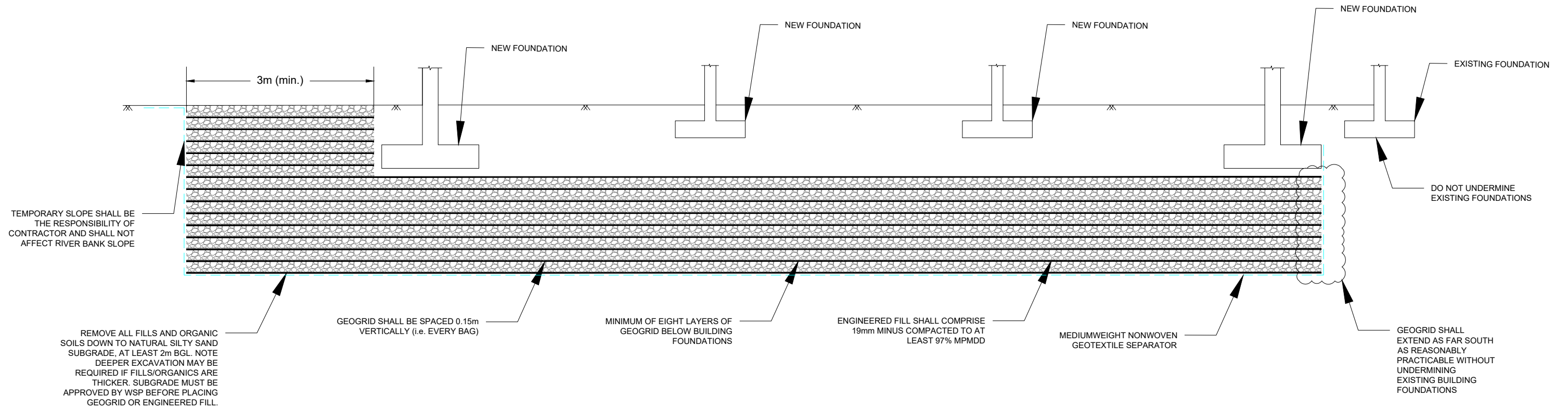
PROJECT:	LAKE COWICHAN MUNICIPAL HALL
CLIENT:	TOWN OF LAKE COWICHAN
TITLE:	FLEX MSE WALL GEOGRID GROUND IMPROVEMENT
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DATE:	JUL 2021
DESIGN BY:	SK
DRAWN BY:	LL
CHECKED BY:	DK
SCALE:	1:50
PROJECT No.:	201-09137-01



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760 Enterprise Cres.,
Victoria, B.C. V8Z 6R4
P: 250.475.1000
www.wsp.com

FIGURE NO.:
4

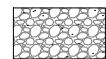


SECTION C-C': GEOGRID GROUND IMPROVEMENT TYPICAL DETAILS

SCALE (m) 1:50



LEGEND:



19mm MINUS CRUSHED GRAVEL



MEDIUMWEIGHT NONWOVEN GEOTEXTILE SEPARATOR

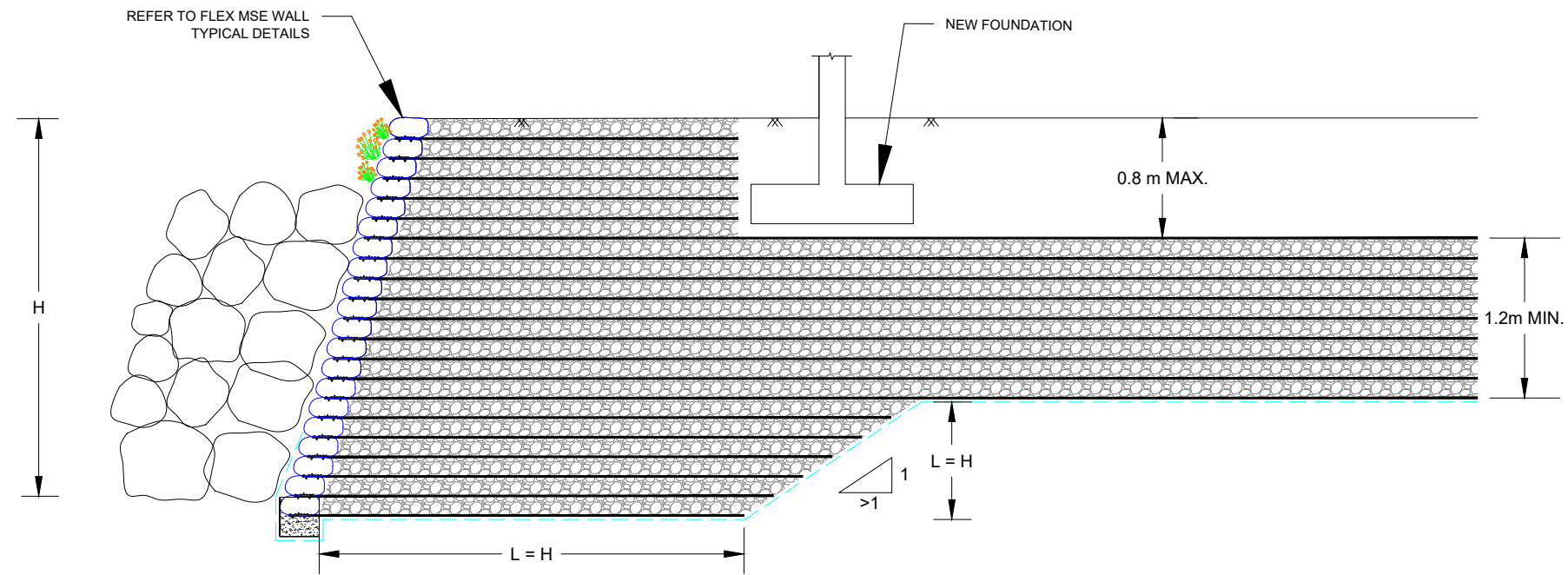


PROJECT:	LAKE COWICHAN MUNICIPAL HALL	DATE:	JUL 2021
CLIENT:	TOWN OF LAKE COWICHAN	DESIGN BY:	SK
TITLE:	GEOGRID GROUND IMPROVEMENT TYPICAL DETAILS	DRAWN BY:	LL
REV.:	1 ISSUE FOR TENDER	CHECKED BY:	DK
DESCRIPTION:		SCALE:	1:50
DATE:	07/22/21	PROJECT No.:	201-09137-01
(M/D/YR)		FIGURE NO.:	5



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NOTE: MINIMUM WIDTH OF DEEPER EXCAVATION SHALL BE EQUAL TO WIDTH OF GEOGRID ROLL



TYPICAL DETAIL FOR DEEPER EXCAVATION >2m

SCALE (m) 1:50



LEGEND:

25mm CLEAR CRUSHED GRAVEL

19mm MINUS CRUSHED GRAVEL

MEDIUMWEIGHT NONWOVEN GEOTEXTILE SEPARATOR



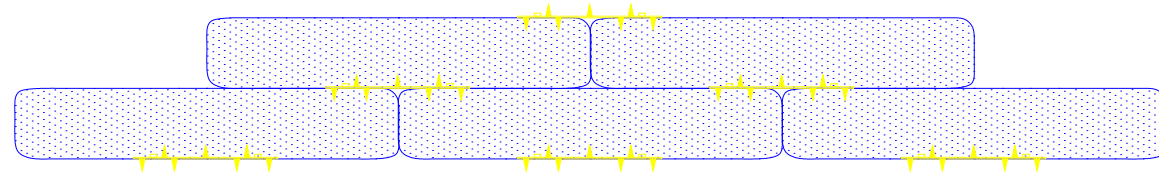
REV.	DESCRIPTION	DATE (M/D/YR)
1	ISSUE FOR TENDER	07/22/21

PROJECT:	LAKE COWICHAN MUNICIPAL HALL
CLIENT:	TOWN OF LAKE COWICHAN
TITLE:	FLEX MSE WALL GEOGRID GROUND IMPROVEMENT
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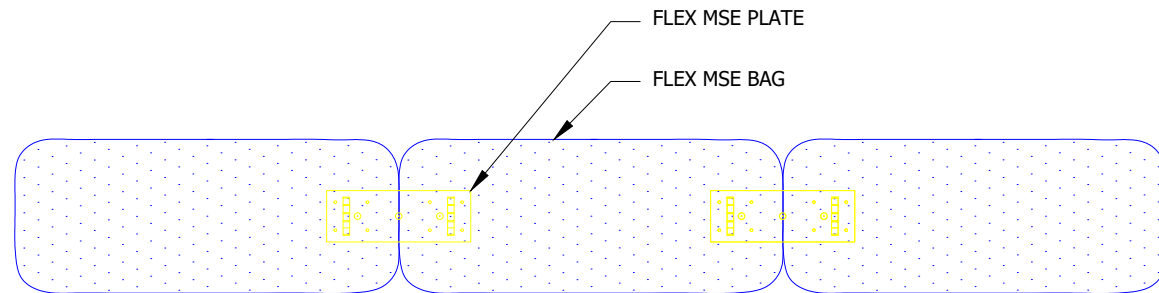
DATE:	JUL 2021
DESIGN BY:	SK
DRAWN BY:	LL
CHECKED BY:	DK
SCALE:	1:50
PROJECT No.:	201-09137-01

WSP Canada Inc.
760 Enterprise Cres.,
Victoria, B.C. V8Z 6R4
P: 250.475.1000
www.wsp.com

FIGURE NO.: 6

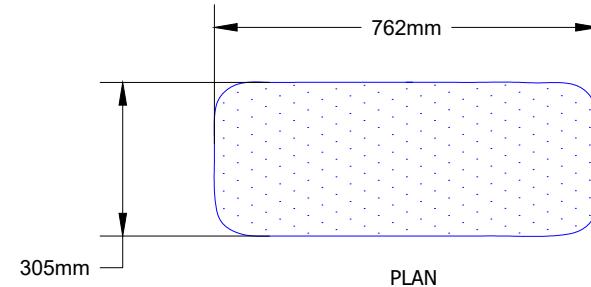
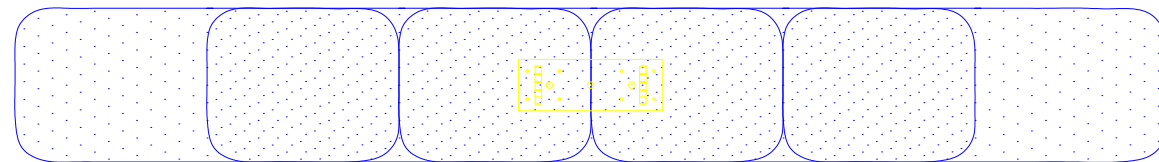


ELEVATION

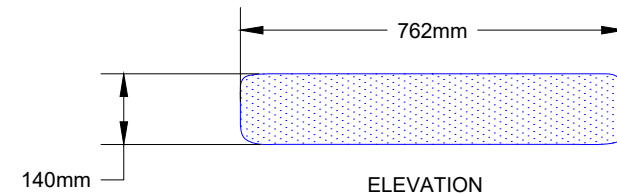


PLAN

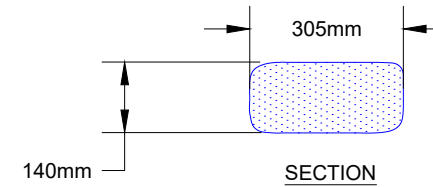
FLEX MSE UNIT
SCALE = N.T.S



PLAN

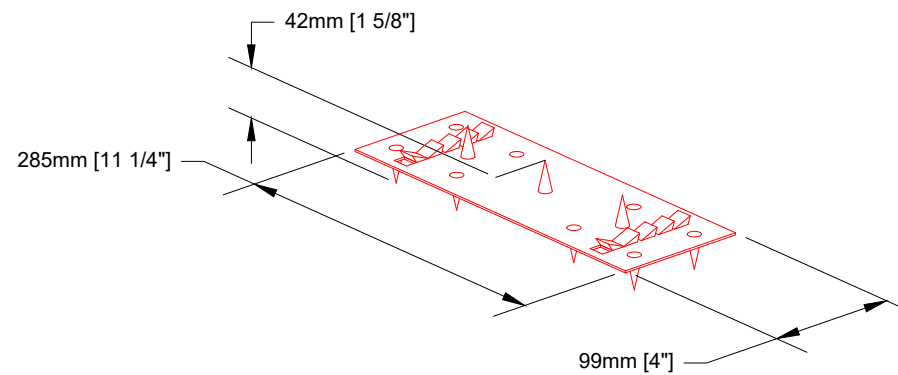


ELEVATION



SECTION

FLEX MSE BAG
SCALE = N.T.S



FLEX MSE PLATE
SCALE = N.T.S

- DETAILS ARE INDICATIVE FOR INFORMATION ONLY. BAGS TO BE DELIVERED PRE FILLED BY MANUFACTURER.
- FILLED BAG DIMENSIONS AND WEIGHT CAN CHANGE BASED ON FILL DENSITY AND FILLING/CLOSING METHODS
- BAG CLOSURES TO BE MIN. 50LB BLACK CABLE TIE, GALVANIZED LOOP TIE, OR SEWN PER MANUFACTURER'S SPECIFICATION
- BAGS AND PLATES TO BE INSTALLED AT 1:1 RATIO
- TYPICAL VEGETATIVE BAG WEIGHT: 70lbs/32kg MIN.

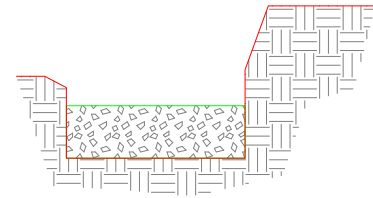
LEGEND:



PROJECT:	LAKE COWICHAN MUNICIPAL HALL	DATE:	JUL 2021
CLIENT:	TOWN OF LAKE COWICHAN	DESIGN BY:	SK
TITLE:	FLEX MSE WALL UNIT	DRAWN BY:	LL
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		SCALE:	NTS
		PROJECT No.:	201-09137-01
		FIGURE NO.:	7

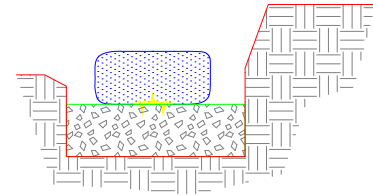


STEP ONE



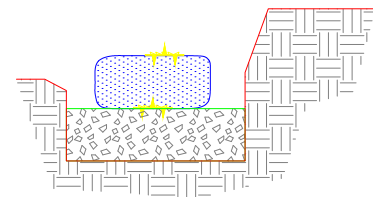
PREPARE A SHALLOW TRENCH, MINIMUM 12"/300mm, ADD 6"/150mm GRAVEL FOR LEVELLING OR PER ENGINEER SPECIFICATION

STEP TWO



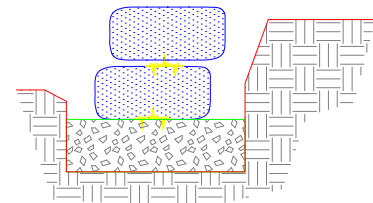
PLACE INTERLOCKING PLATE ON GROUND, PLACE 1ST ROW OF FLEX MSE GTX BAGS TIGHTLY TOGETHER, DO NOT OVERLAP BAGS, BAG LENGTH SEAMS ORIENTED TO THE BACK

STEP THREE



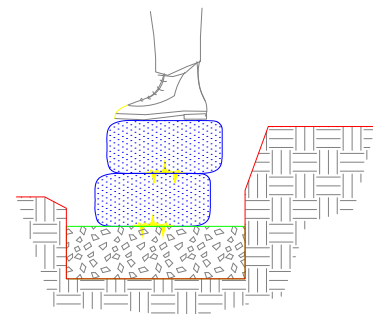
PLACE FLEX MSE INTERLOCKING PLATE. EACH INTERLOCKING PLATE, ACCORDING TO DIRECTIONS, AND REQUIRED SLOPE ANGLE. STRADDLES TWO FLEX MSE GTX BAGS - PRESS TO INTERCONNECT WITH GTX BAG

STEP FOUR



PLACE NEXT ROW OF FLEX MSE GTX BAGS IN "RUNNING BOND", ACCORDING TO REQUIRED FACING ANGLE - BACK FILL AND COMPACT AS REQUIRED

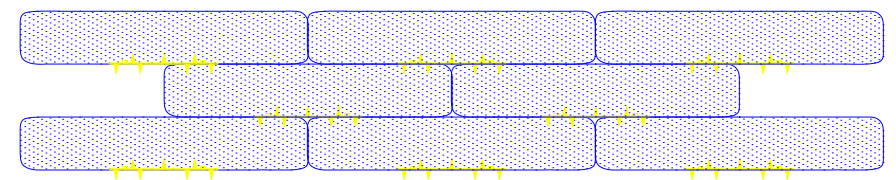
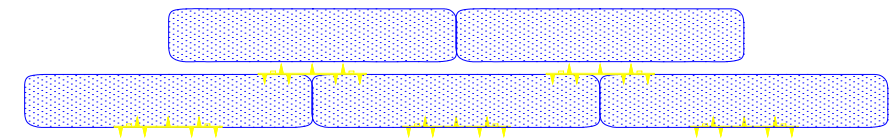
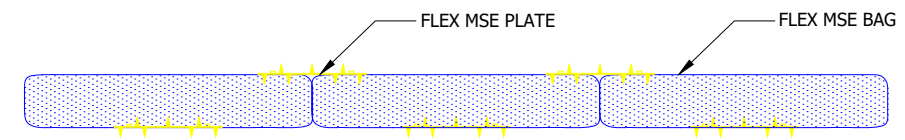
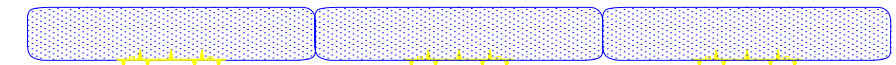
STEP FIVE



APPLY PRESSURE TO TOP OF BAG TO LIGHTLY COMPACT AND ENGAGE INTERLOCK

SECTION


INSTALLATION PROCESS
SCALE = N.T.S



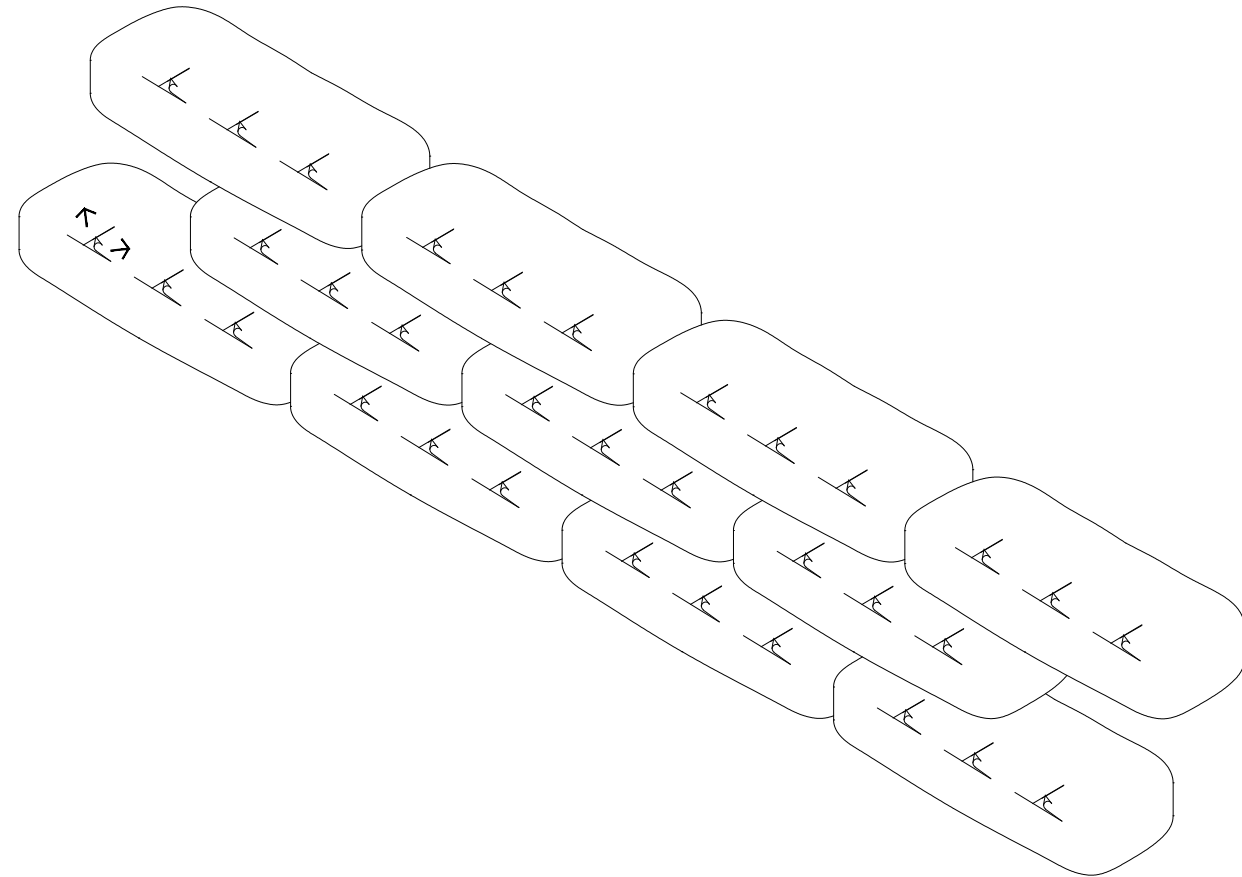
ELEVATION

LEGEND:

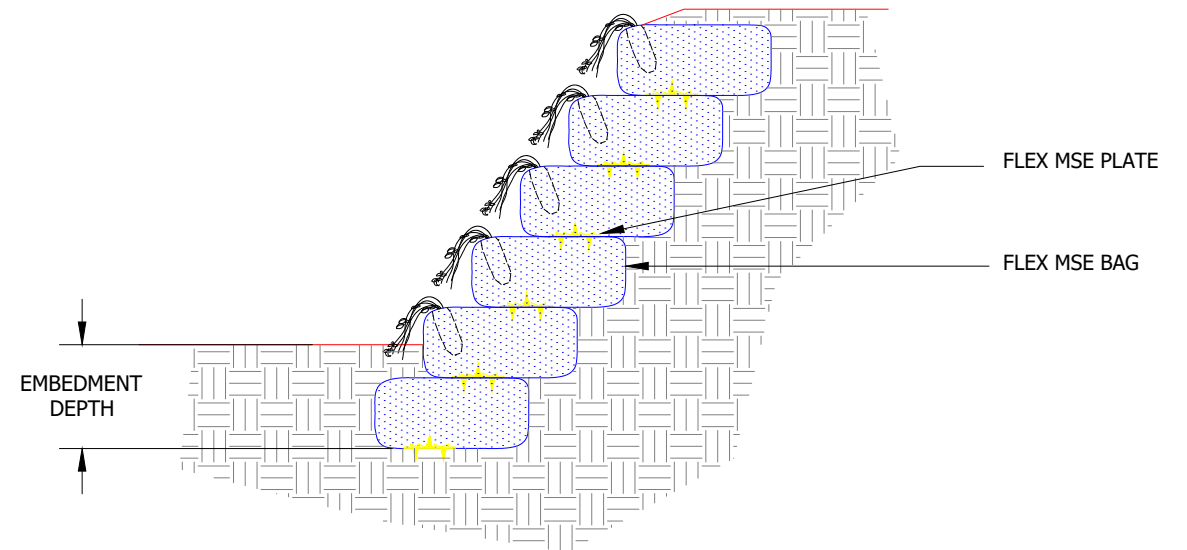


			PROJECT:	LAKE COWICHAN MUNICIPAL HALL	DATE:	JUL 2021	 WSP Canada Inc. 760 Enterprise Cres., Victoria, B.C. V8Z 6R4 P: 250.475.1000 www.wsp.com	
			CLIENT:	TOWN OF LAKE COWICHAN	DESIGN BY:	SK		
			TITLE:	FLEX MSE WALL INSTALLATION PROCESS	DRAWN BY:	LL		
1	ISSUE FOR TENDER	07/22/21			CHECKED BY:	DK		
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			<small>THIS DRAWING IS THE SOLE PROPERTY OF WSP CANADA INC. AND CANNOT BE USED OR DUPLICATED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN CONSENT OF WSP. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES OR OMISSIONS TO WSP.</small>		PROJECT No.:	201-09137-01	FIGURE NO.:	8

- DETAILS ARE INDICATIVE AND FOR INFORMATION ONLY. ACTUAL PLANTING SHALL FOLLOW LANDSCAPE PLAN PROVIDED BY QEP/OWNER
- MAXIMUM OF 3 100MM / 4" PLANTS PER BAG
- HOLES MUST ONLY BE ON THE TOP HALF, BAG SHOULDER OR SET BACK
- EACH INVERTED 'T' CUT TO BE A MAXIMUM OF 3.5" X 3.5" (90MM X 90MM)
- SPACE PLANTS EVENLY AND OFFSET FOR COMPLETE COVERAGE



ISOMETRIC




SECTION

VEGETATION - LIVE PLANTING
SCALE = N.T.S

LEGEND:



			PROJECT:	LAKE COWICHAN MUNICIPAL HALL	DATE:	JUL 2021	 WSP Canada Inc. 760 Enterprise Cres., Victoria, B.C. V8Z 6R4 P: 250.475.1000 www.wsp.com	
			CLIENT:	TOWN OF LAKE COWICHAN	DESIGN BY:	SK		
			TITLE:	FLEX MSE WALL LIVE PLANTING	DRAWN BY:	LL		
					CHECKED BY:	DK		
1	ISSUE FOR TENDER	07/22/21			SCALE:	NTS		
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