



April 21, 2009

Yukon Environmental and Socio-economic Assessment Board
Mayo Designated Office
PO Box 297
Mayo, YT Y0B 1M0

Attention: Lorelee Johnstone, Project Assessment Officer


Dear Ms. Johnstone:

Re: YESAA Project Proposal for Type A Water Use & Quartz Mining Licence Applications Bellekeno Mine Development, Keno Hill Silver District, Yukon, YESAA Project 2009-0030 Location Tradeoff Study and Project Schedule

On April 9, 2009, Alexco Keno Hill Mining Corp. hosted a Bellekeno Technical Meeting attended by Governments of Canada, Yukon, First Nation of Nacho Nyak Dun, Yukon Water Board, Yukon Environmental and Socioeconomic Assessment Board (YESAB) and residents of Keno City. As part of our presentation, we presented details from Wardrop Engineering's Location Tradeoff Study, which was used in order to make our choice for the Christal Lake mill site location. In response to a request that the Location Tradeoff Study be made available through the YESAB Online Registry (YOR) please see attached. In our presentation, we also provided a project timeline, which was also requested to be posted on the YOR and is attached to this letter.

If you have any questions or require further details, please contact the undersigned at (867) 668-6463.

Sincerely,
ALEXCO KENO HILL MINING CORP.


Robert L. McIntyre, R.E.T., CCEP
Vice President

Attachments

Head Office

T. 604 633 4888

Alexco Keno Hill Mining Corp.
A Wholly Owned Subsidiary of Alexco Resource Corp.
200 Granville Street
Suite 1150
Vancouver, BC V6C 1S4
www.alexcoresource.com

F. 604 688 4887

ID	Task Name	Duration	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025	
			Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3	Qtr 1	Qtr 3		
1	Advanced Exploration and U/G Development	652 days	[Grey bar]																																			
2	Environmental Assessment and Permitting	327 days			[Red bar]																																	
3	Construction	261 days			[Pink bar]																																	
4	Mine and Mill Operation	1304 days			[Black bar]																																	
5	240 tpd milling rate	522 days			[Blue bar]																																	
6	400 tpd milling rate	782 days																																				
7	Decommissioning	393 days																																				
8	Monitoring	3913 days			[Green bar]																																	

Report to:



ALEXCO RESOURCE CORP.

**Bellekeno Project
Location Trade-Off Study**

Document No. 0853960200-REP-R0002-01

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Report to:





ALEXCO

ALEXCO RESOURCE CORP.

BELLEKENO PROJECT LOCATION TRADE-OFF STUDY

DECEMBER 2008

Prepared by  Date December 16, 2008
Jason Amer

Reviewed by  Date December 16, 2008
Mike Boyle, P.Eng.

Authorized by  Date December 16, 2008
Grant Bosworth, P.Eng.

JA/it

WARDROP

Suite 800, 555 West Hastings Street, Vancouver, British Columbia V6B 1M1
Phone: 604-408-3788 Fax: 604-408-3722 E-mail: vancouver@wardrop.com

REVISION HISTORY

REV. NO	ISSUE DATE	PREPARED BY AND DATE	REVIEWED BY AND DATE	APPROVED BY AND DATE	DESCRIPTION OF REVISION
00	Dec. 1, '08	J. Amer Dec. 1, '08	G. Bosworth Dec. 1, '08		Issued as Draft Report
01	Dec. 16, '08	J. Amer Dec. 16, '08	M. Boyle Dec. 16, '08	G. Bosworth Dec. 16, '08	Issued as Final Report

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1.0 SUMMARY

During the Scoping Study, the requirement for a location trade-off study to compare three potential locations for the mill building, dry stack tailing facility, emergency tailings dump pond and other site infrastructure was identified by Wardrop Engineering Inc. (WEI) and Alexco Resources (Alexco). The results of the location trade-off study are documented in this report.

BACKGROUND

This location trade-off study has identified three potential locations as presented below.

- Location #1 – Mackeno (Chrystal Lake) Site
- Location #2 – Onek Site
- Location #3 – Bellekeno Site

Their locations are shown on drawing A0-20-SK05 included in Appendix A.

From these three proposed locations a recommendation by WEI will be made based on the following criteria:

- Capital Cost
The capital cost of all three options will be estimated for this trade-off study.
- Operating (Haulage) Cost
The operating cost of the equipment will be estimated as a figure of \$/tonne mined. The operating (haulage) cost for all three options based on a five year mine life period was calculated using this figure and the expected yearly output (tonnes) of the mine.
- Civil
Bulk Earthworks and site road quantities were considered when evaluating the three potential mill building locations.
- Power Supply and Distribution
The existing power supply and distribution was considered when evaluating the three potential mill building locations.
- Geotechnical / Structural
Geotechnical and structural designs were considered when evaluating the three potential mill building locations.

RECOMMENDATIONS

Presented are the advantages and disadvantages for each site based on technical data and costs.

Location #1 – Mackeno (Chrystal Lake) Site

This new mill building location will be approximately 1 km northeast of Keno City. This location has the longest one-way haulage distance of approximately 4.58 km. The haul roads will consist of new construction or upgraded existing roads.

Mill building footings are to be founded on compacted fill over competent bedrock pending additional data collection to finalize the design. EBA considers this site suitable for the construction of a mill. This allows a relatively economical option for the mill building foundation.

Power to this site is anticipated to involve a tap into the existing 69 kV pole line passing within 1 km of the proposed mill building site. A power line will extend from that point to the new mill building. At the mill building site, a substation yard will be required with an incoming overhead line termination structure.

Mackeno also has the advantage of close proximity to Chrystal Lake which is a source of process water for the mill.

WEI considers this site the preferred location for the mill building and associated infrastructure.

Location #2 – Onek Site

This new mill building location will be approximately 0.3 km north of Keno City. This location has the second longest one-way haulage distance of approximately 2.53 km. The haul and access roads will consist of new construction or upgraded existing roads.

Based on geotechnical findings submitted by EBA, it is anticipated that building footings are to be founded on shallow bedrock located near the access ramp of the existing pit. Assuming the mill is to be located on area near the access ramp where shallow bedrock is expected to be encountered, this provides an economical scheme to support these structures.

Current planning by Alexco includes modifications to the existing 6.9 kV pole line (upgrading to 25 kV) leaving the existing Onek substation and routing towards Bellekeno.

To accommodate this planning, the Onek substation will require a 25 kV secondary new transformer to supply power to this overhead line.

Another substation will be required at the Onek mill building site in order to step the 25 kV voltage level down to usable mill voltages.

The current Onek pit offers a potential location for the dry stacked tailings.

WEI considers this the second preferred location for the mill building and associated infrastructure.

Location #3 – Bellekeno Site

This new mill building location will be located approximately <2 km south of Keno City. This location has the advantage of a short haulage distance from the mine but new roads and upgrading of existing roads will be required for access and shipping.

The geotechnical report submitted by EBA states that permafrost is likely to exist on this site. As such, EBA recommends building foundations to be supported on rock socketed steel pipe piles extending into bedrock. Without geotechnical confirmation of bedrock elevation, WEI assumes a total pile length of 25 m to derive a scoping cost model for comparison. This option is considered to be significantly more expensive with inherent higher risk than the other sites considered.

Similar to Location #2, the Bellekeno costs are developed using an upgraded Onek substation feeding a new substation at the Bellekeno site via the 25 kV power line.

WEI does not recommend this site for the mill building and associated infrastructure due to the higher structural costs associated with the unfavourable geotechnical information available at the time of this report.

Total Capital and Operating Costs

Description	A – Mackeno Total	B – Onek Total	C – Bellekeno Total
Capital Cost	7,667,377	8,934,799	17,542,229
Operating Cost (Haulage)	1,952,608	1,100,316	-

2.0 DESIGN BASIS

All quantities developed are based on general arrangement drawings. Design allowances are applied to bulk materials based on discussions between the respective discipline and the estimator. Details on the respective discipline quantities are presented below.

2.1 CIVIL

Bulk Earthworks quantities are based on rough grading designs done using Autodesk Land Development Desktop Civil Package. Excavation of top soil and allowance for rock excavation is based on the geotechnical information available at the time of the study. Structural fill cost is based on aggregates being produced at site utilizing a portable crushing and screening plant, the price of the aggregate plant is included in the processed material prices contained in the capital cost estimate. Earthwork quantities do not include an allowance for bulking or compaction of materials, these allowances are included in the unit prices.

2.1.1 SITE ROADS

Reference: Dwg. A0-20-SK05, A0-20-SK06, A0-20-SK07, A0-20-SK08 and A0-20-SK09 in Appendix A.

Roadways were designed for the project based on the road design criteria shown in Table 2.1. The design vehicle used as the basis of design is shown in Table 2.2. New roads required for the project are shown in Table 2.3. Upgraded roads are shown in Table 2.4.

Table 2-1: Road Design Criteria

Category	Units	Single Lane Haul Road
Width	m	5*
Design Speed	km/h	60
Cross Fall	%	2.0
Maximum Grade	%	8.0
Surface	mm	200
Base Layer	mm	300
Sub-base Layer	mm	500
Cuts Side Slopes	ratio	1:1.5
Fills Side Slopes	ratio	1:1.5
Sub grade Compaction	%	95
Granular Compaction	%	100

Note: * Excludes berms and ditches on both sides of haul roads

Table 2-2: Design Vehicle

Design Vehicle	Approx. Width
30 ton Standard Dump Truck	3 m

Table 2-3: New Roads

Road Name	Road Description	Length (m)
HR 2	Mackeno Pad to Mackeno Drystack	247
HR 3	Silvertrail to Onek Pad / Drystack T-Junction	1,222
HR 3a	Silvertrail to Bellekeno T-Junction	621
HR 4	Onek Pad to Onek Drystack	238
HR 5a	T-Junction to Bellekeno Section 1	340
HR 5b	Bellekeno Rd to Onek Pad	250
HR 5c	T-Junction to Bellekeno Section 2	658
HR 5d	T-Junction to Bellekeno Section 3	270

Table 2-4: Upgraded Roads

Road Name	Road Description	Length (m)
HR 1	Silvertrail to Mackeno Pad	310
HR 3	Silvertrail to Onek Pad / Drystack T-Junction	334
HR 3a	Silvertrail to Bellekeno T-Junction	334
HR 4	Onek Pad to Onek Drystack	130
HR 5d	T-Junction at Bellekeno Section 3	730
HR 5e	At Bellekeno Pad End	626

Roads will be constructed to connect the mill building and underground facilities. Construction materials will be obtained locally and cut-and-fill quantities will be balanced as far as possible. All fill embankments will be at 1.1:5 slopes.

Ditches will be installed at a minimum of 0.5 m below sub-grade where road construction material is granular and deeper in areas of high seepage, or where road grade is insufficiently steep to remove runoff.

Roads will be maintained by on-site equipment comprising of a grader, a plough/grit truck and the intermittent use of the mill front end loader. Personnel from the mill labour pool will operate and service the equipment.

2.1.2 MILL BUILDING PAD

The mill building pad designs incorporated the following design parameters.

It has been assumed 300 mm of top soil will need to be excavated and removed. 15% of the excavated material is unsuitable for fill and will be disposed of on site. 7% is rippable rock and 10% assumed drill and blast rock. The remainder of the excavated material is assumed suitable for fill.

Table 2-5: Mill Building Pads

Pad Location	Pad Area (ha)	Cut Side Slopes Ratio	Fill Side Slopes Ratio
Mackeno Site	1.7	1:1.5	1:1.5
Onek Site	2.8	1:1.5	1:1.5
Bellekeno Site	2.7	1:1.5	1:1.5

2.2 STRUCTURAL

2.2.1 FOUNDATION AND SOIL DATA

Foundations governed by static loads, dynamic loads and transitory loads produced by wind or earthquake shall be designed in accordance with the recommendations of the “Preliminary Findings Report” dated November 7th, 2008 and “Technical Memo” dated November 20th, 2008 by the Geotechnical Consultant, EBA.

Allowable bearing pressures:

- Bedrock bearing pressure – 1,000 kPa (at Onek site)
- Structural (engineered) fill bearing pressure over competent bedrock – 250 kPa
- Compacted waste rock bearing pressure – 500 kPa
- Minimum depth of footing below finished grade (frost depth) – 2.5 m

2.2.2 DETAILED EXCAVATION

Detailed excavation quantities were calculated for footings which were assumed to be on bedrock at both the Mackeno and Onek Sites.

Detailed excavation quantities were calculated for a uniform concrete slab cast on piles at the Bellekeno Site.

2.2.3 CONCRETE

Foundation quantities for the following areas were estimated:

- Mill Building (96 m by 24 m)
- Firewater & Reclaim Water tanks (10 m & 7 m diameter respectively)
- Conveyor Foundations

Concrete quantities are based on “neat” line quantities from engineering designs and sketches.

2.2.4 PILING

Pile foundations governed by static loads, dynamic loads and transitory loads produced by wind or earthquake shall be designed in accordance with the recommendations of the "Preliminary Findings Report" dated November 7th, 2008 and "Technical Memo" dated November 20th, 2008 by the Geotechnical Consultant, EBA.

Rock-Socketed Steel Pipe Pile (at Bellekeno Site):

- Steel Pile Pipe Diameter – 168 mm
- Rock Socket Diameter – 114 mm
- Axial pile load – 200 kN
- Total Depth – 25.0 m with 4 m socketed into bedrock

The piling diameter was calculated to be 168 mm diameter and installed to an estimated 20 m depth in areas identified as permafrost. It is anticipated that a 230 mm diameter pre-auger is required prior to installation of the piles. Pile installation will include grouting inside the steel pipe.

2.2.5 CODES AND STANDARDS

All work will be carried out in accordance with the latest edition of the following standards, specifications and codes:

- National Building Code of Canada (NBCC)
- Supplement to the National Building Code of Canada (SNBCC)
- Canadian Standards Association (CSA) Standards
- Canadian Institute of Steel Construction (CISC)

Reference Handbooks:

- Concrete Design Handbook by CPCA
- Handbook of Steel Construction by CISC
- Soils Reports and correspondence by EBA

2.2.6 MATERIALS SPECIFICATION

STRUCTURAL STEEL

- Rolled Structural Steel Shapes, Plates and Bars CAN/CSA-G40.20/G40.21-350W
- Structural Pipes ASTM A53-96 Grade 240 MPa

CONCRETE

Conform to NBCC and CAN/CSA-A23.3-M latest edition.

Cement shall conform to CAN/CSA-A5 Portland Cement Type 10 Normal UNO. Use corrosive resistant cement where applicable.

The specified compressive strength of concrete shall be 30 MPa.

- Reinforcing Steel CAN/CSA-G30.18-M Billet Steel Bars for Concrete Reinforcement
- Deformed Type Billet Steel Bar $f_y = 400$ MPa

2.3 ELECTRICAL

Reference: Dwg.'s A0-18-002, A0-18-SK01, A0-18-SK02, A0-18-SK03 and A0-18-SK04 in Appendix A.

2.3.1 POWER SUPPLY

Local power is supplied by Yukon Energy Corporation (YEC) from a five megawatt hydroelectric dam near Mayo, YK.

2.3.2 ESTIMATED LOADS

The estimated loads for the mill building are 1.5 megawatt. Underground loads for Onek and Bellekeno are estimated at 1.0 megawatt.

2.3.3 DESIGN CONSIDERATIONS

Five basic electrical drawings were produced as part of this study in order to capture the major features of the three proposed sites. These drawings are included in Appendix A.

The site plan A0-18-002 shows the major electrical features existing along with the approximate locations for the three sites.

Single Line Diagram (SLD) A0-18-SK01 is an attempt to capture the existing electrical infrastructure and is based on documents received and from communication with Alexco staff.

The three modified single line diagrams each describe the major electrical features for each location.

It is important to note that the focus of the electrical cost estimate is to identify the relative costs for the three proposed sites that are attributable to the site locations.

For instance, common costs such as the new mill building electrical distribution systems themselves are not relevant to the location cost trade off study and are not developed at this level.

It is anticipated that any mill building location will require a substantial amount of power relative to the capacity of the existing YEC generation and distribution system in the area.

In the context of a small or weak electrical system, there will be constraints upon equipment operation as the larger connected loads can adversely affect other connected customers. Also, large loads at the end of power lines as will exist in these cases may experience a wide variation in voltage due to the weak power systems.

From previous discussions with Alexco, WEI understand YEC may be considering reinforcing their line with local generation plants to manage some of these issues described above.

For these reasons, as information regarding the selected location and projected load is obtained, input from YEC will be very important in terms of project capital cost development, operating cost and scheduling.

3.0 EVALUATION

3.1 LOCATION #1 - MACKENO (CHRYSTAL LAKE) SITE

HAUL AND ACCESS ROADS

The haul roads for the Mackeno option are shown on drawing A0-20-SK06; they consist of HR1, HR2, part of the Silvertrail road, HR 3A, 5A, 5C, 5D and 5E.

The design criteria is presented in Table 2-1.

GEOTECHNICAL / STRUCTURAL

Based on geotechnical findings submitted by EBA, it is anticipated that, providing the existing fill meets the particle size distribution as stated, it can be excavated and compacted over competent bedrock. Otherwise, the existing fill is to be removed, with waste rock to be placed and compacted over competent bedrock. Building footings are to be founded on the compacted fill over competent bedrock pending additional data collection to finalize the design. EBA considers this site suitable for the construction of a mill. This allows a relatively economical option for the foundation.

POWER DISTRIBUTION

Reference: Dwg. A0-18-SK02 in Appendix A.

Power to this site is anticipated to involve a tap into the existing 69 kV pole line passing within 1 km of the proposed mill building site. A power line will extend from that point to the new mill building.

At the mill building site, a substation yard will be required with an incoming overhead line termination structure, a primary disconnecting means, a step-down transformer, metering, protection and civil work as required. Note that the cost estimate includes an allowance for the step down transformer to have an on-line tap changer feature to maintain a stable voltage at the mill building site.

3.2 LOCATION #2 - ONEK SITE

HAUL AND ACCESS ROADS

The haul roads for the Onek option are shown on drawing A0-20-SK07; they consist of HR 4, 5B, 5C, 5D and 5E.

However, in addition to the above haul roads, the Onek option will require access roads along the routes of HR 3A and 5A in order to efficiently receive supplies and ship concentrate. These are shown on drawing A0-20-SK07.

The design criteria is presented in Table 2-1.

GEOTECHNICAL / STRUCTURAL

Based on geotechnical findings submitted by EBA, it is anticipated that building footings are to be founded on shallow bedrock located near the access ramp of the existing pit. Otherwise, pile foundation down to competent bedrock could be considered for structures on waste rock fill in this area. Assuming the mill is to be located on area near the access ramp where shallow bedrock is expected to be encountered, this provides an economical scheme to support these structures.

POWER DISTRIBUTION

Reference: Dwg. A0-18-SK03 in Appendix A.

Current planning by Alexco includes modifications to the existing 6.9 kV pole line (upgrading to 25 kV) leaving the existing Onek substation and routing towards Bellekeno.

To accommodate this planning, the Onek substation will require a 25 kV secondary new transformer to supply power to this overhead line. Allowances are made within the cost estimate to upgrade the Onek substation to a 25 kV secondary transformer substation with similar features as per Location #1.

Another substation will be required at the Onek mill building site in order to step the 25 kV voltage level down to usable mill voltages.

Modifications elsewhere to accommodate this 25 kV change are assumed to be the same for any location and therefore are not relevant to the costs of the location trade-off study.

3.3 LOCATION #3 – BELLEKENO SITE

HAUL AND ACCESS ROADS

Hauling of coarse ore will be over only a short distance at the mine site.

However, in order to efficiently receive supplies and ship product, access roads for the Bellekeno option will be required along the routes of HR 3A, 5A, 5C, 5D and 5E. These are shown on drawing A0-20-SK08.

The design criteria is presented in Table 2-1.

GEOTECHNICAL / STRUCTURAL

The geotechnical report submitted by EBA states that permafrost is likely to exist on this site. With warm permafrost it will be difficult to prevent permafrost degradation below the mill building. As such, EBA recommends building foundations to be supported on rock socketed steel pipe piles extending into bedrock. Given BH12 was advanced to 18 m, the drill lost circulation in the boreholes and prevent the return of cutting to the surface without encountering bedrock, EBA recommends additional drilling to determine the depth of bedrock and corresponding pile design for this site. Without geotechnical confirmation of bedrock elevation, WEI assumes a total pile length of 25 m to derive a scoping cost model for comparison. This option is considered to be significantly more expensive with inherit higher risk than the other sites considered.

POWER DISTRIBUTION

Reference: Dwg. A0-18-SK04 in Appendix A.

Similar to Location #2, the Bellekeno costs are developed using an upgraded Onek substation feeding a new substation at the Bellekeno site via the 25 kV power line.

Modifications elsewhere to accommodate this 25 kV change are assumed to be the same for any location and therefore are not relevant to the costs of the location trade-off study.

4.0 BASIS OF ESTIMATE

4.1 ESTIMATE BASE CURRENCY

The estimate has been prepared with CAN\$ as the base currency.

4.2 LABOUR RATE DEVELOPMENT

An average blended labour rate of CDN\$78.00 was utilized for the estimate.

The following activities are included in the above labour rate calculation as a percentage of the base rate:

- Base Rates – include basic rate (based on combined union and non-union)
- Payroll burdens (employment insurance, vacation pay, etc.)
- Overtime shift premium rates are included.
- Contractors field supervision which includes managers, general foremen, secretarial and office personnel (overhead).
- Office supplies, running costs and vehicle costs (overhead)
- Small tools and consumables
- Contractors profit and home office overhead included as a percentage.
- All additional construction equipment, cranes and incidental equipment rentals are included in the individual line items of the estimate.
- Freight costs relating to contractors materials are included in the mobilization and freight sections.

4.3 LABOUR PREMIUMS

Scheduled site hours are 7 days x 10 hours = 70 hours (40 hours x 1 and 30 hours x 1.5). Turn-arounds are based on a 4 weeks in, 2 weeks out basis for non-local personnel.

4.3.1 PRODUCTIVITY

A productivity factor of 1.15 has been applied to the normal labour hours for the capital cost estimate. This is reflective of normal Northern construction productivity.

4.3.2 PROJECT INDIRECTS

CONSTRUCTION INDIRECTS

These include mobilization and demobilization, temporary power and water, temporary sewage treatment, garbage disposal, temporary toilet, medical and first aid, safety and security, travel and transportation of construction forces to site and project final clean up.

Construction spares for electrical materials and equipment have been allowed for at 5% of the total cost of these items.

Construction first fills and warehouse inventory are excluded.

Allowances have been made to cover construction freight which includes delivery of construction materials and electrical equipment.

Commissioning and start-up are excluded.

A percentage of 8% has been allowed for construction, engineering and procurement.

A percentage of 6% has been allowed for construction management by the owner's team.

4.3.3 CONTINGENCIES

An average of 15% contingency has been added to the direct and indirect costs.

4.3.4 GENERAL ITEMS

For the road construction and earthworks it is assumed that a local contractor will perform the work. All construction equipment is priced within the rates.

An allowance is included for mobilization and setup of concrete batch plant. All production from the batch plant (concrete) is included in the concrete rates.

The mobile crushing plant is included in the structural back fill rates.

An average rate of CDN\$918 per m³ has been used for the supply and installation of concrete which includes concrete materials, reinforcing, formwork and concrete finishing. Concrete costing is based on site mixed concrete from a batching plant.

5.0 COST ESTIMATE

5.1 CAPITAL COSTS

Summarized in Table 5-6 below are the total capital costs.

Table 5-6: Total Capital Costs

Description	A – Mackeno Total	B – Onek Total	C – Bellekeno Total
DIRECT COSTS			
Mill Building Pads	311,507	984,036	855,629
Power Supply & Distribution	917,890	1,260,070	1,254,630
Site Roads	2,446,389	2,330,322	2,132,030
Mill Building (96m x 24m) Foundations	1,607,483	1,607,483	7,813,569
Surge Bin (550t) Foundations – Deleted	--	--	--
Conveyors (Approx L=110m) Foundations	42,792	42,792	313,656
DIRECT COSTS SUB-TOTAL	5,326,061	6,224,703	12,369,514
INDIRECT COSTS			
Project Indirects	1,341,223	1,544,688	2,884,598
Contingencies	1,000,093	1,165,409	2,288,117
INDIRECT COSTS SUB-TOTAL	2,341,315	2,710,096	5,172,715
OPTION TOTALS	7,667,377	8,934,799	17,542,229

5.2 OPERATING COSTS

5.2.1 HAULAGE COSTS

Haulage costs were based on haulage cost calculations provided by the client. The cost is based on 613,000 tonnes mined over a five year period from only the Bellekeno Portal.

Haulage costs calculations were provided by the client and were based on recent rock haulage from Bardusens Placer to Galkeno 900.

The average haulage cost based on a one way distance was calculated by the client to be \$0.42 per tonne per km.

The overall haulage cost for Bellekeno to Mackeno was calculated by WEI to be CAD\$3.19 per tonne ore. The overall haulage cost for Bellekeno to Onek was calculated by WEI to be CAD\$1.79 per tonne ore.

Table 5-7: Overall Haulage Costs

Description	A – Mackeno Total	B – Onek Total	C – Bellekeno Total
Operating Cost (Haulage)	1,952,608	1,100,316	-

5.3 COST ESTIMATE SUMMARY

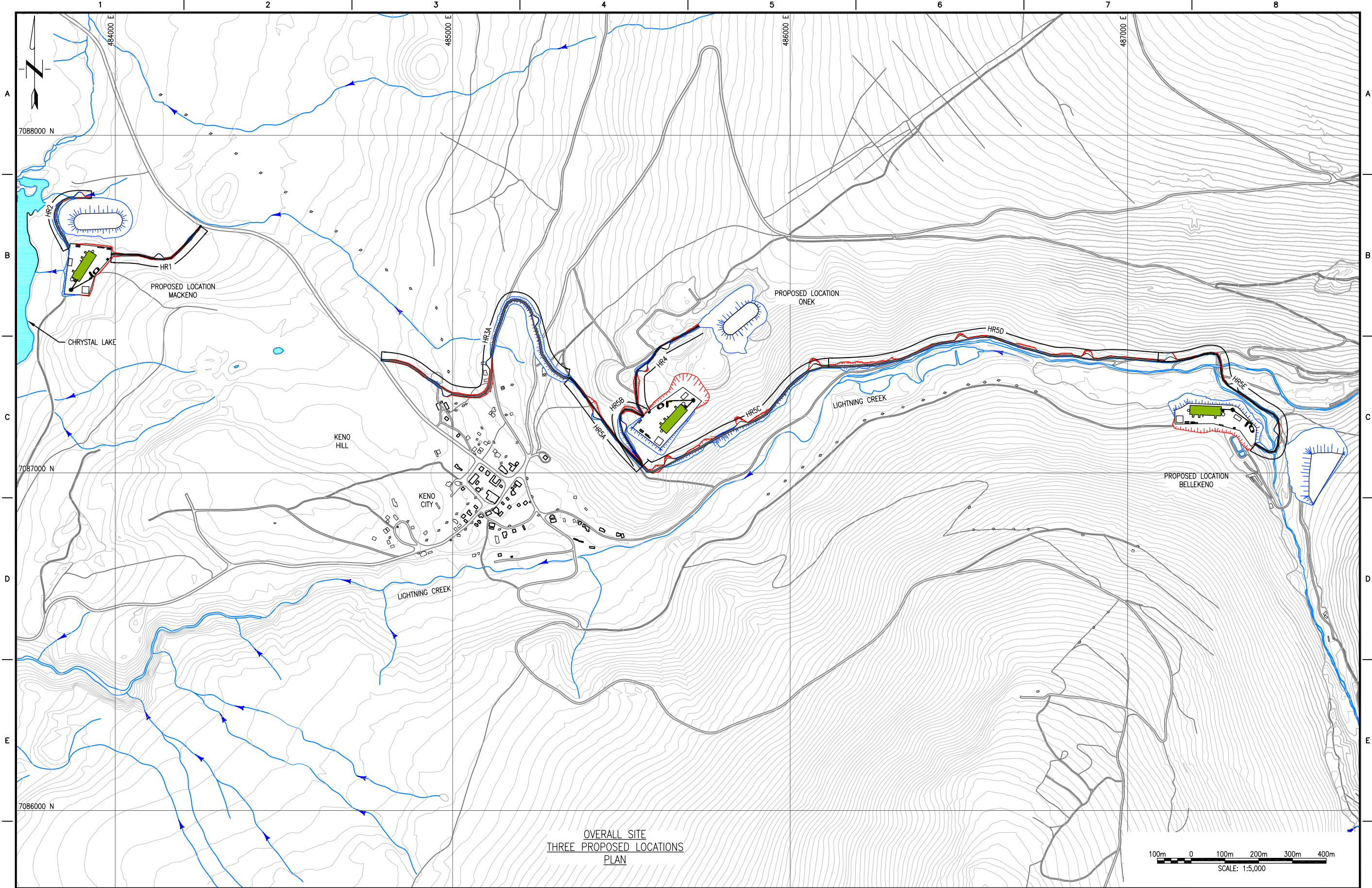
Summarized in Table 1-8 below are the total capital and operating costs.

Table 5-8: Total Capital and Operating Costs

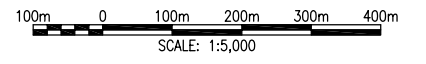
Description	A – Mackeno Total	B – Onek Total	C – Bellekeno Total
Capital Cost	7,667,377	8,934,799	17,542,229
Operating Cost (Haulage)	1,952,608	1,100,316	-

APPENDIX A

DRAWINGS



OVERALL SITE
THREE PROPOSED LOCATIONS
PLAN



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DWG. NO.	REFERENCE DRAWINGS

CLIENT	PROJ. NO.	PROJ. NAME	ELECTR.	MECH.	STRUC.	ARCH.	LANDSCAPE	ENVIRONMENTAL	HYDROLOGICAL	OTHER	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
											A	1	ISSUED FOR LOCATION TRADE-OFF STUDY	08DEC08	MWG

SECTION:	SCALE:	DATE:	DESIGN BY:	DRAWN BY:	CHECK BY:	APP. BY:
CIVIL	1:5,000	05DEC08	MWG	MWG		

YUKON TERRITORY

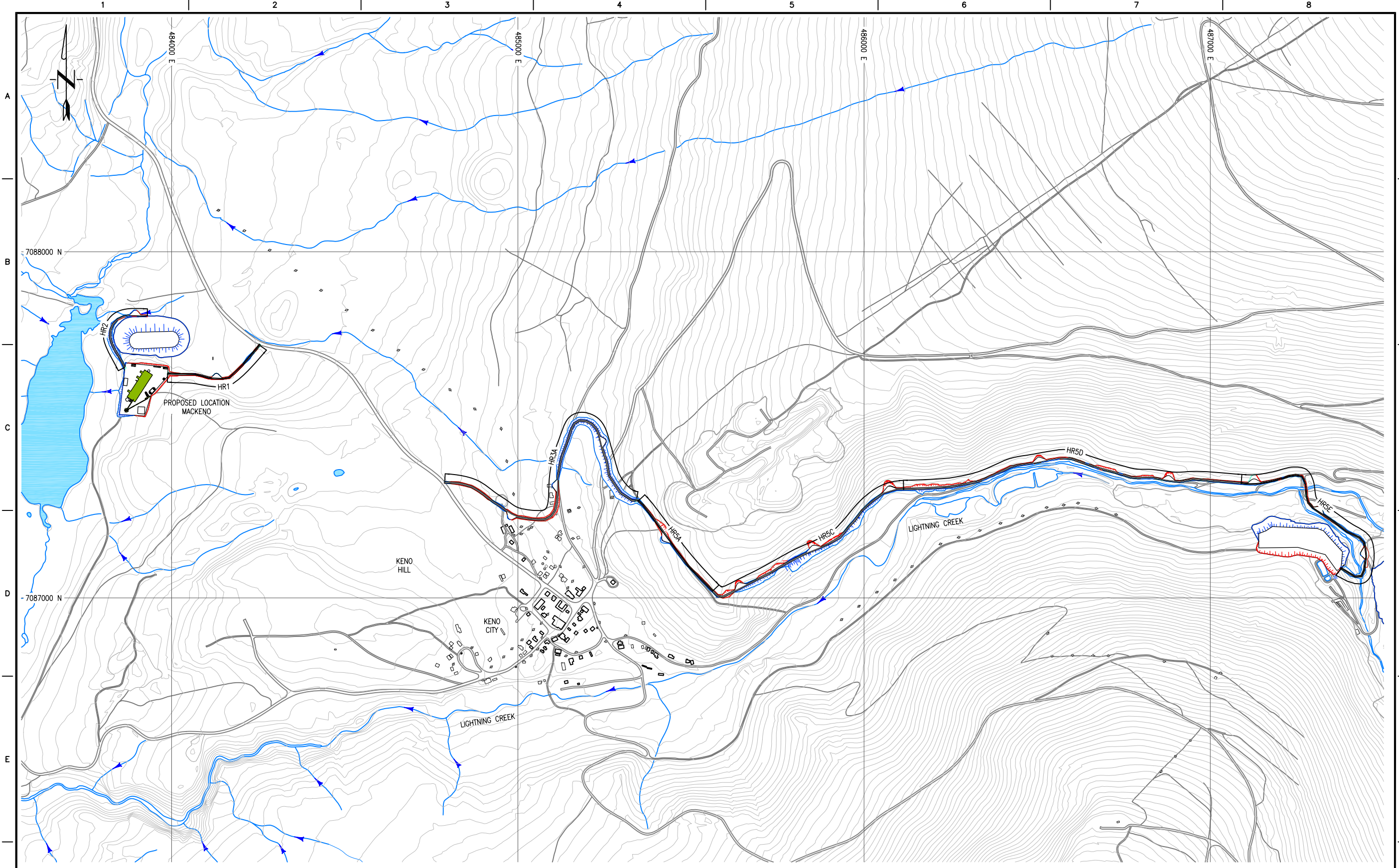


ALEXCO

WARDROP Engineering Inc.

FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A020SK05.DWG	08539602.00	A0-20-SK05	A

TITLE: **BELLEKENO PROJECT (ONGOING ENG. ASSIST.)**
 LOCATION TRADE-OFF STUDY
 THREE PROPOSED LOCATIONS
 SITE ROADS
 PLAN



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DWG. NO.	REFERENCE DRAWINGS

CLIENT	PROGRAM	PROCESS	ELECTR.	MECHAN.	PLUMB.	STRUCT.	SEWER/S.	ARCH.	LANDSC.	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
										A	1	ISSUED FOR LOCATION TRADE-OFF STUDY	08DEC08	MWG

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CHECK BY:	
APP. BY:	

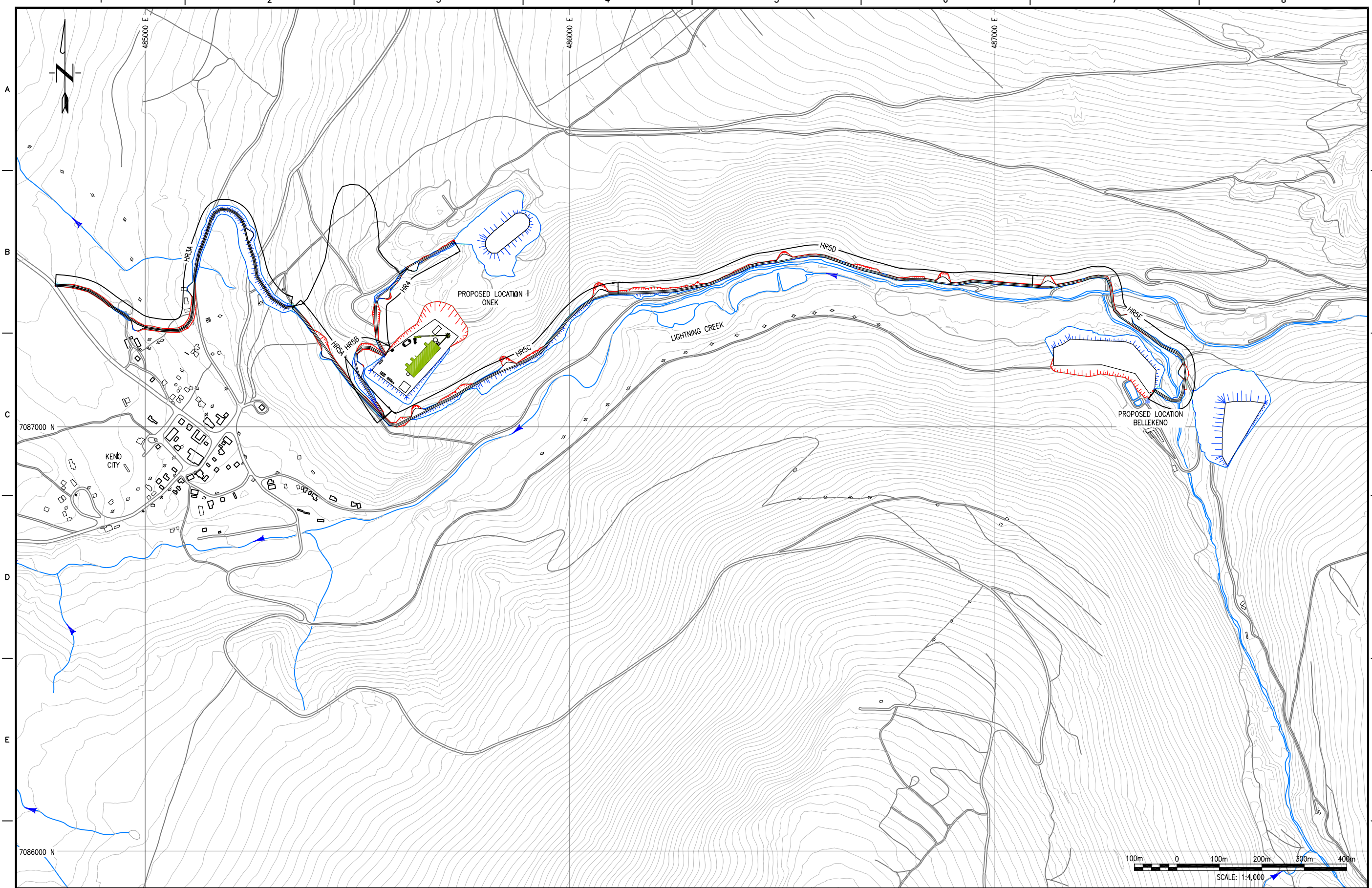
YUKON TERRITORY



ALEXCO

WARDROP Engineering Inc.

TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY			
SITE ROADS			
MACKENO PROPOSED LOCATION PLAN			
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A020SK06.DWG	08539602.00	A0-20-SK06	A



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DWG. NO.	REFERENCE DRAWINGS

CLIENT	PROGRAM	PROCESS	ELECTRICAL	MECHANICAL	STRUCTURAL	SEWER/STORM	ARCHITECTURE	LANDSCAPE	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
									A	1	ISSUED FOR LOCATION TRADE-OFF STUDY	08DEC08	MWG

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CHECK BY:	
APP. BY:	

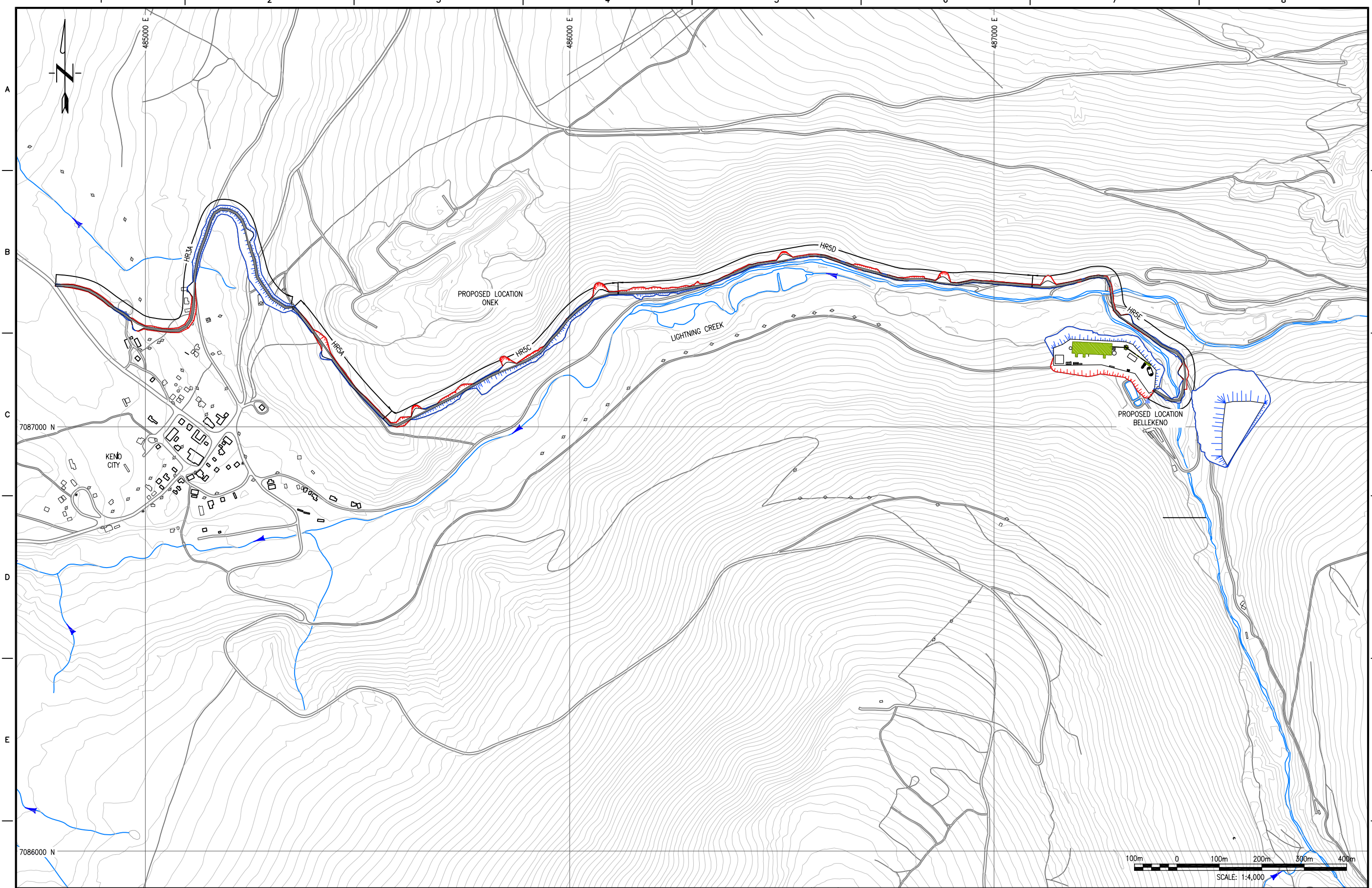
YUKON TERRITORY



ALEXCO

WARDROP Engineering Inc.

TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY			
SITE ROADS			
ONEK PROPOSED LOCATION PLAN			
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A020SK07.DWG	08539602.00	A0-20-SK07	A



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DWG. NO.	REFERENCE DRAWINGS

CLIENT	PROGRAM	PROCESS	ELECTRICAL	MECHANICAL	STRUCTURAL	SEWERAGE	ARCHITECTURE	LAYOUT	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
									A	1	ISSUED FOR LOCATION TRADE-OFF STUDY	08DEC08	MWG

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CHECK BY:	
APP. BY:	

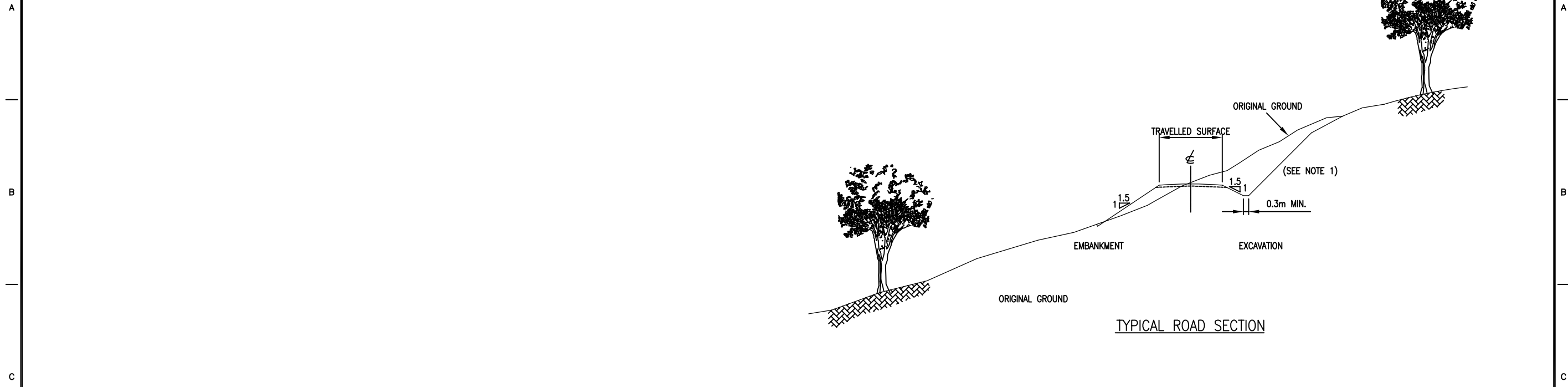
YUKON TERRITORY



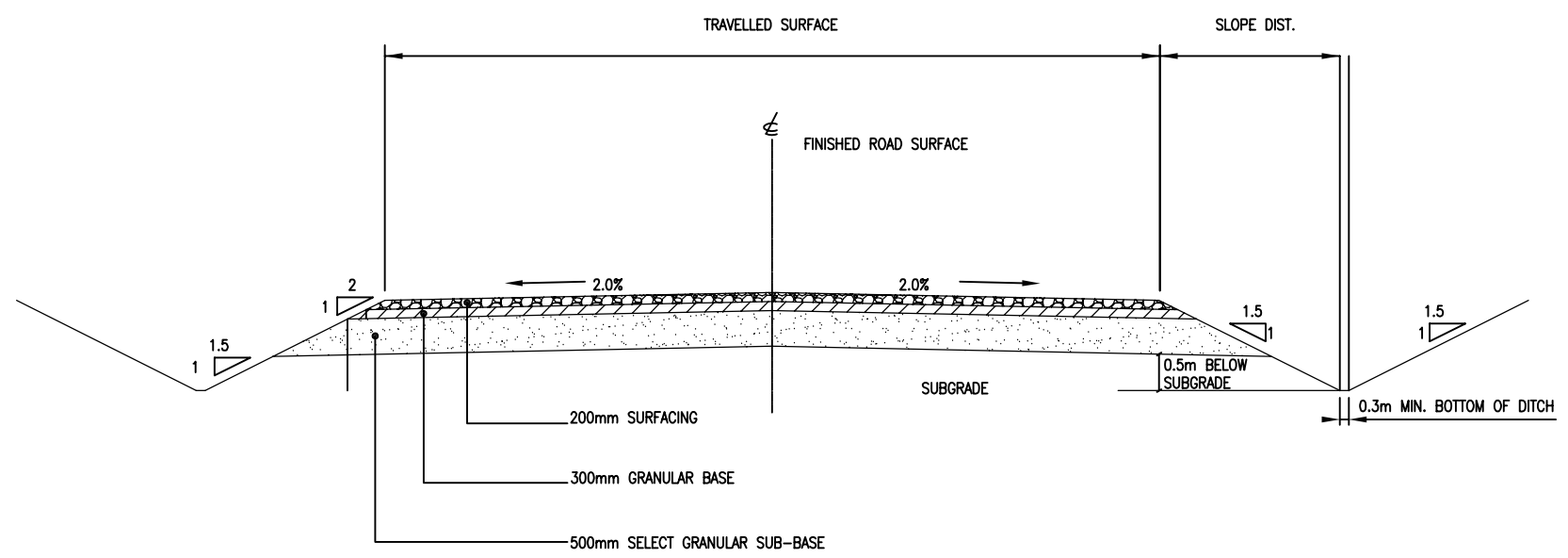
ALEXCO

WARDROP Engineering Inc.

TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY			
SITE ROADS			
BELLEKENO PROPOSED LOCATION PLAN			
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A020SK08.DWG	08539602.00	A0-20-SK08	A



TYPICAL ROAD SECTION



TYPICAL ROAD STRUCTURE

NOTES:

1. REFERENCE SHALL BE MADE TO GEOTECHNICAL REPORTS. PRIOR TO CONSTRUCTION, THERE SHOULD BE A GEOTECHNICAL REVIEW BY THE GEOTECHNICAL ENGINEER TO CONFIRM CUT & FILL SLOPES, REFINE SUPPORT OR ROCKFALL PROTECTION REQUIREMENTS, AND IDENTIFY ANY SPECIAL CONSTRUCTION CONSIDERATIONS.

THE INFORMATION CONTAINED ON THIS DRAWING HAS BEEN PREPARED SOLELY FOR THE OWNER FOR USE ON THIS PROJECT AND IS COPYRIGHTED. ANY UNAUTHORIZED USE OF THIS INFORMATION IS A BREACH OF COPYRIGHT AND WILL BE PURSUED AS SUCH. USE OF THE INFORMATION ON THIS DRAWING IN WHOLE OR IN PART OTHER THAN FOR THE INTENDED PURPOSE IS AT THE SOLE RISK OF THE USER.

DWG. NO.	REFERENCE DRAWINGS
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CLIENT	PROGRAM	PROCESS	ELECTRICAL	MECHANICAL	STRUCTURAL	SEWER	ARCH	LANDSCAPE	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
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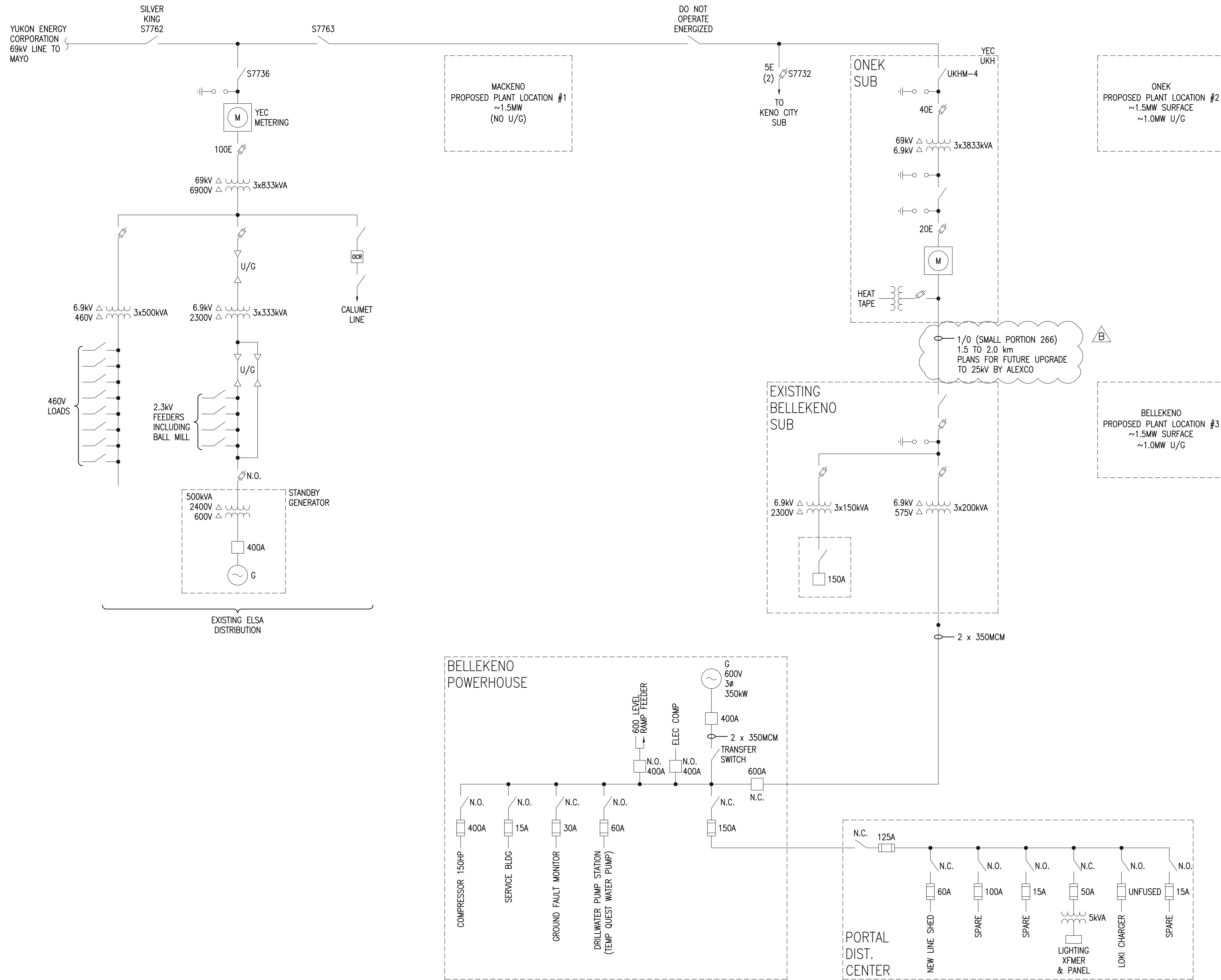
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DATE:	
DESIGN BY:	MWG
08DEC08	
DRAWN BY:	MWG
08DEC08	
CHECK BY:	
APP. BY:	

YUKON TERRITORY



WARDROP Engineering Inc.

TITLE BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY SITE ROADS TYPICAL ROAD SECTIONS			
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A020SK09.DWG	08539602.00	A0-20-SK09	A



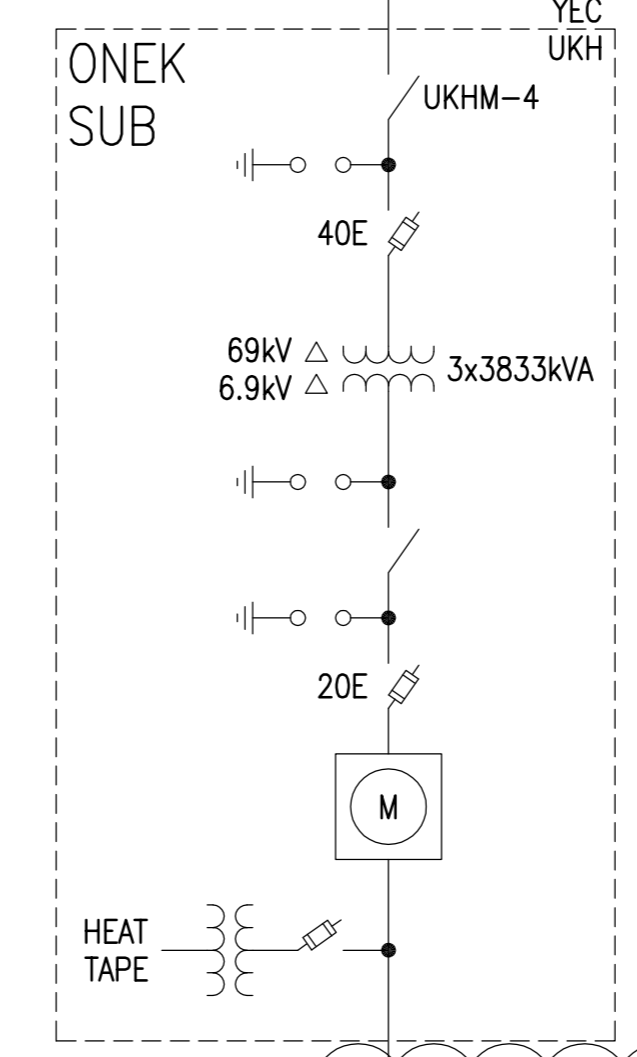
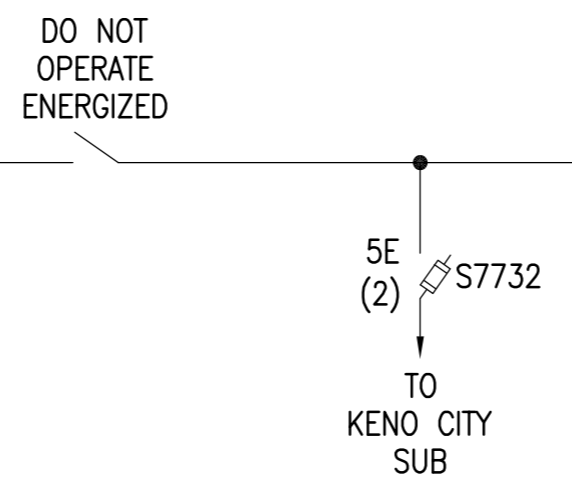
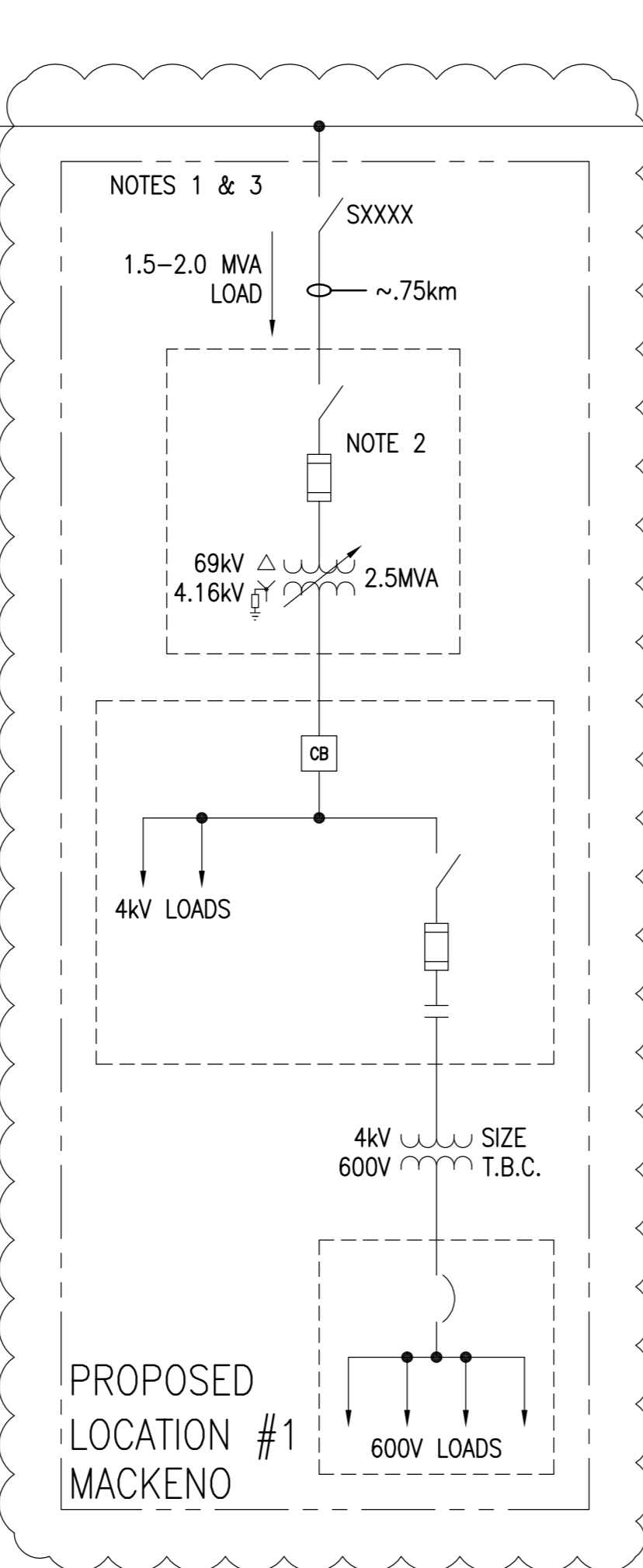
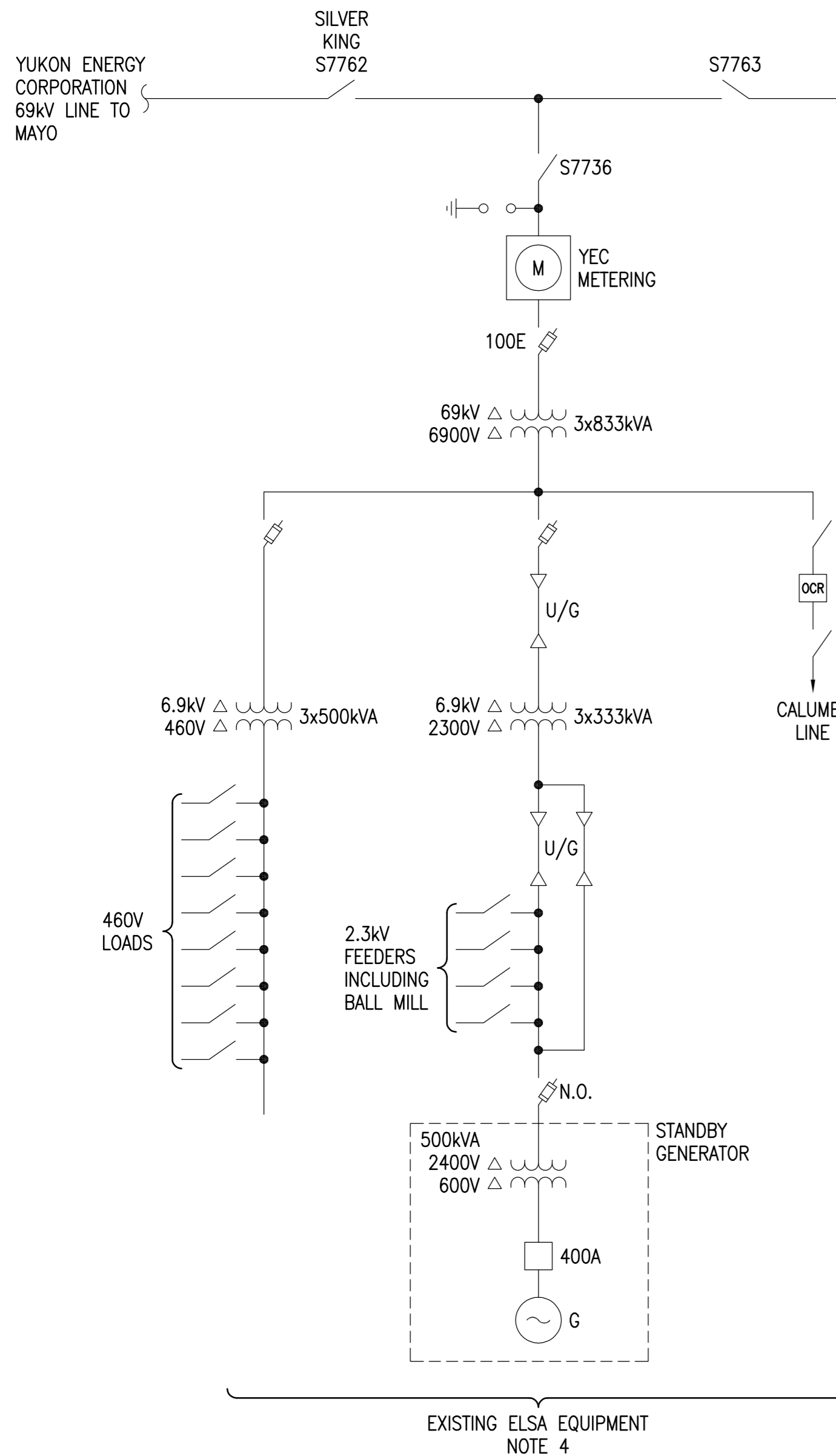
NOTES:
 1. REDRAWN FROM CUSTOMER DRAWING.

THE INFORMATION CONTAINED ON THIS DRAWING HAS BEEN PREPARED SOLELY FOR THE OWNER FOR USE ON THIS PROJECT AND IS COPYRIGHTED. ANY UNAUTHORIZED USE OF THIS INFORMATION IS A BREACH OF COPYRIGHT AND WILL BE PURSUED AS SUCH. USE OF THE INFORMATION ON THIS DRAWING IN WHOLE OR IN PART OTHER THAN FOR THE INTENDED PURPOSE IS AT THE SOLE RISK OF THE USER.	DWG. NO.	REFERENCE DRAWINGS
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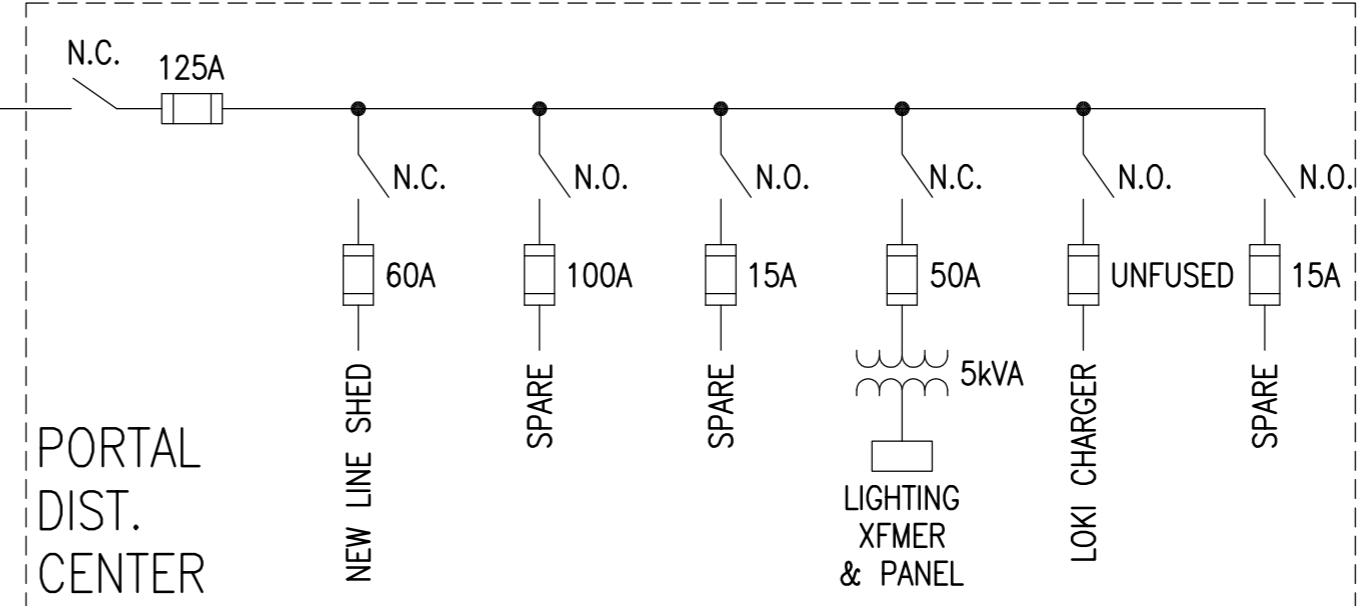
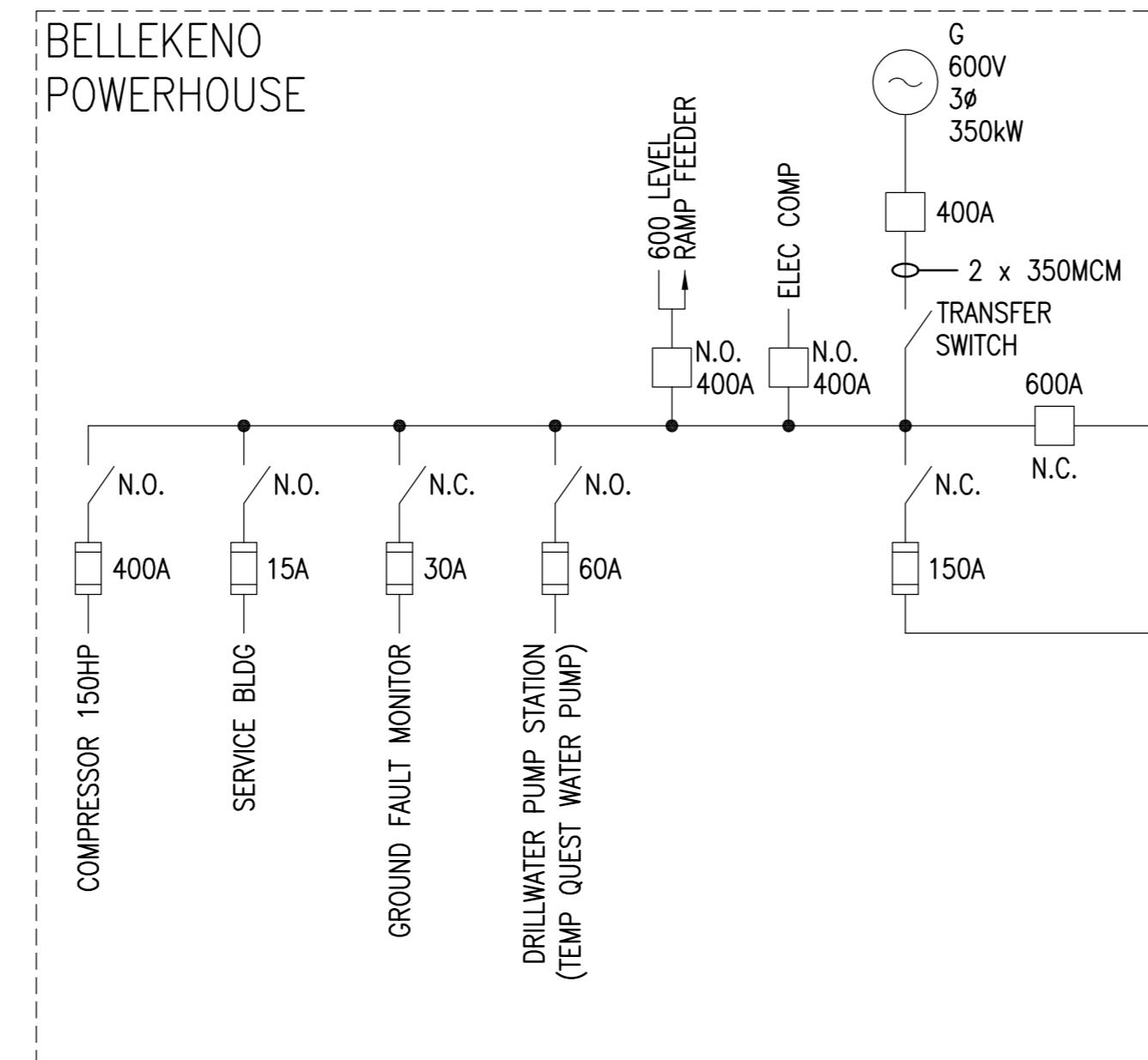
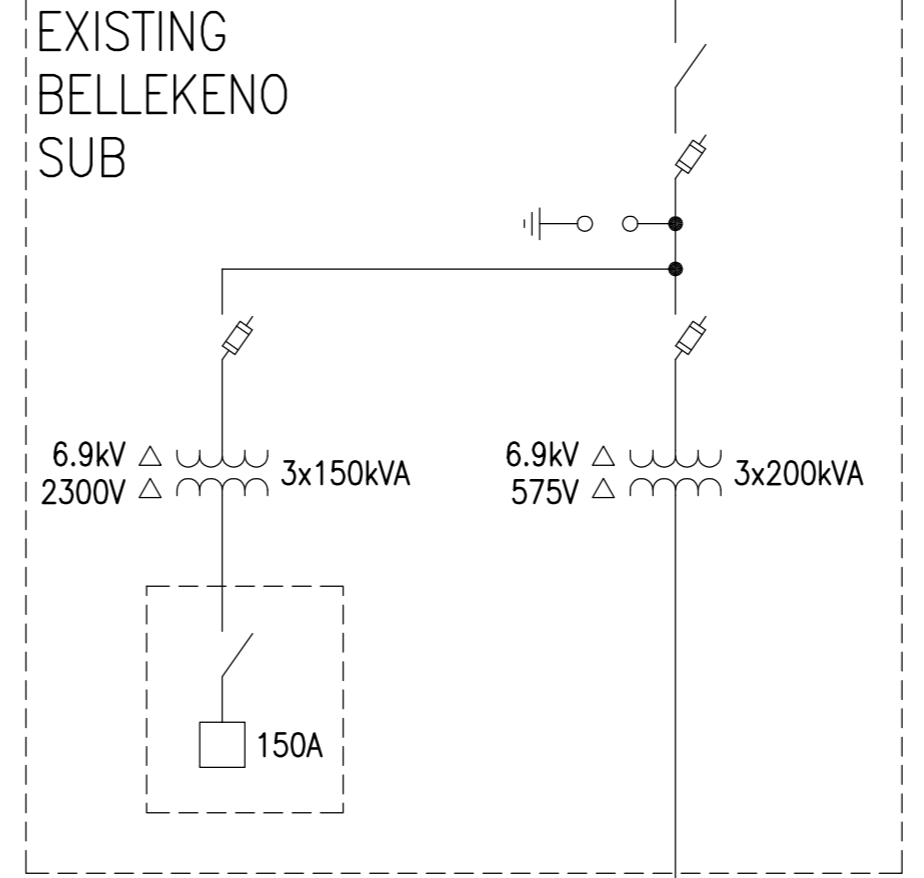
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										B	1	ISSUED FOR LOCATION TRADE-OFF STUDY	28NOV08	GI
										A	1	ISSUED FOR CLIENT COMMENTS	24NOV08	GI

SECTION: ELECTRICAL	YUKON TERRITORY
SCALE: NONE	DATE: 20NOV08
DESIGN BY: GI	DRAWN BY: SEO
CHECK BY:	APP. BY:
ALEXCO	
WARDROP Engineering Inc.	

TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY EXISTING SINGLE LINE DIAGRAM			
FILENAME: A018SK01.DWG	PROJECT NUMBER: 08539602.00	DRAWING NUMBER: A0-18-SK01	REV. B



1/0 (SMALL PORTION 266)
1.5 TO 2.0 km
PLANS FOR FUTURE UPGRADE TO 25KV BY ALEXCO. NO UPGRADE MODIFICATIONS SHOWN ON THIS DRAWING.



- NOTES:**
1. YEC METERING LOCATION TO BE CONFIRMED.
 2. PRIMARY PROTECTION/ISOLATION METHOD TO BE CONFIRMED.
 3. LOADS & SERVICE TO BE CONFIRMED WITH YEC.
 4. EXTENT OF REUSE OF EQUIPMENT TO BE CONFIRMED.

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CLIENT	PROJ. NO.	PROCESS	ELECTR.	INSTR.	PIPING	MECH.	STRUCT.	SERVICES	ARCH.	LAYOUT	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
											B 1	1	ISSUED FOR LOCATION TRADE-OFF STUDY	28NOV08	GI
											A 1	1	ISSUED FOR CLIENT COMMENTS	24NOV08	GI

SECTION: ELECTRICAL

SCALE: NONE DATE: 20NOV08

DESIGN BY: GI

DRAWN BY: SEO

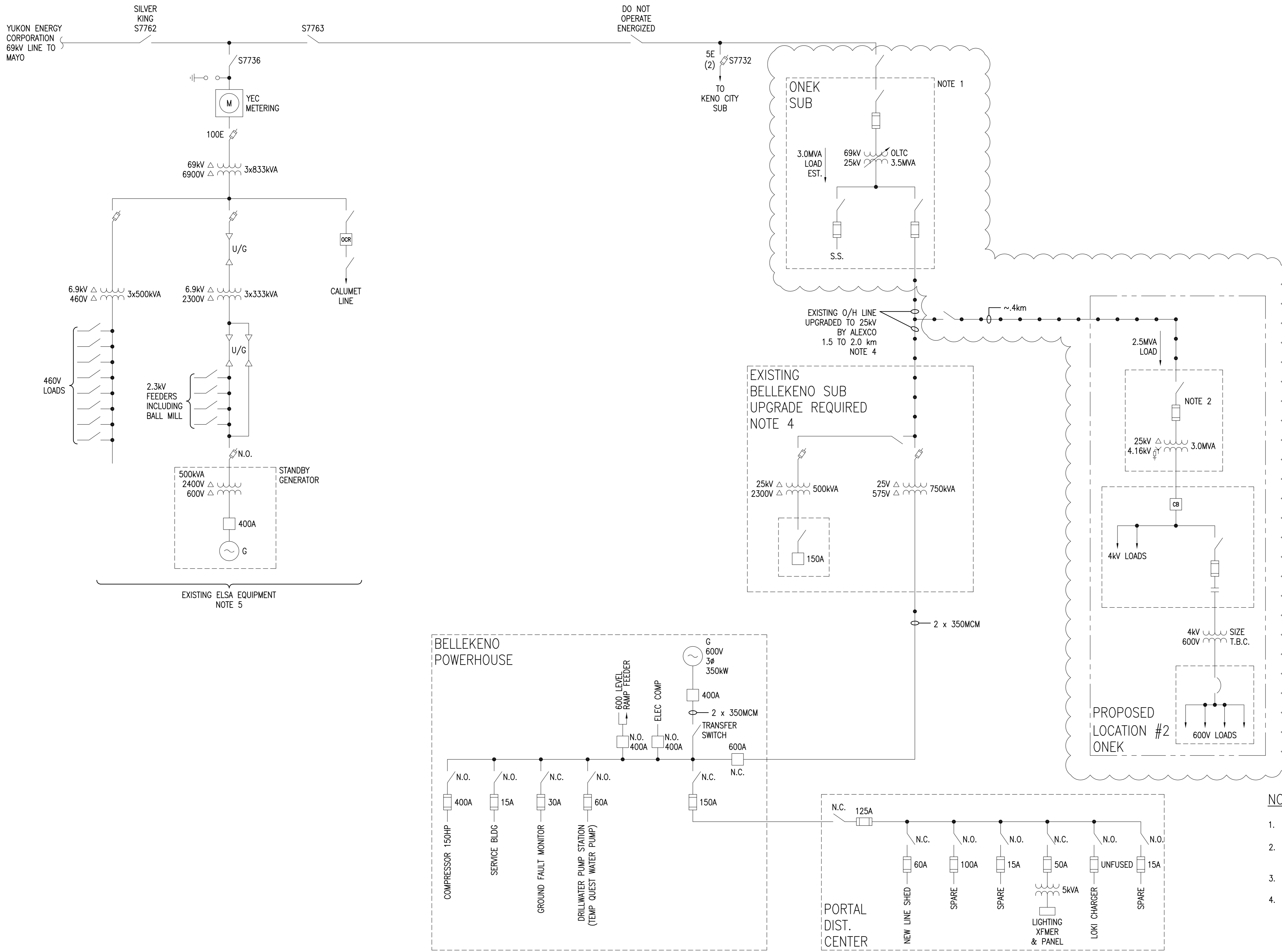
CHECK BY:

APP. BY:

YUKON TERRITORY

WARDROP Engineering Inc.

TITLE	FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
BELLEKENO PROJECT (ONGOING ENG. ASSIST.) LOCATION TRADE-OFF STUDY PROPOSED LOCATION #1 - MACKENO SINGLE LINE DIAGRAM	A018SK02.DWG	08539602.00	A0-18-SK02	B



- NOTES:**
1. YEC METERING LOCATION TO BE CONFIRMED.
 2. PRIMARY PROTECTION/ISOLATION METHOD TO BE CONFIRMED.
 3. LOADS & SERVICE TO BE CONFIRMED WITH YEC.
 4. PLANNED 25kV LINE UPGRADE COSTS AND ANY NECESSARY DOWNSTREAM MODIFICATIONS NOT RELEVANT TO RELATIVE ELECTRICAL COSTS ON LOCATION TRADE OFFS.

THE INFORMATION CONTAINED ON THIS DRAWING HAS BEEN PREPARED SOLELY FOR THE OWNER FOR USE ON THIS PROJECT AND IS COPYRIGHTED. ANY UNAUTHORIZED USE OF THIS INFORMATION IS A BREACH OF COPYRIGHT AND WILL BE PURSUED AS SUCH. USE OF THE INFORMATION ON THIS DRAWING IN WHOLE OR IN PART OTHER THAN FOR THE INTENDED PURPOSE IS AT THE SOLE RISK OF THE USER.		DWG. NO. REFERENCE DRAWINGS		CLIENT: ALEXCO PROJECT: BELLEKENO PROCESS: ELECTRICAL INST. PIPING MECH. STRUCT. SERVICES ARCH. LAYOUT		B 1 ISSUED FOR LOCATION TRADE-OFF STUDY A 1 ISSUED FOR CLIENT COMMENTS		28NOV08 GI 24NOV08 GI		SECTION: ELECTRICAL SCALE: NONE DATE: 20NOV08 DESIGN BY: GI DRAWN BY: SEO CHECK BY: APP. BY:		YUKON TERRITORY 		TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.) LOCATION TRADE-OFF STUDY PROPOSED LOCATION #2 - ONEK SINGLE LINE DIAGRAM			
FILENAME: A018SK03.DWG PROJECT NUMBER: 08539602.00 DRAWING NUMBER: A0-18-SK03 REV. B		08/12/08		1807		1807		1807		1807		1807		1807			

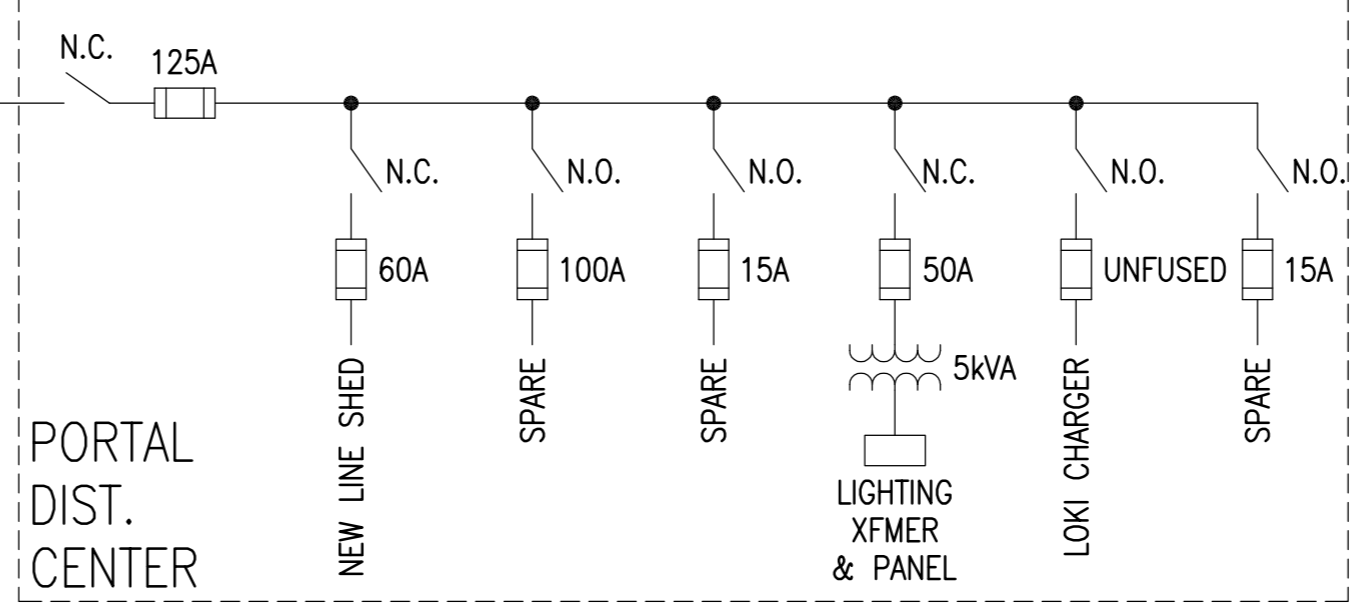
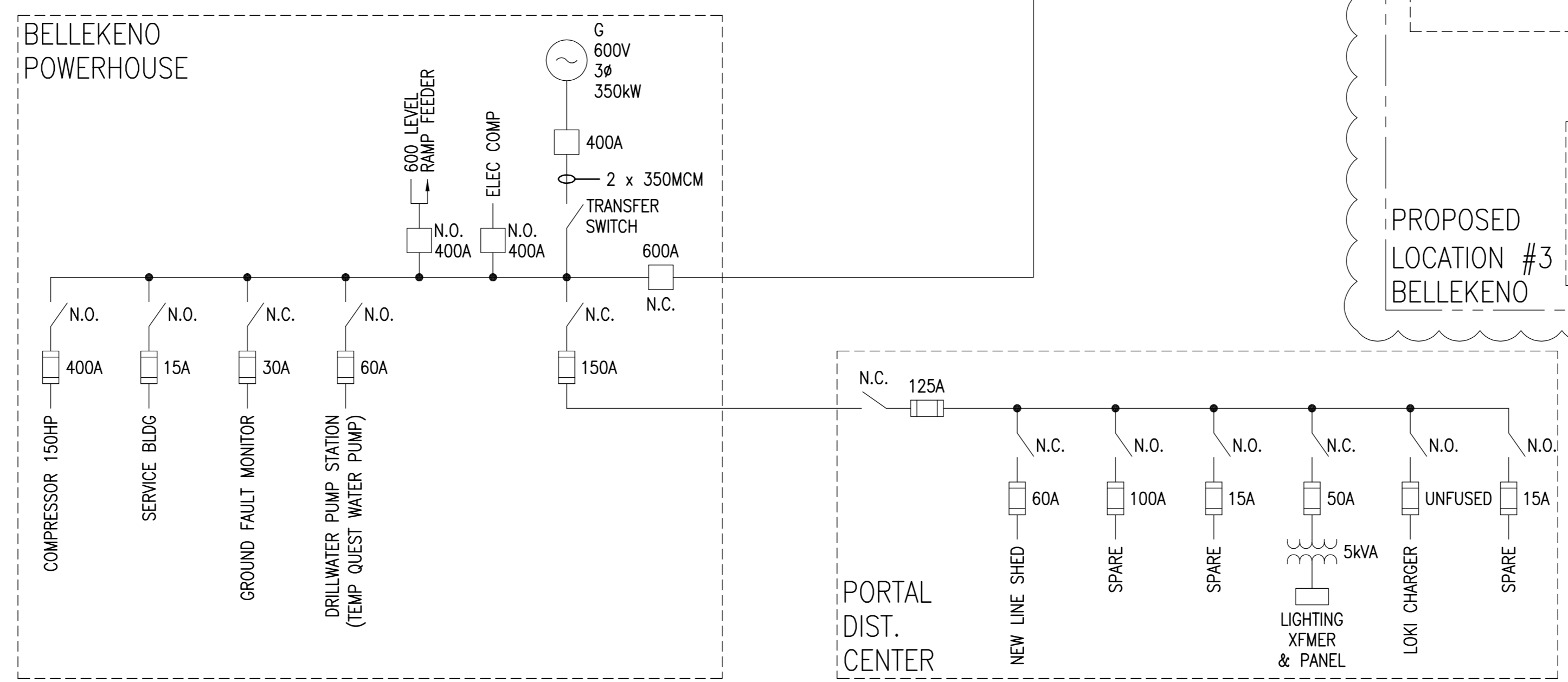
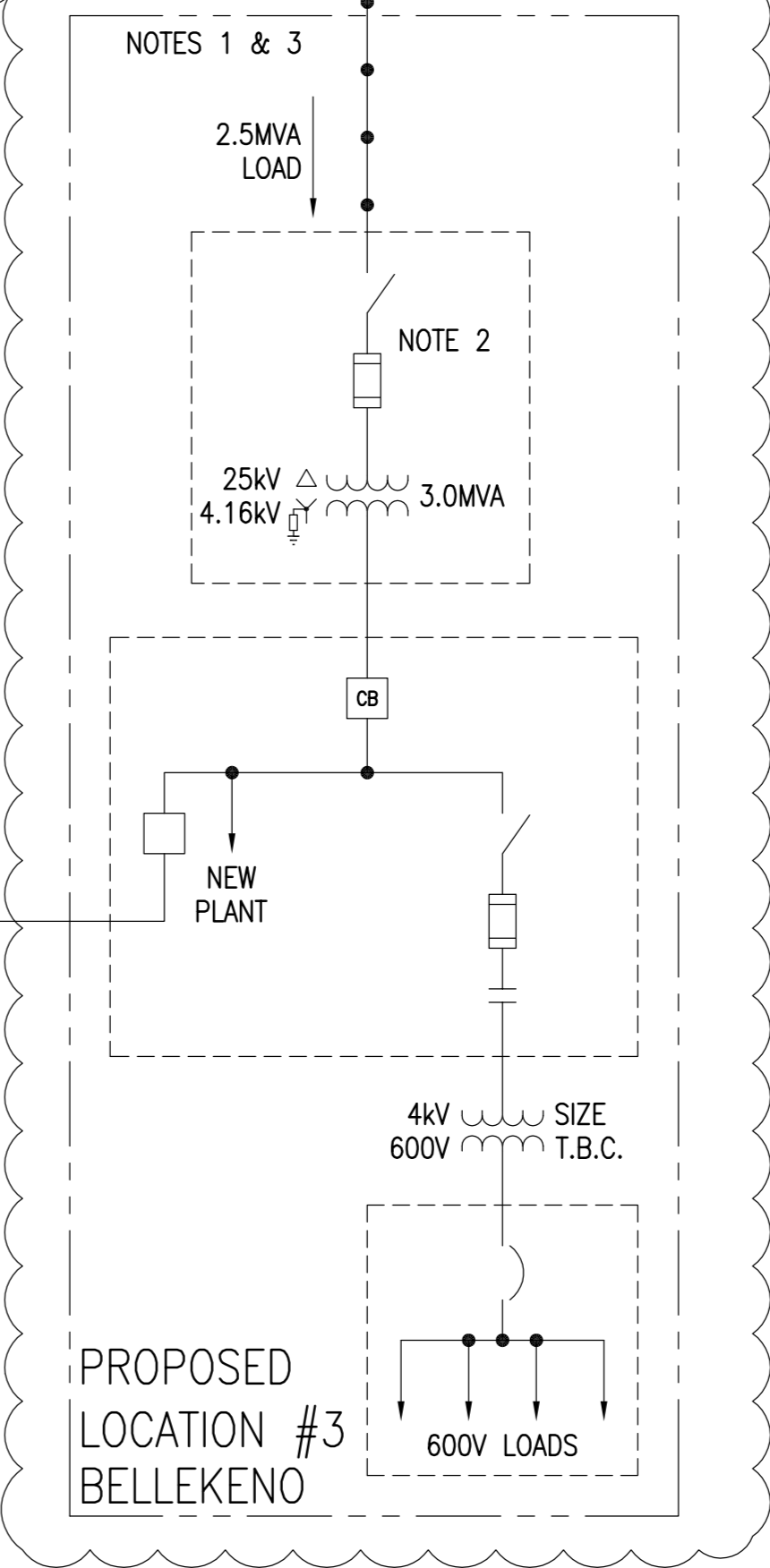
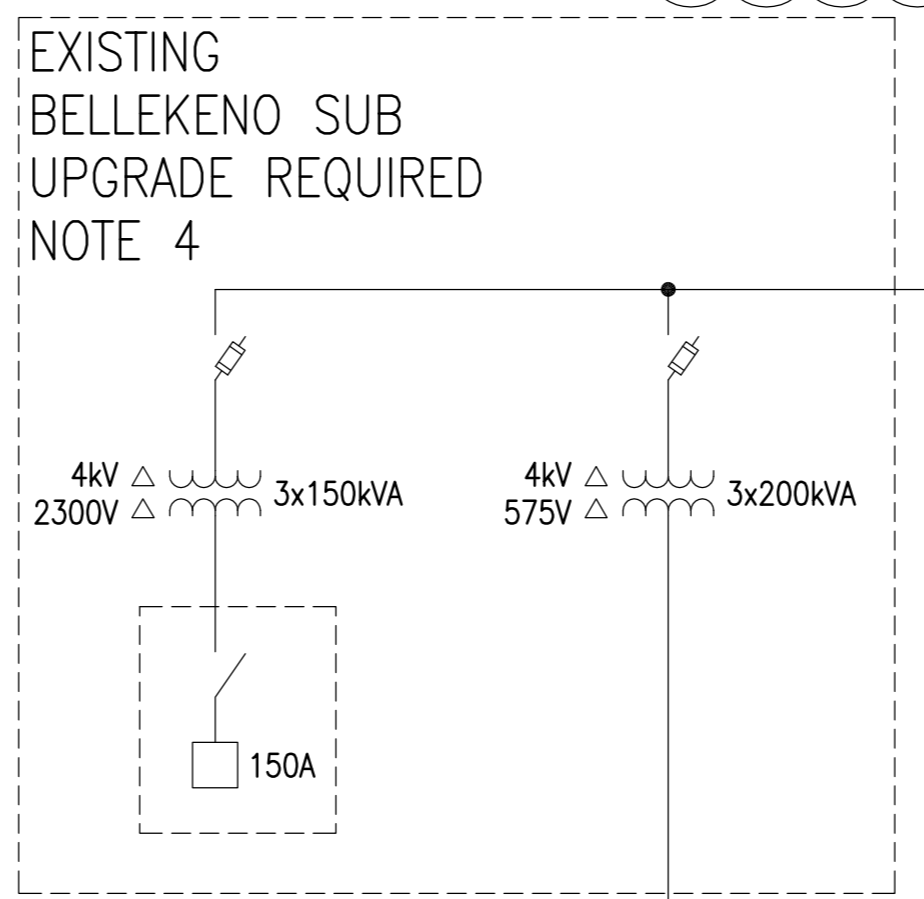
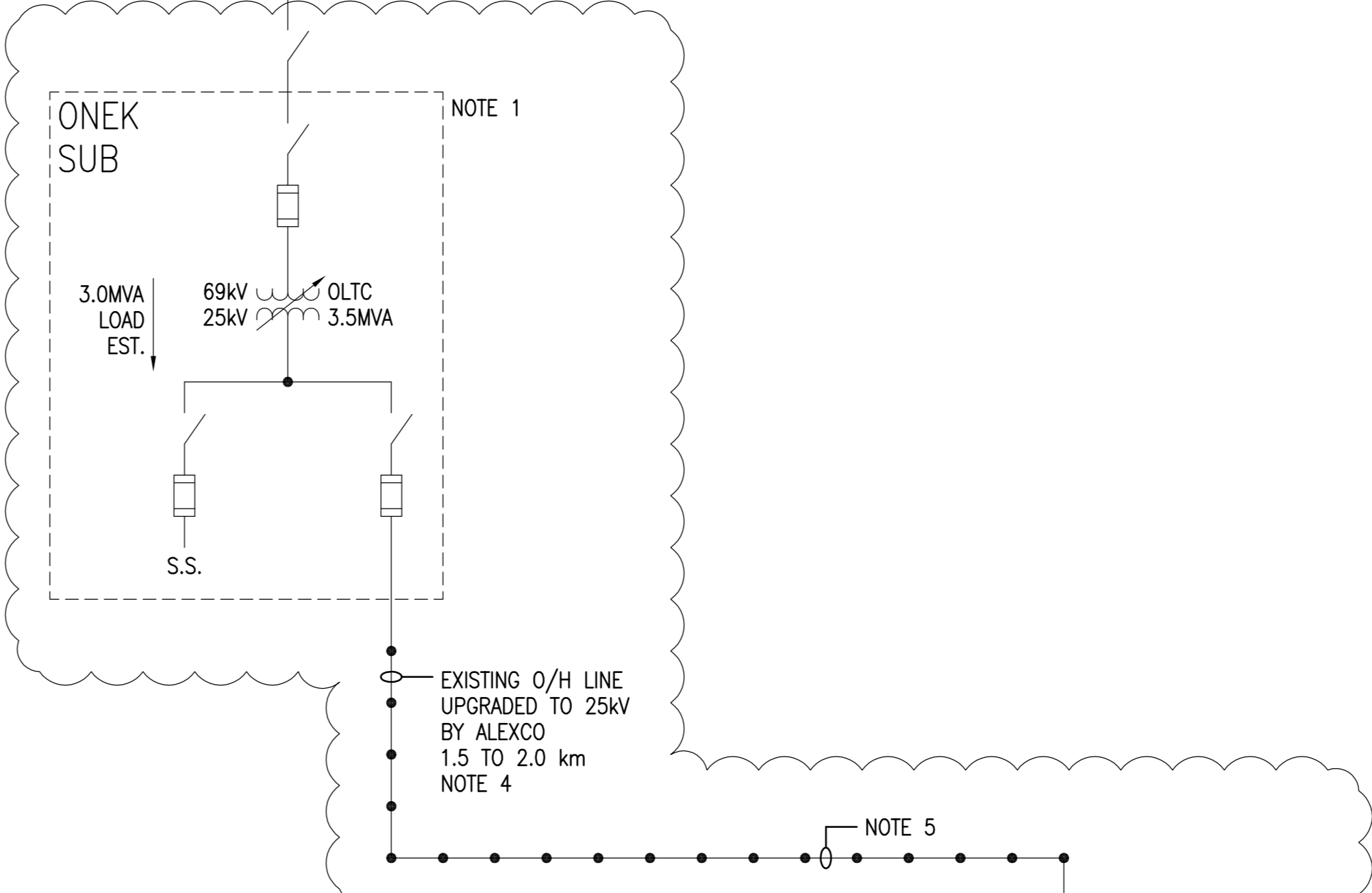
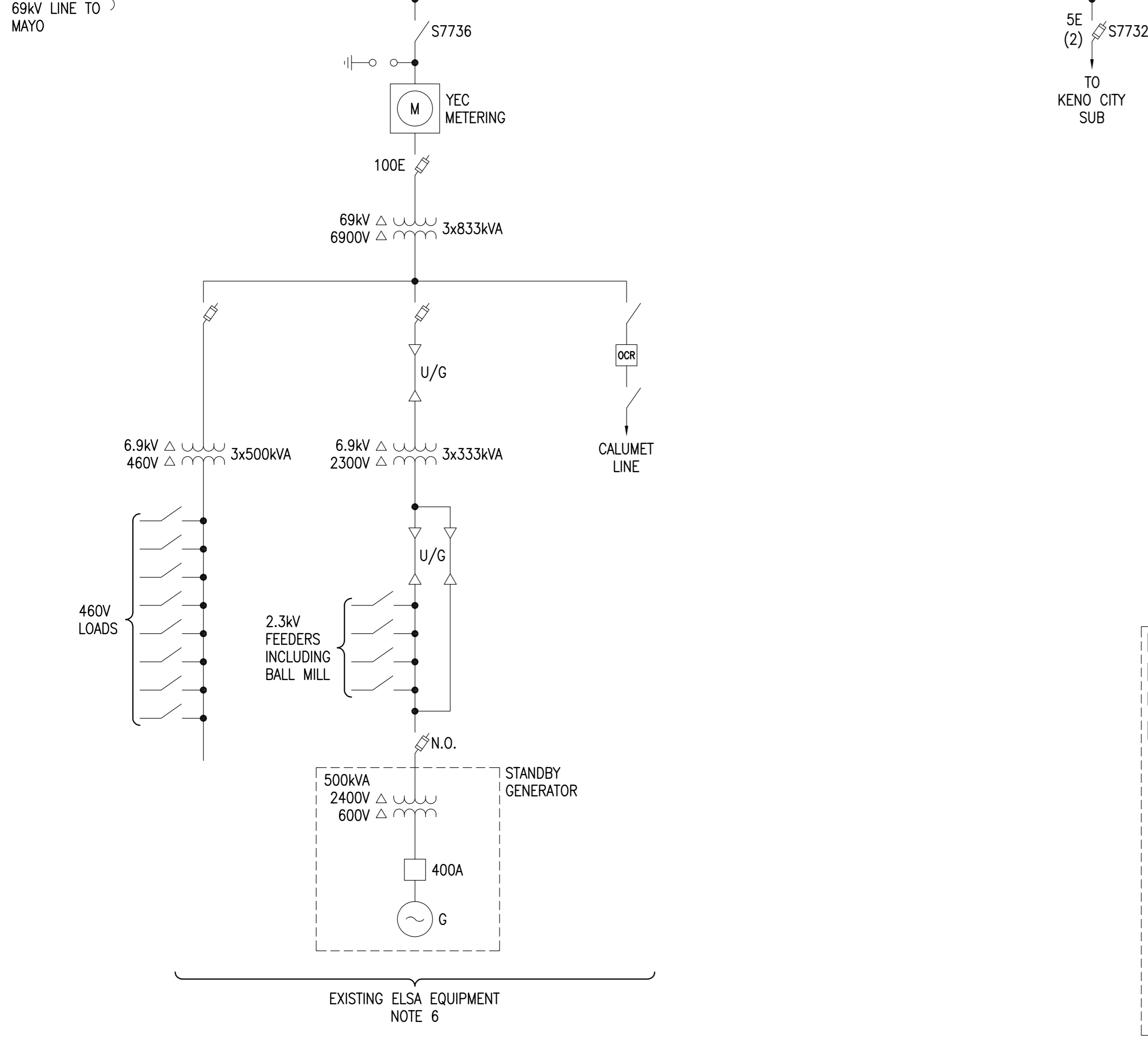
YUKON ENERGY CORPORATION
69KV LINE TO MAYO

SILVER KING S7762

S7763

DO NOT OPERATE ENERGIZED

5E (2) S7732 TO KENO CITY SUB



- NOTES:**
1. YEC METERING LOCATION TO BE CONFIRMED.
 2. PRIMARY PROTECTION/ISOLATION METHOD TO BE CONFIRMED.
 3. LOADS & SERVICE TO BE CONFIRMED WITH YEC.
 4. PLANNED 25KV LINE UPGRADE COSTS AND ANY NECESSARY DOWNSTREAM MODIFICATIONS NOT RELEVANT TO RELATIVE ELECTRICAL COSTS ON LOCATION TRADE OFFS.

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DWG. NO.	REFERENCE DRAWINGS
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CLIENT	PROJMAN	PROJENG	PROCESS	ELECTR.	INSSTR.	MECH.	STRUCT.	SERVICES	ARCH.	LAYOUT	REV. No.	ISSUE No.	DESCRIPTION	DATE	BY
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											A 1	1	ISSUED FOR CLIENT COMMENTS	24NOV08	GI

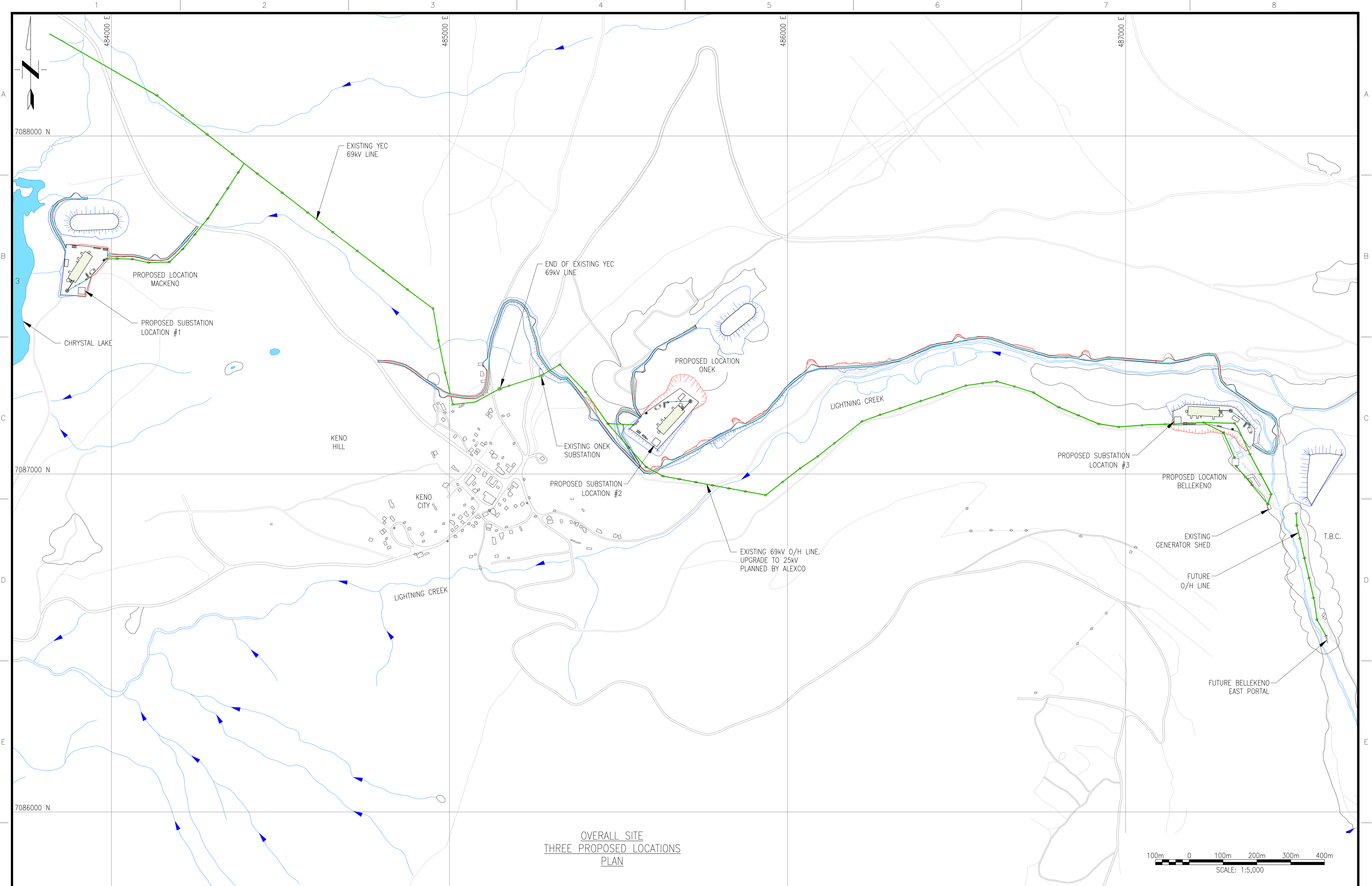
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20NOV08	
DRAWN BY:	SEO
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APP. BY:	

YUKON TERRITORY

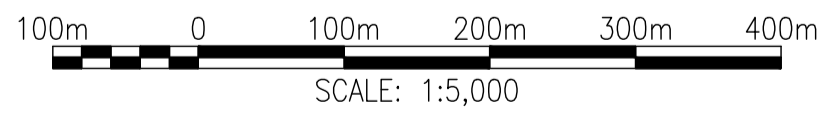
ALEXCO

WARDROP Engineering Inc.

TITLE	BELLEKENO PROJECT (ONGOING ENG. ASSIST.)		
	LOCATION TRADE-OFF STUDY		
	PROPOSED LOCATION #3 - BELLEKENO		
	SINGLE LINE DIAGRAM		
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A018SK04.DWG	08539602.00	A0-18-SK04	B



OVERALL SITE
THREE PROPOSED LOCATIONS
PLAN



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DWG. NO.	REFERENCE DRAWINGS
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CLIENT	PROJ. MAN.	PROJ. ENG.	PROCESS	ELECTR.	INSSTR.	MACH.	STRUC.	SERVICES	ENVIRONMENTAL	PLANNING	OTHER
REV. No.	ISSUE No.	DESCRIPTION	DATE	BY							
B	1	ISSUED FOR LOCATION TRADE-OFF STUDY	28NOV08	GI							
A	1	ISSUED FOR CLIENT COMMENTS	24NOV08	GI							

SECTION:	ELECTRICAL
SCALE:	1:5,000
DATE:	
DESIGN BY:	AT 03NOV08
DRAWN BY:	AT 03NOV08
CHECK BY:	
APP. BY:	

YUKON TERRITORY

ALEXCO

WARDROP Engineering Inc.

TITLE: BELLEKENO PROJECT (ONGOING ENG. ASSIST.)			
LOCATION TRADE-OFF STUDY THREE PROPOSED LOCATIONS ELECTRICAL INFRASTRUCTURE LAYOUT			
FILENAME	PROJECT NUMBER	DRAWING NUMBER	REV.
A018SK05.DWG	08539602.00	A0-18-SK05	B

APPENDIX B

TRUCKING HAULAGE COSTS



WARDROP | Engineering Inc.

**LOCATION TRADE-OFF STUDY
BELLEKENO PROJECT**

December 16, 2008
08539602.00

Haulage Costs Calculations (provided by Alexco)

Assumptions - Based on recent rock haul from Bardusens placer to Galkeno 900			
Average Hourly Rate (truck + operator)		\$ 75.00	no profit direct operating costs
Productivity		12 trips per day	- single truck
Capacity rock truck		25 tonnes	
One way distance		6 kilometers	
Hours/day		10	assume operating hours including breaks
Daily cost		\$750.00	
Tonnes per day		300	
tonne/km		4.17	tonnes x one way haul distance
		62.50	average \$ per ROUND trip
		150.00	average tonne-kilometers
\$/tonne/km		\$0.42	/tonne/km (one way dist)
Bellekeno Resource Tonnes Mined/Milled		613,000	tonnes
	Year	1	250 tpd
	Year	2	250 tpd
	Year	3	400 tpd
	Year	4	400 tpd
	Year	5	400 tpd
Onek Resource Tonnes Mined/Milled		-	tonnes
<i>60 km/hr Av speed of truck (includes stops, loading, etc, etc)</i>			

Feasibility Study	One way km Ore to Mill	One way km Tails backfill	One way km Paste Backfill	One way ore tonnes	One way tails tonnes	One Way PBF tonnes	TPD Ore	TPD Tails	TPD Paste BackFill to aul UG	\$/tonne Ore	\$/tonne Tails	\$/tonne PBF	Total Annual	Total Bellekeno Project	Overall \$/tonne ore	Overall Cost Haulage
<i>Ore only from the Bellekeno LOM</i>																
A Mackeno Mill	4.58	0.25	4.58	30.00	30.00	30.00	400.00	140.00	260.00	\$1.91	\$0.10	\$1.91	\$458,687.80	\$2,155,832.64	\$3.19	\$1,952,608
B Onek Mill	2.53	0.37	2.53	30.00	30.00	30.00	400.00	140.00	260.00	\$1.06	\$0.15	\$1.06	\$258,475.59	\$1,214,835.29	\$1.79	\$1,100,316

APPENDIX C

DETAILED CAPITAL COST ESTIMATE



ALEXCO

WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY
BELLEKENO PROJECT

December 17, 2008
08539602.00

OPTION A -Mackeno Location with Bellekeno Deposit (New Road via Onek)

Description	Qty	Unit	Mhr rate	Manh's	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
\$ 78.00												
MILL BUILDING												
Clear and grub	1.7	ha	45.00	77	\$ 78	\$ 5,967	\$ -	\$ -	\$ 4,000	\$ 6,800	\$ 7,510.00	\$ 12,767
Excavate and remove topsoil, av. 300mm deep	4,930	m3	0.03	148	\$ 78	\$ 11,536	\$ -	\$ -	\$ 4.20	\$ 20,706	\$ 6.54	\$ 32,242
Excavate and remove unsuitable material	3,970	m3	0.04	159	\$ 78	\$ 12,386	\$ -	\$ -	\$ 4.50	\$ 17,865	\$ 7.62	\$ 30,251
Rock excavation - rippable rock	2,650	m3	0.08	212	\$ 78	\$ 16,536	\$ -	\$ -	\$ 6.00	\$ 15,900	\$ 12.24	\$ 32,436
Rock excavation - drill and blast	1,860	m3	0.25	465	\$ 78	\$ 36,270	\$ 2.50	\$ 4,650	\$ 8.00	\$ 14,880	\$ 30.00	\$ 55,800
Excess fill to stockpile	11,994	m3	0.04	480	\$ 78	\$ 37,421	\$ -	\$ -	\$ 4.00	\$ 47,976	\$ 7.12	\$ 85,397
Cut to Fill Compacted	5,986	m3	0.07	419	\$ 78	\$ 32,684	\$ -	\$ -	\$ 5.00	\$ 29,930	\$ 10.46	\$ 62,614
Imported Fill (or from borrowpit) Compacted	0	m3	0.08	-	\$ 78	\$ -	\$ -	\$ -	\$ 5.00	\$ -	\$ -	\$ -
TOTAL MILL BUILDING				1,959		\$ 152,800		\$ 4,650		\$ 154,057		\$ 311,507
POWER SUPPLY & DISTRIBUTION												
OH Line												
69 kV Switch allowance	1	ea	100	100	\$ 78	\$ 7,800	\$ 25,000	\$ 25,000	\$ 500	\$ 500	\$ 33,300.00	\$ 33,300
69kV OH Line (budget \$200K per km)	0.90	km	-	-	\$ 78	\$ -	\$ 250,000	\$ 225,000	\$ 2,000	\$ 1,800	\$ 252,000.00	\$ 226,800
Upgrade of existing 6.9kV line												
25kV OH Line												
25kV Switch allowance												
0.4kV Feeder allowance												
Modifications of Existing Onek Substation												
Incoming structure/switch	0	lot										\$ -
Circuit switcher allowance (confirm requirements)	0	lot										\$ -
3.5 MVA Transformer c/w OLTC	0	lot										\$ -
Civil allowance incl fencing	0	lot										\$ -
Protection/building	0	lot										\$ -
Substation Allowance - New Equipment												
Incoming structure/switch	1	lot	40	40	\$ 78	\$ 3,120	\$ 80,000	\$ 80,000	\$ 250	\$ 250	\$ 83,370.00	\$ 83,370
Circuit switcher allowance (confirm requirements)	1	lot	40	40	\$ 78	\$ 3,120	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 53,370.00	\$ 53,370
Transformer c/w OLTC	1	lot	100	100	\$ 78	\$ 7,800	\$ 275,000	\$ 275,000	\$ 650	\$ 650	\$ 283,450.00	\$ 283,450
Civil allowance incl fencing	1	lot	200	200	\$ 78	\$ 15,600	\$ 100,000	\$ 100,000	\$ 2,000	\$ 2,000	\$ 117,600.00	\$ 117,600
Protection/building	1	lot	50	50	\$ 78	\$ 3,900	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 54,150.00	\$ 54,150
Yard Grounding	1	lot	200	200	\$ 78	\$ 15,600	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 65,850.00	\$ 65,850
TOTAL POWER SUPPLY & DISTRIBUTION				730		\$ 56,940		\$ 855,000		\$ 5,950		\$ 917,890
SITE ROADS												
Road modifications, tie-ins etc	1	sum	300.00	300	\$ 78	\$ 23,400	\$ 50,000	\$ 50,000	\$ 30,000.00	\$ 30,000	\$ 103,400.00	\$ 103,400
Clear and grub	7.7	ha	45.00	347	\$ 78	\$ 27,027	\$ -	\$ -	\$ 4,000	\$ 30,800	\$ 7,510.00	\$ 57,827
Excavate and remove topsoil, av. 300mm deep	23,040	m3	0.03	691	\$ 78	\$ 53,914	\$ -	\$ -	\$ 4.20	\$ 96,768	\$ 6.54	\$ 150,682



WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY
BELLEKENO PROJECT

December 17, 2008
08539602.00

OPTION A -Mackeno Location with Bellekeno Deposit (New Road via Onek)

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
					\$ 78.00							
Excavate and remove unsuitable material	3,790	m3	0.04	152	\$ 78	\$ 11,825	\$ -	\$ -	\$ 4.50	\$ 17,055	\$ 7.62	\$ 28,880
Rock excavation - rippable rock	2,530	m3	0.08	202	\$ 78	\$ 15,787	\$ -	\$ -	\$ 6.00	\$ 15,180	\$ 12.24	\$ 30,967
Rock excavation - drill and blast	1,770	m3	0.25	443	\$ 78	\$ 34,515	\$ 2.50	\$ 4,425	\$ 8.00	\$ 14,160	\$ 30.00	\$ 53,100
Excess fill to stockpile	0	m3	0.04	-	\$ 78	\$ -	\$ -	\$ -	\$ 4.00	\$ -	\$ -	\$ -
Cut to Fill Compacted	17,170	m3	0.07	1,202	\$ 78	\$ 93,748	\$ -	\$ -	\$ 5.00	\$ 85,850	\$ 10.46	\$ 179,598
Imported Fill (or from borrowpit) Compacted	94,814	m3	0.08	7,585	\$ 78	\$ 591,639	\$ -	\$ -	\$ 5.00	\$ 474,070	\$ 11.24	\$ 1,065,709
Sub-base	19,646	m3	0.06	1,179	\$ 78	\$ 91,943	\$ -	\$ -	\$ 4.50	\$ 88,407	\$ 9.18	\$ 180,350
Base (300mm minus)	11,788	m3	0.08	943	\$ 78	\$ 73,557	\$ 6.00	\$ 70,728	\$ 5.00	\$ 58,940	\$ 17.24	\$ 203,225
Surfacing (50mm minus)	7,859	m3	0.12	943	\$ 78	\$ 73,560	\$ 10.00	\$ 78,590	\$ 5.00	\$ 39,295	\$ 24.36	\$ 191,445
Berms	1,135	m3	0.15	170	\$ 78	\$ 13,282	\$ 6.00	\$ 6,811	\$ 6.00	\$ 6,811	\$ 23.70	\$ 26,905
Culverts - average 20m long	300	m	4.50	1,350	\$ 78	\$ 105,300	\$ 200	\$ 60,000	\$ 30.00	\$ 9,000	\$ 581.00	\$ 174,300
TOTAL SITE ROADS				15,506		\$ 1,209,498		\$ 270,554		\$ 966,336		\$ 2,446,389
MILL BUILDING (96m X 24m) FOUNDATIONS												
Detail Foundation excavation	2,569	m3	0.08	206	\$ 78	\$ 16,031	\$ -	\$ -	\$ 6.00	\$ 15,414	\$ 12.24	\$ 31,445
Backfill (structural fill)	870	m3	0.10	87	\$ 78	\$ 6,786	\$ 6.00	\$ 5,220	\$ 5.00	\$ 4,350	\$ 18.80	\$ 16,356
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only	0	sum	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	1,699	m3	6.00	10,194	\$ 78	\$ 795,132	\$ 425	\$ 722,075	\$ 25.00	\$ 42,475	\$ 918.00	\$ 1,559,682
TOTAL MILL BUILDING (96m X 24m) FOUNDATIONS				10,487		\$ 817,949		\$ 727,295		\$ 62,239		\$ 1,607,483
SURGE BIN (550 tons) FOUNDATIONS - Deleted												
Detail Foundation excavation	0	m3	0.08	-	\$ 78	\$ -	\$ -	\$ -	\$ 6.00	\$ -	\$ -	\$ -
Backfill (structural fill)	0	m3	0.10	-	\$ 78	\$ -	\$ 6.00	\$ -	\$ 5.00	\$ -	\$ -	\$ -
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only incl in Mill Bldg	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	0	m3	6.00	-	\$ 78	\$ -	\$ 425	\$ -	\$ 25.00	\$ -	\$ -	\$ -
TOTAL SURGE BIN (550 tons) FOUNDATIONS - Deleted				0		\$ -		\$ -		\$ -		\$ -
CONVEYORS (approx L=110m) FOUNDATIONS												
Detail Foundation excavation	75	m3	0.08	6	\$ 78	\$ 468	\$ -	\$ -	\$ 6.00	\$ 450	\$ 12.24	\$ 918
Backfill (structural fill)	30	m3	0.10	3	\$ 78	\$ 234	\$ 6.00	\$ 180	\$ 5.00	\$ 150	\$ 18.80	\$ 564
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	45	m3	6.00	270	\$ 78	\$ 21,060	\$ 425	\$ 19,125	\$ 25.00	\$ 1,125	\$ 918.00	\$ 41,310
TOTAL CONVEYORS (approx L=110m) FOUNDATIONS				279		\$ 21,762		\$ 19,305		\$ 1,725		\$ 42,792
DIRECT WORKS SUBTOTAL				28,961		\$ 2,258,949		\$ 1,876,804		\$ 1,190,307		\$ 5,326,061
X PROJECT INDIRECTS												



WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY
BELLEKENO PROJECT

December 17, 2008
 08539602.00

OPTION A -Mackeno Location with Bellekeno Deposit (New Road via Onek)

Description	Qty	Unit	Mhr rate	Manh's	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
					\$ 78.00							
X1 Construction Indirects - 7.0%	1	sum	7.0%	-		\$ 158,126		\$ 131,376		\$ 83,322	\$ 372,824.28	\$ 372,824
X2 Construction Spares - 5.0% of Elect Equip	1	sum	5.0%	-		\$ -		\$ 42,750		\$ -	\$ 42,750.00	\$ 42,750
X3 Mob, install, set-up Batch Plant	1	sum		-		\$ -		\$ -		\$ 80,000	\$ 80,000.00	\$ 80,000
X4 Construction Freight - Allowance	1	sum		-		\$ -		\$ 50,000		\$ 50,000	\$ 100,000.00	\$ 100,000
X5 Commissioning/Start-up - excluded	0	sum		-		\$ -		\$ -		\$ -	\$ -	\$ -
X6 Construction EP - 8.0%	1	sum	8.0%	11,200		\$ 180,716		\$ 150,144		\$ 95,225	\$ 426,084.89	\$ 426,085
X6 CM by Owner's Team - 6.0%	1	sum	6.0%	9,100		\$ 135,537		\$ 112,608		\$ 71,418	\$ 319,563.67	\$ 319,564
TOTAL X PROJECT INDIRECTS				20,300		\$ 474,379		\$ 486,879		\$ 379,965		\$ 1,341,223
Z CONTINGENCIES												
Add Contingency - 15%	1	sum	15.0%	7,389		409,999		354,553		235,541	\$ 1,000,092.59	\$ 1,000,093
TOTAL Z CONTINGENCIES				7,389		\$ 409,999		\$ 354,553		\$ 235,541		\$ 1,000,093
INDIRECTS SUBTOTAL				27,689		\$ 884,379		\$ 841,431		\$ 615,505		\$ 2,341,315
OPTION TOTALS				56,650		\$ 3,143,328		\$ 2,718,236		\$ 1,805,813		\$ 7,667,377



ALEXCO

WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY

December 17, 2008
08539602.00

OPTION B - Onek Location with Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
\$ 78.00												
MILL BUILDING												
Clear and grub	2.8	ha	45.00	126	\$ 78	\$ 9,828	\$ -	\$ -	\$ 4,000	\$ 11,200	\$ 7,510.00	\$ 21,028
Excavate and remove topsoil, av. 300mm deep	8,390	m3	0.03	252	\$ 78	\$ 19,633	\$ -	\$ -	\$ 4.20	\$ 35,238	\$ 6.54	\$ 54,871
Excavate and remove unsuitable material	12,070	m3	0.04	483	\$ 78	\$ 37,658	\$ -	\$ -	\$ 4.50	\$ 54,315	\$ 7.62	\$ 91,973
Rock excavation - rippable rock	8,050	m3	0.08	644	\$ 78	\$ 50,232	\$ -	\$ -	\$ 6.00	\$ 48,300	\$ 12.24	\$ 98,532
Rock excavation - drill and blast	5,640	m3	0.25	1,410	\$ 78	\$ 109,980	\$ 2.50	\$ 14,100	\$ 8.00	\$ 45,120	\$ 30.00	\$ 169,200
Excess fill to stockpile	7,136	m3	0.04	285	\$ 78	\$ 22,264	\$ -	\$ -	\$ 4.00	\$ 28,544	\$ 7.12	\$ 50,808
Cut to Fill Compacted	47,574	m3	0.07	3,330	\$ 78	\$ 259,754	\$ -	\$ -	\$ 5.00	\$ 237,870	\$ 10.46	\$ 497,624
Imported Fill (or from borrowpit) Compacted	0	m3	0.08	-	\$ 78	\$ -	\$ -	\$ -	\$ 5.00	\$ -	\$ -	\$ -
TOTAL MILL BUILDING				6,530		\$ 509,349		\$ 14,100		\$ 460,587		\$ 984,036
POWER SUPPLY & DISTRIBUTION												
OH Line												
69 kV Switch allowance	1	ea	100.00	100	\$ 78	\$ 7,800	\$ 25,000	\$ 25,000	\$ 500	\$ 500	\$ 33,300.00	\$ 33,300
69kV OH Line (budget \$200K per km)	0.00	km	-	-	\$ 78	\$ -	\$ 250,000	\$ -	\$ 2,000	\$ -	\$ -	\$ -
Upgrade of existing 6.9kV line	2.00	km	-	-	\$ 78	\$ -	\$ -	\$ -	\$ 2,000	\$ 4,000	\$ 2,000.00	\$ 4,000
25kV OH Line	0.40	km	-	-	\$ 78	\$ -	\$ 150,000	\$ 60,000	\$ 2,000	\$ 800	\$ 152,000.00	\$ 60,800
25kV Switch allowance	2	ea	40.00	80	\$ 78	\$ 6,240	\$ 15,000	\$ 30,000	\$ 500	\$ 1,000	\$ 18,620.00	\$ 37,240
0.4kV Feeder allowance	0	lot										
Modifications of Existing Onek Substation												
Incoming structure/switch	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 60,000	\$ 60,000	\$ 250	\$ 250	\$ 63,370.00	\$ 63,370
Circuit switcher allowance (confirm requirements)	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 53,370.00	\$ 53,370
3.5 MVA Transformer c/w OLTC	1	lot	100.00	100	\$ 78	\$ 7,800	\$ 350,000	\$ 350,000	\$ 650	\$ 650	\$ 358,450.00	\$ 358,450
Civil allowance incl fencing	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 75,000	\$ 75,000	\$ 2,000	\$ 2,000	\$ 92,600.00	\$ 92,600
Protection/building	1	lot	50.00	50	\$ 78	\$ 3,900	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 54,150.00	\$ 54,150
Substation Allowance - New Equipment												
Incoming structure/switch	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 80,000	\$ 80,000	\$ 250	\$ 250	\$ 83,370.00	\$ 83,370
Circuit switcher allowance (confirm requirements)	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 53,370.00	\$ 53,370
Transformer c/w OLTC	1	lot	100.00	100	\$ 78	\$ 7,800	\$ 200,000	\$ 200,000	\$ 650	\$ 650	\$ 208,450.00	\$ 208,450
Civil allowance incl fencing	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 50,000	\$ 50,000	\$ 2,000	\$ 2,000	\$ 67,600.00	\$ 67,600
Protection/building	1	lot	50.00	50	\$ 78	\$ 3,900	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 54,150.00	\$ 54,150
Yard Grounding	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 20,000	\$ 20,000	\$ 250	\$ 250	\$ 35,850.00	\$ 35,850
TOTAL POWER SUPPLY & DISTRIBUTION				1,240		\$ 96,720		\$ 1,150,000		\$ 13,350		\$ 1,260,070
SITE ROADS												
Road modifications, tie-ins etc	1	sum	250.00	250	\$ 78	\$ 19,500	\$ 45,000	\$ 45,000	\$ 25,000	\$ 25,000	\$ 89,500.00	\$ 89,500
Clear and grub	7.9	ha	45.00	356	\$ 78	\$ 27,729	\$ -	\$ -	\$ 4,000	\$ 31,600	\$ 7,510.00	\$ 59,329
Excavate and remove topsoil, av. 300mm deep	23,830	m3	0.03	715	\$ 78	\$ 55,762	\$ -	\$ -	\$ 4.20	\$ 100,086	\$ 6.54	\$ 155,848



LOCATION TRADE-OFF STUDY

OPTION B - Onek Location with Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
					\$ 78.00							
Excavate and remove unsuitable material	3,960	m3	0.04	158	\$ 78	\$ 12,355	\$ -	\$ -	\$ 4.50	\$ 17,820	\$ 7.62	\$ 30,175
Rock excavation - rippable rock	2,640	m3	0.08	211	\$ 78	\$ 16,474	\$ -	\$ -	\$ 6.00	\$ 15,840	\$ 12.24	\$ 32,314
Rock excavation - drill and blast	1,850	m3	0.25	463	\$ 78	\$ 36,075	\$ 2.50	\$ 4,625	\$ 8.00	\$ 14,800	\$ 30.00	\$ 55,500
Excess fill to stockpile	0	m3	0.04	-	\$ 78	\$ -	\$ -	\$ -	\$ 4.00	\$ -	\$ -	\$ -
Cut to Fill Compacted	17,940	m3	0.07	1,256	\$ 78	\$ 97,952	\$ -	\$ -	\$ 5.00	\$ 89,700	\$ 10.46	\$ 187,652
Imported Fill (or from borrowpit) Compacted	99,822	m3	0.08	7,986	\$ 78	\$ 622,889	\$ -	\$ -	\$ 5.00	\$ 499,110	\$ 11.24	\$ 1,121,999
Sub-base	13,518	m3	0.06	811	\$ 78	\$ 63,264	\$ -	\$ -	\$ 4.50	\$ 60,831	\$ 9.18	\$ 124,095
Base (300mm minus)	8,111	m3	0.08	649	\$ 78	\$ 50,613	\$ 6.00	\$ 48,666	\$ 5.00	\$ 40,555	\$ 17.24	\$ 139,834
Surfacing (50mm minus)	5,407	m3	0.12	649	\$ 78	\$ 50,610	\$ 10.00	\$ 54,070	\$ 5.00	\$ 27,035	\$ 24.36	\$ 131,715
Berms	1,184	m3	0.15	178	\$ 78	\$ 13,853	\$ 6.00	\$ 7,104	\$ 6	\$ 7,104	\$ 23.70	\$ 28,061
Culverts - average 20m long	300	m	4.50	1,350	\$ 78	\$ 105,300	\$ 200	\$ 60,000	\$ 30	\$ 9,000	\$ 581.00	\$ 174,300
TOTAL SITE ROADS				15,030		\$ 1,172,376		\$ 219,465		\$ 938,481		\$ 2,330,322
MILL BUILDING (96m X 24m) FOUNDATIONS												
Detail Foundation excavation	2,569	m3	0.08	206	\$ 78	\$ 16,031	\$ -	\$ -	\$ 6.00	\$ 15,414	\$ 12.24	\$ 31,445
Backfill (structural fill)	870	m3	0.10	87	\$ 78	\$ 6,786	\$ 6.00	\$ 5,220	\$ 5.00	\$ 4,350	\$ 18.80	\$ 16,356
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only	0	sum	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	1,699	m3	6.00	10,194	\$ 78	\$ 795,132	\$ 425	\$ 722,075	\$ 25.00	\$ 42,475	\$ 918.00	\$ 1,559,682
TOTAL MILL BUILDING (96m X 24m) FOUNDATIONS				10,487		\$ 817,949		\$ 727,295		\$ 62,239		\$ 1,607,483
SURGE BIN (550 tons) FOUNDATIONS - Deleted												
Detail Foundation excavation	0	m3	0.08	-	\$ 78	\$ -	\$ -	\$ -	\$ 6.00	\$ -	\$ -	\$ -
Backfill (structural fill)	0	m3	0.10	-	\$ 78	\$ -	\$ 6.00	\$ -	\$ 5.00	\$ -	\$ -	\$ -
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only incl in Mill Bldg	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	0	m3	6.00	-	\$ 78	\$ -	\$ 425	\$ -	\$ 25.00	\$ -	\$ -	\$ -
TOTAL SURGE BIN (550 tons) FOUNDATIONS - Deleted				0		\$ -		\$ -		\$ -		\$ -
CONVEYORS (approx L=110m) FOUNDATIONS												
Detail Foundation excavation	75	m3	0.08	6	\$ 78	\$ 468	\$ -	\$ -	\$ 6.00	\$ 450	\$ 12.24	\$ 918
Backfill (structural fill)	30	m3	0.10	3	\$ 78	\$ 234	\$ 6.00	\$ 180	\$ 5.00	\$ 150	\$ 18.80	\$ 564
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	45	m3	6.00	270	\$ 78	\$ 21,060	\$ 425	\$ 19,125	\$ 25.00	\$ 1,125	\$ 918.00	\$ 41,310
TOTAL CONVEYORS (approx L=110m) FOUNDATIONS				279		\$ 21,762		\$ 19,305		\$ 1,725		\$ 42,792
DIRECT WORKS SUBTOTAL				33,566		\$ 2,618,156		\$ 2,130,165		\$ 1,476,382		\$ 6,224,703
X PROJECT INDIRECTS												



WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY

December 17, 2008
08539602.00

OPTION B - Onek Location with Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
					\$ 78.00							
X1 Construction Indirects - 7.0%	1	sum		-		\$ 183,271		\$ 149,112		\$ 103,347	\$ 435,729.20	\$ 435,729
X2 Construction Spares - 5.0% of Elect Equip	1	sum		-		\$ -		\$ 57,500		\$ -	\$ 57,500.00	\$ 57,500
X3 Mob, install, set-up Batch Plant	1	sum		-		\$ -		\$ -		\$ 80,000	\$ 80,000.00	\$ 80,000
X4 Construction Freight - Allowance	1	sum		-		\$ -		\$ 50,000		\$ 50,000	\$ 100,000.00	\$ 100,000
X5 Commissioning/Start-up - excluded	0	sum		-		\$ -		\$ -		\$ -	\$ -	\$ -
X6 Construction EP - 8.0%	1	sum		11,200		\$ 209,452		\$ 170,413		\$ 118,111	\$ 497,976.22	\$ 497,976
X6 CM by Owner's Team - 6.0%	1	sum		9,100		\$ 157,089		\$ 127,810		\$ 88,583	\$ 373,482.17	\$ 373,482
TOTAL X PROJECT INDIRECTS				20,300		\$ 549,813		\$ 554,835		\$ 440,040		\$ 1,544,688
Z CONTINGENCIES												
Add Contingency - 15%	1	sum	15.0%	8,080		475,195		402,750		287,463	\$ 1,165,408.56	\$ 1,165,409
TOTAL Z CONTINGENCIES				8,080		\$ 475,195		\$ 402,750		\$ 287,463		\$ 1,165,409
INDIRECTS SUBTOTAL				28,380		\$ 1,025,008		\$ 957,585		\$ 727,504		\$ 2,710,096
OPTION TOTALS				61,946		\$ 3,643,164		\$ 3,087,750		\$ 2,203,886		\$ 8,934,799



ALEXCO

WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY

December 17, 2008
08539602.00

OPTION C - Bellekeno Location @ Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
\$ 78.00												
MILL BUILDING												
Clear and grub	2.7	ha	45.00	122	\$ 78	\$ 9,477	\$ -	\$ -	\$ 4,000	\$ 10,800	\$ 7,510.00	\$ 20,277
Excavate and remove topsoil, av. 300mm deep	7,960	m3	0.03	239	\$ 78	\$ 18,626	\$ -	\$ -	\$ 4.20	\$ 33,432	\$ 6.54	\$ 52,058
Excavate and remove unsuitable material	6,860	m3	0.04	274	\$ 78	\$ 21,403	\$ -	\$ -	\$ 4.50	\$ 30,870	\$ 7.62	\$ 52,273
Rock excavation - rippable rock	4,570	m3	0.08	366	\$ 78	\$ 28,517	\$ -	\$ -	\$ 6.00	\$ 27,420	\$ 12.24	\$ 55,937
Rock excavation - drill and blast	3,200	m3	0.25	800	\$ 78	\$ 62,400	\$ 2.50	\$ 8,000	\$ 8.00	\$ 25,600	\$ 30.00	\$ 96,000
Excess fill to stockpile	0	m3	0.04	-	\$ 78	\$ -	\$ -	\$ -	\$ 4.00	\$ -	\$ -	\$ -
Cut to Fill Compacted	31,070	m3	0.07	2,175	\$ 78	\$ 169,642	\$ -	\$ -	\$ 5.00	\$ 155,350	\$ 10.46	\$ 324,992
Imported Fill (or from borrowpit) Compacted	22,606	m3	0.08	1,808	\$ 78	\$ 141,061	\$ -	\$ -	\$ 5.00	\$ 113,030	\$ 11.24	\$ 254,091
TOTAL MILL BUILDING				5,784	\$	451,127	\$	8,000	\$	396,502		\$ 855,629
POWER SUPPLY & DISTRIBUTION												
OH Line												
69 kV Switch allowance	1	ea	100.00	100	\$ 78	\$ 7,800	\$ 25,000	\$ 25,000	\$ 500	\$ 500	\$ 33,300.00	\$ 33,300
69kV OH Line (budget \$200K per km)	0.00	km	-	-	\$ 78	\$ -	\$ -	\$ -	\$ 2,000	\$ -	\$ -	\$ -
Upgrade of existing 6.9kV line	2.00	km	-	-	\$ 78	\$ -	\$ -	\$ -	\$ 2,000	\$ 4,000	\$ 2,000.00	\$ 4,000
25kV OH Line	0.20	km	-	-	\$ 78	\$ -	\$ 150,000	\$ 30,000	\$ 2,000	\$ 400	\$ 152,000.00	\$ 30,400
25kV Switch allowance	0	ea	-	-	\$ 78	\$ -	\$ -	\$ -	\$ 500	\$ -	\$ -	\$ -
0.4kV Feeder allowance	1	lot	150.00	150	\$ 78	\$ 11,700	\$ 50,000	\$ 50,000	\$ 500	\$ 500	\$ 62,200.00	\$ 62,200
Modifications of Existing Onek Substation												
Incoming structure/switch	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 60,000	\$ 60,000	\$ 250	\$ 250	\$ 63,370.00	\$ 63,370
Circuit switcher allowance (confirm requirements)	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 53,370.00	\$ 53,370
3.5 MVA Transformer c/w OLTC	1	lot	100.00	100	\$ 78	\$ 7,800	\$ 350,000	\$ 350,000	\$ 650	\$ 650	\$ 358,450.00	\$ 358,450
Civil allowance incl fencing	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 75,000	\$ 75,000	\$ 2,000	\$ 2,000	\$ 92,600.00	\$ 92,600
Protection/building	1	lot	50.00	50	\$ 78	\$ 3,900	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 54,150.00	\$ 54,150
Substation Allowance - New Equipment												
Incoming structure/switch	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 80,000	\$ 80,000	\$ 250	\$ 250	\$ 83,370.00	\$ 83,370
Circuit switcher allowance (confirm requirements)	1	lot	40.00	40	\$ 78	\$ 3,120	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 53,370.00	\$ 53,370
Transformer c/w OLTC	1	lot	100.00	100	\$ 78	\$ 7,800	\$ 200,000	\$ 200,000	\$ 650	\$ 650	\$ 208,450.00	\$ 208,450
Civil allowance incl fencing	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 50,000	\$ 50,000	\$ 2,000	\$ 2,000	\$ 67,600.00	\$ 67,600
Protection/building	1	lot	50.00	50	\$ 78	\$ 3,900	\$ 50,000	\$ 50,000	\$ 250	\$ 250	\$ 54,150.00	\$ 54,150
Yard Grounding	1	lot	200.00	200	\$ 78	\$ 15,600	\$ 20,000	\$ 20,000	\$ 250	\$ 250	\$ 35,850.00	\$ 35,850
TOTAL POWER SUPPLY & DISTRIBUTION				1,310	\$	102,180	\$	1,140,000	\$	12,450		\$ 1,254,630
SITE ROADS												
Road modifications, tie-ins etc	1	sum	200.00	200	\$ 78	\$ 15,600	\$ 40,000	\$ 40,000	\$ 20,000	\$ 20,000	\$ 75,600.00	\$ 75,600
Clear and grub	7.0	ha	45.00	315	\$ 78	\$ 24,570	\$ -	\$ -	\$ 4,000	\$ 28,000	\$ 7,510.00	\$ 52,570
Excavate and remove topsoil, av. 300mm deep	20,880	m3	0.03	626	\$ 78	\$ 48,859	\$ -	\$ -	\$ 4.20	\$ 87,696	\$ 6.54	\$ 136,555



LOCATION TRADE-OFF STUDY

OPTION C - Bellekeno Location @ Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total
					\$ 78.00							
Excavate and remove unsuitable material	3,580	m3	0.04	143	\$ 78	\$ 11,170	\$ -	\$ -	\$ 4.50	\$ 16,110	\$ 7.62	\$ 27,280
Rock excavation - rippable rock	2,390	m3	0.08	191	\$ 78	\$ 14,914	\$ -	\$ -	\$ 6.00	\$ 14,340	\$ 12.24	\$ 29,254
Rock excavation - drill and blast	1,680	m3	0.25	420	\$ 78	\$ 32,760	\$ 2.50	\$ 4,200	\$ 8.00	\$ 13,440	\$ 30.00	\$ 50,400
Excess fill to stockpile	0	m3	0.04	-	\$ 78	\$ -	\$ -	\$ -	\$ 4.00	\$ -	\$ -	\$ -
Cut to Fill Compacted	16,230	m3	0.07	1,136	\$ 78	\$ 88,616	\$ -	\$ -	\$ 5.00	\$ 81,150	\$ 10.46	\$ 169,766
Imported Fill (or from borrowpit) Compacted	92,218	m3	0.08	7,377	\$ 78	\$ 575,440	\$ -	\$ -	\$ 5.00	\$ 461,090	\$ 11.24	\$ 1,036,530
Sub-base	12,525	m3	0.06	752	\$ 78	\$ 58,617	\$ -	\$ -	\$ 4.50	\$ 56,363	\$ 9.18	\$ 114,980
Base (300mm minus)	7,515	m3	0.08	601	\$ 78	\$ 46,894	\$ 6.00	\$ 45,090	\$ 5.00	\$ 37,575	\$ 17.24	\$ 129,559
Surfacing (50mm minus)	5,010	m3	0.12	601	\$ 78	\$ 46,894	\$ 10.00	\$ 50,100	\$ 5.00	\$ 25,050	\$ 24.36	\$ 122,044
Berms	1,047	m3	0.15	157	\$ 78	\$ 12,250	\$ 6.00	\$ 6,282	\$ 6.00	\$ 6,282	\$ 23.70	\$ 24,814
Culverts - average 20m long	280	m	4.50	1,260	\$ 78	\$ 98,280	\$ 200	\$ 56,000	\$ 30	\$ 8,400	\$ 581.00	\$ 162,680
TOTAL SITE ROADS				13,780		\$ 1,074,863		\$ 201,672		\$ 855,496		\$ 2,132,030
MILL BUILDING (96m X 24m) FOUNDATIONS												
Detail Foundation excavation	1,470	m3	0.08	118	\$ 78	\$ 9,173	\$ -	\$ -	\$ 6.00	\$ 8,820	\$ 12.24	\$ 17,993
Backfill (structural fill)	0	m3	0.10	-	\$ 78	\$ -	\$ 6.00	\$ -	\$ 5.00	\$ -	\$ -	\$ -
Piling (168mm dia x 20m depth) Bellekeno only	13,289	m	3.00	39,867	\$ 78	\$ 3,109,626	\$ 50	\$ 664,450	\$ 200	\$ 2,657,800	\$ 484.00	\$ 6,431,876
Piling Mobilization Bellekeno only	1	sum	80.00	80	\$ 78	\$ 6,240	\$ -	\$ -	\$ 8,000	\$ 8,000	\$ 14,240.00	\$ 14,240
Concrete Work	1,470	m3	6.00	8,820	\$ 78	\$ 687,960	\$ 425	\$ 624,750	\$ 25.00	\$ 36,750	\$ 918.00	\$ 1,349,460
TOTAL MILL BUILDING (96m X 24m) FOUNDATIONS				48,885		\$ 3,812,999		\$ 1,289,200		\$ 2,711,370		\$ 7,813,569
SURGE BIN (550 tons) FOUNDATIONS - Deleted												
Detail Foundation excavation	0	m3	0.08	\$ -	\$ 78	\$ -	\$ -	\$ -	\$ 6.00	\$ -	\$ -	\$ -
Backfill (structural fill)	0	m3	0.10	-	\$ 78	\$ -	\$ 6.00	\$ -	\$ 5.00	\$ -	\$ -	\$ -
Piling (168mm dia x 20m depth) Bellekeno only	0	m	3.00	-	\$ 78	\$ -	\$ 50	\$ -	\$ 200	\$ -	\$ -	\$ -
Piling Mobilization Bellekeno only incl in Mill Bldg	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	0	m3	6.00	-	\$ 78	\$ -	\$ 425	\$ -	\$ 25.00	\$ -	\$ -	\$ -
TOTAL SURGE BIN (550 tons) FOUNDATIONS - Deleted				0		\$ -		\$ -		\$ -		\$ -
CONVEYORS (approx L=110m) FOUNDATIONS												
Detail Foundation excavation	25	m3	0.08	\$ 2.00	\$ 78	\$ 156	\$ -	\$ -	\$ 6.00	\$ 150	\$ 12.24	\$ 306
Backfill (structural fill)	0	m3	0.10	-	\$ 78	\$ -	\$ 6.00	\$ -	\$ 5.00	\$ -	\$ -	\$ -
Piling (168mm dia x 20m depth) Bellekeno only	600	m	3.00	1,800	\$ 78	\$ 140,400	\$ 50	\$ 30,000	\$ 200	\$ 120,000	\$ 484.00	\$ 290,400
Piling Mobilization Bellekeno only	0	m	80.00	-	\$ 78	\$ -	\$ -	\$ -	\$ 8,000	\$ -	\$ -	\$ -
Concrete Work	25	m3	6.00	150	\$ 78	\$ 11,700	\$ 425	\$ 10,625	\$ 25.00	\$ 625	\$ 918.00	\$ 22,950
TOTAL CONVEYORS (approx L=110m) FOUNDATIONS				1,952		\$ 152,256		\$ 40,625		\$ 120,775		\$ 313,656
DIRECT WORKS SUBTOTAL				71,711		\$ 5,593,424		\$ 2,679,497		\$ 4,096,593		\$ 12,369,514
X PROJECT INDIRECTS												



WARDROP | Engineering Inc.

LOCATION TRADE-OFF STUDY

December 17, 2008
08539602.00

OPTION C - Bellekeno Location @ Bellekeno Deposit

Description	Qty	Unit	Mhr rate	Manh'rs	Lab rate	Labour	Mat rate	Materials	Equip rate	Const Equip	Unit Cost	Total	
					\$ 78.00								
X1 Construction Indirects - 7.0%	1	sum		-		\$ 391,540		\$ 187,565		\$ 286,761	\$ 865,865.98	\$ 865,866	
X2 Construction Spares - 5.0% of Elect Equip	1	sum		-		\$ -		\$ 57,000		\$ -	\$ 57,000.00	\$ 57,000	
X3 Mob, install, set-up Batch Plant	1	sum		-		\$ -		\$ -		\$ 80,000	\$ 80,000.00	\$ 80,000	
X4 Construction Freight - Allowance	1	sum		-		\$ -		\$ 75,000		\$ 75,000	\$ 150,000.00	\$ 150,000	
X5 Commissioning/Start-up - excluded	0	sum		-		\$ -		\$ -		\$ -	\$ -	\$ -	
X6 Construction EP - 8.0%	1	sum		11,200		\$ 447,474		\$ 214,360		\$ 327,727	\$ 989,561.12	\$ 989,561	
X6 CM by Owner's Team - 6.0%	1	sum		9,100		\$ 335,605		\$ 160,770		\$ 245,796	\$ 742,170.84	\$ 742,171	
TOTAL X PROJECT INDIRECTS				20,300		\$ 1,174,619		\$ 694,694		\$ 1,015,284		\$ 2,884,598	
Z CONTINGENCIES													
Add Contingency - 15%	1	sum	15.0%	13,802				1,015,207		506,129	766,782	\$ 2,288,116.78	\$ 2,288,117
TOTAL Z CONTINGENCIES				13,802		\$ 1,015,207		\$ 506,129		\$ 766,782		\$ 2,288,117	
INDIRECTS SUBTOTAL				34,102		\$ 2,189,826		\$ 1,200,823		\$ 1,782,066		\$ 5,172,715	
OPTION TOTALS				105,812		\$ 7,783,250		\$ 3,880,320		\$ 5,878,658		\$ 17,542,229	