

Introduction

Newtok has the option to obtain used barracks from JBER for use as community housing in Mertarvik. The barracks are 10 years old and have been well maintained. The barracks will require renovation to meet building code. They have minimally acceptable insulation, and are comparable to traditional Housing and Urban Development (HUD) type housing from 10-15 years ago.

The purpose of this summary is to report on costs to renovate and relocate 26 modules (equivalent of 13 each, 4-bedroom dwellings) to Mertarvik in a single shipment. The 4-bedroom unit was chosen as the preferred dwelling in an effort to maximize efficiencies using standardization of components to develop the lowest cost possible. (See Figure A.) Each barrack consists of 4 modules, the smallest shipping unit, at 14' x 68' in size.

Code and Condition Survey: A code and conditions survey was completed for the barracks in June 2107. The code and conditions survey determined that the units are in very good condition, well maintained, and suitable for use as residential housing, with modifications for current building codes. At minimum, the modules will need the following work:

1. Replace bedroom windows with egress compliant type.
2. Replace stairs for egress compliance.
3. Install underfloor soffit in lieu of insulated crawlspace skirting.
4. Remove and replace gas fired heating system and water heaters with diesel based systems.
5. Removal of sprinkler, fire alarm and emergency lighting systems (required for dorms, not residential houses).
6. Removal or modification of plumbing systems and installation of appropriate system for the new village.
7. Convert electrical systems from 3-phase to 1-phase power to suit the proposed community electrical system.

Concept Design and Cost Estimate: A concept design and cost estimate (report) was completed for the barracks in August 2017. The report investigated separating the barracks into individual units and then renovating the units into two (2) or four (4)-bedroom dwelling units based upon community input. The community selected the 4-bedroom unit as the preferred to best address the housing shortage. The report also identified a need for arctic entries for the houses; thermal envelope upgrades that should be made to meet minimum energy efficiency; recommended mechanical and electrical systems; and module transport logistics.

The report recommends removing the existing roofs to facilitate transport from Anchorage to Mertarvik on rail and barge; and then shipping the modules with new roof packages (truss, plywood, and metal). This would provide a least cost option by maximizing barging efficiency and a better final product. This option would require much of the renovation of the modules at JBER, in Anchorage, with final renovation, installation of new roofs and arctic entries being completed in Mertarvik.

The renovation tasks recommended in the report would create high quality permanent housing stock for the residents in Mertarvik for the next 30 – 40 years. The renovations would represent the same quality of new housing that might be obtained by other means, assuming a thermal upgrade is incorporated into the project.

**Mertarvik – Barracks Relocation
Executive Summary**

October 2017

Renovation & Relocation Cost Estimate

Assumptions:

1. 26 modules will be renovated to make 13 each, 1,790 square foot 4-bedroom dwellings.
2. Base cost is for the project to be competitively bid using Davis/Bacon (residential) wages. Funding from the Denali Commission does not trigger a requirement for Davis/Bacon wages.
3. A complete barge load of modules would be made in one shipment. Barge can hold 26 modules, which is equivalent of 13 dwelling units, plus crane and 8 other flats for roofing trusses, metal roofing, arctic entry material, fuel tanks and other bulk material.
4. Thermal upgrades to exterior walls are not included in the base cost. Base cost does include thermal upgrades to windows and doors, roof insulation, and underfloor insulation.
5. No cost allocated for connecting units to electrical grid or expansion of the grid from prime power source.
6. Pad and foundation cost in the estimate is for direct labor only; cost of equipment and fuel, gravel, etc. is absorbed by NVC as a contribution.
7. Driveway costs are not identified at this time.
8. A General Contractor will be involved to oversee JBER work by others or Mertarvik work by others.
9. Road construction will be funded under current BIA contracts.
10. Community water supply and wastewater disposal are not included in this summary. It is assumed housing units will have small water storage tank and honey bucket system for wastes.

Cost Analysis:

A cost analysis to renovate and relocate the barracks to Mertarvik based upon the assumptions:

	\$/SF	\$/Unit	# Units	Total \$
Base cost	\$188	\$337,410	13	\$4,386,330
Exterior Wall Thermal Upgrade	\$19	\$34,600	13	\$449,800
Recommended Base Cost	\$208	\$372,010	13	\$4,836,130
Recommended Base Cost		\$372,010	13	\$4,836,130
Deduct for using National Guard labor on JBER ⁽¹⁾		(\$34,880)	13	(\$453,440)
Deduct for using Tribe labor in Mertarvik at lower burden rate, \$41/hour.		(\$22,550)	13	(\$293,150)
Potential Cost w/ Reductions	\$176	\$314,580	13	\$4,089,540
⁽¹⁾ Work includes separating modules, interior demolition per final plans, removal of roofs, renovation to windows and thermal envelope, new walls, new electrical & heating, preparation for shipment.				

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The cost of a 4 bedroom, 1,790 SF, house in Mertarvik using the Barracks with exterior thermal upgrades is \$372,010. Total project cost for 13 units, with thermal upgrade, is \$4,836,130.

If an IRT project was available for JBER work, and NVC tribal members were used in Mertarvik, then the individual housing cost could be reduced to \$314,580. Total project cost for 13 units, with thermal upgrade, is \$4,089,540.

Reference of housing costs known in Mertarvik:

Agency	# of Bedrms	Size	Sq. Ft.	Cost	\$/SF	R-value Roof/Wall	Notes
AVCP-RHA	3	28' x 36'	1,008	\$343,773	\$341	50/37	“all in” price. 5 Star Plus construction.
AVCP-RHA	4	28' x 48'	1,344	\$454,331	\$338	50/37	“all in” price. 5 Star Plus construction.
CCHRC	3	32' x 36'	1,152	\$363,219	\$315	60/40	Foundation is Triodetic foundation w/ skids. Assume \$10,000 for gravel pad. 5 Star Plus construction.
Paug-vik Development Corp.	4	32' x 42'	1,365	\$443,625	\$325	38/22	Based upon a 7 unit project. 5 Star Plus construction.
Barracks (1)	4	28' x 64'	1,790	\$372,010	\$208	40+/30	“all in” price; includes thermal upgrade.
Barracks (2)	4	28' x 64'	1,790	\$314,580	\$176	40+/30	Assumes IRT and NVC labor assistance.

“all in” price = materials, labor, shipping, foundation, gravel pads.

Funding:

The total funding that is currently available for housing is ~\$1,800,000 (\$300,000 in BIA HIP funds, and \$1.5 million in Denali Commission Funding).

Logistics

Barging:

Barracks will be disassembled into modules on JBER. The modules would be moved to Seward for shipping. An entire barge would be rented for shipment of modules, crane, and limited deck space for miscellaneous materials. NVC will have to provide cargo insurance. Crane will have to remain in Mertarvik to offload modules and to place onto foundations; then shipped out at end of season.

Roads:

Approximately 4100 LF of roads should be built in 2018 to support a housing program. (See Figure B.) Funding for roads is provided under a NVC – BIA contract. Figure B identifies the proposed roads and lots for housing in Mertarvik. The road design will have to accommodate

**Mertarvik – Barracks Relocation
Executive Summary**

October 2017

both the use of a crane and module sizes. Roads and pads need to be complete before units arrive in Mertarvik.

Pads:

Assume same design used for 2017 houses is appropriate for barracks. It takes about 2 days to build a house pad. 13 pads are needed for the dwellings, therefore the schedule reflects a one month duration for pads.

Schedule

The schedule proposes the initial renovation work to start at JBER and the construction of roads and lots for the houses in Mertarvik to occur in 2018. The modules will be moved to Mertarvik and final construction of the houses to occur in 2019. (See Figure C.)

Contacts

Romy Cadiente, Local Relocation Coordinator

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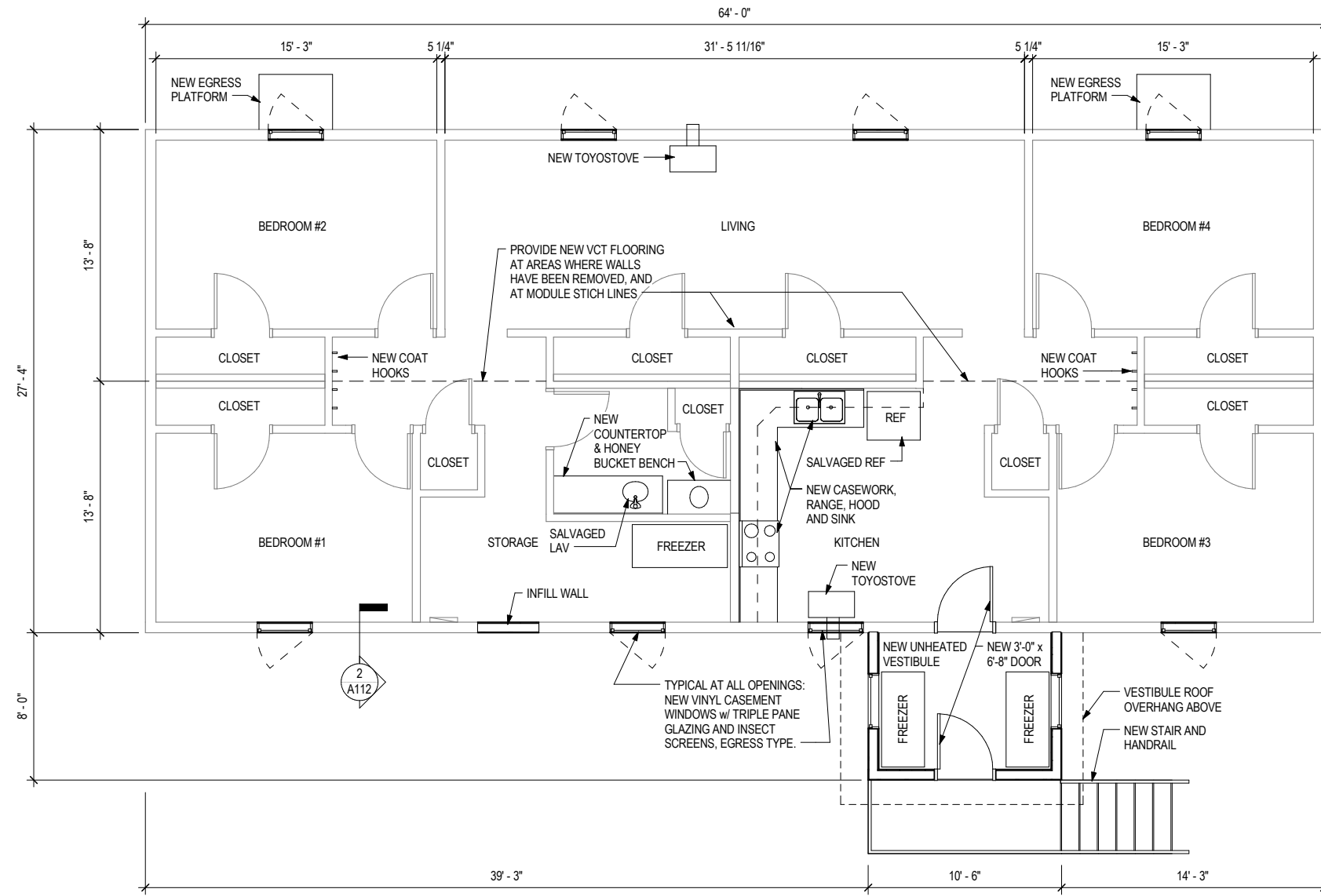
Phone: (907) 237-6095

Denise Michels, Project Manager, DOWL

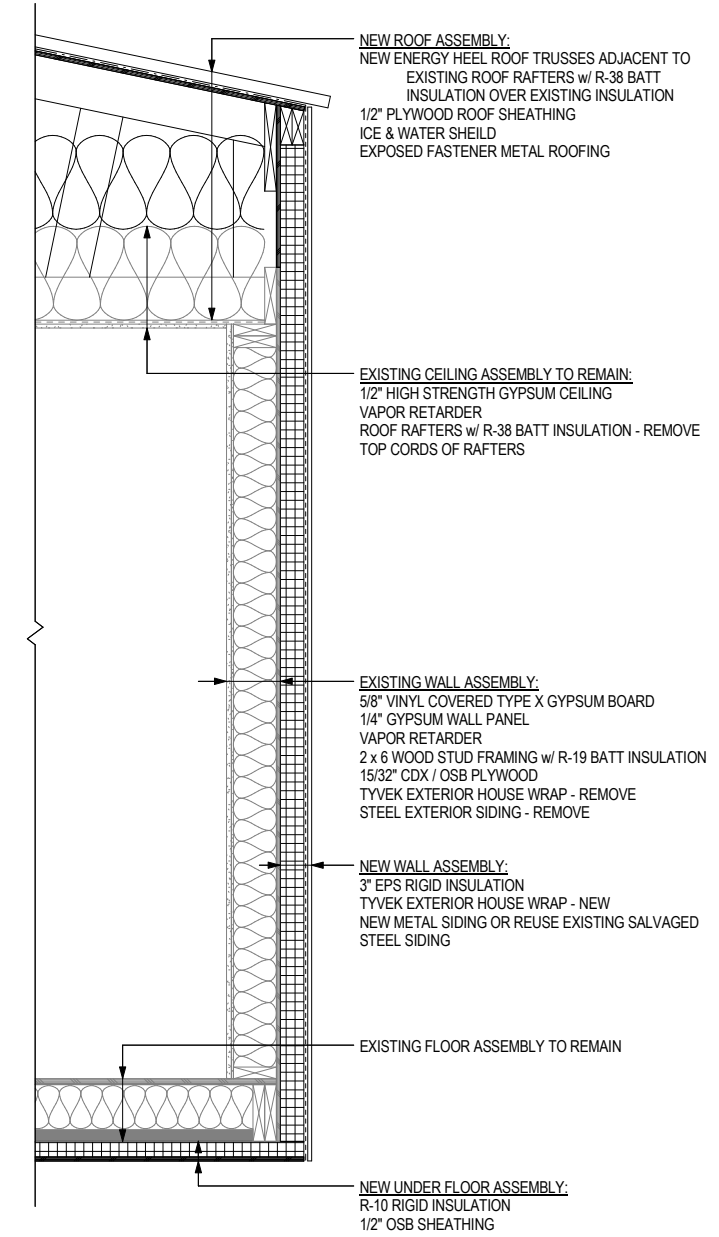
Email: dmichels@dowl.com

Phone: (907) 562-2000

IF THIS DIMENSION DOES NOT MEASURE ONE INCH (1") EXACTLY, THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELED SCALES



1
A112 FLOOR PLAN - NEW CONSTRUCTION - 4 BEDROOM OPTION
1/4" = 1'-0"



2
A112 TYPICAL EXTERIOR WALL SECTION
1" = 1'-0"

VILLAGE OF MERTARVIK
HOUSING REPLACEMENT

MERTARVIK, ALASKA

CONSULTANT:

PROJECT NO: 17-159
DATE: 2017-08-23
DRAWN BY: Author
CHECKED BY: Checker

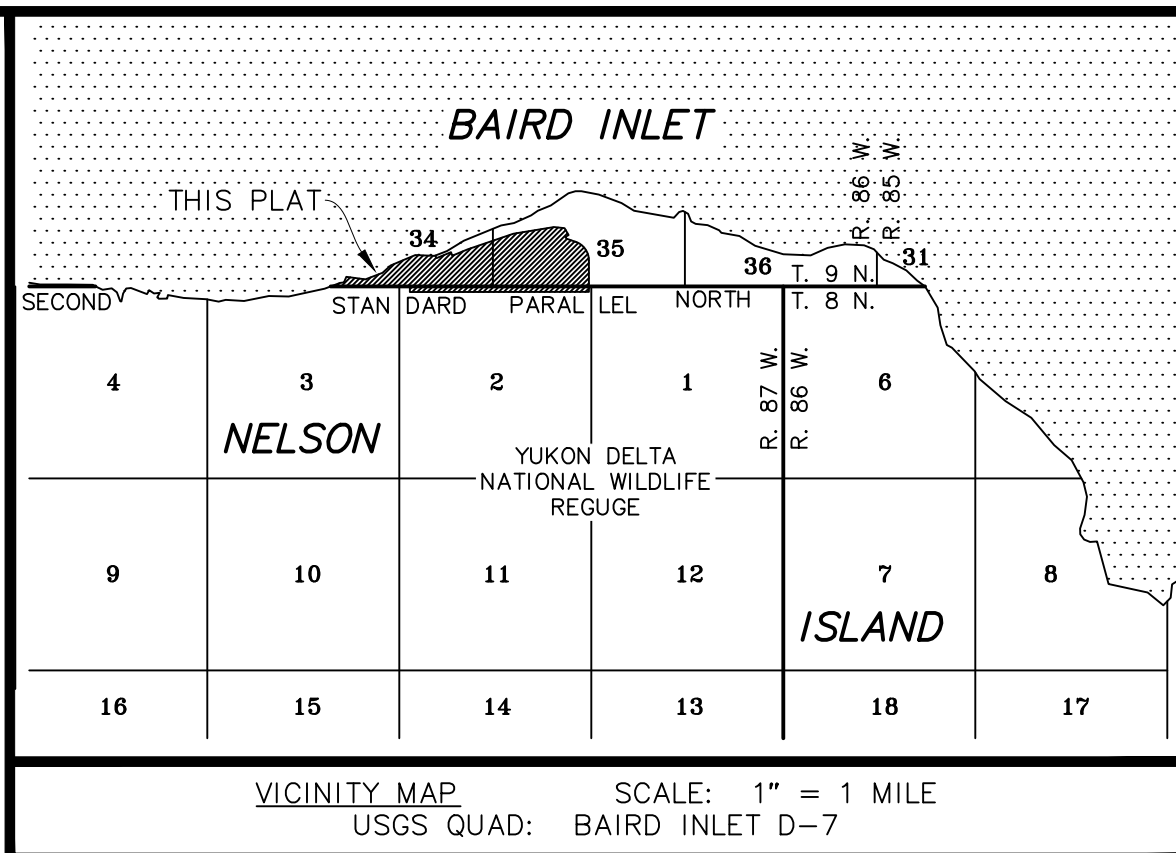
SYMBOL	DESCRIPTION	DATE

NOT FOR CONSTRUCTION

FLOOR PLAN - NEW CONSTRUCTION - 4 BDRM OPTION

A112

8/24/2017 7:03:25 AM C:\Users\smathiev\Documents\17-159 Barracks Relocation Model B_smathiev.rvt

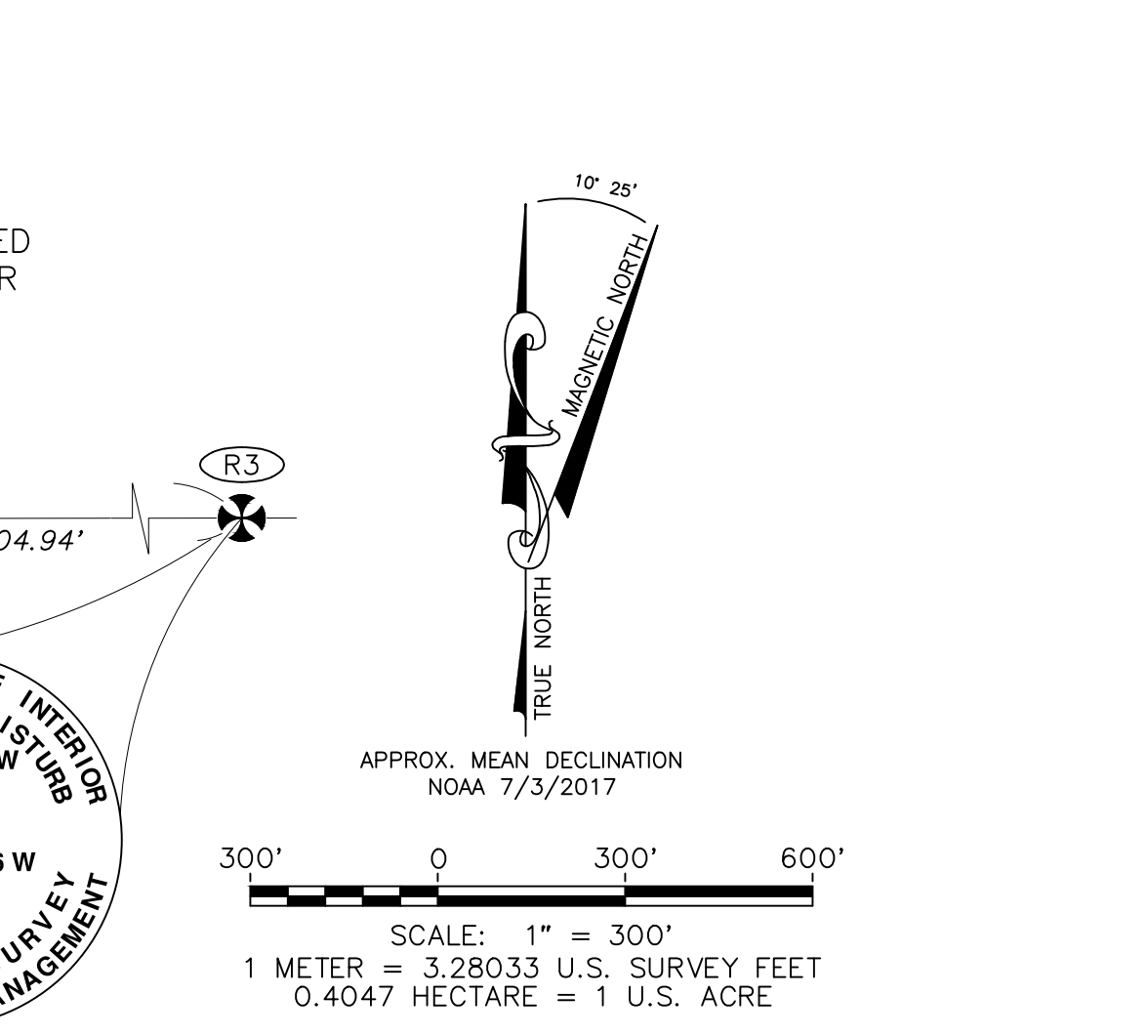


CERTIFICATE OF OWNERSHIP AND DEDICATION
 I (WE), THE UNDERSIGNED HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF MERTARVIK SUBDIVISION, AS SHOWN ON THIS PLAT. I (WE) APPROVE THIS SURVEY AND PLAT AND DEDICATE FOR PUBLIC USE, AS SHOWN, ALL EASEMENTS, PUBLIC UTILITY AREAS, AND RIGHTS-OF-WAY AS SHOWN AND DESCRIBED ON THIS PLAT.

(TITLE) _____ DATE _____
 NEWTOK NATIVE CORPORATION
 P.O. BOX 5528
 NEWTOK, ALASKA 99559

NOTARY ACKNOWLEDGEMENT
 SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 2018. BY: _____

NOTARY FOR THE STATE OF ALASKA
 MY COMMISSION EXPIRES: _____



A PLAT OF
MERTARVIK SUBDIVISION
 THE SUBDIVISION OF
 A PORTION OF INTERIM CONVEYANCE No. 1876
 (DOCUMENT No. 2004-000727-0)
 LOCATED WITHIN
 SECTIONS 34 AND 35, TOWNSHIP 9 NORTH, RANGE 86 WEST,
 AND
 SECTION 2 AND 3, TOWNSHIP 8 NORTH, RANGE 87 WEST
 SEWARD MERIDIAN, ALASKA
 CONTAINING 166.391 ACRES MORE OR LESS
 BETHEL RECORDING DISTRICT
 PREPARED BY:
 CRW ENGINEERING GROUP LLC
 3940 ARCTIC BLVD., SUITE 300
 ANCHORAGE, AK 99503
 #AECL882-AK

DRAWN: BJH	FIELD SURVEY COMPLETION: 8/12/2017	SCALE: 1" = 300'
CHECKED: MLJ	DATE: 8/18/2017	FIELD BOOK: 167
		SHEET: 1 OF 3

NOTES

- 1) THE ERROR OF CLOSURE OF THIS SURVEY DOES NOT EXCEED 1:5000.
 - 2) ALL BEARINGS SHOWN ARE TRUE BEARINGS AS ORIENTED TO THE BASIS OF BEARING AND THE DISTANCES SHOWN ARE REDUCED TO HORIZONTAL FIELD DISTANCES.
 - 3) THE NATURAL MEANDERS OF THE MEAN HIGH WATER (MHW) LINE FORMS THE TRUE BOUNDS OF MERTARVIK SUBDIVISION. THE APPROXIMATE LINE OF MEAN HIGH WATER, AS SHOWN, IS FOR AREA COMPUTATIONS ONLY. THE TRUE CORNERS BEING ON THE EXTENSION OF THE SIDELINES AND THEIR INTERSECTION WITH THE NATURAL MEANDERS.
 - 4) THE VERTICAL DATUM OF MEAN LOWER LOW WATER (MLLW) WAS HELD THIS SURVEY AS DETERMINED BY NINE DAYS OF TIDAL OBSERVATIONS BY R&M CONSULTANTS, INC. BETWEEN JUNE 9 AND JUNE 17, 2008. OBSERVATIONS WERE CORRELATED TO NOAA TIDE STATION "VILLAGE COVE 946-4212", LOCATED IN ST. PAUL ALASKA, AND PROCESSED BY JOHN OSWALD AND ASSOCIATES, LLC. REFERENCE SHOULD BE MADE TO RECORD OF SURVEY, PLAT No. 2013-13 AND SURVEY CONTROL DIAGRAM, PLAT No. 2012-36.
 MLLW = 0.00 FEET
 MLW = 0.50 FEET
 MHW = 4.81 FEET
 MHHW = 4.96 FEET
- TRANSLATION PARAMETERS
 MLLW ELEVATIONS CAN BE OBTAINED BY ADDING 0.72 FEET TO NAVD88(GEIOD12B) ELEVATIONS.
 NAVD88(GEIOD12B) ELEVATIONS CAN BE OBTAINED BY SUBTRACTING 0.72 FEET FROM MLLW ELEVATIONS.
- 5) THE BASIS OF BEARING ON THIS PLAT WAS DETERMINED BY A HIGH PRECISION GPS SURVEY USING LEICA GS14 AND 1200 SERIES RECEIVERS DIFFERENTIALLY CORRECTED AND PROCESSED USING LEICA GEOMATICS OFFICE, VERSION 8.4 SOFTWARE.
 - 6) PRIMARY MONUMENTS SET THIS SURVEY ARE A 2-1/2" X 30" FLANGED ALUMINUM POST WITH A 3-1/4" MAGNETIZED ALUMINUM CAP. A MAGNET WAS DEPOSITED AT THE BASE OF THE ALUMINUM POST. SET WITH THE CAP FLUSH WITH GRADE, ENCIROLED WITH A COLLAR OF STONE WITH A 6" CARSONITE WITNESS POST SET 2' IN THE GROUND WITHIN 1' OF THE MONUMENT.
 - 7) ALL LOT CORNERS AND ANGLE POINTS OF THIS SURVEY NOT MONUMENTED WITH A PRIMARY MONUMENT AS DESCRIBED ABOVE ARE MONUMENTED WITH A SECONDARY MONUMENT CONSISTING OF A 5/8" X 24" REBAR WITH YELLOW PLASTIC CAP.
 - 8) THE CENTERLINE OF RIGHT-OF-WAYS SHOWN HEREON ARE NOT MONUMENTED.

MEANDER LINE TABLE

No.	BEARING	DISTANCE	No.	BEARING	DISTANCE	No.	BEARING	DISTANCE	No.	BEARING	DISTANCE
L1	N 70°52'19" E	39.90'	L9	N 57°14'05" E	85.83'	L17	N 64°18'03" E	88.27'	L25	N 87°01'26" E	60.34'
L2	N 48°45'08" E	69.00'	L10	N 61°48'59" E	115.12'	L18	N 67°16'37" E	85.91'	L26	S 59°36'54" E	24.39'
L3	N 61°06'57" E	219.54'	L11	N 77°06'00" E	36.74'	L19	N 69°50'46" E	175.88'	L27	S 74°40'42" E	65.86'
L4	N 35°16'47" E	74.27'	L12	N 59°27'52" E	33.14'	L20	N 62°08'20" E	82.15'	L28	S 84°41'54" E	79.54'
L5	N 72°36'38" E	49.58'	L13	N 67°52'45" E	59.46'	L21	N 56°17'06" E	40.19'	L29	N 87°23'00" E	147.38'
L6	S 79°50'48" E	264.99'	L14	N 42°24'50" E	173.75'	L22	N 67°05'39" E	94.34'	L30	N 84°57'43" E	152.49'
L7	S 89°16'30" E	294.18'	L15	N 45°58'00" E	79.29'	L23	N 50°33'34" E	27.44'	L31	N 60°55'06" E	41.46'
L8	N 86°35'06" E	179.27'	L16	N 31°56'19" E	51.50'	L24	N 32°30'39" E	46.01'	L32	S 83°31'45" E	31.75'

CURVE TABLE

No.	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD
C1	670.76'	540.00'	71°10'12"	N 35°39'35" W	628.46'
C2	393.20'	540.00'	41°43'13"	N 50°23'05" W	384.58'
C3	277.56'	540.00'	29°26'59"	N 14°47'59" W	274.51'

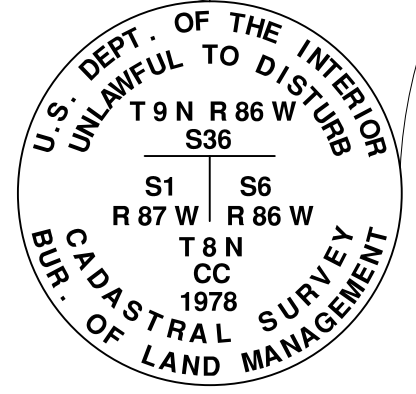
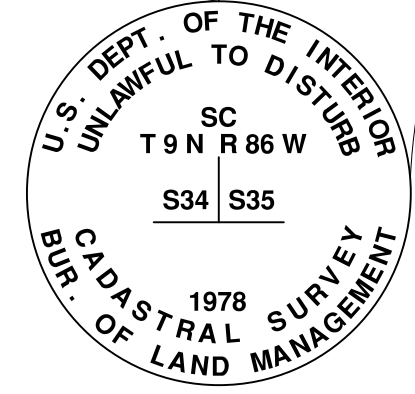
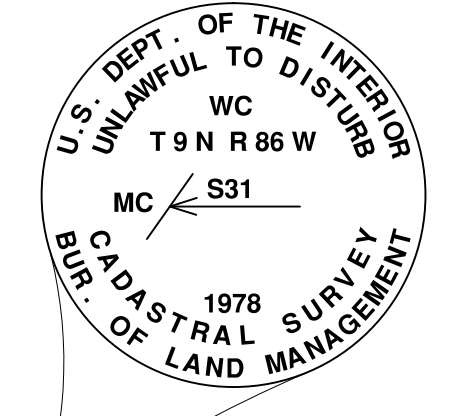
2018 Road Construction 4104 lf:
 A Street = 2145 lf
 B Street = 1584 lf
 C Street = 375 lf
BAIRD INLET

Lots for Barracks Housing Project (13 lots).

2017 AVCP-RHA Housing Project, Lots 2 - 5;
 2016 CCHRC House Project, Lot 1

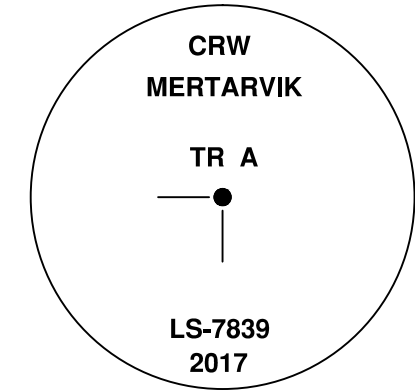
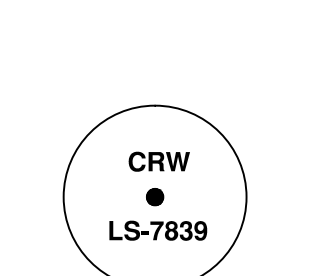
Existing houses, in use.

THE WITNESS COR. TO THE MEANDER COR. OF SEC. 31
 RECOVERED 5/8" ALUM. ROD WITH 3-1/4" ALUM. CAP, 6" ABOVE GRADE



LEGEND

- BLM MONUMENT RECOVERED (SEE DETAILS)
- PRIMARY MONUMENT SET THIS SURVEY (SEE NOTE 6 AND TYPICAL)
- SECONDARY MONUMENT SET THIS SURVEY (SEE NOTE 7 AND TYPICAL)
- RECOVERED MONUMENT IDENTIFIER
- BLOCK NUMBER
- RECORD PER BLM PLAT OF T. 9 N., R. 86 W., FILED: MARCH 10, 2008
- RECORD PER BLM PLAT OF T. 8 N., R. 87 W., FILED: MARCH 17, 2008
- ALUM. ALUMINUM
- CC CLOSING CORNER
- IC INTERIM CONVEYANCE
- RS. RANGES
- STAN. STANDARD
- S.F. SQUARE FEET
- TPS. TOWNSHIPS
- SURVEYED
- EASEMENT
- RE-PLATTED TOWNSHIP LINE



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT.

MICHAEL L. JOKELA LS-7839
 REGISTERED LAND SURVEYOR REGISTRATION NO. DATE



PLAT APPROVAL

THIS PLAT IS APPROVED BY THE COMMISSIONER OF THE DEPARTMENT OF NATURAL RESOURCES, OR THE COMMISSIONER'S DESIGNEE, IN ACCORDANCE WITH AS 40.15.

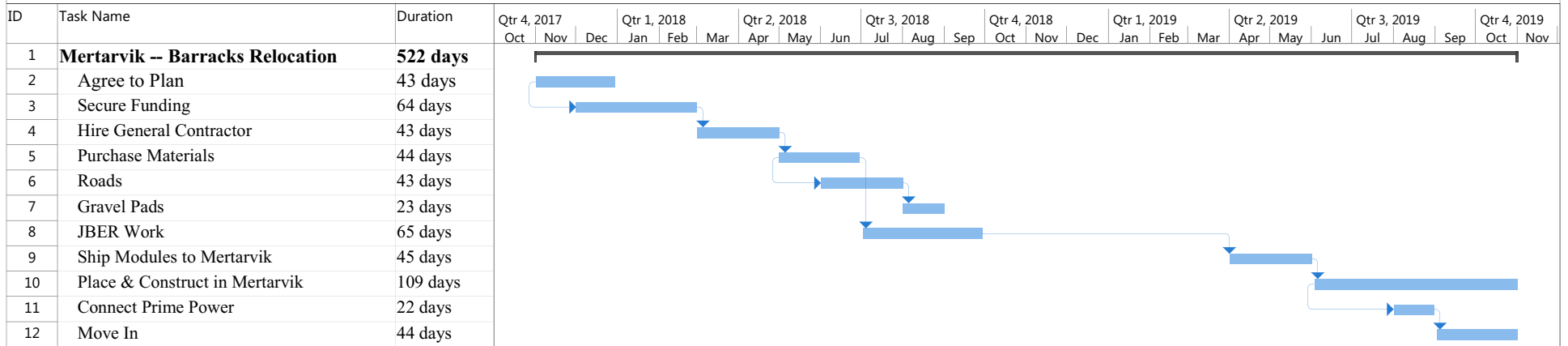
COMMISSIONER _____ DATE _____

BY APPROVAL OF THE PLAT, THE COMMISSIONER OF THE DEPARTMENT OF NATURAL RESOURCES HEREBY ACCEPTS FOR PUBLIC USES AND FOR PUBLIC PURPOSES THE REAL PROPERTY DEDICATED TO THE PUBLIC BY THIS PLAT INCLUDING, BUT NOT LIMITED TO EASEMENTS, RIGHTS-OF-WAY, ALLEYS, AND ROADWAYS SHOWN HEREON. THE ACCEPTANCE OF LANDS FOR THE PUBLIC USE OR PUBLIC PURPOSE DOES NOT OBLIGATE THE PUBLIC OR GOVERNING BODY TO CONSTRUCT, OPERATE OR MAINTAIN IMPROVEMENTS.

TAX CERTIFICATE

THIS SUBDIVISION LIES OUTSIDE OF ANY TAXING AUTHORITY, AT THE TIME OF FILING.

Newtok-Mertarvik Village Relocation: Barracks Relocation Schedule



Date: Tue 11/7/17

Task		Inactive Task		Manual Summary Rollup		External Milestone	
Split		Inactive Milestone		Manual Summary		Deadline	
Milestone		Inactive Summary		Start-only		Progress	
Summary		Manual Task		Finish-only		Manual Progress	
Project Summary		Duration-only		External Tasks			