

## SCHEMATIC DESIGN APPROVAL

| Name of Project:     | Utilities Wood Center Vault   |  |  |
|----------------------|---|--|--|
| Project Type:        | R&R   |  |  |
| Location of Project: | UAF, Fairbanks, Wood Center FS505, Fairbanks  |  |  |
| Project Number:      | 2013043 UTWCV (Subproject of 2013022 CWIRS)   |  |  |
| Date of Request:     | January 7, 2013   |  |  |
| Total Project Cost:  | \$3,000,000 (For this portion of CWIRS)   | TPC all portions \$3,500,000                               |  |
| Approval Required:   | FLMC  |  |  |
| Prior Approvals:     | Capital Budget Allocation Approval FY13<br>Preliminary Administrative Approval (CWIR<br>Formal Project Approval (CWIRS) | July 1, 2012<br>S) September 9, 2012<br>September 27, 2012 |  |

A Schematic Design Approval (SDA) is required for all Capital Projects with a Total Project Cost in excess of \$250,000.

SDA represents approval of the location of the facility, its relationship to other facilities, the functional relationship of interior areas, the basic design including construction materials, mechanical, electrical, technology infrastructure and telecommunications systems, and any other changes to the project since formal project approval. Unless otherwise designated by the approval authority or a material change in the project is subsequently identified, SDA also represents approval of the proposed cost of the next phases of the project and authorization to complete the design development process, to bid and award a contract within the approved budget, and to proceed to completion of project construction. Provided however, if a material change in the project is subsequently identified, such change will be subject to the approval process.

#### Action Requested

"The Facilities and Land Management Committee approves the Schematic Design Approval request for the University of Alaska Fairbanks Utilities Wood Center Vault project as presented in compliance with the campus master plan, and authorizes the University administration to complete construction documents and to award a contract within the approved budget, and to proceed to completion of project construction not to exceed a Total Project Cost of \$2,800,000. This motion is effective February 21, 2013."

#### Project Abstract

This project will construct a new utilidor vault at the intersection of the Macintosh Hall and Rasmuson Library utilidor, construct a new utilidor section from the new vault to a service utilidor for the new Student Dining Facility, and re-route and upgrade the portion of existing utilidor directly south of the Wood Center to better serve this section of campus. This section of the utilidor is the smallest utilidor on campus. It is filled to maximum capacity with utilities, leaving little room to work on systems. Upgrades within the utilidors and vault include installation of two new SF-6 electrical power switches in the vault and associated modifications to the primary campus power system, extension of steam, condensate, all water systems and compressed air as required to serve the new dining facility. The existing chilled water piping between the Gruening Building and the Wood Center is failing and will also be replaced as part of this project.

In addition to the utility upgrades, this project will realign the South Chandalar Fire Lane west of the Wood Center. Due to the steepness of the existing fire lane, the large trucks are not able to use this access, thus increasing their response time to the core campus emergencies. Another driving force behind the Fire Lane realignment is the closure of Tanana Loop for two years to accommodate the construction of the new engineering building. The realignment will reduce the grade and improve the entry and exit points of the lane so that all emergency vehicles can traverse the fire lane in both directions between the fire station and the campus core.

#### RATIONALE AND REASONING

#### Background

This project is a sub-project of the Campus Wide Infrastructure Roads, Curbs and Sidewalks Project (2013022 CWIRS) which received Formal Project Approval in September 2012.

Utilities serving the oldest part of the Fairbanks campus are housed in 1950's era utilidors inadequate for today's required infrastructure. Steam heat and fire-fighting water flow rates are marginal in the area of the Whitaker Building and Wood Center. When major renovations or new facilities are constructed in areas served by aged utilities, the utilities are often upgraded in order to avoid maintenance and service issues to the new facilities. This project is critical to support the construction of the new Student Dining Facility adjacent to the Wood Center. This area of campus is served by the smallest and oldest utility infrastructure and it cannot support the dining addition in its existing condition. Additionally, this utility work will continue the effort to tie all campus utility infrastructures together in order to provide redundancy and reliability to the core campus buildings.

#### Programmatic Need

Successful implementation of UAF's mission to promote academic excellence, student success and lifelong learning requires that all buildings on campus be operating to their potential. This project will address critical utility infrastructure deficiencies in the core of the UAF campus to support the new Student Dining Facility and to continue the effort of providing a reliable and maintainable utility system to the UAF infrastructure serving employees, students, and the Fairbanks community.

#### Project Scope

The project scope includes all work to design and construct the new fire lane alignment, utilidor, utilidor vault and utility upgrades described above.

#### Project Impacts

The project will be tightly coordinated with construction of the new Student Dining Facility. There will be impacts to pedestrian traffic in the core of campus during the summer of 2013. Re-routing of traffic with barriers and well signed traffic control will eliminate confusion for the campus community and visitors.

Variances None

| Total Project Cost and Funding Sources |              |             |
|--|--------------|-------------|
| Funding Title                          | Fund Account | Amount      |
| FY13 DM&R UAF Infrastructure           | 571349-50216 | \$3,000,000 |
| Total Project Cost                     |              | \$3,000,000 |

Annual Program and Facility Cost Projections

This replaces existing and extends existing infrastructure and will not result in a change to the current program or facilities annual budgets.

#### Project Schedule

DESIGN Conceptual Design Formal Project Approval Schematic Design Schematic Design Approval Construction Documents BID & AWARD Advertise and Bid Construction Contract Award CONSTRUCTION Start of Construction Construction Complete Date of Beneficial Occupancy Warranty Period

September 2012 December 2012 February 2013 February 2013

Sole Source Procurement April 2013

> April 2013 September 2014 September 2014 1 Year

#### Project Delivery Method

UAF Division of Design and Construction received approval from the Chief Procurement Officer to award a sole source construction contract to GHEMM Company for this project. This utilities project is intricately tied to the new Student Dining Facility, both the construction schedule and footprint. GHEMM Company has been awarded the contract for the Student Dining Facility.

#### Supporting Documents

One-page Project Budget Design Narrative Document (Civil, Structural, Mechanical, Electrical) Drawings Site Plan Proposed Site Key Plan Civil Details Vault and Utilidor Plan and Details Mechanical Chilled Water and Domestic Cold Water Piping Diagram

#### Affirmation

This project complies with Regents' Policy, the campus master plan and the Project Agreement.

#### Approvals

The level of approval required for SDA shall be based upon the estimated TPC as follows:

- TPC > \$4.0 million will require approval by the board based on the recommendations of the Facilities and Land Management Committee (FLMC).
- TPC > \$2.0 million but not more than \$4.0 million will require approval by the FLMC.

- TPC > \$1.0 million but not more than \$2.0 million will require approval by the Chair of the FLMC.
- TPC  $\leq$  \$1.0 million will require approval by the AVP of Facilities and Land Management.

| UNIVERSITY OF ALASKA   |            |                          |
|--|------------|--------------------------|
| Project Name: Utilities Wood Center Vault  |            |                          |
| MAU: UAF   |            |                          |
| Building: Wood Center Date:  |            | January 25, 2013         |
| Campus: UAF Prepare  | d Bv:      | Campbell                 |
| Project #: 2012043UTW/CV Account   | t No :     | 571349-50216             |
| Total GSE Affected by Project: N/A   |            | 371343 30210             |
| PROJECT BUDGET   | FPA Budget | SDA Budget               |
| A. Professional Services   |            |                          |
| Advance Planning, Program Development  |            | \$0                      |
| Consultant: Design Services  |            | \$192,580                |
| Consultant: Construction Phase Services  |            | \$39,000                 |
| Consul: Extra Services (List:  | )          | \$0                      |
| Site Survey  |            | \$0                      |
| Soils Testing & Engineering  |            | \$0                      |
| Special Inspections  |            | \$0                      |
| Plan Review Fees / Permits   |            | \$500                    |
| Other  |            | \$0                      |
| Professional Services S  | Subtotal   | \$232,080                |
| B. Construction  |            |                          |
| General Construction Contract (s)  |            | \$2,500,000              |
| Other Contractors (List:   | )          | \$0                      |
| Construction Contingency   |            | \$75,000                 |
| Construction   | Subtotal   | \$2,575,000              |
| Construction Cost per GSF  |            | N/A                      |
| C. Building Completion Activity  |            |                          |
| Equipment  |            | \$0                      |
| Fixtures   |            | \$0                      |
| Furnishings  |            | \$0                      |
| Signage not in construction contract   |            | \$0                      |
| Move-Out Cost/Temp. Reloc. Costs   |            | \$0                      |
| Move-In Costs  |            | \$0                      |
| Art  |            | \$0                      |
| Other (List:)  |            | \$0                      |
| OIT Support  |            | \$0                      |
| Maintenance/Operation Support  | Subdated 1 | \$U                      |
| Building Completion Activity S   | Subtotal   | <u> </u>                 |
| During the series of the first series of the f |            | 640C 040                 |
| Project Planning and Staff Support   |            | \$120,319                |
| Project Ivianagement   |            | \$51,053                 |
| ivisc Expenses: Advertising, Printing, Supplies  | Subtotal   | על<br>הבר בבוט           |
| E Total Project Cost   |            | 5, 1/1,3/2<br>دع ۵۵۷ ۸۳۵ |
| Total Project Cost per GSE   |            | ş2,30 <del>4</del> ,432  |
| F. Total Appropriation(s)  |            | \$3 000 000              |



### DRAFT CONSTRUCTION DOCUMENTS CIVIL NARRATIVE

#### PROJECT SCOPE

The Civil portion of the project consists of removing a portion of existing sanitary sewer piping out of an existing utilidor, re-routing existing sanitary sewer mains and installing a new sanitary sewer trunk main to carry flow from the northern portion of campus at a future date. South Chandalar Avenue will be relocated to allow for grading and drainage for the new Dining Facility Project. This project also replaces and upsizes the chilled water mains between the Wood Center and Gruening Hall.

#### PIPING REPLACEMENT

The existing sanitary sewer serves three residency buildings that are slated for removal and subsequent replacement with higher occupancy residential facilities at a future date. The new sewer line will re-route the existing sewer from running through Chapman Hall and the utilidor and put it directly into the sanitary sewer system.

The existing chilled water mains from Gruening Hall to the Wood Center will be removed or abandoned in place depending on surface conflicts. New 8 inch mains will be installed in approximately the same location as the existing chilled water and extended to serve the new Dining Facility.

#### CHANDALAR AVENUE

Chandalar Avenue will be re-routed to the west to allow for more gentle grading and storm drainage for the new Dining Facility project and to allow for easier and safer access for emergency vehicles and residential traffic. The new road shall be constructed to UAF Design Criteria minimums.



### DRAFT CONSTRUCTION DOCUMENTS STRUCTURAL NARRATIVE

#### SCOPE

The project will provide a utilities branch from the existing utilidors, which traverse East and West from the Rasmuson Library to Chapman. The new utilidor branch will start to the West of the Wood Center and the new Dining Development project. It will run approximately 60 feet north from the existing utilidor to the service inlet of the future Dining Hall. The Dining Hall is located 22 feet east from the edge of the new utilidor and will be constructed after the new utilidor. The utilidor to the East connecting to the existing Wood Center lateral will be demolished, and a new, larger utilidor will be constructed in its place. A new vault is included in the project and will be located at the intersection of the existing utilidors and the new utilidors.

#### UTILIDOR AND VAULT

- Floor Slabs: The new concrete floor slab will slope down from the Dining service inlet to the new vault. The new vault and utilidors require a much larger height clearance than the existing utilidors (7 feet), so the new floor will need to slope up to the existing utilidor floors.
- Walls: The new concrete walls for the utilidor and vault will be required to retain soil. They will dowel into the new concrete lid and floor slab.
- Lid: The roofs of the new utilidors will be one-way cast-in-place concrete on composite steel deck slabs. The roof of the new vault will be a two-way cast-in-place slab with two layers of rebar. The vault lid will not require an access hatch or removable portion.

60 psf

#### DESIGN CRITERIA

#### Governing Code

2009 IBC (International Building Code)

#### Criteria

Ground Snow Load

Vehicle Live Load HS20-44 truck



#### DRAFT CONSTRUCTION DOCUMENTS MECHANICAL NARRATIVE

#### PROJECT SCOPE

The project consists of extending the existing steam, condensate, domestic water, chilled water, fire protection water, RO water and compressed air from Utilidor D north to serve the new UAF Dining Facility and future development north of Utilidor D. The existing utilidor "D" will be replaced between the Mcintosh utilidor and the existing Wood Center service lateral. The existing chilled water piping between the Wood Center and Gruening is failing and will be replaced as part of this project.

#### PIPING REPLACEMENT

The existing piping in Utilidor D from the Mcintosh Utilidor to the Wood Center Lateral will be replaced to accommodate the new utilidor extension to the north and the construction of the New Dining Facility. A new vault will be installed at the intersection of the Chapman Utilidor and the Mcintosh Utilidor to accommodate the piping and to provide space for electrical equipment. Piping to Chapman and Mcintosh will be replaced within 10 feet of the new vault. The piping in the new vault will be routed to allow maintenance personnel access through the utilidors in all directions. Expansion joints and valves will be located in the vault as much as possible for ease of maintenance. The new utilidor that will serve the new Dining Facility will have adequate space to move electrical equipment from the new Dining Facility to the new vault. The existing sewer piping that is located in the Vault D location will be removed and routed outside the Chapman utilidor. Compressed air piping will be replaced within the confines of Vault D and connected to existing.

Steam, condensate, and domestic water will be sized to provide future capacity. The direct buried chilled water will be replaced from the Wood Center back to the 12 inch piping outside of Gruening. Tees with takeoffs that go into the utilidor will be added at Constitution Hall and the existing chilled water will be reconnected at the intersection of the Whitaker Utilidor.

#### POINTS OF DISCUSSION

- 1. Chilled water valves have been shown primarily as direct buried. Some of the valves can be moved into the utilidor system but having the valves direct buried provides the best valve arrangement for system isolation. Would you please review the valve layout and advise on whether the direct buried valves are acceptable or if you would like them in the utilidor system?
- 2. Is the chilled water system fluid 30 percent ethylene glycol? Would you like any special inhibitors or dyes specified?
- 3. The utilidor should be ventilated by either passive or active means. If the system is passive, the surface openings could be similar to the gooseneck vents that serve the West Ridge utilidors. If the system is active, we propose the use of a propeller hooded supply fan and a louvered penthouse for the exhaust termination. The configuration would be similar to what was outlined in the Atkinson Power Plant Renewal Phase 2 Utilidor Ventilation schematic report dated May 16, 2012. The active ventilation system will require approximately 3900 cfm to maintain a 92 degree Fahrenheit space temperature within the utilidor and will feature supply and relief openings at grade. If UAF would like to pursue this option, we propose locating one of the openings above the utilities entrance to the Dining facility, and the other opening above the utilidor branch serving Constitution Hall. (Visual aesthetics could be maintained by covering the openings with an architectural/artistic feature.) Which ventilation method is preferred?



#### DRAFT CONSTRUCTION DOCUMENTS ELECTRICAL NARRATIVE

#### SCOPE

The electrical portion of this project is to provide a new set of G&W SF6 switches inside a new vault at the intersections of the existing utilidors on the southwest side of the site. There will be two new 6-position switches to allow for spare capacity and redundancy for the primary distribution system when it is available at the site. These switches will be connected to feeders defined in the larger UTER2 project which will revise and reconfigure the power distribution system on the campus. This project will provide the medium voltage cable from an SF6 switch to the Dining Facility service transformer.

#### **DESIGN CRITERIA**

#### References

NFPA 70 2011 (National Electrical Code)

#### POWER AND LIGHTING

The electrical equipment currently routed into a small junction utilidor 'T' will be demolished to allow construction of a new larger vault to enclose the new equipment. The vault is sized to accommodate new electrical equipment including the new SF6 switches, power and communications cable trays and lighting for the vault and the utilidor routed to the new Dining Facility. Power cable trays will be of the ladder type and be sized at both 12 inches and 9 inches wide by 4 inches deep and the communications cable trays will be 6 inches wide by 4 inches deep. The utilidor and access from the new Dining Facility will be sized to allow the SF6 switches to be removed, if needed, from the vault and replaced.

A new 15kV primary cable will be routed from the SF6 switches to the transformer feeding the Dining Facility expansion of the Wood Center. The remainder of the new primary cables connected to the SF6 switches will be designed and installed under the UTER2 project criteria. The contractor will need to provide some amount of either temporary feeders or relocation of the existing feeders to allow a new section of utilidor to be constructed outside of the footprint of the new Dining Facility. These relocations will be coordinated with UAF to mitigate extended outages of the campus facilities fed from these feeders.

A new 12 space 60A 208Y/120V branch circuit panelboard will be located in the new vault to provide power to the lighting; a new sump pump located in vault 'D' and convenience receptacles along the new sections of utilidor. This panel will also have some capacity for additional loads in the future as this utilidor system may be extended in the future to new building(s). This location will also be convenient to potentially re-connect lighting circuits in the south utilidor section leading to McIntosh as these lights did not function properly during a recent site visit.

Lighting within the vault and adjacent new utilidors will be provided by industrial fluorescent fixtures with wireguards and 3-way switches in the utilidor near the Wood Center spur; another near the utilidor entrance at the dining facility; and a 4-way switch at the intersection of the new vault and the existing utilidor 'D' leading to McIntosh. This will place switches for the new lighting at all entrances to the new utilidor sections and vaults. Additional switches will be located into the spaces adjacent to the new utilidor and vault sections to control existing lighting within these sections as well so users can have control of the lighting systems at whichever point they enter and traverse through the utilidor system.

# UNIVERSITY OF ALASKA FAIRBANKS UAF DINING UTILITY MAINS PROJECT NO.: 2012043 UTWCV

#### DRAWINGS INDEX:

|            | T1   | TITLE SHEET   |
|------------|--|---|
| CIVIL      | C100<br>C101<br>C102<br>C200<br>C201<br>C202<br>C500<br>C501<br>C502<br>C503<br>C510<br>C700<br>C701<br>C702   | EXISTING SITE CONDITIONS AND DEMOLITION KEY PLAN<br>WEST DEMOLITION PLAN<br>EAST DEMOLITION PLAN<br>PROPOSED SITE KEY PLAN<br>WEST PROPOSED SITE PLAN<br>EAST PROPOSED SITE PLAN<br>SANITARY SEWER BRANCH PLAN AND PROFILE<br>SEWER SERVICE PLAN AND PROFILE<br>SEWER SERVICE PLAN AND PROFILE<br>CHILLED WATER PIPING AND UTILIDOR PLAN AND SCHEMATIC<br>PROFILE<br>SOUTH CHANDALAR AVENUE PLAN AND PROFILE<br>CVIL DETAILS<br>MANHOLE DETAILS   |
| STRUCTURAL | \$0.0<br>\$1.0<br>\$2.0<br>\$2.1<br>\$3.0<br>\$3.1<br>\$3.2  | STRUCTURAL GENERAL NOTES<br>VAULT AND UTILIDOR PLAN AND DETAILS<br>VAULT AND UTILIDOR LID PLAN<br>UTILIDOR SECTIONS<br>SECTIONS AND DETAILS<br>PIPE RACK DETAILS<br>WALL & CEILING ANCHOR DETAILS<br>POST ANCHOR DETAILS  |
| MECHANICAL | M0.1<br>M1.0<br>M1.1<br>M2.0<br>M2.1<br>M2.2<br>M2.3<br>M2.4<br>M2.5<br>M2.6<br>M2.6<br>M3.0<br>M3.1<br>M3.2<br>M3.3<br>M3.4<br>M4.0<br>M4.0<br>M4.2 | MECHANICAL LEGEND, SYMBOLS, AND ANCHOR FORCE<br>CALCULATIONS<br>EXISTING MECHANICAL SITE PLAN<br>EXISTING CHILLED WATER SYSTEM DIAGRAMS AND<br>DEMOLITION PLANS<br>LARGE SCALE DEMOLITION PLAN<br>MECHANICAL SITE PLAN<br>MECHANICAL CHILLED WATER AND DOMESTIC COLD WATER<br>PIPING DIAGRAM<br>MECHANICAL STEM AND CONDENSATE PIPING DIAGRAM<br>MECHANICAL STEM AND CONDENSATE PIPING DIAGRAM<br>MECHANICAL STEM AND CONDENSATE PIPING DIAGRAM<br>MECHANICAL STEMA SING LATERAL ISOMETRIC<br>VAULT D SOMETRIC<br>VAULT D DETAILED PLANS AND ELEVATIONS<br>VAULT D DETAILED PLANS AND ELEVATIONS<br>CHILLED WATER PIPING DIAGRAMS<br>DETAILS<br>RACK DETAILS |
| ELECTRICAL | E100<br>E101<br>E201<br>E301<br>E302<br>E401   | SCHEDULES, LEGENDS, DEMOLITION & DETAILS<br>ELECTRICAL SITE PLAN AND DETAILS<br>LIGHTING PLANS & SECTIONS<br>POWER PLANS & SECTIONS<br>POWER PLANS & SECTIONS<br>SIGNAL PLANS & SECTIONS  |

## OWNER

UNIVERSITY OF ALASKA FAIRBANKS DESIGN AND CONSTRUCTION UAF FACILITIES SERVICES P.O. BOX 758160 FAIRBANKS, ALASKA 99775

#### CODE

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GOVERNING CODES: GOVEENING CODES: 2009 INTERNATIONAL BUILDING CODE 2009 INTERNATIONAL FIRE CODE 2009 INTERNATIONAL MECHANICAL CODE 2009 UNIFORM PLUMBING CODE 2011 NATIONAL ELECTRICAL CODE

AUTHORITY HAVING JURISDICTION: UNIVERSITY OF ALASKA - FAIRBANKS FIRE MARSHALL





#### VICINITY MAP - FACILITY

DETAIL NUMBER

SHEET LOCATION

TITLE

SCALE



#### PHASING PLAN

- MECHANICAL COORDINATE UTILITY SHUTDOWN WITH THE UNIVERSITY, SHUTDOWN SYSTEMS ONLY AT APPROVED TIMES. MINIMIZE LENGTH OF UTILITY SHUT DOWNS TO THE WOOD CENTER. PROVIDE TEMPORARY WATER AND SEWER TO CHAPMAN. A TEMPORARY LIFT STATION WILL BE REQUIRED. PROVIDE TEMPORARY WATER AND CHILLED WATER TO THE WOOD CENTER. IF UTILITY SHUT DOWNS ARE REQUIRED DURING THE HEATING SEASON PROVIDE TEMPORARY STEAM AND CONDENSATE TO AFFECTED BUILDINGS. PROVIDE TEMPORARY UTILITIES OF THE SAME CAPACITY AS THE PERMANENT UTILITIES.

#### ELECTRICAL

- TRACE AND VERIFY EXISTING COMMUNICATION CABLES IN UTILIDOR SYSTEM FOR RELOCATION/EXTENSION OUTSIDE OF THE PROJECT WHILE MAINTAINING EXISTING ACTIVE SYSTEM.
  INSPECT EXISTING MEDIUM VOLTAGE POWER CABLING SYSTEM INCLUDING CABLE TOP BOXES AND
- RELOCATED/EXTENDED SYSTEMS OUTSIDE PROJECT AREA. MAINTAIN POWER TO CHAPMAN. WOOD CENTER, WICKERSHAM AND CONSTITUTION HALL. TRANSITION POWER AND COMMUNICATIONS SYSTEMS RELOCATED OUTSIDE OF PROJECT AREA INTO FINAL
- NEW INSTALLED INFRASTRUCTURE WITHIN NEW UTILIDOR/VAULTS.

Architects · Engineers 601 College Road Fairbanks AK 99701 907.452.1241 designalaska.com



**UAF DINING** MAINS PROJECT NO. 2012043 UTWCV

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| ISSUE DATE   | 14 | DEC | 2012  |
|--------------|----|-----|-------|
| COMM. NUMBER |    | 0   | 31219 |
| DESIGNED BY  |    |     | KAC   |
| DRAWN BY     |    |     | KAC   |
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|              |    |     |       |

Τ1

### TITLE SHEET

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UNSURVEYED ITEM (FIELD VERIFY) BURIED SANITARY SEWER LINE BURIED STORM DRAIN LINE BURIED ELECTRIC LINE BURIED CHILLED WATER SUPPLY LINE BURIED CHILLED WATER RETURN LINE UNDERGROUND UTILIDOR FINISHED FLOOR CEMENT LINED DUCTILE IRON PIPE TREE LINE DEMOLITION AREA CONCRETE EDGE OF ASPHALT PAVEMENT BUILDING PERIMETER



NOT FOR CONSTRUCTION DRAFT CONSTRUCTION DOCUMENTS FOR REVIEW ONLY

UAF DINING MAINS PROJECT NO. 2012043 UTWCV

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| ISSUE DATE   | 05    | DEC | 2012  |
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| DESIGNED BY  |       |     | VJA   |
| DRAWN BY     |       |     | JAR   |
| SCALE C      | )" —— |     | — 1"  |
|              |       |     |       |

#### PROPOSED SITE KEY PLAN





VJA

JAR

**⊣**1"



Surveyors

031219

⊣1'





Architects · Engineers Surveyors 601 College Road Fairbanks AK 99701 907.452.1241 designalaska.com





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| ISSUE DA | TE           | 14 | DEC 2012 |
| COMM. N  | UMBER        |    | 031219   |
| DESIGNED | ) BY         |    | JMH      |
| DRAWN B  | Ϋ́           |    | MSO      |
| SCALE    | 0 <b>"</b> ⊢ |    | ——— 1"   |
|          |              |    |          |

MECHANICAL CHILLED WATER AND DOMESTIC COLD WATER PIPING DIAGRAM

# M2.1