UNIVERSITY OF ALASKA
SOUTHEAST

SCHEMATIC DESIGN APPROVAL

Name of Project: Sitka Career & Technical Education Center Renovation

Location of Project: UAS Sitka Campus

Project Number: 2011-01

Date of Request: June 20, 2011 *(revised 6/24/2011)*

Total Project Cost:	**$ 3,406,000**
Approval Required:	**Schematic Design Approval**
Prior Approvals/Actions:	**Formal Project Approval, 12/09/2010**

Reference Materials:

Total Project Budget
Schematic Design Plan

POLICY CITATION

In accordance with Regents' Policy P05.12, Schematic Design Approval (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.

A SDA is required for all projects with an estimated TPC in excess of $2.5 million in order for that project's inclusion of construction funding to be included in the university's capital budget request, unless otherwise approved by the Board. The level of approval required shall be based upon TPC as follows:

- TPC > $4 million will require approval by the Board based on recommendations from the Facilities and Land Management Committee (F&LMC).
- **TPC > $2 million but ≤ $4 million will require approval by the chair of the Facilities and Land Management Committee.**
- TPC ≤ $2 million will require approval by the university's Chief Finance Officer (CFO) or designee.

Rationale and Recommendation

1. Background

The Sitka Campus of the University of Alaska Southeast (UAS) serves a two-year community college role, providing education and training opportunities to the residents of Sitka as well as students scattered all over the State using a variety of cutting edge, web based distance education technologies.

The campus is tasked with the primary responsibility of distance delivery of the AA and AAS degrees, the pre-nursing lab-based science classes and a Career and Technical Education (CTE) curriculum. The major objective is to complete the renovation of the Campus Career and Technical Education Wing, positioning the campus to contribute to the expected growth in the renewable energy and energy efficiency industry that prepares high school students for further training and work and provides opportunities for adults to maintain job skills or acquire new ones.

When completed, the CTE will house and a separate Construction Technology Lab on the first floor and a Student Success Center on the second floor complete with administrative areas, a testing center, and a multi-purpose meeting/project demonstration area.

2. Project Scope

The Project Scope includes design, bid and award and construction services to complete the renovation of the campus' CTE wing.

- **Student Success Center** to improve capacity to provide a comprehensive, integrated support system for online and local students. The student success center will house *Elluminate* cubicles for taping and delivery of lessons.
- **Construction Technology Laboratory** to support Building Energy Retrofit (BERT) Curriculum. This energy efficiency renewable energy lab will be a flexible space designed to provide basic skills instruction and training for students interested careers in construction technology in addition to traditional building skills.
- **Records Storage** to provide safe, clean and secure storage for student and business records, completing a partially finished 2nd floor storage area.
- **CTE Lecture/Exhibit Hall (Multipurpose Room)**: Capacity for 60 persons to include a demonstration area to accommodate more than just traditional students and programs. This

space will provide access for night and weekend use, as well as serve as a center for scientific seminars, industrial demonstrations and cultural activities.
- **Other**: improve egress, improve way finding, insulation for utility areas and open project areas.

During the Conceptual Design Phase, we looked at potentially including improvements to the existing Instructional Design Center, Computer classroom and Art Room. The Schematic Cost estimate does not support including improvements to these areas at this time. The scope of work has been modified to include only the elements requested in the original Title III Grant Request.

3. Proposed Cost and Funding Source(s)

This project is intended to be funded by two sources:

- Title III Grant Funding: The United States Department of Education, in accordance with PL102-324 Higher Education Authorization Act of 1965 awarded a discretionary grant to be awarded in two periods: 10/01/2010 ~ 9/30/2011 and 10/01 2011 ~ 9/30/2012. The project would be completed by September 30, 2012.

Title III Grant	$ 2,570,020
Title III Supplemental Funding Request	$ 143,723*

- UAS FY11 R&R capital allocation $ 692,257

*If request to Title III is not funded, the campus will use unrestricted fund balance or campus general funds to supplement the other funding sources.

4. Estimated Total Project Cost

The total estimated project cost is $3,406,000

5. Maintenance and Operating Costs (O&M)

The facilities maintenance and operating costs should be minimally impacted.

6. Consultant(s)

The prime consultant is NorthWind Architects, a Juneau based architectural firm. Evelyn Rousso is the Project Architect. The design team is also made up of the disciplines:

Structural Engineering:	Chris Gianotti, PND Engineers
Mechanical Engineering:	Doug Murray, Murray & Associates
Electrical Engineering:	Barry Begenyi, Haight & Associates
Cost Estimating	Jay Lavoie, Estimations, Inc.

7. Other Cost Considerations

N/A

8. Schedule for Completion

DESIGN	
Conceptual Design	Sept-October 2010
Formal Project Approval	December 2010
Schematic Design	May 2011
Design Development	July 2011
100% Construction Documents	September 2011
BID & AWARD	
Advertise and Bid:	September, 2011
Construction Contract Award	October 2011
CONSTRUCTION:	
Start of Construction	October 2011
Date of Substantial Completion:	July 2012
Date of Beneficial Occupancy:	August 2012

9. Action Requested

Authorization for the University administration to complete design of the Sitka Campus Career and Technical Education Renovation project, to develop constructions documents to bid and award a contract for construction through project completion for a total project cost of $3.410,000.

10. Approval

Schematic Design Approval is hereby granted.

Carl Marrs, Chair, Facilities and Land Management Committee — *Date* 7/11/11

Supporting Documents

- One page project budget
- Schematic Design Plan

UNIVERSITY OF ALASKA

Project Name: UAS Sitka Career and Technical Education Center Renovation

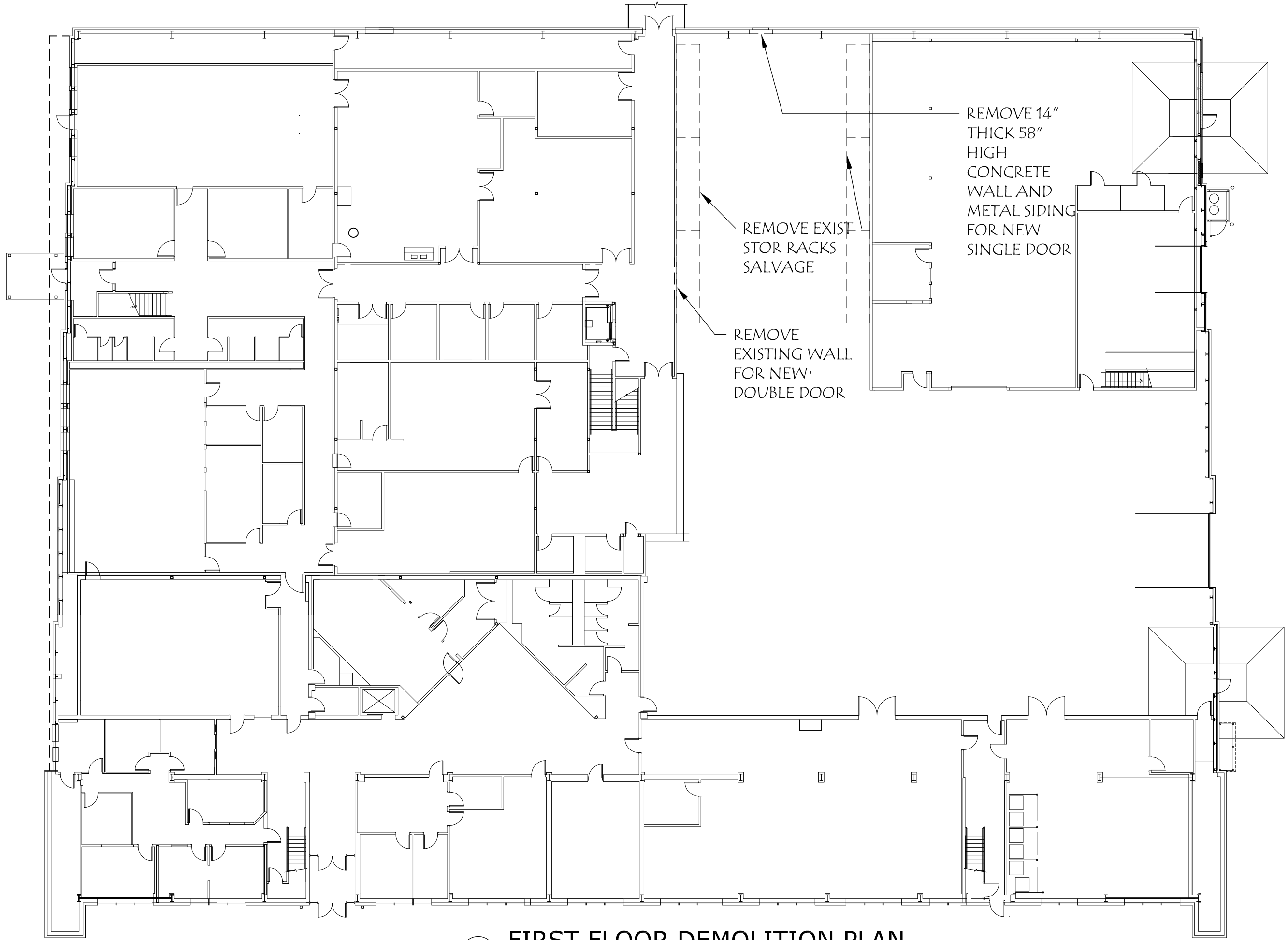
MAU: UAS

Building: SC101 Sitka Hanger 332 | Date: 6/16/2011

Campus: Sitka | Prepared by: WK Gerken

Project Title: Sitka CTE Renovation *(formerly Open Hangar Remodel)* | Account No.:

Total GSF Affected by Project			9,300	11,300
PROJECT BUDGET			**Original Budget**	**Schematic Budget**
A.	**Professional Services**			
	Consultant Basic Services	15.0%	390,000	390,000
	Consultant Extra Services	2.5%	65,000	65,000
	Testing			
	Plan Review/Permits		40,000	40,000
	Other			
	Professional Services Subtotal		**495,000**	**495,000**
B.	**Construction**			
	General Contractor		2,360,000	2,485,000
	Other Contractors			
	Construction Contingency	10.0%	236,000	236,000
	Art	0.5%	15,000	-
	Other (interim Space Needs)			
	Construction Subtotal		**2,611,000**	**2,721,000**
	Construction Cost per GSF		281	241
C.	**Equipment and Furnishings**			
	Equipment		55,000	-
	Furnishings		55,000	-
	Make Ready/Move In			
	Equipment and Furnishings Subtotal		**110,000**	-
D.	**Administrative Costs**			
	Advance Planning			
	Misc. Expenses			
	Project Management	6.0%	190,000	190,000
	Administrative Costs Subtotal		**190,000**	**190,000**
E.	Total Project Cost		3,406,000	3,406,000
	Total Project Cost per GSF		366	301
F.	Total Appropriation(s)		3,406,000	3,406,000



1 FIRST FLOOR DEMOLITION PLAN
1" = 20'-0"

10' 20' 40'

N

UAS SITKA CTE NWA 1022

SCHEMATIC DESIGN

NorthWind Architects LLC
126 SEWARD ST.
JUNEAU, AK 99801
PH #907.586.6150
FX #907.586.6181
WWW.NORTHWINDARCH.COM

|"|

IF THE ABOVE DIMENSION DOES NOT EQUAL EXACTLY 1", THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELLED SCALES

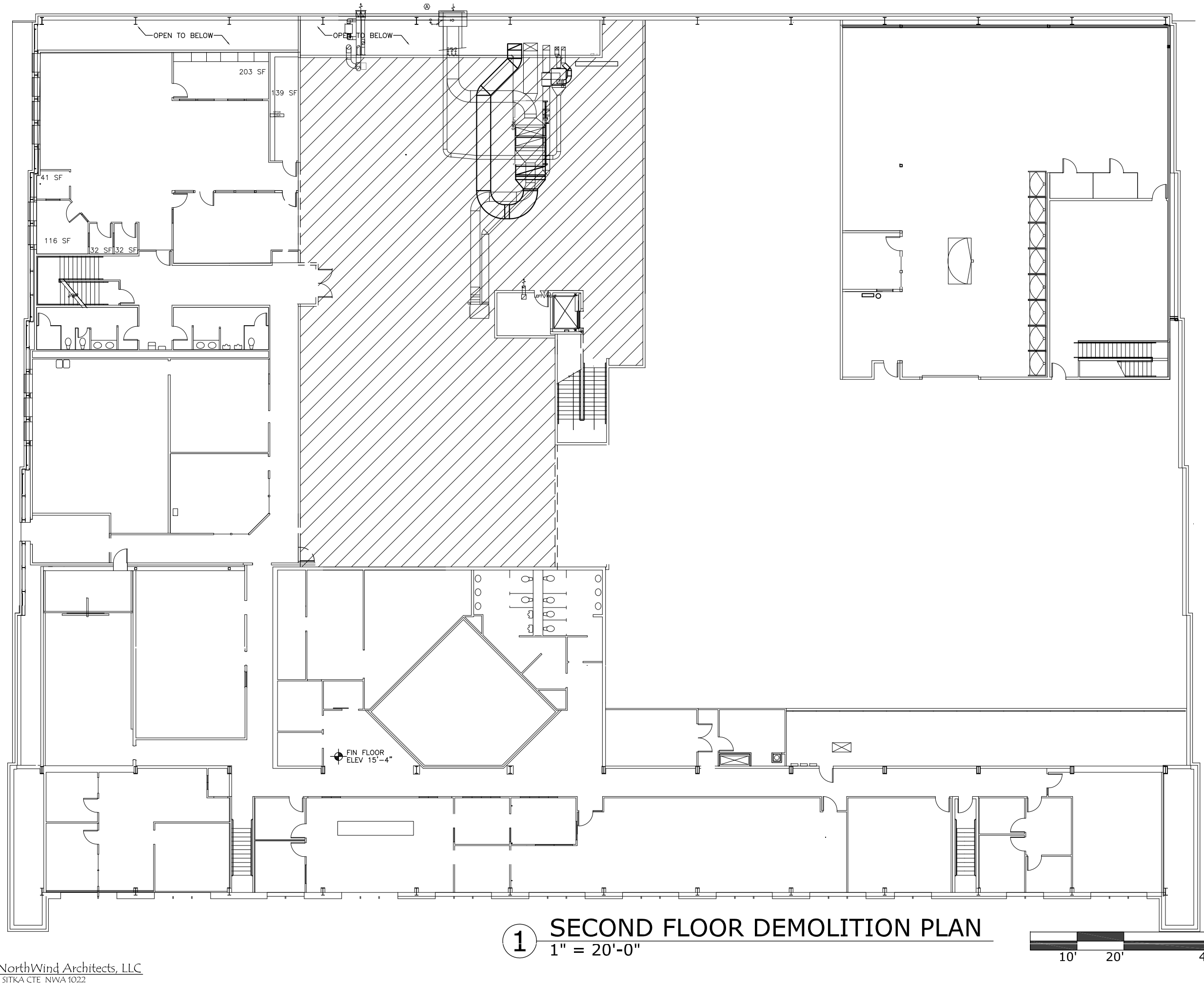
UAS Sitka Career & Technical Center

*** insert contract number ***
Sitka, AK

SHEET TITLE:
FIRST FLOOR DEMOLITION

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
CHECKED BY: ER
DRAWN: * initial *

SHEET #
A1



= = = = = INDICATES DEMOLITION

EXIST UNFINISHED MEZZANINE

1 SECOND FLOOR DEMOLITION PLAN
1" = 20'-0"

10' 20' 40'

N

SCHEMATIC DESIGN

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126 SEWARD ST.
JUNEAU, AK 99801
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Sitka, AK

SHEET TITLE:
SECOND FLOOR DEMOLITION

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
CHECKED BY: ER
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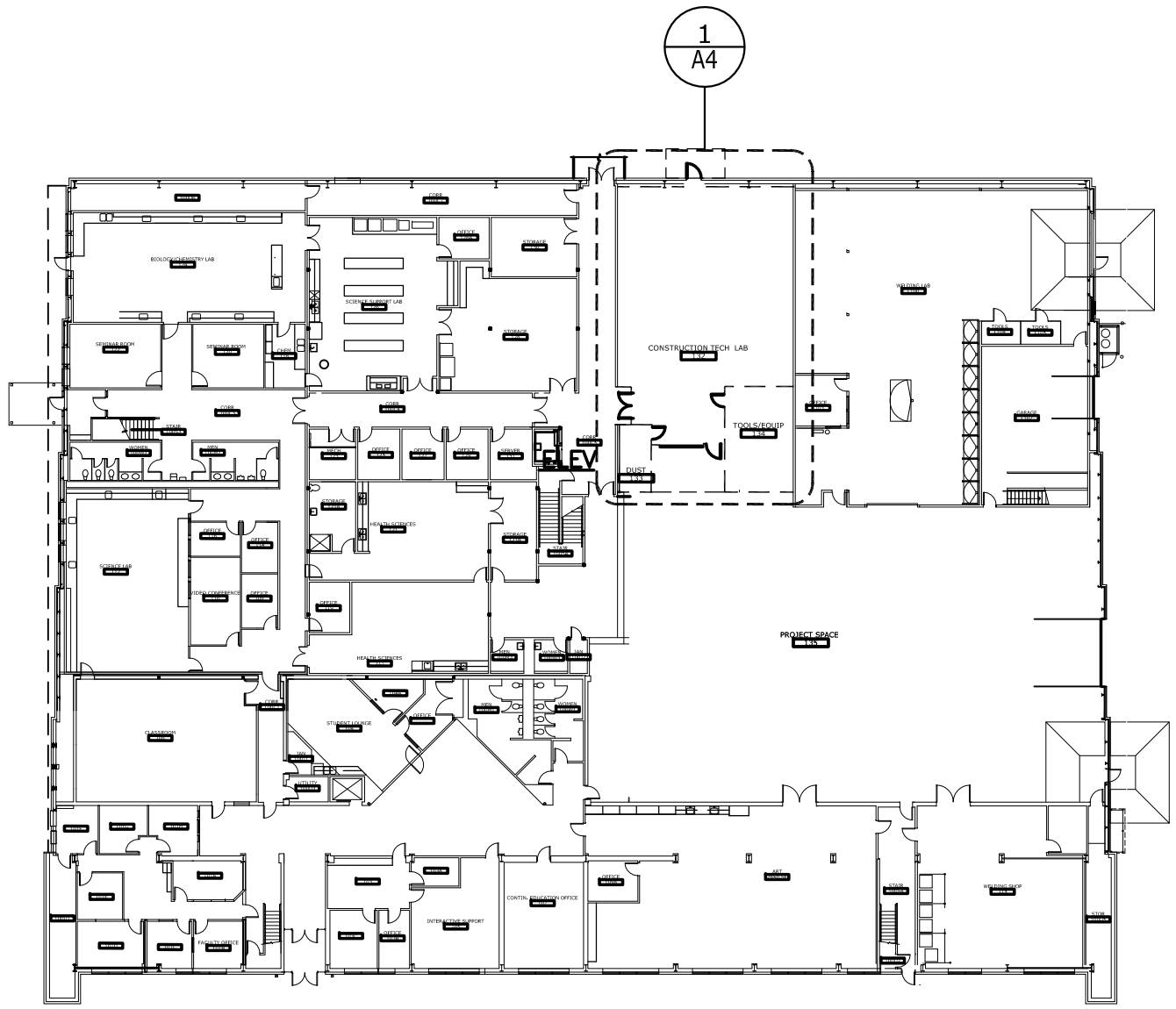
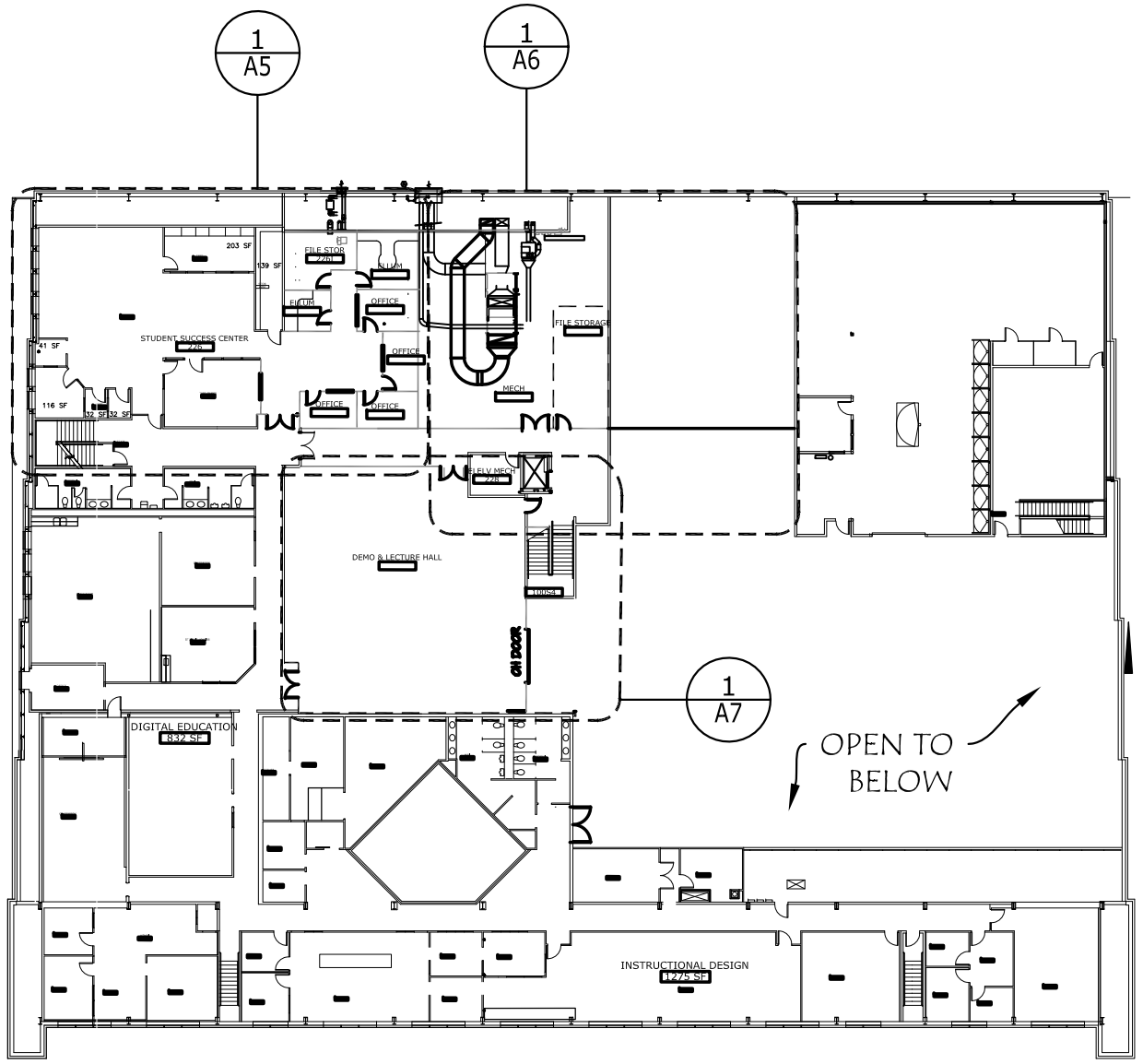


1 FIRST FLOOR PLAN
1" = 40'-0"

20' 40' 80'



2 SECOND FLOOR PLAN
1" = 40'-0"

20' 40' 80'

N

EXISTING WALL

ACOUSTIC WALL

STANDARD WALL

BEARING WALL

NEW DOOR

EXISTING DOOR

3 WALL TYPES
1/8" = 1'-0"

2' 4' 8' 16'

4 DOOR TYPES
1/8" = 1'-0"

2' 4' 8' 16'

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UAS SITKA CTE NWA 1022

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*** insert contract number ***
Sitka, AK

SHEET TITLE:
REFERENCE FLOOR PLANS & WALL TYPES

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
CHECKED BY: ER
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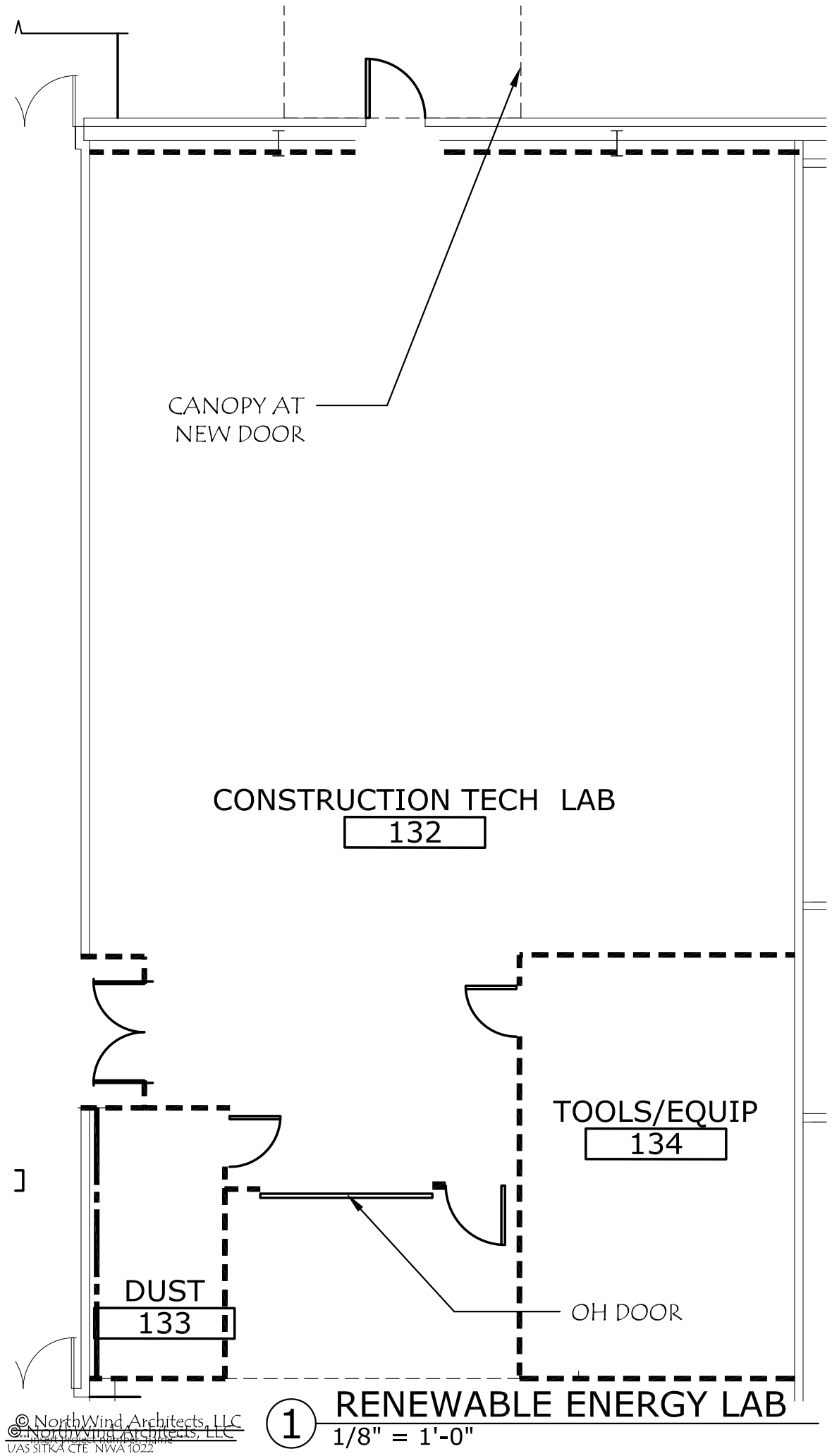
A3



1 RENEWABLE ENERGY LAB
1/8" = 1'-0"

2' 4' 8' 16'

UAS SITKA CTE NWA 1022

SCHEMATIC DESIGN

NorthWind Architects LLC
126 SEWARD ST.
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1"

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*** insert contract number ***
Sitka, AK

SHEET TITLE:
FIRST FLOOR
ENLARGED
FLOOR PLANS

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
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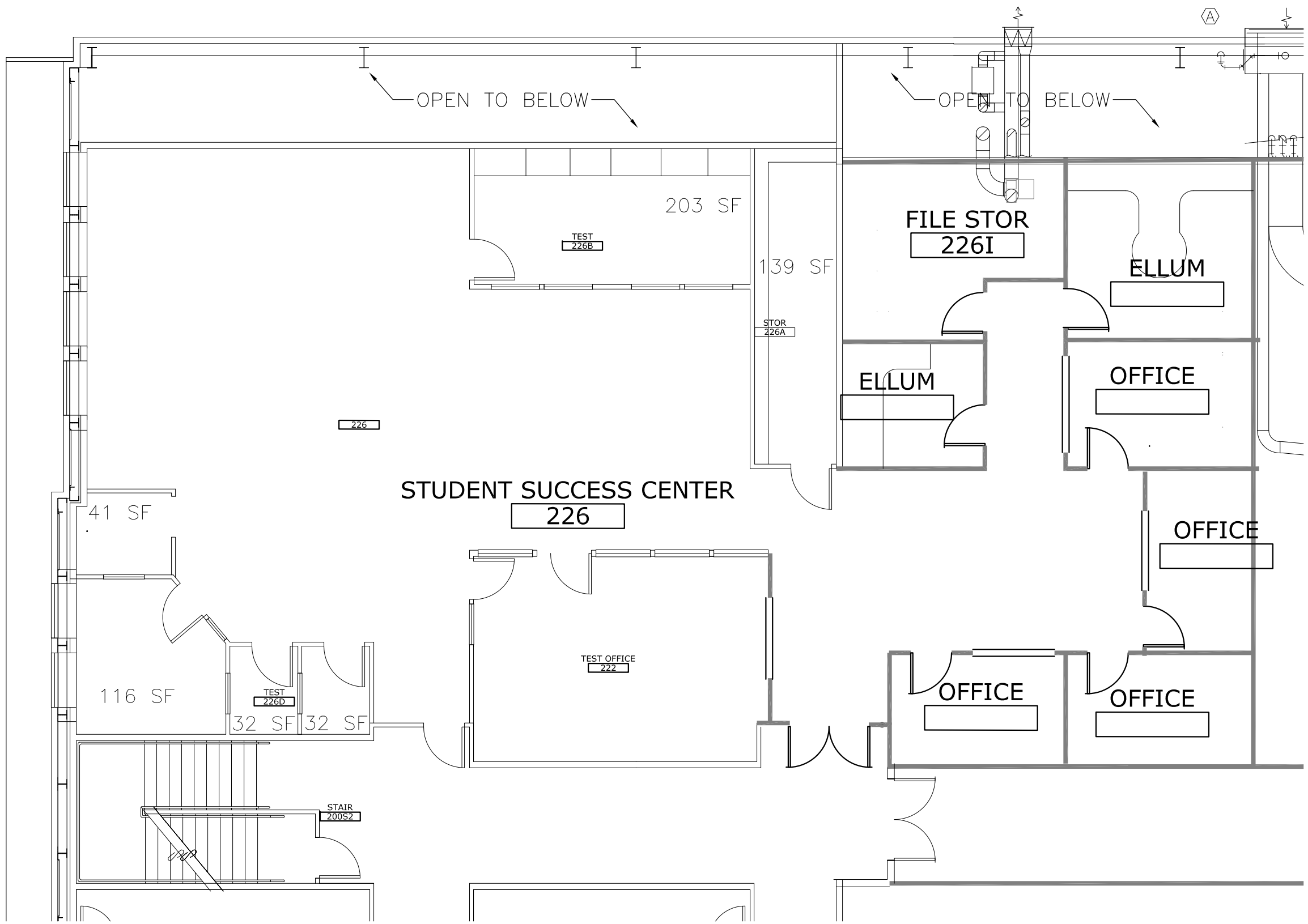

1 STUDENT SUCCESS CENTER
1/8" = 1'-0"

2' 4' 8' 16'

N

SCHEMATIC DESIGN

NorthWind Architects LLC
126 SEWARD ST.
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1"

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UAS Sitka Career & Technical Center

*** insert contract number ***
Sitka, AK

SHEET TITLE:
ENLARGED SECOND FLOOR PLANS

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
CHECKED BY: ER
DRAWN: * initial *

SHEET #
A5

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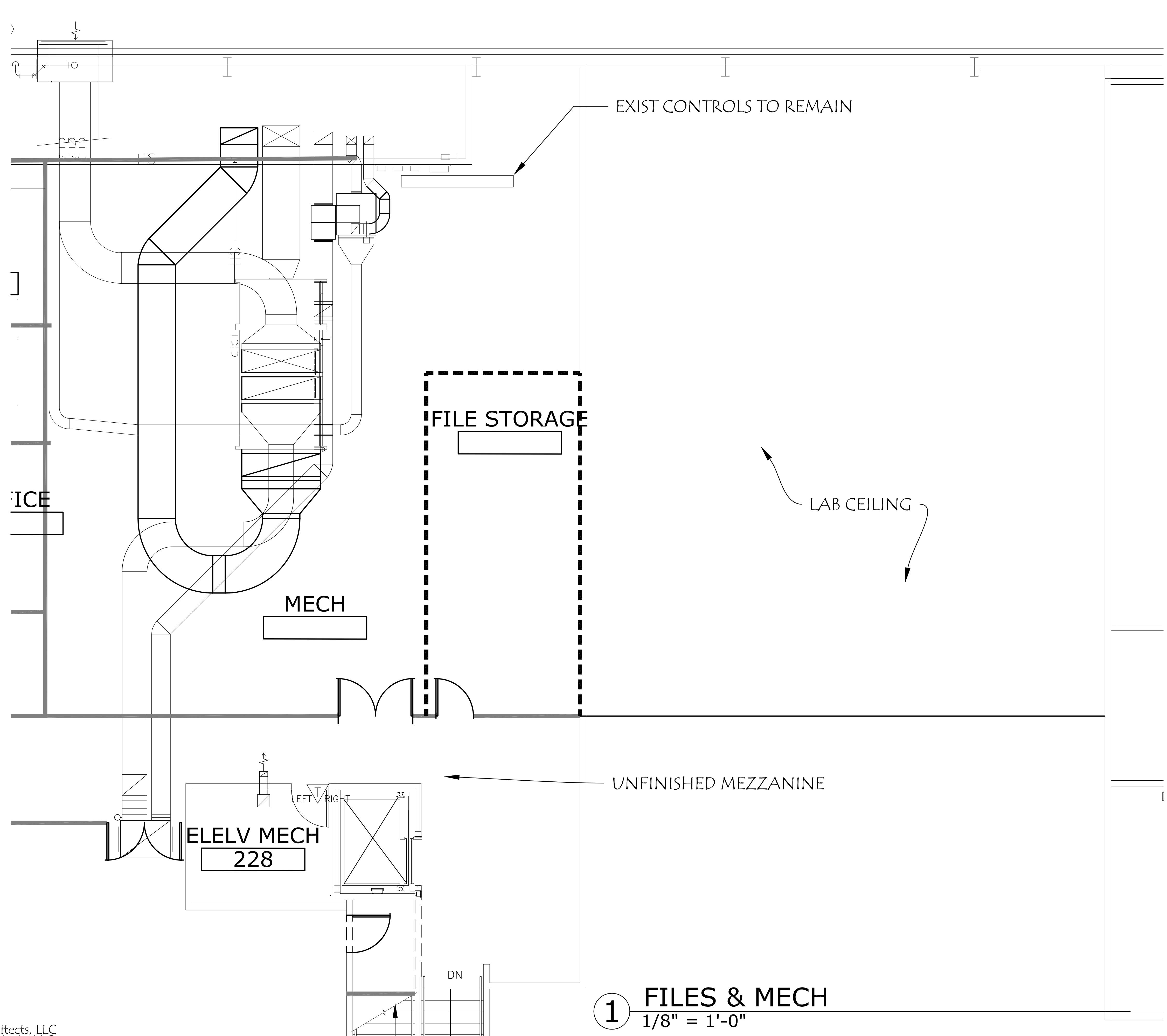
insert project number here
UAS SITKA CTE NWA 1022



1 FILES & MECH
1/8" = 1'-0"

SCHEMATIC DESIGN

N W
NorthWind Architects LLC
126 SEWARD ST.
JUNEAU, AK 99801
PH #907.586.6150
FX #907.586.6181
WWW.NORTHWINDARCH.COM

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IF THE ABOVE DIMENSION DOES NOT EQUAL EXACTLY 1", THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELLED SCALES

UAS Sitka Career & Technical Center

*** insert contract number ***
Sitka, AK

SHEET TITLE:
SECOND FLOOR
ENLARGED PLANS

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
CHECKED BY: ER
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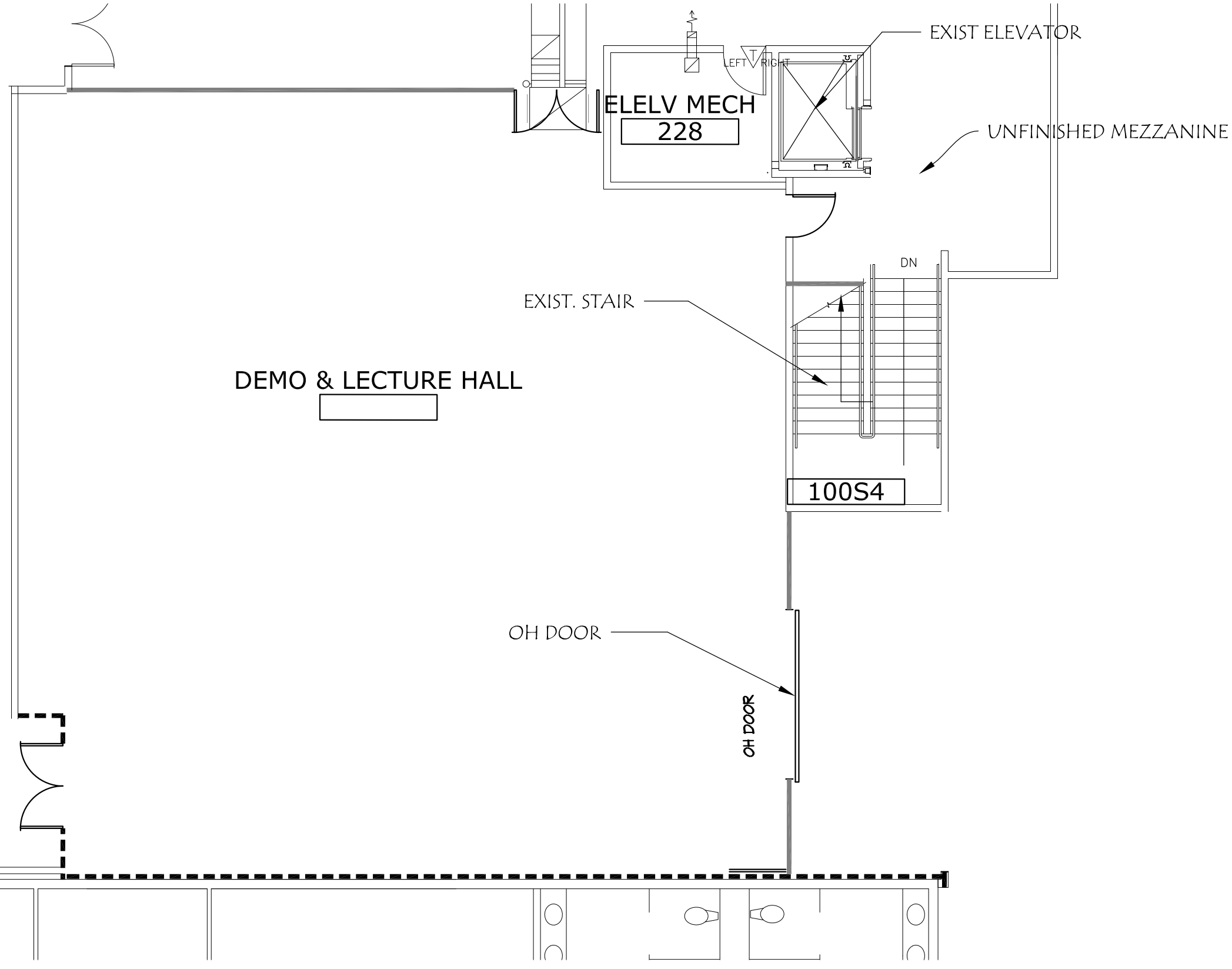
SHEET # A6



1 DEMO & LECTURE HALL
1/8" = 1'-0"

2' 4' 8' 16'

SCHEMATIC DESIGN

NorthWind Architects LLC
126 SEWARD ST.
JUNEAU, AK 99801
PH #907.586.6150
FX #907.586.6181
WWW.NORTHWINDARCH.COM

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UAS Sitka Career & Technical Center

*** insert contract number ***
Sitka, AK

SHEET TITLE:
SECOND FLOOR ENLARGED PLANS

DATE: APRIL18, 2011
REVISION: MAY 27, 2011
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SHEET #
A7

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Division of Design and Construction
590 University Avenue
P.O. Box 758160
Fairbanks, Alaska 99775-8160
(907) 474-5299, FAX (907) 474-7554

Total Project Cost	$1,630,000
Approval Required	CFO

MEMORANDUM

TO: Kit Duke
Chief Facilities Officer

THROUGH: Scott Bell
Associate Vice Chancellor, Facilities Services

THROUGH: Jonathan T. Shambare
Director, Design and Construction

FROM: Mike Ruckhaus
Senior Project Manager

DATE: August 11, 2011

SUBJECT: Schematic Design Approval
Project Name: Atkinson Power Plant Renewal Phase 1
Project No.: 2010140 BARN

In accordance with Regents' Policy 05.12, approval by the Facilities and Land Management Committee is required for this project. Your prompt review of this project would be greatly appreciated.

Requisite materials are enclosed.

cc: Pat Pitney
Vice Chancellor
Administrative Services

BARN (101)

SCHEMATIC DESIGN APPROVAL

Name of Project: **Atkinson Power Plant Renewal Phase 1**

Location of Project: **UAF Campus**

Project Number: **2010140 BARN**

Date of Request: **August 11, 2011**

Total Project Cost:	**$ 1,630,000**
Approval Required:	**Chief Financial Officer**
Prior Approvals/Actions:	**Preliminary Administrative Approval: November 2008** **Formal Project Approval: June 3, 2011 ($40.4M)**

POLICY CITATION

In accordance with Regents' Policy 05.12.043, Schematic Design Approval (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 phase(s) of the project and authorization to complete the Construction Documents process, to bid and award a contract within the approved budget, and to proceed to completion of project construction.

For the Schematic Design Approval, if there has been no Material Change in the project since the Formal Project Approval, approval levels shall be as follows:

- TPC > $4 million will require approval by the Facilities and Land Management Committee (F&LMC).
- TPC > $2 million but ≤ $4 million will require approval by the Chairperson of the F&LMC.
- **TPC ≤ $2 million will require approval by the university's Chief Finance Officer (CFO) or designee.**

RATIONALE AND RECOMMENDATION

Background

UAF's Atkinson Heat and Power Plant and utilidors are the heart of campus infrastructure for providing heat, light, water, and other utilities to the students, staff, and faculty. As the campus expands, the demand on these aging utilities also increases. The power plant was originally constructed in 1964 and consisted of two stoker fired coal boilers and two 1.5 MW backpressure turbines. This equipment is still in service, and UAF depends on its reliable operation to supply heat and power to campus.

There have been additions and upgrades to the plant since 1964, but there has not been a major renewal of the plant since original construction. An oil fired boiler was installed in 1972 to provide additional steam capacity and reliability. The next major improvement to the plant was the installation of a 10MW steam extraction turbine in 1982 which was followed by the installation of another oil fired boiler. The last upgrade of the plant was the installation of a 9.6MW diesel engine generator in 1998.

The plant has provided the campus with reliable heat and power for many years, but an event in December, 1998 highlighted the need to renew aging equipment. The plant narrowly avoided a catastrophic failure when a boiler tube rupture filled the plant and switchgear room with water and steam. The resulting six hour power outage had a major impact on the campus, and it highlights the need to replace or rehabilitate the major equipment that is now over 45 years old.

In 2006, UAF hired a consultant to perform a comprehensive study of the condition of the existing utility systems, including the Atkinson Power Plant. The study also evaluated the need for utility expansion to keep pace with projected campus growth. The resulting Utility Development Plan contained the following recommendations:

> *"In order to continue to reliably serve all campus utility needs over the next twenty years UAF must:*
>
> - *Invest substantially in utility system capital asset renewal and utility infrastructure improvements*
> - *The best long term utility strategy is renewal and expansion of the Atkinson plant. This strategy is the best strategic, operational and financial fit for UAF."*

The funding to implement the total scope of work contained in the 2006 Utilities Development Plan will not be available in one appropriation, thus the work will be done in a phased approach. Formal Project Approval by the Board of Regents was granted for $40.4M in June 2011. The purpose of the aforementioned approval was to provide overall Formal Project Approval for all phases. Subsequent Schematic Design Approvals will be obtained for each phase as funding is received each fiscal year. The estimated duration of funding is estimated to span five fiscal years. The overall budget and progress for the total project will be periodically reported to the Board of Regents.

The attached Atkinson Power Plant Work Items provides an up to date summary of projects completed, in design and planned for the future.

Project Scope

Phase 1 scope of work consists of the construction of a redundant steel aeration basin and reconstruction of the existing aeration basin for the water treatment plant. The existing aeration basin is severely corroded and needs to be replaced. Unfortunately, the only way to keep the water treatment plant operational during the reconstruction of the existing basin is to construct a redundant basin. In the long term, the redundant basin will allow maintenance without having to shut down the water treatment plant.

The construction of a redundant basin will require an addition of approximately 800 sf to the water treatment plant building. The addition will be constructed with steel framing and foam insulated panels. This type of envelope has been successful on other industrial projects such as this. The insulating values are compliant with the UAF Design Standards.

The aeration basin will be connected to existing compressed air and raw water piping systems and will be equipped with sufficient valving for operational flexibility. The new aeration basis will be installed at a higher elevation than the clarifier which will eliminate the need for pumps, because the water will gravity flow through the basin.

The existing HVAC systems will be modified to provide heat and ventilation to the new addition. A code deficiency in the chemical handling room will also be addressed with the addition of a new fan.

The attached drawings provide more detail.

Variance Report

The estimated cost of this scope of work has increased by $135,000 due to general inflation since concept development, and due to additional ventilation in the water plant that was not anticipated in the original concept. The original concept development and initial cost estimate was done in 2006

Proposed Total Project Cost and Funding Source(s)

FY11 and FY12 capital appropriations.

Estimated Annual Maintenance and Operating Costs (O&M)

Utilities are expected to increase by approximately $4,000/yr. Maintenance and operations costs of the water plant are expected to decrease by approximately $7,000/yr.

Consultant(s)

Design Alaska, Inc. has assembled a team including Evergreen Engineering and HDR, Inc. They were selected in accordance with Board of Regents Policy.

Other Cost Considerations

None

Backfill Plan

N/A

Schedule for Completion

DESIGN	
Conceptual Design	January 2011
Formal Project Approval	June 2011
Schematic Design	June 2011
Schematic Design Approval	August 2011
Construction Documents	July 2011
BID & AWARD	
Advertise and Bid	August 2011
Construction Contract Award	August 2011
CONSTRUCTION	
Start of Construction	August 2011
Date of Substantial Completion	May 2012
Date of Beneficial Occupancy	May 2012

Procurement Method for Construction
Traditional Design-Bid-Build

Affirmation
This project complies with Board Policy

Action Requested
Schematic Design Approval

Supporting Documents

- One Page Budget
- Atkinson Plant Work Items
- Site Plan
- Floor Plan
- Mechanical Floor Plan
- Architectural Elevation/Sections

Approval

Recommend Approval:

8.12.11

Kit Duke, Chief Facilities Officer *Date*

Schematic Design Approval is hereby granted:

8/16/11

Joe Trubacz, Chief Financial Officer *Date*

SCHEMATIC DESIGN APPROVAL

Name of Project: **Atkinson Power Plant Renewal Phase 1**

Location of Project: **UAF Campus**

Project Number: **2010140 BARN**

Date of Request: **July 29, 2011**

Total Project Cost:	**$ 1,630,000**
Approval Required:	**Chief Financial Officer**
Prior Approvals/Actions:	**Preliminary Administrative Approval: November 2008** **Formal Project Approval: June 3, 2011 ($40.4M)**

Supporting Documents

- One Page Budget
- Atkinson Plant Work Items
- Site Plan
- Floor Plan
- Mechanical Floor Plan
- Architectural Elevation/Sections

UNIVERSITY OF ALASKA

Project Name:	Atkinson Plant Renewal Phase 1		
MAU:	UAF		
Building:	Atkinson Power Plant	Date:	July 26, 2011
Campus:	Fairbanks	Prepared By:	M. Ruckhaus
Project #:	2010140	Account No.:	571297-50216
Total GSF Affected by Project:	800		

PROJECT BUDGET	FPA Budget	SDA Budget
A. Professional Services		
Advance Planning, Program Development		$0
Consultant: Design Services	$140,000	$140,000
Consultant: Construction Phase Services		$20,000
Consul: Extra Services (List:_____)		$0
Site Survey		$0
Soils Testing & Engineering		$0
Special Inspections		$0
Plan Review Fees / Permits		$0
Other		$0
Professional Services Subtotal	**$140,000**	**$160,000**
B. Construction		
General Construction Contract (s)	$1,060,000	$1,150,000
Other Contractors (List:_____)		$0
Construction Contingency	$100,500	$109,250
Construction Subtotal	**$1,160,500**	**$1,259,250**
Construction Cost per GSF	***N/A***	***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	$5,000	$5,000
Maintenance/Operation Support	$5,000	$5,000
Building Completion Activity Subtotal	**$10,000**	**$10,000**
D. Owner Activities & Administrative Cost		
Project Planning and Staff Support	$61,000	$64,316
Project Management	$116,500	$124,984
Misc Expenses: Advertising, Printing, Supplies	$7,000	$7,000
Owner Activities & Administrative Cost Subtotal	**$184,500**	**$196,301**
E. Total Project Cost	**$1,495,000**	**$1,625,551**
Total Project Cost per GSF		***N/A***
F. Total Appropriation(s)	**$1,495,000**	**$1,630,000**

Atkinson Heat and Power Plant Renewal Scope
July 2011

The following table shows the items in their approximate order of priority to the operational mission:

Atkinson Renewal Items for FY11 allocation of $2.6M:

Item	Item needed if new plant is constructed	Cost	Description
Partial replace boiler tubes for Boilers 1&2 **(Project: BAST – Complete)**	No	$990,000	Replace superheater tubes (approximately 25% of the total tubes) which inspections have shown to be in the worst condition. Also perform ultrasonic testing on the remainder of the tubes and other parts to ascertain their condition.
Replace Boiler No. 4 air pre-heater **(Project: BAPH4 complete)**	Yes	$245,000	A recent inspection has revealed that this heater is near failure. If it fails, boiler No. 4 will not be able to provide steam which significantly reduces the steam plant redundancy.
Additional domestic water aerator **(Phase 1 – SDA approval)**	Yes	$1,495,000 (Part of $1,630,000 TPC)	This item provides installation of a second parallel unit to enable extended shutdown of the existing tank and its internal components for inspection and repair. It requires a small addition to the building.
TOTAL		**$2,600,000**	

Atkinson Renewal Items for FY12 allocation of $987,000:

Item	Item needed if new plant is constructed	Cost	Description
Additional domestic water aerator **(Phase 1 – SDA approval)**	Yes	$135,000 (Part of $1,630,000 TPC)	This item provides installation of a second parallel unit to enable extended shutdown of the existing tank and its internal components for inspection and repair. It requires a small addition to the building.

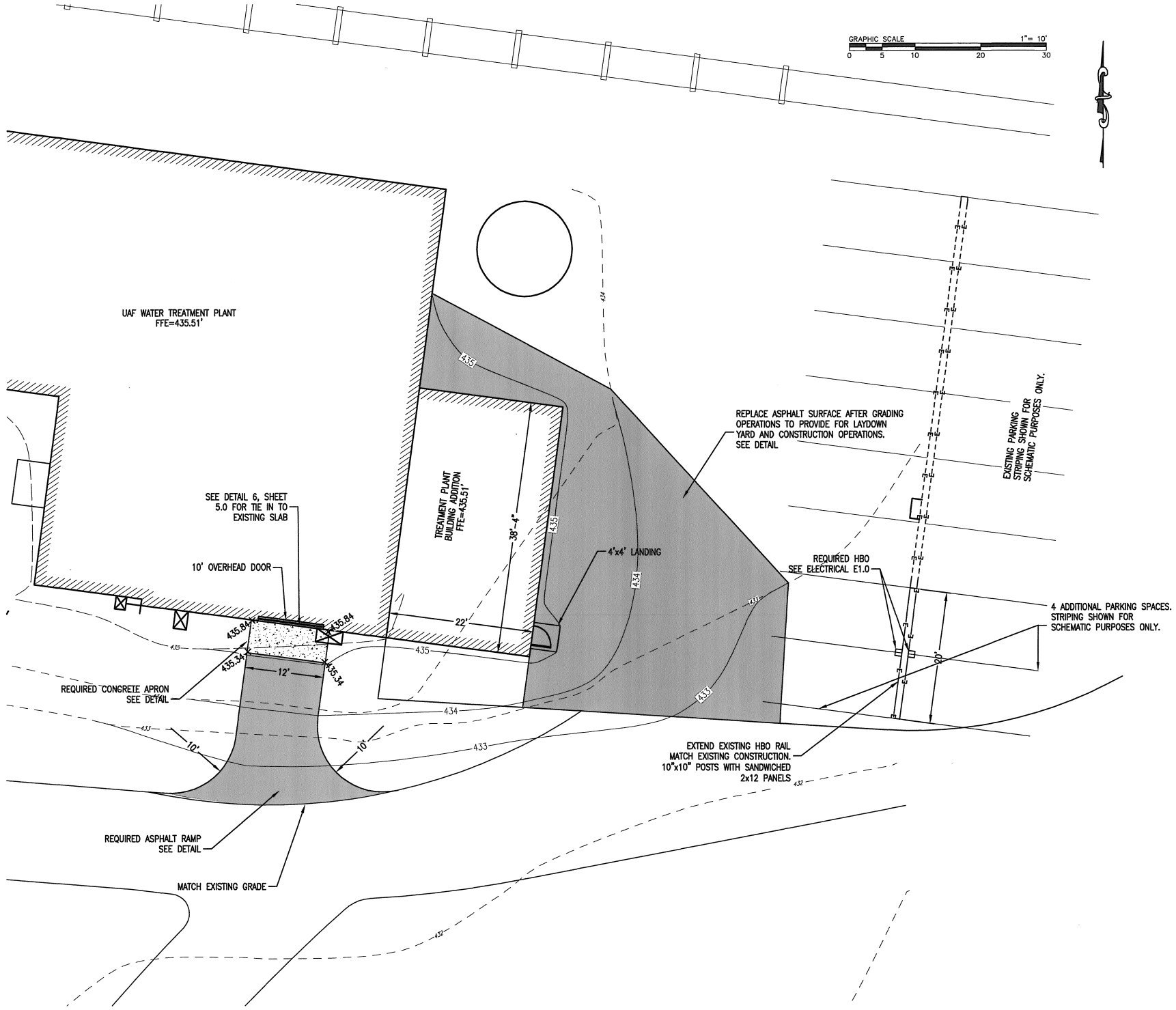
Replace existing variable frequency drives	Yes	$400,000	Variable frequency drives installed in the early 1990's as a part of an energy efficiency improvement project are approaching the end of their useful life and would be replaced with newer, more robust technology.
Replace feedwater heater	Yes	$100,000	Existing feedwater heater is approaching the end of its useful life and is a potential single point of failure.
Eliminate single points of failure in critical piping (partial scope)	Yes	$352,000	Eliminate single points of failure in critical piping: A large portion of the piping system is on the order of 40 years old.
TOTAL		**$987,000**	

Atkinson Plant Renewal Items (FY12-17), in order of priority:

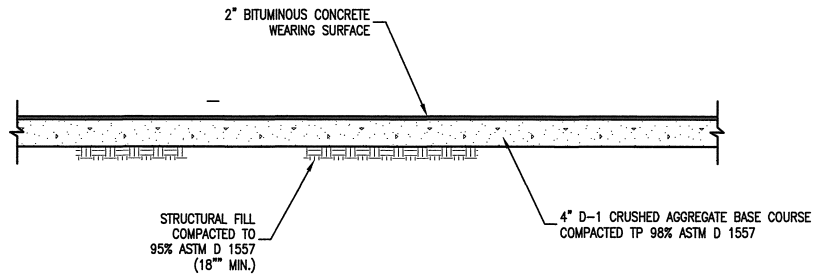
Item **(Phases to be Determined)**	Item needed if new plant is constructed	Cost	Description
Add second deaerator tank	Yes	$1,000,000	Existing unit has been in service in excess of 40 years. Install new unit in parallel with existing.
Continuous emissions monitoring for Boiler No. 4	Yes	$425,000	Continuous Emissions Monitoring for Boiler No. 4: Existing air permit includes 10% capacity constraint for Boiler #4 that would be lifted with installation of continuous monitoring.
Eliminate single points of failure in critical piping	Yes	$648,000	Eliminate single points of failure in critical piping: A large portion of the piping system is on the order of 40 years old.
Eliminate single points of failure in condensate system	Yes	$1,000,000	This measure would provide the ability to handle condensate from a second holding tank location, allowing the existing 1964 vintage steel tank to be taken down for inspection and repair.
Increase RO capacity	Yes	$350,000	Reverse Osmosis is used in water treatment for make-up water in the steam generation process.
Replace existing demineralizer	Yes	$425,000	Demineralized water is used as make up in the steam generation process. Existing unit is approaching useful design life. The new demineralizer could supply the new power plant.

Replace obsolete control system	Yes	$2,500,000	This is an aging plant control system (1980's vintage). This system runs the bulk of the steam generation facility. Controllers are becoming difficult to obtain due to product obsolescence.
Expansion of ash silo	No	$4,000,000	The new coal boiler project would eliminate the need for this project.
Rail spur maintenance	Yes	$250,000	Because the University's rail spur is used as the primary conduit for coal, it has been in near continuous service for over 40 years and is in need of maintenance.
Reconstruct feedwater pumping station	No	$750,000	This measure would remove the abandoned 1960's vintage feedwater pumping station and replace it with new technology multistage pumps.
Additional water storage tank for redundancy	Yes	$2,500,000	Additional water storage tank for redundancy: This is a reliability and redundancy measure that would allow isolation and drainage of the existing tank for periodic cleaning, inspection and repair.
Utilidor ventilation	Yes	$425,000	Installation of fire rated door assemblies at the plant/utilidor access points and certain locations at campus buildings has eliminated natural ventilation in large portions of the utilidor system, causing a large amount of condensation on exposed steel and significant corrosion. This measure would install ventilation shafts in sealed areas of the utilidor system.
Pave Atkinson parking lot for dust control (air permit issue)	Yes	$200,000	Pave Atkinson parking lot for dust control (air permit issue): Efficient Operation of a utility plant of this nature requires relatively good vehicle access. During wet conditions, access to the backside of the plant is restricted.
Replace boiler tubes for Boilers 1&2	No	$11,475,000	Replace boiler tubes for Boilers 1&2: Existing units have been in service in excess of 40 years. Perform thorough NDE inspection of tubes. Replace as indicated. Rehabilitate existing mechanical components such as fans, coal elevator, stoker grates, ash removal, etc.
Improve domestic water taste (membrane filtration)	Yes	$425,000	Improve Domestic water taste (membrane filtration): This measure would install point-of-use membrane filtration units in key locations to reduce consumer concern about taste.

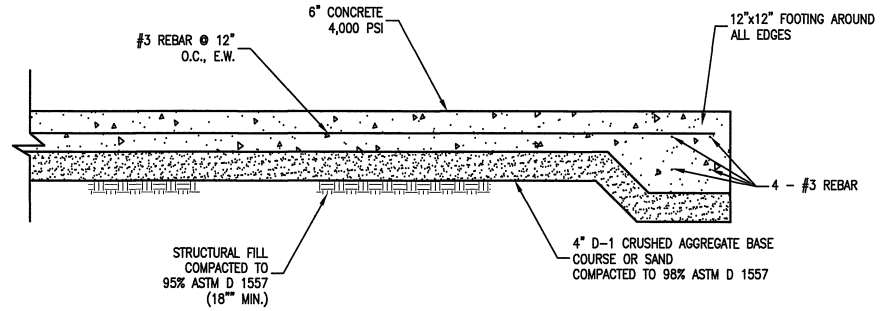
Back-up cooling water	No	$350,000	This is a reliability measure to provide redundancy in a system that is critical to operation of power generation. Existing single wall unit is in excess of design life.
Convert Boiler No. 3 to dual fuel (natural gas and oil)	Yes	$500,000	Add current natural gas burner technology to Unit #3 to allow operation with less expensive fuel source. Operation with natural gas may have a positive impact on the University's air quality permit application. (These are contained in the Natural Gas Strategy Capital Costs in Appendix A Section).
Replace thinwall steel chilled water piping on Lower Campus	Yes	$1,750,000	Replace thin wall steel chilled water piping on Lower Campus: Piping in portions of the existing chilled water distribution system on lower campus was constructed of a thin wall material subject to corrosion and failure.
Additional condenser capacity	No	$1,500,000	Additional condensers will allow the steam turbine to increase its output in the summer.
Replace steam and condensate lines to U-Park	Yes	$5,000,000	The pipes are near the end of their useful life.
New water plant controls	Yes	$200,000	Existing controls are not supported by the manufacturer and are at the end of their life.
Raw water pumping station re-build	Yes	$250,000	
Central air compressor replacement	Yes	$250,000	
TOTAL		**$34,213,000**	
PROJECT TOTAL (FY11/12 work plus FY13-17 work)		**$40,400,000**	



1 SITE PLAN
C3.0 1" =10'



2 TYPICAL PARKING LOT AND RAMP DETAIL
C3.0 nts



3 TYPICAL CONCRETE APRON DETAIL
C3.0 nts

NOTES:

ELEVATIONS AT BUILDING SHALL BE 8" BELOW FINISH FLOOR. SEE DETAIL 4 ON SHEET A3.2.

VERIFY ELEVATION OF EXISTING TANK PEDESTAL PRIOR TO CONSTRUCTION OF O/H DOOR APRON.

Revision Date No.

UAF WATER PLANT AERATION TANK 2010140 BARN

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

SITE PLAN

STATE OF ALASKA 49th
Victor J. Apodaca, III
No. CE 12907
REGISTERED PROFESSIONAL ENGINEER

3" 1"=1' 1/2"=1' 3/8"=1' 1/8"=1' 0" 1"=100' 1" 1"=40' 2" 1"=60' 3"
1-1/2"=1' 3/4"=1' 1/4"=1' 1"=10' 1"=20' 1"=30'

Date 07/11/2011 Comm. No. 031009
In Charge CHM
Drawn By VJA
Checked By

C3.0

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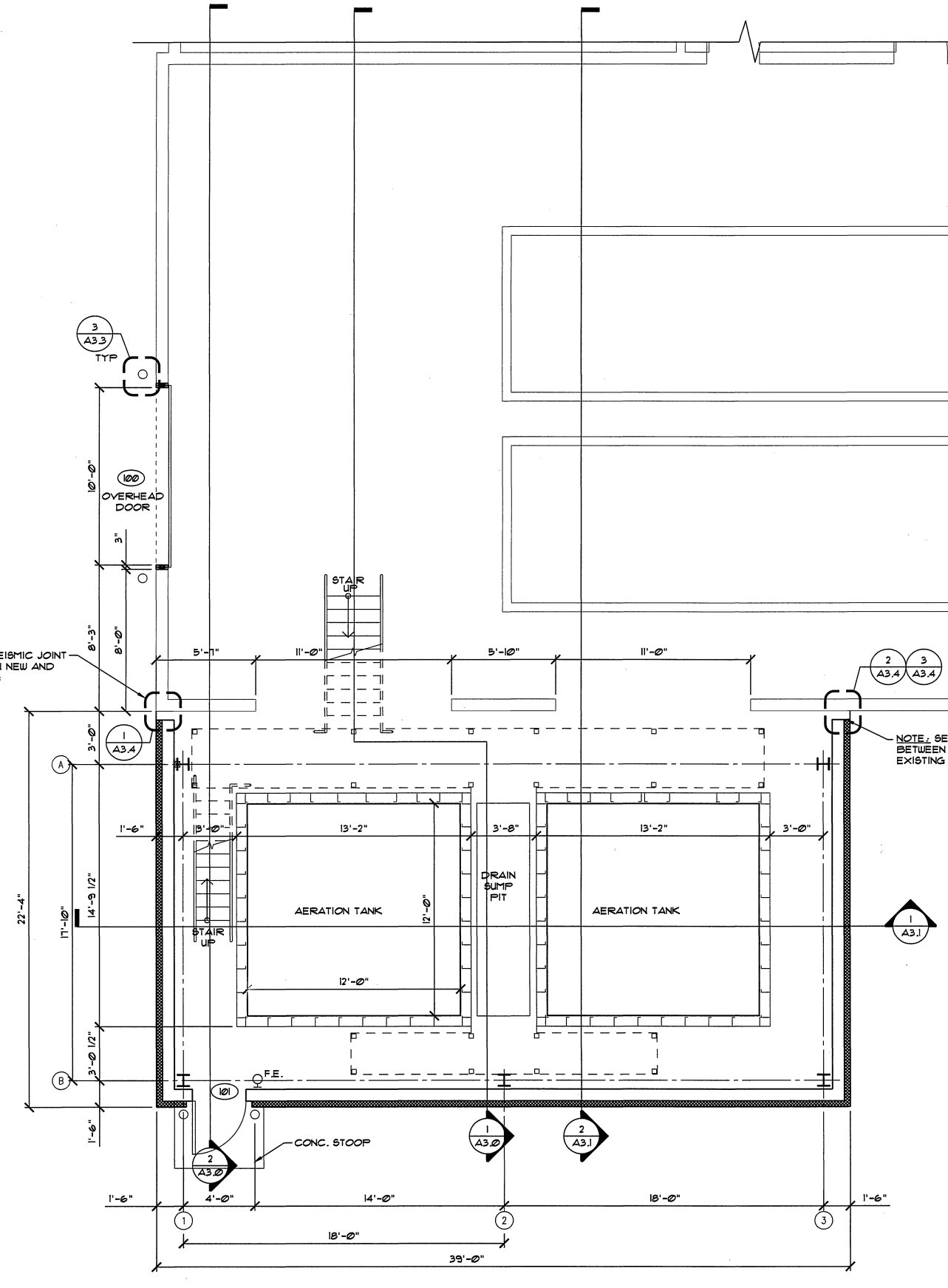
031009 C3 SITE PLAN.DWG



1 A1.0 FLOOR PLAN
1/4"=1'-0"

N

LEGEND:

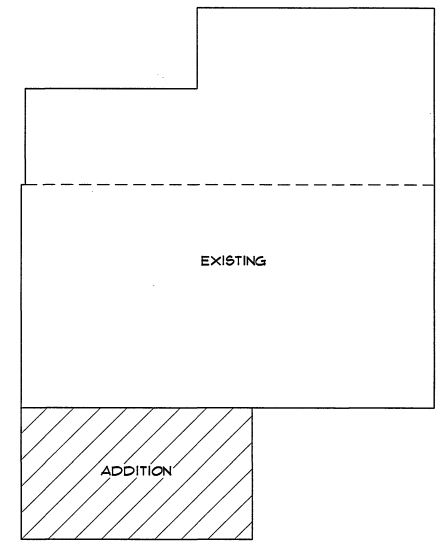
NEW WALL

EXISTING WALL TO REMAIN

FIRE EXTINGUISHER

GENERAL NOTES:

1. ALL DIMENSIONS FOR NEW CONSTRUCTION ARE TO CENTERLINE OF COLUMNS OR FACE OF METAL PANELS
2. ALL DIMENSIONS FOR EXISTING CONSTRUCTION ARE TO FACE OF FINISH



KEY PLAN

N

Revision	Date	No.

UAF WATER PLANT AERATION TANK 2010140 BARN

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

STATE OF ALASKA 49th
JAMES D. BARTLETT
No. A 10413
REGISTERED PROFESSIONAL ARCHITECT
07.14.11

FLOOR PLAN

3" 1"=1' 1/2"=1' 3/8"=1' 1/8"=1' 0" 1"=100' 1" 1"=40' 2" 1"=60' 3"
1-1/2"=1' 3/4"=1' 1/4"=1' 1"=10' 1"=20' 1"=30'

Date 07/11/2011 Comm. No. 031009
In Charge
Drawn By CS
Checked By

A1.0

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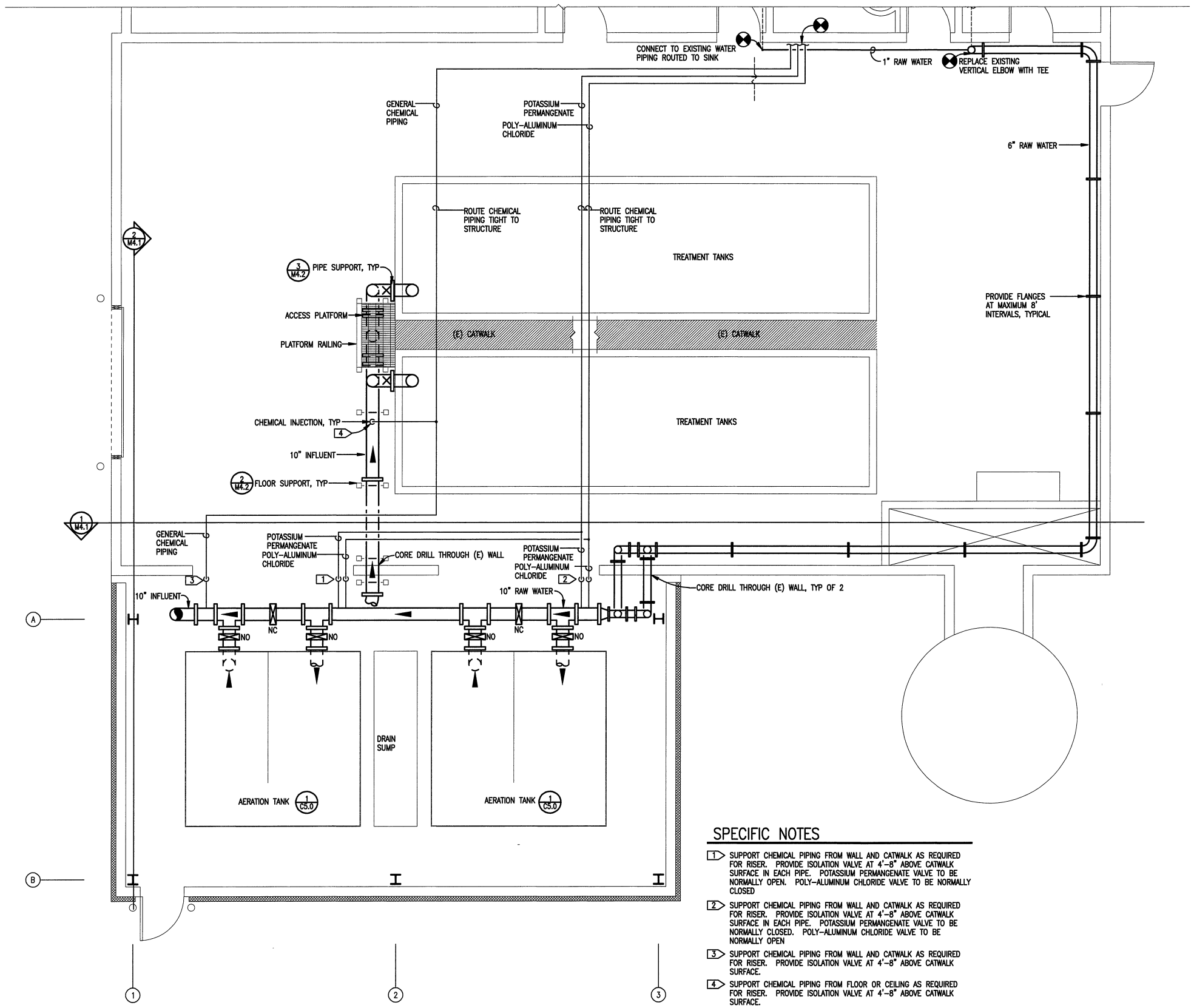

GENERAL NOTES

1. PROVIDE 7'-0" MINIMUM VERTICAL CLEARANCE ABOVE ALL WALKING SURFACES INCLUDING CATWALKS, STAIRCASE, AND MAIN FLOOR SLAB.

SPECIFIC NOTES

1. SUPPORT CHEMICAL PIPING FROM WALL AND CATWALK AS REQUIRED FOR RISER. PROVIDE ISOLATION VALVE AT 4'-8" ABOVE CATWALK SURFACE IN EACH PIPE. POTASSIUM PERMANGENATE VALVE TO BE NORMALLY OPEN. POLY-ALUMINUM CHLORIDE VALVE TO BE NORMALLY CLOSED
2. SUPPORT CHEMICAL PIPING FROM WALL AND CATWALK AS REQUIRED FOR RISER. PROVIDE ISOLATION VALVE AT 4'-8" ABOVE CATWALK SURFACE IN EACH PIPE. POTASSIUM PERMANGENATE VALVE TO BE NORMALLY CLOSED. POLY-ALUMINUM CHLORIDE VALVE TO BE NORMALLY OPEN
3. SUPPORT CHEMICAL PIPING FROM WALL AND CATWALK AS REQUIRED FOR RISER. PROVIDE ISOLATION VALVE AT 4'-8" ABOVE CATWALK SURFACE.
4. SUPPORT CHEMICAL PIPING FROM FLOOR OR CEILING AS REQUIRED FOR RISER. PROVIDE ISOLATION VALVE AT 4'-8" ABOVE CATWALK SURFACE.

1 / M3.1 WATER, CHEMICAL, & LOW PRESSURE AIR PIPING PLAN

1/4" = 1'-0"

N

Revision	Date	No.

UAF WATER PLANT AERATION TANK 2010140 BARN

STATE OF ALASKA 49TH — JASON COLQUHOUN No. ME 12826 — REGISTERED PROFESSIONAL ENGINEER

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

WATER, CHEMICAL, & LOW PRESSURE AIR PLUMBING PLAN

Date	07/11/2011
Comm. No.	031009
In Charge	JC
Drawn By	JC
Checked By	

M3.1

3" 1"=1' 1/2"=1' 3/8"=1' 1/8"=1' 0" 1"=100' 1" 1"=40' 2" 1"=60' 3"
1-1/2"=1' 3/4"=1' 1/4"=1' 1"=10' 1"=20' 1"=30'

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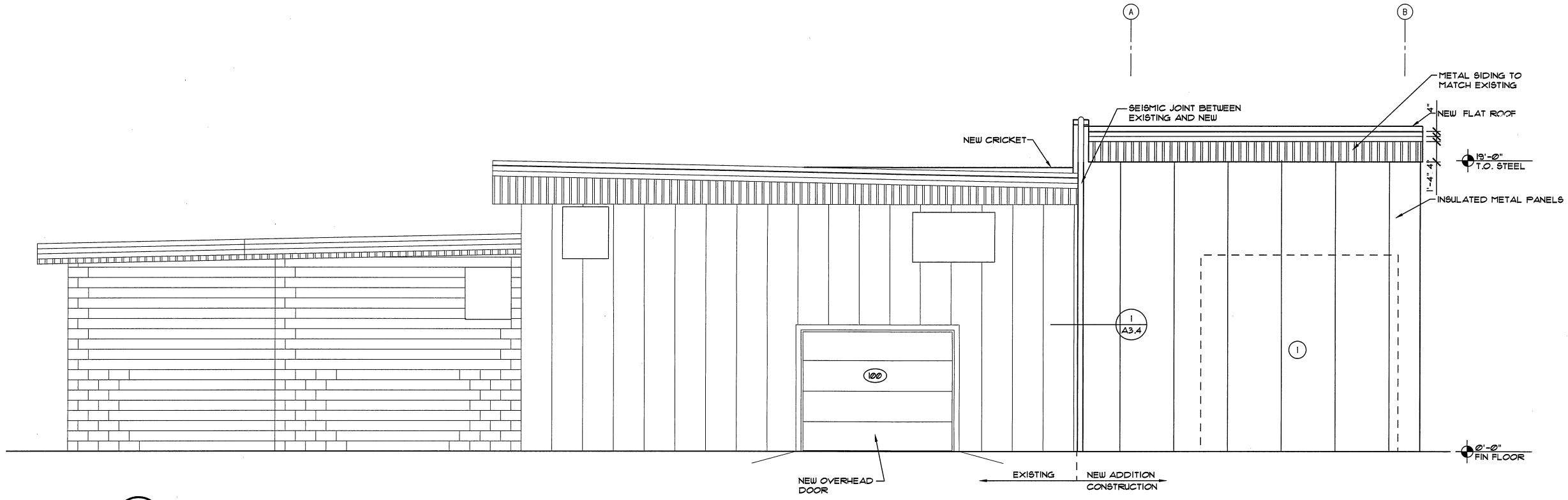
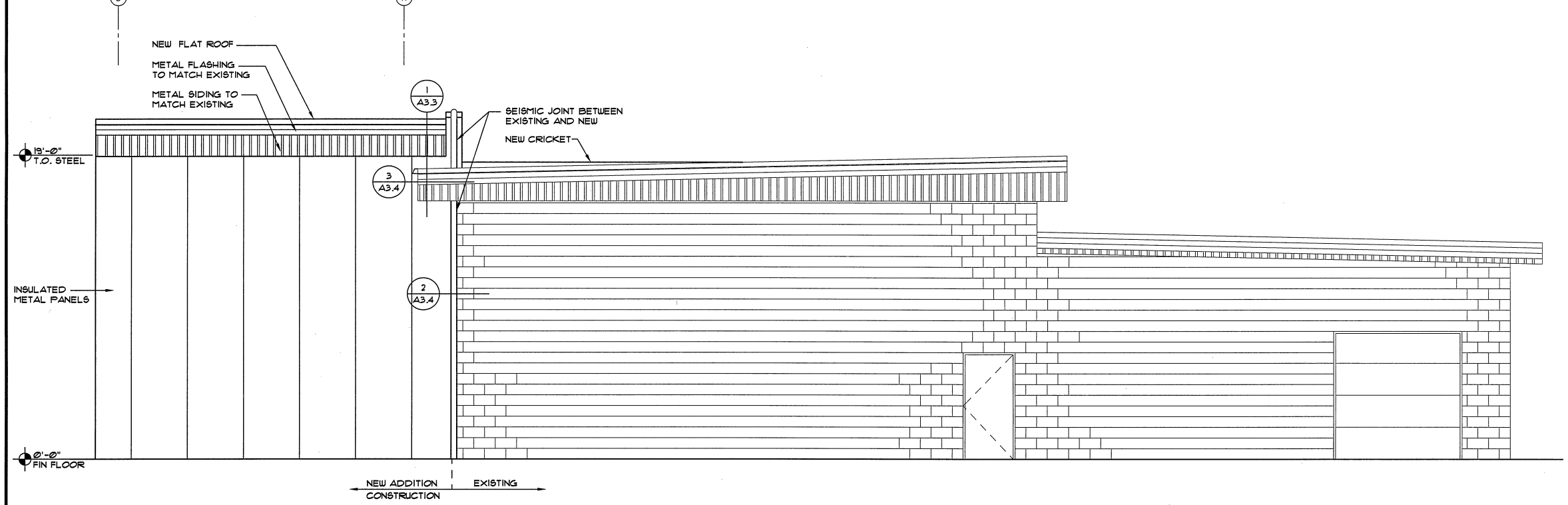


1 A2.0 SOUTH ELEVATION

1/4"=1'-0"



2 A2.0 NORTH ELEVATION

1/4"=1'-0"

KEYNOTES:

1. INSULATED METAL PANELS TO BE REMOVABLE FOR REMOVAL OF TANKS

Revision Date No.

UAF WATER PLANT AERATION TANK 2010140 BARN

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

EXTERIOR ELEVATIONS

STATE OF ALASKA 49th
JAMES D. BARTLETT No. A 10413
REGISTERED PROFESSIONAL ARCHITECT
07.11.11

3" 1"=1' 1/2"=1' 3/8"=1' 1/8"=1' 0" 1"=100' 1" 1"=40' 2" 1"=60' 3"
1-1/2"=1' 3/4"=1' 1/4"=1' 1"=10' 1"=20' 1"=30'

Date 07/11/2011 Comm. No. 031009
In Charge
Drawn By CS
Checked By

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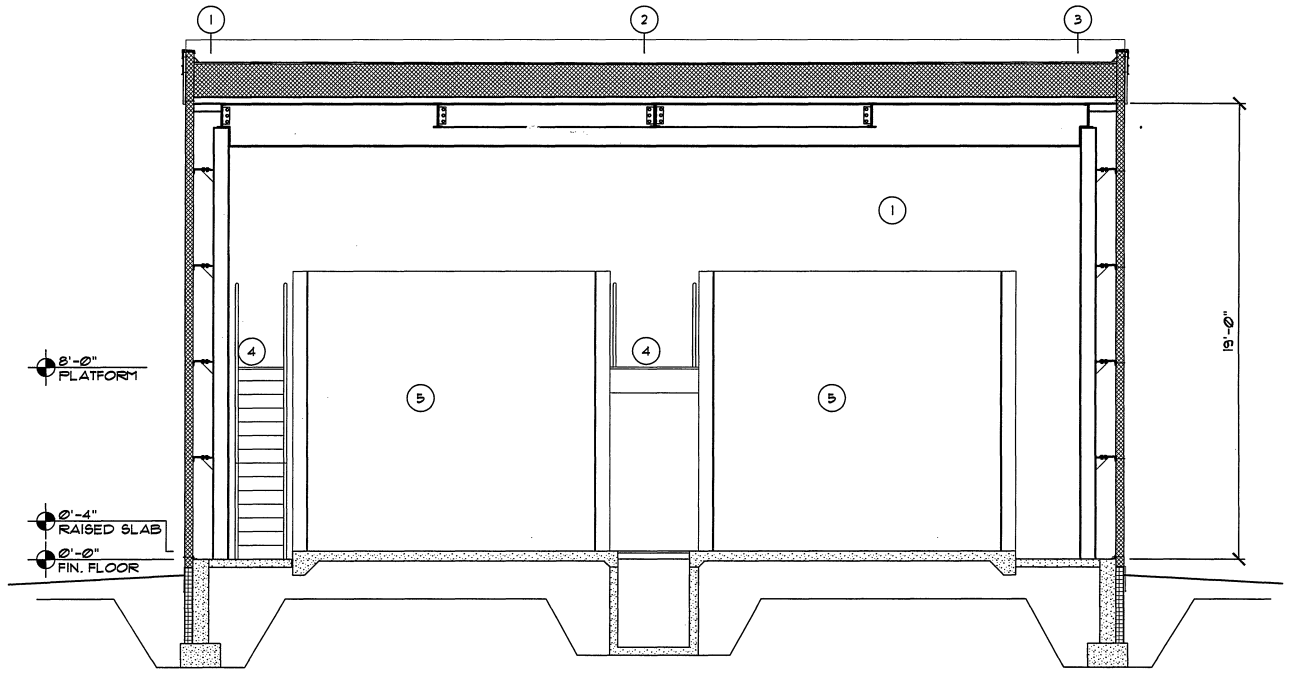
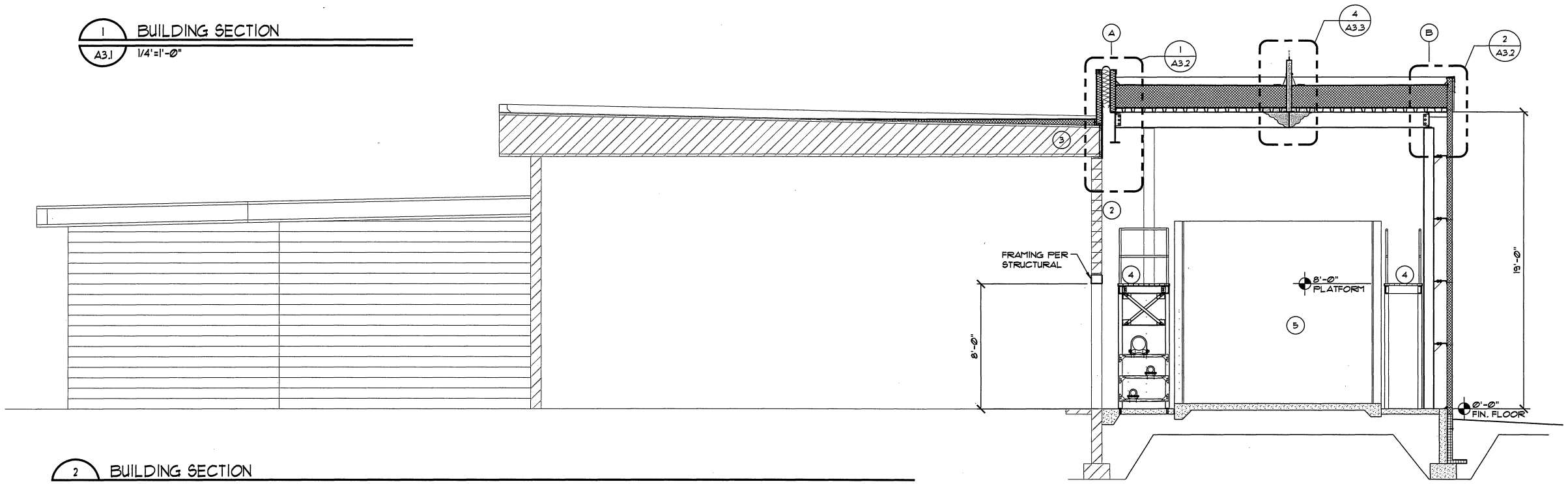


1 A3.1 BUILDING SECTION
1/4"=1'-Ø"



2 A3.1 BUILDING SECTION
1/4"=1'-Ø"

KEYNOTES:

1. EXISTING CMU (BEYOND)
2. EXISTING CMU WALLS (TO REMAIN) AND REMOVE EXTERIOR FINISH
3. EXISTING ROOF ASSEMBLY & STRUCTURE
4. PLATFORM (SEE STRUCTURAL)
5. TREATMENT TANKS
6. PLATFORM STAIR (OSHA REQUIREMENTS)
7. METAL INSULATED PANELS

Revision	Date	No.

UAF WATER PLANT AERATION TANK 2010140 BARN

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

BUILDING SECTIONS

STATE OF ALASKA 49th
JAMES D. BARTLETT
No. A 10413
REGISTERED PROFESSIONAL ARCHITECT
07-11-11

3" 1"=1' 1/2"=1' 3/8"=1' 1/8"=1' 0" 1"=100' 1" 1"=40' 2" 1"=60' 3"
1-1/2"=1' 3/4"=1' 1/4"=1' 1"=10' 1"=20' 1"=30'

Date 07/11/2011 Comm. No. 031009
In Charge
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