State of Utah

GARY R. HERBERT
*Governor*

GREGORY S. BELL
*Lieutenant Governor*

Department of Administrative Services
KIMBERLY K. HOOD
*Executive Director*

Division of Facilities Construction and Management
DAVID G. BUXTON
*Director*

# ADDENDUM NO. 1

Date: August 5, 2010

To: Contractors

From: Jeff Reddoor

Reference: Demolish City Pool & Create Intramural Ball Fields
Southern Utah University – Cedar City, Utah
Project No.07273050

Subject: **Addendum No. 1**

| Pages | | |
|---|---|---|
| | Addendum | 102 pages |
| | Total | 102 pages |

***Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.***

**1.1 SCHEDULE CHANGES –** There are no changes to the project schedule.

Utah!
*Where ideas connect*

**ADDENDUM NO. 1**
**TO**
**CONTRACT DOCUMENTS**
**FOR**
**SUU INTRAMURAL SOCCER FIELDS**

This addendum is hereby attached to and made part of the Contract Documents. Each Bidder shall acknowledge receipt of this addendum in his Bid. Bid Forms submitted without acknowledgment of this addendum will be considered non-responsive.

## 1.1 SCHEDULE CHANGES

Contract time will be increased from 90 days to 120 days

## 1.2 GENERAL

**1.2.1** Demolition Permit will be submitted by the Owner to the EPA the day following submission of bids. Contractor shall not commence demolition of building until permit is obtained by Owner. Demolition of other areas such as the parking lots and field may commence before the permit is obtained.

**1.2.2** Code testing, including soil compaction testing will be provided by the Owner.

**1.2.3** Owner will coordinate disconnection of Power and Gas at the sidewalk with the utility owners. Contractor is responsible for disconnection of all other utilities as required by the Contract.

**1.2.4** Contractor may rotomill existing asphalt to use as base material or dispose of existing asphalt and import new material for use as a base material. Contractor shall dispose of any unused material.

**1.2.5** Materials containing greater than 1% asbestos have been removed from the existing facilities. Materials containing less than 1% asbestos and materials that are classified as NESHAP CAT I (non-friable) remain in the building. A hazardous materials survey for the building is attached to this addendum.

## 1.3 SPECIFICATIONS

N/A

## 1.4 VOLUME 2 – DRAWINGS

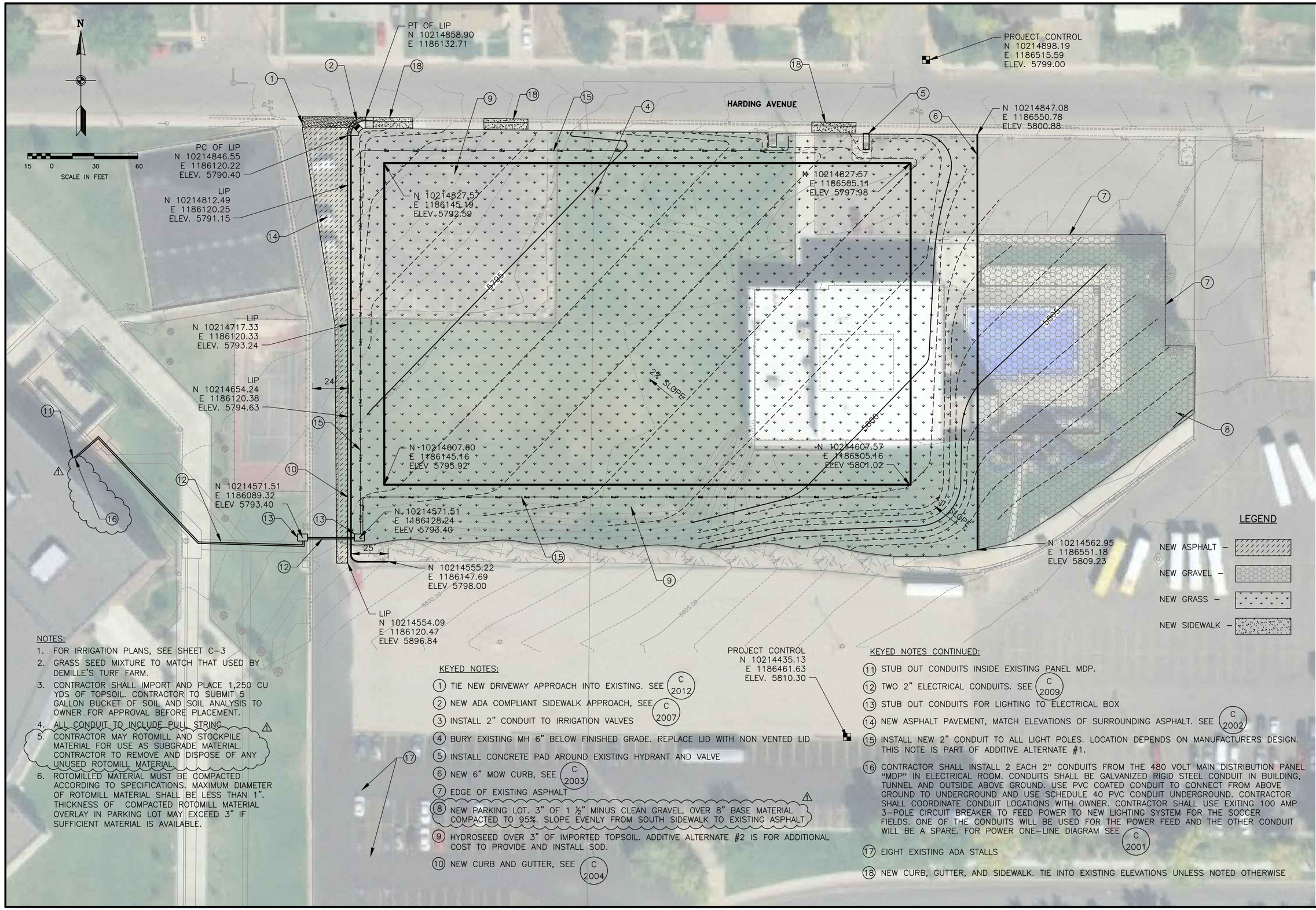
**1.4.1** Drawing No. C-01, C-02, & C-03 Replace Drawings C-01 through C-03 with the attached Drawings.

**1.4.2** Drawing No. D-5 Quick Coupler shall be four inches below grade. Also, the valve box shall be placed flush with the grass.

PROFESSIONAL ENGINEER
8/4/10
No 5387000-2202
JOEL L. ANDRUS
STATE OF UTAH

**BOWEN, COLLINS & ASSOCIATES, INC.**
Joel L. Andrus, P.E.

**END OF ADDENDUM**




NOTES:

1. FOR IRRIGATION PLANS, SEE SHEET C-3
2. GRASS SEED MIXTURE TO MATCH THAT USED BY DEMILLE'S TURF FARM.
3. CONTRACTOR SHALL IMPORT AND PLACE 1,250 CU YDS OF TOPSOIL. CONTRACTOR TO SUBMIT 5 GALLON BUCKET OF SOIL AND SOIL ANALYSIS TO OWNER FOR APPROVAL BEFORE PLACEMENT.
4. ALL CONDUIT TO INCLUDE PULL STRING.
5. CONTRACTOR MAY ROTOMILL AND STOCKPILE MATERIAL FOR USE AS SUBGRADE MATERIAL. CONTRACTOR TO REMOVE AND DISPOSE OF ANY UNUSED ROTOMILL MATERIAL.
6. ROTOMILLED MATERIAL MUST BE COMPACTED ACCORDING TO SPECIFICATIONS. MAXIMUM DIAMETER OF ROTOMILL MATERIAL SHALL BE LESS THAN 1". THICKNESS OF COMPACTED ROTOMILL MATERIAL OVERLAY IN PARKING LOT MAY EXCEED 3" IF SUFFICIENT MATERIAL IS AVAILABLE.

KEYED NOTES:

1. TIE NEW DRIVEWAY APPROACH INTO EXISTING. SEE C 2012
2. NEW ADA COMPLIANT SIDEWALK APPROACH, SEE C 2007
3. INSTALL 2" CONDUIT TO IRRIGATION VALVES
4. BURY EXISTING MH 6" BELOW FINISHED GRADE. REPLACE LID WITH NON VENTED LID
5. INSTALL CONCRETE PAD AROUND EXISTING HYDRANT AND VALVE
6. NEW 6" MOW CURB, SEE C 2003
7. EDGE OF EXISTING ASPHALT
8. NEW PARKING LOT. 3" OF 1 ½" MINUS CLEAN GRAVEL, OVER 8" BASE MATERIAL COMPACTED TO 95%. SLOPE EVENLY FROM SOUTH SIDEWALK TO EXISTING ASPHALT
9. HYDROSEED OVER 3" OF IMPORTED TOPSOIL. ADDITIVE ALTERNATE #2 IS FOR ADDITIONAL COST TO PROVIDE AND INSTALL SOD.
10. NEW CURB AND GUTTER, SEE C 2004

PROJECT CONTROL
N 10214435.13
E 1186461.63
ELEV. 5810.30

KEYED NOTES CONTINUED:

11. STUB OUT CONDUITS INSIDE EXISTING PANEL MDP.
12. TWO 2" ELECTRICAL CONDUITS. SEE C 2009
13. STUB OUT CONDUITS FOR LIGHTING TO ELECTRICAL BOX
14. NEW ASPHALT PAVEMENT, MATCH ELEVATIONS OF SURROUNDING ASPHALT. SEE C 2002
15. INSTALL NEW 2" CONDUIT TO ALL LIGHT POLES. LOCATION DEPENDS ON MANUFACTURERS DESIGN. THIS NOTE IS PART OF ADDITIVE ALTERNATE #1.
16. CONTRACTOR SHALL INSTALL 2 EACH 2" CONDUITS FROM THE 480 VOLT MAIN DISTRIBUTION PANEL "MDP" IN ELECTRICAL ROOM. CONDUITS SHALL BE GALVANIZED RIGID STEEL CONDUIT IN BUILDING, TUNNEL AND OUTSIDE ABOVE GROUND. USE PVC COATED CONDUIT TO CONNECT FROM ABOVE GROUND TO UNDERGROUND AND USE SCHEDULE 40 PVC CONDUIT UNDERGROUND. CONTRACTOR SHALL COORDINATE CONDUIT LOCATIONS WITH OWNER. CONTRACTOR SHALL USE EXITING 100 AMP 3-POLE CIRCUIT BREAKER TO FEED POWER TO NEW LIGHTING SYSTEM FOR THE SOCCER FIELDS. ONE OF THE CONDUITS WILL BE USED FOR THE POWER FEED AND THE OTHER CONDUIT WILL BE A SPARE. FOR POWER ONE-LINE DIAGRAM SEE C 2001
17. EIGHT EXISTING ADA STALLS
18. NEW CURB, GUTTER, AND SIDEWALK. TIE INTO EXISTING ELEVATIONS UNLESS NOTED OTHERWISE

Bowen Collins & Associates, Inc. Consulting Engineers

PROFESSIONAL ENGINEER 5/4/10 JOEL L. ANDRUS No 5387000-2202 STATE OF UTAH

REVISIONS

| NO. | DATE | REV. BY | DESCRIPTION |
|---|---|---|---|
| 1 | 8/10 | J.A. | NOTE CHANGE |

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DFCM
INTRAMURAL SOCCER FIELDS
CEDAR CITY, UTAH

DESIGN J. ANDRUS
DRAWN B. ABEL
CHECKED K. BAGLEY
APPROVED J. ANDRUS
REVIEW

CIVIL
PROPOSED SITE IMPROVEMEMNTS

DATE: JUNE 2010
PROJECT NUMBER 145-10-01

DRAWING NO. C-2
SHEET 6 OF 14

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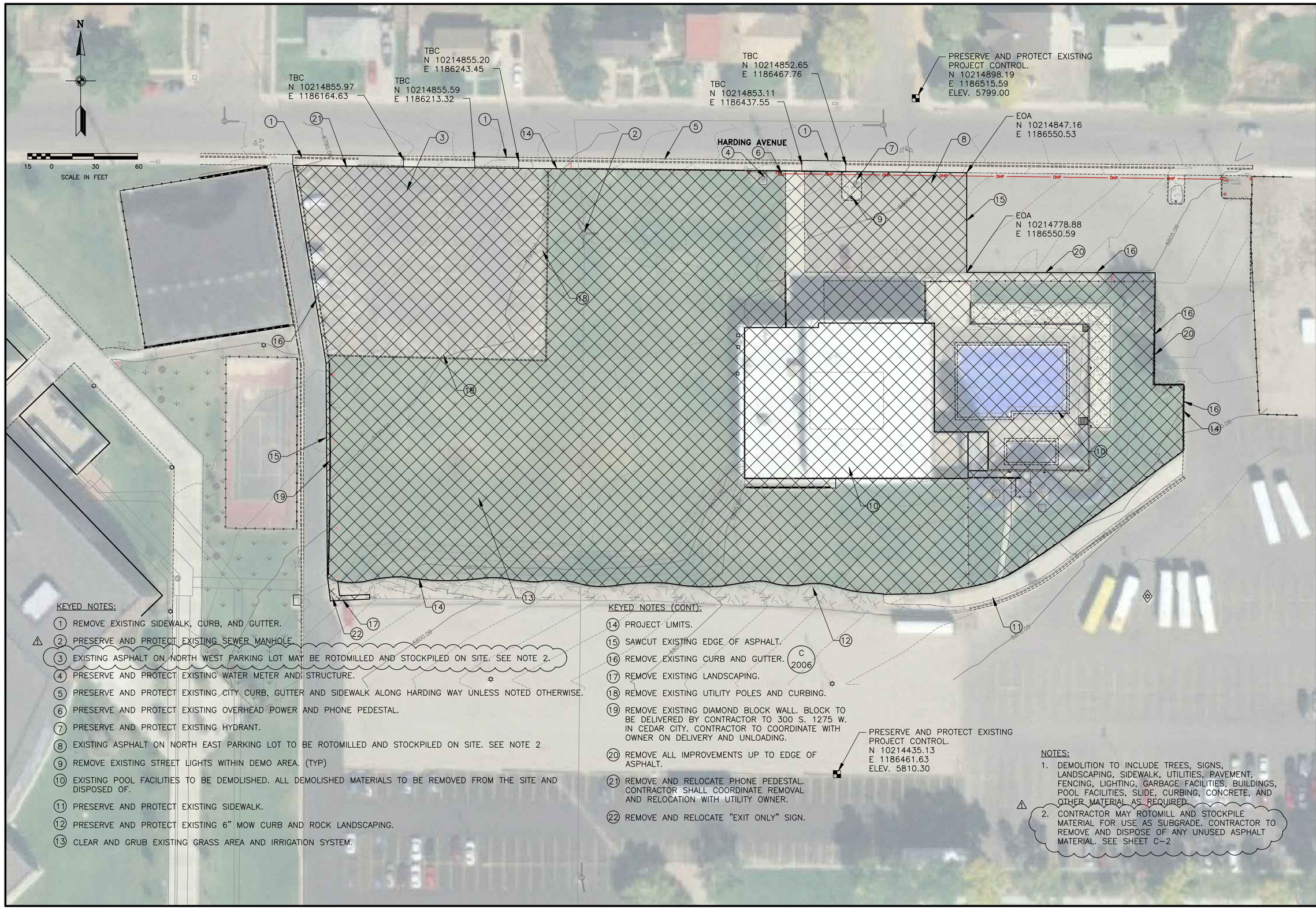


KEYED NOTES:

1. REMOVE EXISTING SIDEWALK, CURB, AND GUTTER.
2. PRESERVE AND PROTECT EXISTING SEWER MANHOLE.
3. EXISTING ASPHALT ON NORTH WEST PARKING LOT MAY BE ROTOMILLED AND STOCKPILED ON SITE. SEE NOTE 2.
4. PRESERVE AND PROTECT EXISTING WATER METER AND STRUCTURE.
5. PRESERVE AND PROTECT EXISTING CITY CURB, GUTTER AND SIDEWALK ALONG HARDING WAY UNLESS NOTED OTHERWISE.
6. PRESERVE AND PROTECT EXISTING OVERHEAD POWER AND PHONE PEDESTAL.
7. PRESERVE AND PROTECT EXISTING HYDRANT.
8. EXISTING ASPHALT ON NORTH EAST PARKING LOT TO BE ROTOMILLED AND STOCKPILED ON SITE. SEE NOTE 2
9. REMOVE EXISTING STREET LIGHTS WITHIN DEMO AREA. (TYP)
10. EXISTING POOL FACILITIES TO BE DEMOLISHED. ALL DEMOLISHED MATERIALS TO BE REMOVED FROM THE SITE AND DISPOSED OF.
11. PRESERVE AND PROTECT EXISTING SIDEWALK.
12. PRESERVE AND PROTECT EXISTING 6" MOW CURB AND ROCK LANDSCAPING.
13. CLEAR AND GRUB EXISTING GRASS AREA AND IRRIGATION SYSTEM.

KEYED NOTES (CONT):

14. PROJECT LIMITS.
15. SAWCUT EXISTING EDGE OF ASPHALT.
16. REMOVE EXISTING CURB AND GUTTER. C 2006
17. REMOVE EXISTING LANDSCAPING.
18. REMOVE EXISTING UTILITY POLES AND CURBING.
19. REMOVE EXISTING DIAMOND BLOCK WALL. BLOCK TO BE DELIVERED BY CONTRACTOR TO 300 S. 1275 W. IN CEDAR CITY. CONTRACTOR TO COORDINATE WITH OWNER ON DELIVERY AND UNLOADING.
20. REMOVE ALL IMPROVEMENTS UP TO EDGE OF ASPHALT.
21. REMOVE AND RELOCATE PHONE PEDESTAL. CONTRACTOR SHALL COORDINATE REMOVAL AND RELOCATION WITH UTILITY OWNER.
22. REMOVE AND RELOCATE "EXIT ONLY" SIGN.

NOTES:

1. DEMOLITION TO INCLUDE TREES, SIGNS, LANDSCAPING, SIDEWALK, UTILITIES, PAVEMENT, FENCING, LIGHTING, GARBAGE FACILITIES, BUILDINGS, POOL FACILITIES, SLIDE, CURBING, CONCRETE, AND OTHER MATERIAL AS REQUIRED.
2. CONTRACTOR MAY ROTOMILL AND STOCKPILE MATERIAL FOR USE AS SUBGRADE. CONTRACTOR TO REMOVE AND DISPOSE OF ANY UNUSED ASPHALT MATERIAL. SEE SHEET C-2

Bowen Collins & Associates, Inc. Consulting Engineers

PROFESSIONAL ENGINEER No 5387000-2202 JOEL L. ANDRUS STATE OF UTAH 5/4/10

| NO. | DATE | REV. BY | DESCRIPTION |
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| 1 | 8/10 | J.A. | NOTE CHANGE |

REVISIONS

DFCM

INTRAMURAL SOCCER FIELDS

CEDAR CITY, UTAH

DESIGN J. ANDRUS DRAWN B. ABEL

REVIEW CHECKED K. BAGLEY APPROVED J. ANDRUS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING

CIVIL

SITE DEMOLITION

DATE: JUNE 2010

PROJECT NUMBER 145-10-01

DRAWING NO. C-1

SHEET 5 OF 14

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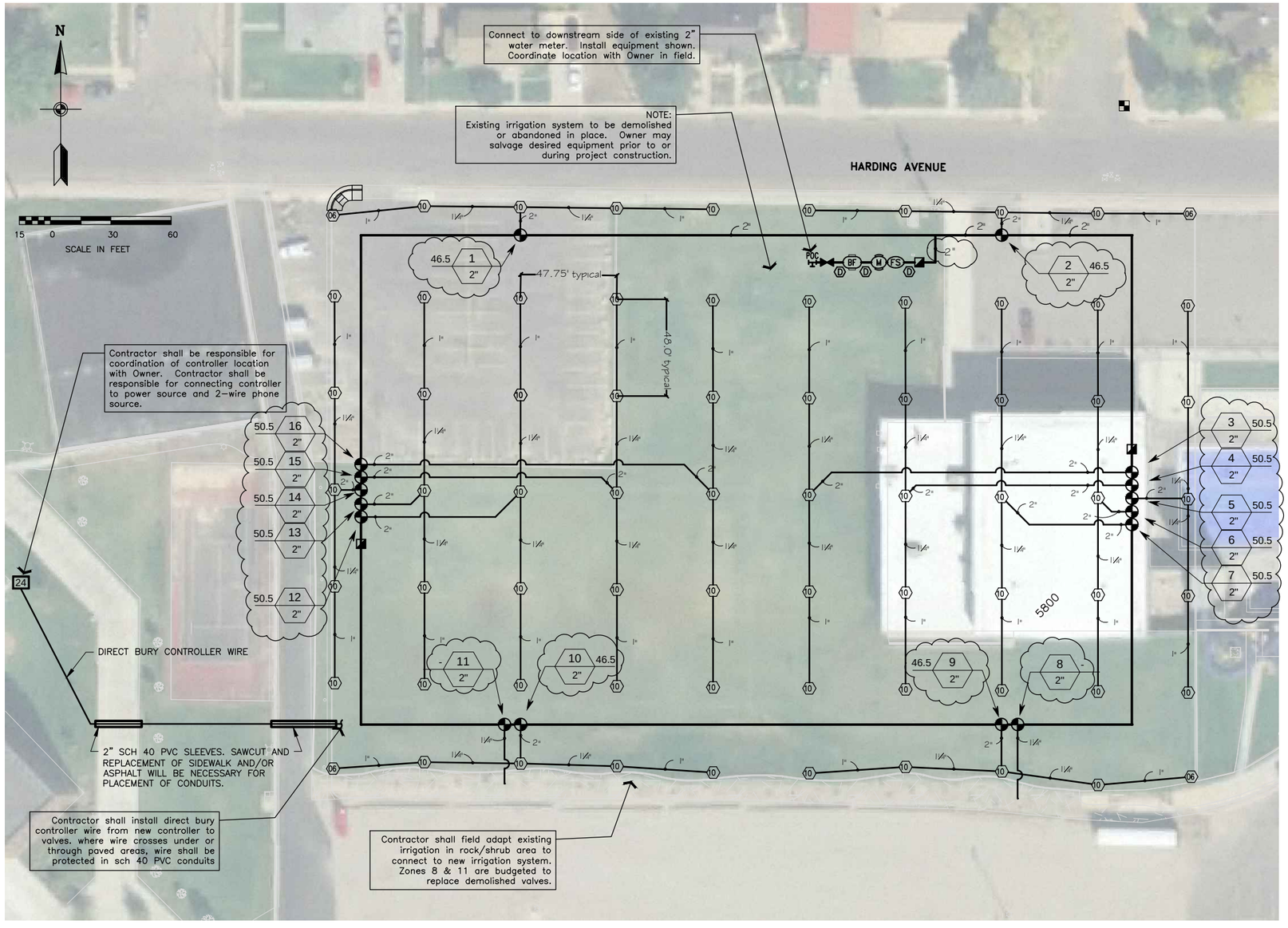


## IRRIGATION SCHEDULE

| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY |
|---|---|---|
| 06 | Rain Bird 7005-SS<br>Turf Rotor, 5" popup, adjustable and full circle, stainless steel riser | 4 |
| 10 | Rain Bird 7005-SS<br>Turf Rotor, 5" popup, adjustable and full circle, stainless steel riser | 67 |

| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY |
|---|---|---|
| | Rain Bird PEB-PRS-D<br>Electric Remote Control Valve with Pressure Regulator | 16 |
| | Rain Bird 44LRC<br>1" Quick Coupler Valve, two piece body, locking cover | 3 |
| | Matco 200RTD<br>Ductile Iron Epoxy Coated & Resilient Wedge | 1 |
| M | Rain Bird MV 200-PEB 2"<br>Master Valve | 1 |
| D | Drain Valve<br>Mueller Onseal H-10288 3/4" | 3 |
| BF | Wilkins 975XL 2"<br>RPA with strainer | 1 |
| 24 | Rain Bird ESP24-SAT-25<br>Verify model # accessories with Owner prior to ordering | 1 |
| FS | Flow Sensor<br>Data Industrial IR-220 P 2" | 1 |
| POC | Point of Connection 2" | 1 |
| | Irrigation Lateral Line: PVC Schedule 40 | 3,677 l.f. |
| | Irrigation Mainline: PVC Schedule 40 | 1,324 l.f. |
| | Pipe Sleeve: PVC Schedule 40<br>Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction. | 146 l.f. |

Valve Callout
- # — Valve Number
- # — Valve Flow
- # — Valve Size

## IRRIGATION NOTES

1. These Irrigation Notes are part of the irrigation Construction Documents package (hereafter referred to as CD's). Complete CD's shall include all of the following: Plan Drawings, Legend, Notes, Details and Specification Section. Contractor shall be responsible to obtain and be familiar with all components in the CD's package, all of which are necessary to correctly bid and build the irrigation system for this project.
2. Irrigation CD's are based on documents, plans or directions provided by others to the irrigation consultant.
3. The irrigation design is based on a minimum POC size, a minimum static pressure at the POC, and a minimum water volume at the POC. This design assumes a minimum of a 2" POC, @ 125 PSI, and 75 GPM. Actual site conditions may vary from these parameters. Site conditions which vary from the POC size, pressure or volume may render the installation non-operable and or may require re-design.
4. Irrigation design intent assumes a peak ET of 1.75" per week, that all of the irrigated area shall be watered in an 8 hour watering window, placing 1/2" of water per application, with a 4 day per week watering schedule.
5. Utility locations & depths, final grades, hardscape features and or plantings may not be indicated within the irrigation CD's. Irrigation Contractor shall be responsible for review of other plans, and/or site verification of these items. Irrigation Contractor shall verify location of existing features or other site improvements that will affect or be affected by irrigation system installation. If any part of the CD's cannot be followed due to existing or proposed conditions contact the Owner Approved Representative (OAR) for instructions prior to commencing or proceeding with that work.
6. Contractor shall self-verify material counts and square footages. Any quantities shown in Irrigation Legend are provided as courtesy Owner information only. Shown plan quantities shall take precedence over any listed legend quantities. Contractor shall be responsible to provide the larger quantity indicated.
7. Contractor shall contact the local underground utility provider or locator services for utility location and identification 48 hours prior to any excavation on project site.
8. Perform excavation in the vicinity of underground utilities and existing buildings, features or hardscapes with care; and if necessary, by hand. Contractor bears full responsibility for this work and disruption or damage shall be repaired immediately at no expense to the Owner.
9. Exact locations of major irrigation components and routing of main line and wiring to be approved by the OAR in the field prior to installation. Irrigation main line and/or other components are shown schematically on plan for graphic clarity only. All Irrigation components shall be located in landscaped areas.
10. Irrigation plans may show Isolation Valves and or Remote Control Valves (RCV's) in groups and locations. Contractor shall place RCV's in logical groupings and locations as field conditions permit. All remote control valves and quick coupler valves shall be isolated from the main line via a manifold isolation valve as shown in details.
11. Quick coupler valves in landscaped areas shall be installed as close as possible to plan locations. Irrigation Contractor may locate quick coupler valves at his discretion. POC quick coupler may not be moved.
12. Contractor shall be responsible to ensure all sleeves necessary for main line, wire and lateral line are installed as needed, prior to hardscape features. Not all sleeving necessary to complete this project may be shown on plan. Portions of irrigation sleeves may have or may not have been previously installed by others. Coordinate location, installation and usage with General Contractor and or OAR.
13. Contractor shall note that same nozzle is used for full circle and part circle heads. Full circle head zones shall have twice as much time per zone on controller.

Bowen Collins & Associates, Inc. Consulting Engineers

PROFESSIONAL ENGINEER — No. 5387000-2202 — JOEL L. ANDRUS — STATE OF UTAH — 8/4/10

| NO. | DATE | REV. BY | DESCRIPTION |
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| 1 | 8/10 | J.A. | NOTE CHANGE |

REVISIONS

DFCM
INTRAMURAL SOCCER FIELDS
CEDAR CITY, UTAH

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DESIGN J. ANDRUS
DRAWN B. ABEL
REVIEW
CHECKED K. BAGLEY
APPROVED J. ANDRUS

CIVIL
IRRIGATION PLAN

DATE: JUNE 2010
PROJECT NUMBER 145-10-01

DRAWING NO. C-3
SHEET 7 OF 14

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IHI ENVIRONMENTAL

# PRE-DEMOLITION INSPECTION
# FOR ASBESTOS, LEAD, AND
# UNIVERSAL, HAZARDOUS, AND TOXIC WASTES

**Southern Utah University**
**Middle School Pool**
**450 West Center Street**
**Cedar City, Utah**

**May 5, 2010**

**Prepared for:**

**Mr. Robert J. Anderson**
**Improvements Project Manager**
**State of Utah - DFCM**
**4110 State Office Building**
**Salt Lake City, Utah 84114**

**Managed by:**

Scott R. Nordstrom, CSP
Industrial Hygiene Program Manager

**Reviewed by:**

Randy McClure, JD, CSP
Manager of IH & Asbestos Services

**Project #10U-A1068**

640 EAST WILMINGTON AVE SALT LAKE CITY UT 84106 TELEPHONE: 801-466-2223 FAX: 801-466-9616 E-MAIL: IHI@IHI-ENV.COM

SALT LAKE CITY SAN FRANCISCO PHOENIX DENVER SEATTLE

## EXECUTIVE SUMMARY

During April 19-20, 2010, IHI Environmental conducted a pre-demolition inspection of the Southern Utah University Middle School Pool located at 450 West Center Street in Cedar City, Utah. Mr. Robert J. Anderson, Improvements Project Manager with the State of Utah, Division of Facilities Construction and Management (DFCM), requested this inspection to identify asbestos-containing materials (ACM), lead coatings, and Universal, Hazardous, and Toxic waste materials that need to be addressed before the building is demolished. IHI identified the following materials during this inspection.

ACM

- 40 $ft^2$ of exposed floor tile (M007)*
- 155 $ft^2$ of floor tile under glued-down carpet (M010)
- 8,000 square feet ($ft^2$) of gypsum board ceiling system (M012)
- 6,025 square feet ($ft^2$) of gypsum board wall system (M013)
- 2,280 square feet of flashing roofing felt with sealant (M016 and M017)
- 150 linear feet of tar sealant on roof penetrations, patches, and flashing (M017)
- 60 $ft^2$ of exposed floor tiles and mastic (M023)
- 225 $ft^2$ of floor tile and mastic under glued-down carpet (M023A)
- 5 $ft^2$ of exposed floor tile mastic (M029)
- 380 linear feet of window caulk (M031)

***(M007) indicates the homogeneous area associated with the material.**

Lead Coatings

- Red paint on fire alarm box in mechanical room (0.8 $mg/cm^2$)
- Red paint on concrete chlorine tank by stairs PS05 in P07 (0.6– 0.8 $mg/cm^2$)
- Lt. tan shower and toilet stalls in P112, P114 and P120 (0.00 – 0.47 $mg/cm^2$)
- Glazing on brick in Pool 1 (0.11 – 0.22 $mg/cm^2$)
- Brown paint on metal doors, windows and railings (0.00 – 0.22 $mg/cm^2$)
- Red paint on metal ladders, railings and tank supports in mechanical room (0.01 – 0.07 $mg/cm^2$)

Universal, Hazardous, and Toxic Wastes

- Mercury vapor fluorescent light tubes (120, 4-foot)
- Ballasts containing PCBs (52)
- Sodium/Mercury vapor bulbs (20)
- Refrigerant (AC) units containing CFCs (4)
- Paints, solvents, polishes, sealers, cleaners (50 gallons)
- Chemicals:
  - Liquid hydrochloric acid and sodium hypochlorite (940 gal.)
  - Granular calcium hypochlorite (825 lbs.)

Conclusions

**ACM** – IHI recommends that a Utah-certified asbestos abatement contractor remove and properly dispose of all the ACM in this building that may be disturbed during the upcoming renovation.

**Lead** – If workers perform any construction activities that may create lead-containing dust or fume, they must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62. This standard requires, among other things, lead training, an initial exposure assessment, respiratory protection, and worker hygiene facilities.

Subtitle C of the Resource Conservation and Recovery Act (RCRA) requires the generator to determine if demolition wastes are hazardous. Toxicity Characteristic Leaching Procedure (TCLP) testing is the preferred method for determining this. The demolition wastes from this project should undergo TCLP testing prior to disposal to determine if they are hazardous.

**Universal, Hazardous, and Toxic Wastes** – DFCM follows the protocols for identification and disposal of hazardous materials developed by the Salt Lake Valley Health Department (SLVHD). These protocols require building owners to identify and remove all universal, hazardous, and/or toxic wastes from buildings before they are demolished. Disposition of these materials must follow EPA Guidance outlined in 40 CFR 273 (Standards for Universal Waste Management) and 40 CFR 261 and 262 (Resource Conservation and Recovery Act), and Department of Transportation regulations outlined at 49 CFR 173 (Shippers - General Requirements for Shipments and Packaging). As such, IHI recommends that the materials

identified during this inspection be removed and disposed of by properly trained and licensed contractors.

Cost Estimates[1]

IHI's cost estimates to remove the ACM and hazardous materials outlined above are:

- **ACM: $57,422**[2]
- **Hazardous Materials: $5,756**

The report that follows this Executive Summary should be read in its entirety because it includes important information, such as material descriptions and locations, regulatory requirements, and building specific recommended response actions.

[1] The estimated costs of removing lead-containing materials are not included here because there is no regulatory requirement to remove lead. Some lead-containing materials may not be disturbed during the renovation and may therefore remain in place. In addition, disposal costs of demolition wastes may vary significantly, depending on TCLP testing.
[2] These estimates do not include the costs for asbestos abatement design and management consulting services.

## BUILDING DESCRIPTION

Identification

| | |
|---|---|
| Building Name | Cedar City Pool |
| Building Address | 450 West Center Street, Cedar City, Utah 84720 |

Construction

| | |
|---|---|
| Building Construction Date | 1975 |
| Renovations | Boiler room, approximately 1990 |
| Building Type | School Swimming Pool |
| Building Total Sq. Ft. | ~23,192 sq. ft. |
| Structural System | Reinforced concrete and masonry |
| Exterior Wall Construction | Masonry, concrete block, aggregate slab |
| Floor Deck Construction | Concrete |
| Roof Deck Construction | Wood |
| Roof Construction | Multi-ply, covered with rubberized membrane |

Floors

| | |
|---|---|
| Floors Above Grade | One |
| Floors Below Grade | One (west hallway) |

Interior Finishes

| | |
|---|---|
| Floors | Concrete, vinyl floor tile, vinyl floor sheeting, ceramic tile, and glued-down carpeting |
| Walls | Concrete masonry block, brick, drywall system, ceramic tile, and concrete |

Interior Finishes

| | |
|---|---|
| Ceilings | Glued-on ceiling tile, stapled ceiling tile, gypsum board, textured gypsum board and wood |
| Attic (Crawlspace) | Fibrous glass batting and pipe insulation |
| Basement | None |

Mechanical

| | |
|---|---|
| Heating Plant | Gas-fired boilers |
| Main Heating Distribution | Floor radiators and ceiling ducting |
| Cooling Plant | Roof-mounted central air |
| Main A/C Distribution | Ceiling ducting |

Outlying Structures

Tower for water slide access: constructed of concrete, steel, and wood with metal roof.

IHI ENVIRONMENTAL

# ASBESTOS INSPECTION AND ASSESSMENT

**Southern Utah University**
**Middle School Pool**
**450 West Center Street**
**Cedar City**

**May 5, 2010**

**Prepared for:**

**Mr. Robert J. Anderson**
**Improvements Project Manager**
**State of Utah - DFCM**
**4110 State Office Building**
**Salt Lake City, Utah 84114**

**Prepared by:**

James Nicol
Utah DAQ Asbestos Inspector ASB-1134

**Reviewed by:**

Randy P. McClure, JD, CSP
Manager, Industrial Hygiene Services

**Project #10U-A1068**

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SALT LAKE CITY SAN FRANCISCO PHOENIX DENVER SEATTLE

## TABLE OF CONTENTS



### APPENDICES

## 1.0 INTRODUCTION

During April 19-20, 2010, IHI Environmental conducted a pre-demolition inspection of the Southern Utah University Middle School Pool located at 450 West Center Street in Cedar City, Utah. The purpose of this inspection was to identify the existence, extent, and condition of both friable and non-friable asbestos-containing materials (ACM) in the building prior to demolition. Bulk samples were collected from suspect materials and analyzed for asbestos content. Bulk samples from the September 2000 inspection by Pentacore Resources were incorporated into this re-inspection. Each occurrence of ACM was assessed for damage and friability.

## 2.0 INSPECTION PROCEDURES

### 2.1 Building Inspection

IHI visually inspected all accessible areas of the building to be remodeled to identify suspect ACM. To assess the condition and determine friability of the suspect materials, IHI visually examined and touched all accessible surfaces, structures, and mechanical systems within the building.

Suspect ACM was identified and assessed by homogeneous areas. A homogeneous area is defined as a single material, uniform in texture and appearance, installed at one time, and unlikely to consist of more than one type, or formulation, of material. In cases where joint compound and/or tape has been applied to wallboard (gypsum board) and cannot be visually distinguished from the wallboard, it is considered an integral part of the wallboard and in effect becomes one material, forming a wall or ceiling "system."

Each homogeneous area was given a unique material identification (ID) number. Each ID number begins with a letter: "S" for surfacing materials, "T" for thermal system insulation, or "M" for miscellaneous materials. This letter is followed by a two-digit number, assigned in consecutive order. This number is used to identify that specific homogeneous area throughout the inspection report.

## 2.2 Bulk Sampling

To determine the asbestos content of materials, IHI collected bulk samples from all accessible homogeneous areas of suspect ACM and submitted the samples to an accredited laboratory for analysis.

IHI conducted its sampling in a manner that minimized damage to the building, did not leave unsightly marks, and did not create a health hazard for the inspector or building occupants.

The number of samples collected from each homogeneous area generally followed the U. S. Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulations (40 CFR §763.86). Friable surfacing materials were sampled using the random sampling scheme given in the EPA publication 560/5-85-030a, titled "*Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials*." Bulk sample IDs collected during the inspection were entered on chain-of-custody forms for submittal to the analytical laboratory.

## 2.3 Bulk Sample Analysis

Bulk samples were analyzed using polarized light microscopy (PLM) and visual estimation according to the EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples, EPA-600/M4-82-020. Samples were analyzed by Dixon Information Inc. in Salt Lake City, Utah. Dixon Information is accredited under the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos sample analysis, and is also accredited by the American Industrial Hygiene Association (AIHA).

EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP) and AHERA regulations define ACM as material containing greater than 1% asbestos by weight; materials containing 1% or less asbestos are not considered regulated ACM by the EPA. Further, the NESHAP regulations state that any sample found to contain less than 10% asbestos but greater than "none detected," by the visual estimation method used during PLM analysis,

must be assumed to contain greater than 1% asbestos unless confirmed by NESHAP point counting analysis.[1]

Despite EPA and Utah Division of Air Quality rules exempting building materials containing 1% or less asbestos from stringent regulation, Occupational Safety and Health Administration (OSHA) regulations outline specific precautionary work practices when employees work with materials containing even trace amounts of asbestos.[2]

The laboratory reports can be found in **Appendix D** of this report.

## 3.0 INSPECTION RESULTS

### 3.1 Asbestos-Containing Materials

The **Executive Summary** and **Table 1** in **Appendix A** list all homogeneous areas that contain asbestos. Each material is described by type of material, friability and visual appearance.

Friability is defined in accordance with EPA's NESHAP regulations.

- "Friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure and also includes non-friable ACM that may become friable during building demolition.
- "Non-friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- "Category I non-friable ACM" are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile (VAT)), asphalt roofing products, packings, and gaskets.
- "Category II non-friable ACM" encompasses all other non-friable ACM.
- "Non-friable RACM" is used to denote thermal system insulation that is in good condition but would become friable during renovation or demolition and therefore is "regulated asbestos containing material" (RACM).

[1] NESHAP point counting includes examining materials under a polarizing microscope using an eyepiece reticule that superimposes a grid of points over the field of view. 400 points are examined.
[2] OSHA regulations pertaining to asbestos in buildings include 29 CFR 1926.1101 and 29 CFR 1910.1001. OSHA has also issued interpretive letters that provide clarification about how materials containing less than 1% asbestos should be handled. (see www.osha.gov)

### 3.2 Non-Asbestos-Containing Materials

Homogeneous areas of suspect ACM are identified as non-ACM if material contains no detectable asbestos. **Table 2**, located in **Appendix A** of this report, lists all homogeneous areas that were found to be non-ACM.

### 3.3 Bulk Sample Analytical Results

**Table 3**, located in **Appendix A** of this report, lists all the bulk samples (chronologically by sample number) collected from homogeneous areas of suspect ACM, and the laboratory analytical results. Each sample was given a unique sample number. There may be more than one sample number for the same homogeneous area of suspect ACM indicating multiple samples were collected from that homogeneous material. The homogeneous areas of suspect ACM are identified in **Tables 1** and **2**. The sample locations listed in Table 3 provide a short description of the location where the sample was collected. This is different from the homogeneous area location provided on **Tables 1** and **2**. **Table 4** is the same as **Table 3**, except that the entries have been sorted by homogeneous area number.

### 3.4 Damage and Hazard Assessment

Each homogeneous area of ACM was assessed for existing damage, accessibility, and the potential for future damage; this information is presented in **Table 5**, located in **Appendix A** of this report. This table also lists the substrate beneath each homogeneous area of ACM.

### 3.5 Materials Requiring Special Considerations

- M012: The gypsum board ceiling system is located approximately 20-25 feet above ground level (pool)
- M013: The wall system was found to contain 0.8% chrysotile asbestos (joint compound) and less than 1% asbestos (overall) by PLM analysis during a September 2000 inspection. The State of Utah DAQ does not regulate the removal of materials that contain 1.0% (or less) asbestos. However, point count analysis for the overall wall system indicated that it contains a trace of chrysotile asbestos (<0.1%), which falls under the OSHA regulatory requirements for Class II Asbestos Work. IHI therefore recommends that this material be removed by a Utah-certified Asbestos Abatement contractor following the provisions of the OSHA Asbestos in Construction Standard.
- M016 and M017: Most of the roof areas (west and indoor pool) have been covered with a non-ACM rubberized membrane and foam insulation that will have to be removed to access the ACM felt and tar sealants. Felt is assumed to be present approximately two-feet out from flashed areas.

- M031: This material was found on the interior of the fixed windows in the pool area and was not readily visible or noted on all windows during the inspection.

### 3.6 Assumed Asbestos-Containing Materials

- M012: Gypsum board ceiling was assumed to be original ceiling and of similar construction to adjoining walls ( Refer to M013 in Section 3.5 above)

### 3.7 Inaccessible Areas

The gypsum board ceiling and roof in the pool area of the building could not be accessed because they are approximately 25 feet high, and IHI did not have a lift device to sample the materials. There were no access hatches for this upper roof of the facility.

The pool is currently in operation so the pool linings could not be sampled.

Suspect materials that were hidden or inaccessible may not have been characterized by this inspection. Therefore, any material not identified in this report as having been tested should be treated as suspect ACM until it has been sampled by a Utah-certified inspector and analyzed by an accredited laboratory applying EPA methods.

In addition, some building structures may have been constructed after the application of ACM, and, therefore, may have obscured these materials from visual examination during this inspection. Typical scenarios include thermal system insulation inside hardened mechanical chases, floor tile, and mastic under walls, and sprayed on texturing and/or fireproofing behind structural supports or architectural features.

### 3.8 Materials Assumed >1% Asbestos (no NESHAP point count)

- Floor tiles: M007, M010
- Floor tile mastics: M023 and M029

## 4.0 RESPONSE ACTIONS

### 4.1 Applicable Rules and Regulations

In Utah, EPA asbestos regulations are administered by the Utah Division of Air Quality (DAQ).[3] The Utah Occupational Safety and Health Administration (UOSH) has adopted the Federal OSHA regulations.[4]

### 4.2 Renovation and Demolition (EPA and OSHA)

NESHAP regulations require the removal of friable ACM and non-friable ACM that could become friable during demolition activities.

Despite EPA (and Utah Division of Air Quality) rules exempting building materials containing 1% or less asbestos from stringent regulation, Occupational Safety and Health Administration (OSHA) regulations outline specific precautionary work practices when employees work with materials containing even trace amounts of asbestos.[5] Strict compliance by building owners with the OSHA asbestos regulations may result in response actions not required by the EPA and Utah DAQ for certain unregulated materials.

## 5.0 COST ESTIMATES

Details of the estimated removal costs by homogeneous area can be found in **Table 6**, **Appendix A**, and the **Executive Summary** table. These estimates are provided for budgeting and planning only and do not have a level of accuracy sufficient to be used as a construction design cost estimate. The actual cost of asbestos removal is dependent on factors such as the size of the job, the required time frame for removal, the time of year the job is conducted, and economic factors. These estimates do not include replacement costs, or the cost for asbestos abatement design and management consulting services.

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[3] R307-801. Asbestos, Utah Division of Air Quality Rules, Implementation of Toxic Substances Control Act Title II, Asbestos Certification, Asbestos Training, notifications and Asbestos Work Practices for Renovations and Demolitions (See www.airquality.utah.gov).

[4] Asbestos, Tremolite, Anthophyllite, and Actinolite Standards, Chapter D (Construction), Section 58; and Chapter Z (General Industry), Section 1001, Utah Occupational Safety and Health Rules and Regulations (Administered by Utah Occupational Safety and Health Division) (see www.uosh.utah.gov)

[5] OSHA regulations pertaining to asbestos in buildings include 29 CFR 1926.1101 and 29 CFR 1910.1001. OSHA has also issued interpretive letters that provide clarification about how materials containing less than 1% asbestos should be handled. (see www.osha.gov)

## 6.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by EH&S consultants performing similar services.

The procedures used attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time and other limitations, the conclusions should not be construed as a guarantee that all universal, toxic and/or hazardous wastes have been identified and fully evaluated. Furthermore, IHI assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside of IHI or from omissions or errors in public records.

It is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

# Appendix A

# Data Tables

# Table 1

## Asbestos-containing Materials by Homogeneous Area

SUU Middle School Pool
State of Utah - DFCM

| Homogeneous Area Number | Material Description/Location | Friability | Asbestos Content | Amount |
|---|---|---|---|---|
| **M007** | **Floor Tile - Exposed**<br>12" white with green inclusions<br>Room PS04 | Category 1 Non-friable | 8% Chrysotile | 40 sq. ft. |
| **M010** | **Floor Tile - Under GDC**<br>12" white with green inclusions<br>Room P110 | Category 1 Non-friable | 8% Chrysotile | 155 sq. ft. |
| **M012** | **Wallboard and Joint Compound**<br>Standard gypsum board and joint compound with white tape<br>Room P121 (indoor pool) ceiling | Friable | Assumed | 8,000 sq. ft. |
| | *too high to access but asbestos was detected in joint compound in 2000 inspection by Pentacore Resources (see homogeneous area M013)* | | | |
| **M013** | **Wallboard and Joint Compound**<br>Standard gypsum board and joint compound with white tape<br>Room P121 (indoor pool) walls and ceiling | Friable | ND-0.8% Chrysotile<br><0.1% overall | 6,025 sq. ft. |
| | *asbestos is in joint compound layer, overall asbestos is <1.0% and is a non-regulated, non-asbestos material according to EPA-NESHAP definition, however, asbestos was detected in joint compound in 2000 survey and OSHA regulations may apply, see Sections 5.1 and 5.2 in report for further explanation* | | | |
| **M016** | **Roofing Tar & Felt**<br>Black felt and tar<br>Roof perimeters of facility except slide tower | Category 1 Non-friable | 50% Chrysotile (felt) | 2,280 sq. ft. |
| | *most of this material has been covered with non-ACM foam insulation and rubberized membrane and is believed to end at approximately two-feet in from roof edges* | | | |

Note: A homogeneous area of suspect material is considered an Asbestos-containing Material (ACM) if any one sample contains greater than 1% asbestos

| Homogeneous Area Number | Material Description/Location | Friability | Asbestos Content | Amount |
|---|---|---|---|---|
| **M017** | **Roof Sealant**<br>Black tar, sometimes associated with thin silver sealant coating<br>Roof penetrations throughout<br>*assumed to be present on all penetrations and flashing felt seams, hidden by non-ACM rubberized membrane covering majority of roof areas* | Category 1<br>Non-friable | 5-12% Chrysotile | 150 sq. ft. |
| **M023** | **Floor Tile and Mastic on Cement**<br>12" beige and tan streaked tile with black mastic<br>Room P105<br>*floor tile is non-ACM* | Category 1<br>Non-friable | ND tile<br>>1% Chrysotile mastic | 60 sq. ft. |
| **M023A** | **Floor Tile and Mastic Under GDC**<br>12" beige and tan streaked tile with black mastic<br>Rooms P103, P107 and P108<br>*floor tile is non-ACM* | Category 1<br>Non-friable | ND tile<br>>1% Chrysotile mastic | 225 sq. ft. |
| **M029** | **Floor Tile Mastic**<br>Black tar<br>Room P01 by southwest entrance doors<br>*appears to be remnant from earlier abatement* | Category 1<br>Non-friable | 8% Chrysotile | 5 sq. ft. |
| **M031** | **Window Caulking/ln.ft.**<br>Black, gummy sealant<br>Room P121 (indoor pool) fixed windows<br>*material is generally hidden between metal frame and window and not readily accessible, amount is rough estimate* | Category 2<br>Non-friable | 10% Chrysotile | 380 ln. ft. |

Note: A homogeneous area of suspect material is considered an Asbestos-containing Material (ACM) if any one sample contains greater than 1% asbestos

# Table 2

## Homogeneous Areas That Do Not Contain Asbestos

SUU Middle School Pool
State of Utah - DFCM

| Homogeneous Area Number | Material Description/Location | Amount |
|---|---|---|
| **M001** | **Stair Vinyl**<br>Beige to light tan vinyl<br>Stairwells of facility | 485 sq. ft. |
| **M002** | **Cove Base**<br>Tan vinyl<br>Stairwells of facility | 110 sq. ft. |
| **M003** | **Cove Base Adhesive**<br>Black resin<br>Stairwells of facility | 110 sq. ft. |
| **M004** | **Floor Tile and Mastic Under GDC**<br>12" tan with linear light brown streaks with black mastic<br>Rooms P01 P02 and PS02 | 625 sq. ft. |
| **M005** | **Ceiling Tile**<br>12" white with small to medium fissures and holes<br>Throughout west half of facility except locker rooms | 1,940 sq. ft. |
| **M006** | **Ceiling Tile Adhesive**<br>Brown, hard brittle resin<br>Throughout west half of facility under 12" ceiling tiles | 10,000 units |
| **M007A** | **Floor Tile Mastic**<br>Black tar<br>Room PS04 | 40 sq. ft. |

| Homogeneous Area Number | Material Description/Location | Amount |
|---|---|---|
| **M008** | **Ceiling Tile**<br>12" white, rough textured with gray matrix<br>Room 121 (pool) walls | 6,150 sq. ft. |
| **M009** | **Ceiling Tile**<br>12" white, pinhole with beveled edges<br>Rooms 106A and 106B | 100 sq. ft. |
| **M010A** | **Floor Tile Mastic**<br>Black tar<br>Room P110 | 155 sq. ft. |
| **M011** | **Wallboard and Joint Compound**<br>Standard gypsum board with white joint compound and white tape<br>Throughout except room P121(indoor pool area) | 5,860 sq. ft. |
| **M014** | **Caulk**<br>Grey to off-white rubberized caulk<br>Room P121 (indoor pool area) expansion joints in concrete decking | 250 ln. ft. |
| **M015** | **Built-up Roofs, multi-layer/sq.ft.**<br>Black tar and felt with gravel coating<br>Roofs of facility except slide tower | 15,000 sq. ft. |
| **M018** | **Vibration Isolator**<br>Grey woven cloth<br>West roof: HVAC components | 3 units |
| **M019** | **Expansion Joint Fill**<br>Tan paper<br>Expansion joint on northeast wall panel on lower roof | 50 sq. ft. |
| **M020** | **Gasket**<br>White voven gasket<br>Boiler room | 4 units |

| Homogeneous Area Number | Material Description/Location | Amount |
|---|---|---|
| **M021** | **Ceiling Tile**<br>18" white pit and hole<br>Room P102: north one-third of room | 45 sq. ft. |
| **M022A** | **Cove Base Adhesive**<br>Yellow resin<br>Room P102 | 55 ln. ft. |
| **M024** | **Cove Base**<br>Dark brown vinyl<br>Throughout most rooms in west half of facility | 630 ln. ft. |
| **M025** | **Ceiling Tile**<br>12" white, solid with tan matrix<br>Room P04, P112 and P114 (girl's locker room) | 715 sq. ft. |
| **M026** | **Ceiling Tile**<br>12" white, solid with linear fissure pattern<br>Room P114 (girl's locker room)<br>*replacement tile* | 10 sq. ft. |
| **M027** | **Ceiling Tile**<br>12" white, solid with shallow textured pattern<br>Room P112 (girl's locker room)<br>*replacement tile* | 10 sq. ft. |
| **M028** | **Ceiling Tile**<br>12" bright white, textured fissure pattern<br>Room P01, west of center stairwell (PS03)<br>*replacement tile* | 20 sq. ft. |
| **M030** | **Wall Panel**<br>White plastic-like panel with fibrous matrix<br>Rooms P06, P115, P117 and P121 | 215 sq. ft. |
| **S001** | **Surfacing Material/Plaster**<br>Rough sandy textured wall coating<br>Rooms PS02 and P02<br>*classified as M007 in Pentacore Resources November 2000 survey of facility* | 450 sq. ft. |

| Homogeneous Area Number | Material Description/Location | Amount |
|---|---|---|
| **S002** | **Stucco**<br>Coarse, thin sandy-like coating<br>Above main entrance, soffits and west wall of indoor pool section of facility | 1,620 sq. ft. |
| **S003** | **Wallboard Texturing**<br>Troweled-on joint compound<br>Room P119 ceiling and room P03 west wall | 600 sq. ft. |
| **T001** | **Pipe Fitting Insulation**<br>White cloth covering light gray fine-grained powder<br>Room 110A | 30 units |
| **T002** | **Pipe Fitting Insulation**<br>White cloth covering light gray fine-grained powder<br>Room P122 | 6 units |
| **T003** | **Pipe Fitting Insulation**<br>White cloth covering light gray fine-grained powder<br>Mech room west of boiler room | 60 units |
| **T004** | **Tank Insulation**<br>White cloth covering light gray fine-grained powder<br>Mech room west of boiler room: hot water tank<br>*end caps only, sides are fibrous glass insulation* | 30 sq. ft. |
| **T005** | **Tank Insulation**<br>White cloth covering light gray fine-grained powder<br>Mech room west of boiler room: expansion tank<br>*end caps only, sides are fibrous glass* | 10 sq. ft. |

# Table 3
## Bulk Sample Analytical Results by Sample Number
SUU Middle School Pool
State of Utah - DFCM

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-001 | M015 | Built-up Roofs, multi-layer/sq.ft. | Lower roof: northwest corner by roof access hatch | ND |
| 1068-002 | M015 | Built-up Roofs, multi-layer/sq.ft. | Lower roof: near center | ND |
| 1068-003 | M016 | Flashing Felt | Lower roof: west side center | 50% Chrysotile |
| 1068-003A | M016 | Roof Sealant | Lower roof: west side center | 5% Chrysotile |
| 1068-004 | M016 | Flashing Felt | Lower roof: east side south of exhaust fan unit | 50% Chrysotile |
| 1068-005 | M017 | Roof Sealant | Lower roof: northeast corner | 12% Chrysotile |
| 1068-005A | M017 | Roof Sealant | Lower roof: northeast corner | 5% Chrysotile |
| 1068-006 | M018 | Vibration Isolator | Lower roof: center exhaust fan | ND |
| 1068-007 | M019 | Expansion Joint Fill | Lower roof: northeast corner | ND |
| 1068-008 | T005 | Tank Insulation | Mechanical room west of boiler room: Hot water tank | ND |
| 1068-009 | T004 | Tank Insulation | Mechanical room west of boiler room: expansion tank | ND |
| 1068-010 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room: heating water supply line | ND |
| 1068-011 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room: heating water return line | ND |
| 1068-012 | M020 | Gasket | Boiler room: South boiler | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-013 | S002 | Stucco | West side of main pool structure: wall | ND |
| 1068-014 | S002 | Stucco | West side of main pool structure: soffit | ND |
| 1068-015 | S002 | Stucco | Soffit above main entrance | ND |
| 1068-016 | S003 | Wallboard Texturing | Main entrance: west wall (entrance to boiler room) | ND |
| 1068-017 | S003 | Wallboard Texturing | Boy's Locker Room: east side center | ND |
| 1068-018 | S003 | Wallboard Texturing | Boy's Locker Room: west side center | ND |
| 1068-019 | S003 | Wallboard Texturing | Boy's Locker Room: north end | ND |
| 1068-020 | M021 | Ceiling Tile | Room P102: north end | ND |
| 1068-021 | M022 | Cove Base | Room P102: east wall | ND |
| 1068-022 | M011A | Joint Compound | Room P102: north wall next to door | ND |
| 1068-023 | M011A | Joint Compound | Room P105: ceiling by light fixture | ND |
| 1068-024 | M023 | Floor Tile - Exposed | Room P105: by entrance | ND |
| 1068-024A | M023 | Floor Tile Mastic | Room P105: by entrance | >1% Chrysotile |
| 1068-025 | M024 | Cove Base | Room P103: south wall | ND |
| 1068-026 | M011 | Wallboard and Joint Compound | Entrance to Girl's Locker Room | ND |
| 1068-027 | M025 | Ceiling Tile | Girl's Locker Room: entrance corridor | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-028 | M026 | Ceiling Tile | Girl's Locker Room: by shower stalls | ND |
| 1068-029 | M027 | Ceiling Tile | Girl's Locker Room: by toilet stalls | ND |
| 1068-030 | M011A | Joint Compound | Room P106: north storage closet | ND |
| 1068-031 | M028 | Ceiling Tile | Lower Hallway: west of center stairwell | ND |
| 1068-032 | M011A | Joint Compound | Lower Hallway: north of center stairwell above ceiling tile | ND |
| 1068-033 | M004 | Floor Tile - Exposed | Lower Hallway: bottom of former north stairwell | ND |
| 1068-033A | M004 | Floor Tile Mastic | Lower Hallway: bottom of former north stairwell | ND |
| 1068-034 | M029 | Floor Tile Mastic | Lower Hallway: by southwest entrance doors | 8% Chrysotile |
| 1068-034A | M029 | Carpet Adhesive | Lower Hallway: by southwest entrance doors | ND |
| 1068-035 | M002 | Stair Vinyl | Former southeast entrance stairwell: coveing vnyl | ND |
| 1068-036 | M030 | Wall Panel | Room P06: north side by west entrance | ND |
| 1068-037 | M011A | Joint Compound | Room P06: above entrance to Room P08 | ND |
| 1068-038 | M031 | Window Caulking/ln.ft. | Main Pool: northeast windows | 10% Chrysotile |
| 1068-039 | M011A | Joint Compound | Roof access hatch | ND |
| 1068-040 | M001 | Stair Vinyl | Center stairwell | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-041 | M006 | Ceiling Tile Adhesive | Lower Hallway: north of center stairwell | ND |
| 1068-041A | M005 | Ceiling Tile | Lower Hallway: north of center stairwell | ND |
| 1068-041B | M011A | Joint Compound | Lower Hallway: north of center stairwell | ND |
| 1068-042 | M007 | Floor Tile - Exposed | Room PS04 by entrance to Room P110 | 8% Chrysotile |
| 1068-042A | M007 | Floor Tile Mastic | Room PS04 by entrance to Room P110 | ND |
| 1068-043 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room | ND |
| MSP-BM-MN-03 | M003 | Cove Base Adhesive | Room P02 | ND |
| MSP-CB-MN-02 | M002 | Cove Base | Room P02 | ND |
| MSP-CT-MN-05 | M005 | Ceiling Tile | Room P02 | ND |
| MSP-CT-MN-08 | M008 | Ceiling Tile | Room P121 | ND |
| MSP-CT-MN-09 | M009 | Ceiling Tile | Room P04 | ND |
| MSP-CTP-MN-06 | M006 | Ceiling Tile Adhesive | Room P02 | ND |
| MSP-FT-MN-04 | M004 | Floor Tile - Exposed | Room P02 | ND |
| MSP-FT-MN-10 | M007 | Floor Tile - Exposed | Room P09 | 5% Chrysotile |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| MSP-FT-MN-10A | M007 | Floor Tile Mastic | Room P09 | ND |
| MSP-S-MN-18 | M014 | Caulk | Room P121 | ND |
| MSP-TSI-MN-11A | T001 | Pipe Fitting Insulation | Room P110A | ND |
| MSP-TSI-MN-11B | T001 | Pipe Fitting Insulation | Room P110A | ND |
| MSP-TSI-MN-11C | T001 | Pipe Fitting Insulation | Room P110A | ND |
| MSP-TSI-MN-13A | T002 | Pipe Fitting Insulation | Room P122 | ND |
| MSP-TSI-MN-13B | T002 | Pipe Fitting Insulation | Room P122 | ND |
| MSP-TSI-MN-13C | T002 | Pipe Fitting Insulation | Room P122 | ND |
| MSP-VF-MN-01 | M001 | Vinyl Floor Sheeting | Room PS02 | ND |
| MSP-WB-MN-07A | S001 | Surfacing Material/Plaster | Room P02 | ND |
| MSP-WB-MN-07B | S001 | Surfacing Material/Plaster | Room P02 | ND |
| MSP-WB-MN-07C | S001 | Surfacing Material/Plaster | Room P02 | ND |
| MSP-WB-MN-12A | M011 | Wallboard and Joint Compound | Room P105 | ND |
| MSP-WB-MN-12B | M011 | Wallboard and Joint Compound | Room P105 | ND |
| MSP-WB-MN-12C | M011 | Wallboard and Joint Compound | Room P105 | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| MSP-WB-MN-14 | M013 | Wallboard and Joint Compound | Room P121: West side | <0.1% Chrysotile overall<br>0.8% Jt compound |
| MSP-WB-MN-15 | M013 | Wallboard and Joint Compound | Room P121: South side | <0.1% Chrysotile overall<br>0.8% Jt compound |
| MSP-WB-MN-16 | M013 | Wallboard and Joint Compound | Room P121: Southeast side | ND |
| MSP-WB-MN-17 | M013 | Wallboard and Joint Compound | Room P121: Northeast side | ND |

Note: ND =No Asbestos Detected, NA= Not Analyzed, TR = <1% Asbestos, PC = Point Count

# Table 4

## Bulk Sample Analytical Results by Homogeneous Area Number

SUU Middle School Pool

State of Utah - DFCM

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-040 | M001 | Stair Vinyl | Center stairwell | ND |
| MSP-VF-MN-01 | M001 | Vinyl Floor Sheeting | Room PS02 | ND |
| 1068-035 | M002 | Stair Vinyl | Former southeast entrance stairwell: coveing vnyl | ND |
| MSP-CB-MN-02 | M002 | Cove Base | Room P02 | ND |
| MSP-BM-MN-03 | M003 | Cove Base Adhesive | Room P02 | ND |
| 1068-033 | M004 | Floor Tile - Exposed | Lower Hallway: bottom of former north stairwell | ND |
| 1068-033A | M004 | Floor Tile Mastic | Lower Hallway: bottom of former north stairwell | ND |
| MSP-FT-MN-04 | M004 | Floor Tile - Exposed | Room P02 | ND |
| 1068-041A | M005 | Ceiling Tile | Lower Hallway: north of center stairwell | ND |
| MSP-CT-MN-05 | M005 | Ceiling Tile | Room P02 | ND |
| 1068-041 | M006 | Ceiling Tile Adhesive | Lower Hallway: north of center stairwell | ND |
| MSP-CTP-MN-06 | M006 | Ceiling Tile Adhesive | Room P02 | ND |
| 1068-042 | M007 | Floor Tile - Exposed | Room PS04 by entrance to Room P110 | 8% Chrysotile |
| 1068-042A | M007 | Floor Tile Mastic | Room PS04 by entrance to Room P110 | ND |
| MSP-FT-MN-10 | M007 | Floor Tile - Exposed | Room P09 | 5% Chrysotile |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| MSP-FT-MN-10A | M007 | Floor Tile Mastic | Room P09 | ND |
| MSP-CT-MN-08 | M008 | Ceiling Tile | Room P121 | ND |
| MSP-CT-MN-09 | M009 | Ceiling Tile | Room P04 | ND |
| 1068-026 | M011 | Wallboard and Joint Compound | Entrance to Girl's Locker Room | ND |
| MSP-WB-MN-12A | M011 | Wallboard and Joint Compound | Room P105 | ND |
| MSP-WB-MN-12B | M011 | Wallboard and Joint Compound | Room P105 | ND |
| MSP-WB-MN-12C | M011 | Wallboard and Joint Compound | Room P105 | ND |
| 1068-022 | M011A | Joint Compound | Room P102: north wall next to door | ND |
| 1068-023 | M011A | Joint Compound | Room P105: ceiling by light fixture | ND |
| 1068-030 | M011A | Joint Compound | Room P106: north storage closet | ND |
| 1068-032 | M011A | Joint Compound | Lower Hallway: north of center stairwell above ceiling tile | ND |
| 1068-037 | M011A | Joint Compound | Room P06: above entrance to Room P08 | ND |
| 1068-039 | M011A | Joint Compound | Roof access hatch | ND |
| 1068-041B | M011A | Joint Compound | Lower Hallway: north of center stairwell | ND |
| MSP-WB-MN-14 | M013 | Wallboard and Joint Compound | Room P121: West side | <0.1% Chrysotile overall<br>0.8% Jt compound |
| MSP-WB-MN-15 | M013 | Wallboard and Joint Compound | Room P121: South side | <0.1% Chrysotile overall<br>0.8% Jt compound |
| MSP-WB-MN-16 | M013 | Wallboard and Joint Compound | Room P121: Southeast side | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| MSP-WB-MN-17 | M013 | Wallboard and Joint Compound | Room P121: Northeast side | ND |
| MSP-S-MN-18 | M014 | Caulk | Room P121 | ND |
| 1068-001 | M015 | Built-up Roofs, multi-layer/sq.ft. | Lower roof: northwest corner by roof access hatch | ND |
| 1068-002 | M015 | Built-up Roofs, multi-layer/sq.ft. | Lower roof: near center | ND |
| 1068-003 | M016 | Flashing Felt | Lower roof: west side center | 50% Chrysotile |
| 1068-003A | M016 | Roof Sealant | Lower roof: west side center | 5% Chrysotile |
| 1068-004 | M016 | Flashing Felt | Lower roof: east side south of exhaust fan unit | 50% Chrysotile |
| 1068-005 | M017 | Roof Sealant | Lower roof: northeast corner | 12% Chrysotile |
| 1068-005A | M017 | Roof Sealant | Lower roof: northeast corner | 5% Chrysotile |
| 1068-006 | M018 | Vibration Isolator | Lower roof: center exhaust fan | ND |
| 1068-007 | M019 | Expansion Joint Fill | Lower roof: northeast corner | ND |
| 1068-012 | M020 | Gasket | Boiler room: South boiler | ND |
| 1068-020 | M021 | Ceiling Tile | Room P102: north end | ND |
| 1068-021 | M022 | Cove Base | Room P102: east wall | ND |
| 1068-024 | M023 | Floor Tile - Exposed | Room P105: by entrance | ND |
| 1068-024A | M023 | Floor Tile Mastic | Room P105: by entrance | >1% Chrysotile |
| 1068-025 | M024 | Cove Base | Room P103: south wall | ND |
| 1068-027 | M025 | Ceiling Tile | Girl's Locker Room: entrance corridor | ND |
| 1068-028 | M026 | Ceiling Tile | Girl's Locker Room: by shower stalls | ND |
| 1068-029 | M027 | Ceiling Tile | Girl's Locker Room: by toilet stalls | ND |
| 1068-031 | M028 | Ceiling Tile | Lower Hallway: west of center stairwell | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| 1068-034 | M029 | Floor Tile Mastic | Lower Hallway: by southwest entrance doors | 8% Chrysotile |
| 1068-034A | M029 | Carpet Adhesive | Lower Hallway: by southwest entrance doors | ND |
| 1068-036 | M030 | Wall Panel | Room P06: north side by west entrance | ND |
| 1068-038 | M031 | Window Caulking/ln.ft. | Main Pool: northeast windows | 10% Chrysotile |
| MSP-WB-MN-07A | S001 | Surfacing Material/Plaster | Room P02 | ND |
| MSP-WB-MN-07B | S001 | Surfacing Material/Plaster | Room P02 | ND |
| MSP-WB-MN-07C | S001 | Surfacing Material/Plaster | Room P02 | ND |
| 1068-013 | S002 | Stucco | West side of main pool structure: wall | ND |
| 1068-014 | S002 | Stucco | West side of main pool structure: soffit | ND |
| 1068-015 | S002 | Stucco | Soffit above main entrance | ND |
| 1068-016 | S003 | Wallboard Texturing | Main entrance: west wall (entrance to boiler room) | ND |
| 1068-017 | S003 | Wallboard Texturing | Boy's Locker Room: east side center | ND |
| 1068-018 | S003 | Wallboard Texturing | Boy's Locker Room: west side center | ND |
| 1068-019 | S003 | Wallboard Texturing | Boy's Locker Room: north end | ND |
| MSP-TSI-MN-11A | T001 | Pipe Fitting Insulation | Room P110A | ND |
| MSP-TSI-MN-11B | T001 | Pipe Fitting Insulation | Room P110A | ND |
| MSP-TSI-MN-11C | T001 | Pipe Fitting Insulation | Room P110A | ND |

| Sample Number | Homogeneous Area Number | Material Sampled | Sample Location | Analytical Results |
|---|---|---|---|---|
| MSP-TSI-MN-13A | T002 | Pipe Fitting Insulation | Room P122 | ND |
| MSP-TSI-MN-13B | T002 | Pipe Fitting Insulation | Room P122 | ND |
| MSP-TSI-MN-13C | T002 | Pipe Fitting Insulation | Room P122 | ND |
| 1068-010 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room: heating water supply line | ND |
| 1068-011 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room: heating water return line | ND |
| 1068-043 | T003 | Pipe Fitting Insulation | Mechanical room west of boiler room | ND |
| 1068-009 | T004 | Tank Insulation | Mechanical room west of boiler room: expansion tank | ND |
| 1068-008 | T005 | Tank Insulation | Mechanical room west of boiler room: Hot water tank | ND |

Note: ND =No Asbestos Detected, NA= Not Analyzed, TR = <1% Asbestos, PC = Point Count

# Table 5

## Damage and Hazard Assessment by Homogeneous Area

SUU Middle School Pool
State of Utah - DFCM

| Homogeneous Area Number | Material Type | Substrate | Assessment Category | Damage | Accessibility | Disturbance Potential |
|---|---|---|---|---|---|---|
| M007 | Floor Tile - Exposed | Wallboard | X | No Damage | Continuous | Medium |
| M010 | Floor Tile - Under GDC | Cement | X | No Damage | Rarely Accessed | Low |
| M012 | Wallboard and Joint Compound | Wood | X | No Damage | Rarely Accessed | Low |
| M013 | Wallboard and Joint Compound | Wood | X | No Damage | Rarely Accessed | Low |
| M016 | Roofing Tar & Felt | Wood | X | No Damage | Rarely Accessed | Low |
| M017 | Roof Sealant | Various | X | No Damage | Rarely Accessed | Low |
| M023 | Floor Tile and Mastic on Cement | Cement | X | No Damage | Continuous | Low |
| M023A | Floor Tile and Mastic Under GDC | Cement | X | No Damage | Rarely Accessed | Low |
| M029 | Floor Tile Mastic | Cement | X | Slight Damage | Continuous | Medium |
| M031 | Window Caulking/ln.ft. | Metal | X | No Damage | Rarely Accessed | Low |

| Homogeneous Area Number | Material Type | Substrate | Assessment Category | Damage | Accessibility | Disturbance Potential |
|---|---|---|---|---|---|---|

Damage Categories

Each homogeneous area of ACM was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR §763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

- "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off of the tile).
- "Slight Damage" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.
- "Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface or localized over 25% or more of its surface.

Hazard Assessment Categories

Each homogeneous area of ACM was evaluated for accessibility and the hazard the material presents to building occupants and the general public. The assessment assumes a fully occupied building.

- "Inaccessible" means the material was located in an area that people had no reason to enter and could not access without special measures. One example would be above a solid ceiling.
- "Rarely-Accessed" identifies a material that was in a location that could be accessed but wasn't unless there was a specific needed. An example would be a pipe tunnel. Another example would be a high ceiling that is out of reach and not subject to any specific disturbances.
- "Periodic Access" identifies a material that was in a location that was accessible, was not occupied full time, but was accessed on a routine basis. An example would be a mechanical room or boiler room.
- "Continuous Access" identifies a material that was in a location that was occupied full time and was within reach of the occupants, or was frequently subject to direct disturbance. Examples would be exposed floor tile or a normal height ceiling.

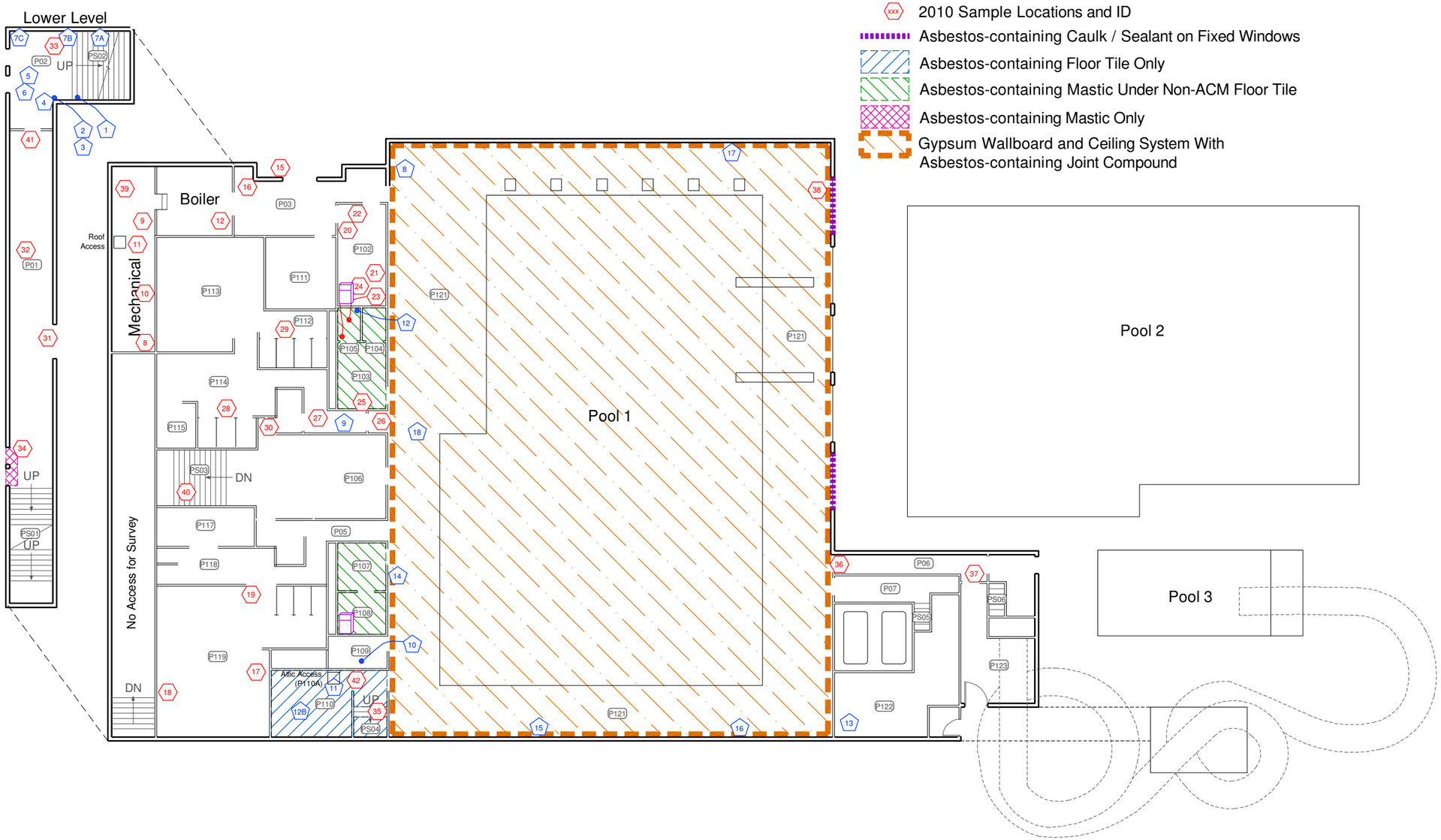
# Table 6
## Estimated Abatement Costs by Homogeneous Area
SUU Middle School Pool
State of Utah - DFCM

| Homogeneous Area Number | Material | Amount | | Unit Cost | Extended Cost |
|---|---|---|---|---|---|
| M007 | Floor Tile - Exposed | 40 | sq. ft. | $2.36 | $94 |
| M010 | Floor Tile - Under GDC | 155 | sq. ft. | $3.27 | $507 |
| M012 | Wallboard and Joint Compound | 8,000 | sq. ft. | $3.00 | $24,000 |
| M013 | Wallboard and Joint Compound | 6,025 | sq. ft. | $3.00 | $18,075 |
| M016 | Roofing Tar & Felt | 2,280 | sq. ft. | $5.00 | $11,400 |
| M017 | Roof Sealant | 150 | sq. ft. | $7.30 | $1,095 |
| M023 | Floor Tile and Mastic on Cement | 60 | sq. ft. | $3.36 | $202 |
| M023A | Floor Tile and Mastic Under GD | 225 | sq. ft. | $4.83 | $1,087 |
| M029 | Floor Tile Mastic | 5 | sq. ft. | $4.00 | $20 |
| M031 | Window Caulking/ln.ft. | 380 | ln. ft. | $2.48 | $942 |
| | | **Total Estimated Abatement Cost** | | | **$57,422** |

Note: Estimated abatement costs do not include replacement costs or costs for a consultant to manage the abatement.

# Appendix B

# Building Floor Plans




Explanation

- ## Room / Space ID
- xxx 2000 Sample Locations and ID
- xxx 2010 Sample Locations and ID
- Asbestos-containing Caulk / Sealant on Fixed Windows
- Asbestos-containing Floor Tile Only
- Asbestos-containing Mastic Under Non-ACM Floor Tile
- Asbestos-containing Mastic Only
- Gypsum Wallboard and Ceiling System With Asbestos-containing Joint Compound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IHI ENVIRONMENTAL 30th ANNIVERSARY 1980 - 2010

Southern Utah University
Middle School Pool
450 West Center Street
Cedar City, Utah

# Asbestos-containing Materials & Sample Locations

N

0 10' 20'

| | |
|---|---|
| PROJECT No: | 10U-A1068 |
| SHEET: | 4 |
| DRAWN BY: | MBradley |
| DATE: | 5-4-10 |
| REVISED BY: | |
| DATE: | |
| REVIEWED BY: | |
| DATE: | |

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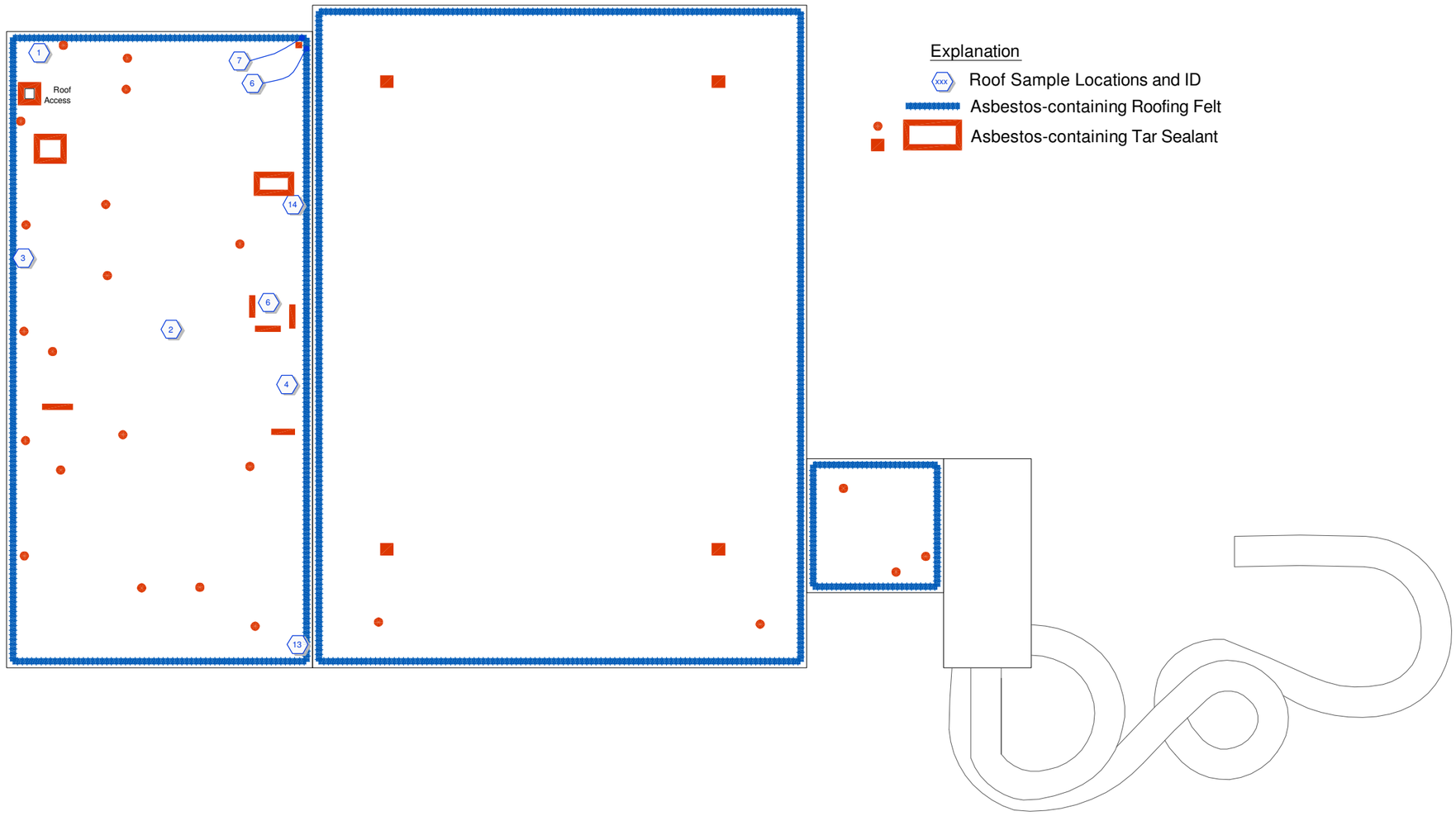


Explanation

- XXX — Roof Sample Locations and ID
- Asbestos-containing Roofing Felt
- Asbestos-containing Tar Sealant

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Southern Utah University
Middle School Pool
450 West Center Street
Cedar City, Utah

# Asbestos-containing Roofing Materials and Sample Locations

N

0 10' 20'

| | |
|---|---|
| PROJECT No: | 10U-A1068 |
| SHEET: | 5 |
| DRAWN BY: | MBradley |
| DATE: | 5-4-10 |
| REVISED BY: | |
| DATE: | |
| REVIEWED BY: | |
| DATE: | |

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# Appendix C

# Photographs

**Photograph 1**
SUU Middle School Pool– Front Exterior, view looking southeast

**Photograph 2**
SUU Middle School Pool-View looking southwest

**Photograph 3**
M010: ACM 12 inch floor tile with non-ACM black mastic in Room P110


**Photograph 4**
M007: ACM 12 inch floor tile and non-ACM stair vinyl in Room PS04

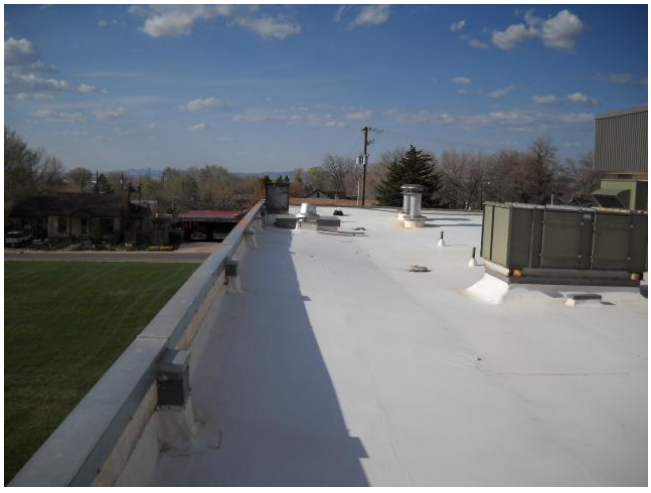
**Photograph 5**
M012 and M013: Gypsum board ceiling and wall system in Room P121 with ACM joint compound and non-ACM ceiling tiles (M008) on walls


**Photograph 6**
M023: ACM black mastic under non-ACM 12 inch floor tile in Room P105 and non-ACM cove base (M024)

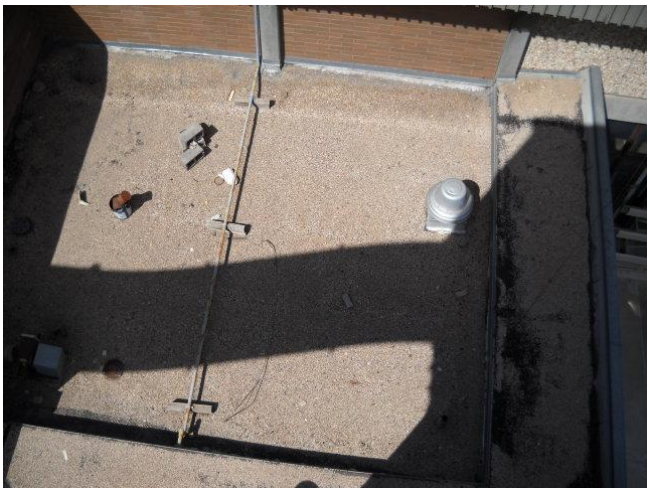
**Photograph 7**
M031: ACM black window caulk in fixed windows of Room P121

**Photograph 8**
M016: ACM roof flashing felt on west end of west roof under rubberized membrane showing ACM (M017) silver sealant on felt

**Photograph 9**
ACM flashing roofing felt (M016) on east side of west roof under non-ACM membrane



**Photograph 10**
View of west roof looking north toward access hatch



**Photograph 11**
View from top of water slide tower of connecting roof with assumed ACM flashing felt (M016) and tar sealants (M017) on roof penetrations

**Photograph 12**
M015: Non-ACM built-up tar and felt under membrane and foam insulation on west roof


**Photograph 13**
View of rubberized membrane and foam insulation covering non-ACM built-up roofing (M015) in center of west roof

**Photograph 14**
M017: ACM black and silver tar sealant and non-ACM expansion joint (M019)

**Photograph 15**
View of main roof with assumed ACM flashing felt (M016) and tar sealants (M017) from top of water slide tower

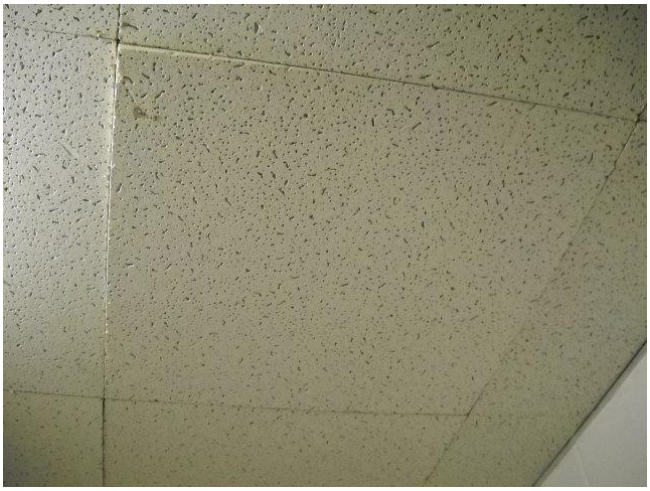
**Photograph 16**
M019: Non-ACM expansion joint on west roof wall

**Photograph 17**
M004: Non -ACM 12 inch floor tile and glued-down carpeting in Room P02

**Photograph 18**
Non-ACM ceiling tile (M005) ceiling tile mastic (M006) and gypsum board ceiling system (M011) in room P01

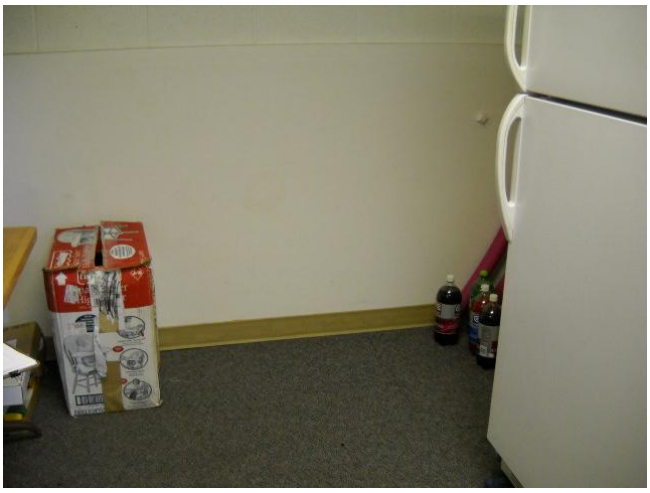
**Photograph 19**
View of non-ACM ceiling tiles (M008) on walls of Room P121 and fixed windows with ACM window caulk (M031)

**Photograph 20**
Non-ACM 12 inch ceiling tiles (M009) in Room 106A



**Photograph 21**
Non-ACM 18 inch ceiling tile in Room P102 (M021)

**Photograph 22**
Non-ACM replacement 12 inch ceiling tile in Room P01 (M028)



**Photograph 23**
Non-ACM beige cove base and adhesive (M022) and gypsum board wall system (M011) in Room P102

**Photograph 24**
Non-ACM 12-inch ceiling tiles (M025 and M026) in Room P114

**Photograph 25**
Non-ACM 12-inch ceiling tiles (M025 and M027) in Room P112

**Photograph 26**
Non-ACM gasket (M020) on boiler in boiler room

**Photograph 27**
Non-ACM textured wall pane on east wall of Room P121 (M030)

**Photograph 28**
Non-ACM stucco like coating (S002) on lower west soffit of upper roof


**Photograph 29**
Non-ACM texturing on west wall of Room P03 (S003)

**Photograph 30**
Non-ACM texturing on ceiling of Room P119 (S003)

**Photograph 31**
Non-ACM pipe fitting insulation (T001) of Room 110A

**Photograph 32**
Non-ACM vibration collar (M018) on west roof HVAC unit

**Photograph 33**
Damaged non-ACM pipe fitting insulation (T002) in Room P122


**Photograph 34**
Non-ACM pipe fitting insulation (T003) in mechanical space west of boiler room

**Photograph 35**
Non-ACM pipe fitting (T003) and tank insulation (T004) in mechanical space west of boiler room

**Photograph 36**
Non-ACM tank insulation (T005) in mechanical space west of boiler room

# Appendix D

# Laboratory Analytical Results

**DIXON INFORMATION INC.**
MICROSCOPY, ASBESTOS ANALYSIS & CONSULTING
A.I.H.A. ACCREDITED LABORATORY # 101579
NVLAP LAB CODE 101012-0

April 27, 2010

Mr. Jim Nicol
IHI Environmental
640 East Wilmington Ave
Salt Lake City, UT 84106

Ref: Batch # 89946, Lab # H13635 - H13677
Received April 22, 2010
Test report
Project #:10U-A1068-FS
SUU Middle School-Pool

Dear Mr. Nicol:

Samples H13635 through H13677 have been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982, and EPA/600/R-93/116 July 1993 optical microscopy test methods. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. This analysis is accredited by NVLAP. Appendix "A" must be included as an essential part of this test report. The data for this report is accredited by NVLAP for laboratory number 101012-0. It does not contain data or calibrations for tests performed under the AIHA program under lab code 101579.

This report may be reproduced but all reproduction must be in full unless written approval is received from the laboratory for partial reproduction. The results of analysis are as follows:

Lab H13635, Field 1068-001 1530, Built-up Roofing
This sample contains two types of material: The first type is black tar layers; the second type is 50% plant fiber in black tar layers. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 50% of the sample. The second type is 50% of the sample.

Lab H13636, Field 1068-002 1545, Built-up Roofing
This sample contains two types of material: The first type is black tar layers with sand and wood fiber debris; the second type is 50% plant fiber in black tar felt layers. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 50% of the sample. The second type is 50% of the sample.

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Lab H13637, Field 1068-003 1550, Roof Flashing Felt
This sample contains five types of material: The first type is **5% chrysotile asbestos** in silver colored sealant; the second type is **50% chrysotile asbestos** and 10% plant fiber in black tar felt layers; the third type is black tar layers; the fourth type is 50% plant fiber in black tar felt; the fifth type is brown wood fiber debris. This sample is non-homogeneous.

The first type is 20% of the sample. The second type is 25% of the sample. The third type is 33% of the sample. The fourth type is 20% of the sample. The fifth type is 2% of the sample.

Lab H13638, Field 1068-004 1555, Roof Flashing Felt
This sample contains four types of material: The first type is black tar layers; the second type is **50% chrysotile asbestos,** 5% plant fiber and 5% fiberglass in black tar layers; the third type is 50% plant fiber in black tar layers; the fourth type is brown wood fiber. This sample is non-homogeneous.

The first type is 30% of the sample. The second type is 20% of the sample. The third type is 30% of the sample. The fourth type is 20% of the sample.

Lab H13639, Field 1068-005 1610, Tar Sealant
This sample contains two types of material: The first type is **5% chrysotile asbestos** in silver colored sealant; the second type is **12% chrysotile asbestos** in black tar sealant with limestone. This sample is non-homogeneous.

The first type is 10% of the sample. The second type is 90% of the sample.

Lab H13640, Field 1068-006 1605, Vibration Collar
This is 90% crosswoven fiberglass in dark gray binder. **Asbestos is none detected.**

Lab H13641, Field 1068-007 1607, Expansion Joint Lining
This is less than 1% fiberglass in brown and white plant fiber paper. **Asbestos is none detected.**

Lab H13642, Field 1068-008 1635, Tank Insulation
This sample contains two types of material: The first type is white cotton cloth coated with off-white paint and binder; the second type is 5% plant fiber and 3% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 10% of the sample. The second type is 90% of the sample.

Lab H13643, Field 1068-009 1645, Tank Insulation
This sample contains two types of material: The first type is white cotton cloth; the second type is 5% plant fiber and 3% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab H13644, Field 1068-010 1656, Pipe Fitting Insulation
This sample contains two types of material: The first type is white cotton cloth; the second type is 5% plant fiber and 3% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 20% of the sample. The second type is 80% of the sample.

Lab H13645, Field 1068-011 1655, Pipe Fitting
This sample contains two types of material: The first type is off-white cotton cloth and binder; the second type is 5% plant fiber and 3% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 1% of the sample. The second type is 99% of the sample.

Lab H13646, Field 1068-012 1705, Gasket
This is white 98% fiberglass with particulate. **Asbestos is none detected.**

Lab H13647, Field 1068-013 1305, Stucco
This is gray and white sandy plaster. **Asbestos is none detected.**

Lab H13648, Field 1068-014 1755, Stucco
This is off-white sandy plaster. **Asbestos is none detected.**

Lab H13649, Field 1068-015 1758, Stucco
This is sandy white and gray plaster. **Asbestos is none detected.**

Lab H13650, Field 1068-016 1815, Surface Texturing
This sample contains three types of material: The first type is white paint; the second type is white limestone plaster with fine mica; the third type is tan plant fiber paper. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 25% of the sample. The second type is 70% of the sample. The third type is 5% of the sample.

Lab H13651, Field 1068-017 0930, Surface Texturing
This sample contains three types of material: The first type is white paint; the second type is white limestone plaster with mica and perlite; the third type is tan plant fiber paper. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 23% of the sample. The second type is 75% of the sample. The third type is 2% of the sample.

Lab H13652, Field 1068-018 0935, Surface Texturing
This sample contains four types of material: The first type is white paint; the second type is white limestone plaster with fine mica; the third type is tan plant fiber paper; the fourth type is brown resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 10% of the sample. The second type is 88% of the sample. The third type is less than 1% of the sample. The fourth type is less than 1% of the sample.

Lab H13653, Field 1068-019 0939, Surface Texturing
This sample contains white paint, white limestone plaster with fine mica, tan plant fiber paper, and white gypsum plaster with 1% fiberglass. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 20% of the sample. The plaster with mica is 30% of the sample. The plant fiber paper is 30% of the sample. The white gypsum plaster is 20% of the sample.

Lab H13654, Field 1068-020 1010, Ceiling Tile
This is a light gray sample with perlite, 20% plant fiber, and 20% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab H13655, Field 1068-021 P.M., Beige Cove Base Adhesive
This sample contains two types of material: The first type is tan rubber and limestone cove base; the second type is yellow resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 99% of the sample. The second type is 1% of the sample.

Lab H13656, Field 1068-022 PM., Joint Compound
This is off-white limestone plaster with perlite. **Asbestos is none detected.**

Lab H13657, Field 1068-023 PM., Joint Compound
This sample contains three types of material: The first type is off-white limestone plaster with perlite; the second type is off-white paint; the third type is off-white limestone plaster with perlite. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 48% of the sample. The second type is 2% of the sample. The third type is 50% of the sample.

Lab H13658, Field 1068-024 PM., Floor Tile
This sample contains three types of material: The first type is **greater than 1% chrysotile asbestos** in black tar mastic; the second type is black resin mastic; the third type is tan plastic and limestone tile. This sample is non-homogeneous.

The first type is less than 1% of the sample. The second type is less than 1% of the sample. The third type is 98% of the sample.

The analysis sensitivity is limited in the first and second material type due to small sample size.

Lab H13659, Field 1068-025 PM., Brown Cove Base
This is brown rubber and limestone cove base. **Asbestos is none detected.**

Lab H13660, Field 1068-026 AM., Wall System
This sample contains off-white paint, white limestone plaster with mica, brown plant fiber paper, and tan gypsum plaster with 1% fiberglass and 1% plant fiber. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The plaster with mica is 1% of the sample. The plant fiber paper is 8% of the sample. The tan gypsum plaster is 90% of the sample.

Lab H13661, Field 1068-027 AM., Ceiling Tile
This is a light gray sample with perlite, 10% plant fiber, and 60% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab H13662, Field 1068-028 AM., Ceiling Tile
This is a light gray sample with perlite, 20% plant fiber, and 20% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab H13663, Field 1068-029 AM., Ceiling Tile
This is a light gray sample with perlite, 30% plant fiber, and 10% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab H13664, Field 1068-030 PM., Joint Compound
This sample contains two types of material: The first type is white paint; the second type is off-white limestone plaster with perlite. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab H13665, Field 1068-031 0900, Ceiling Tile
This is a light gray sample with perlite, 30% plant fiber, and 10% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab H13666, Field 1068-032 0915, Joint Compound
This sample contains two types of material: The first type is white limestone plaster with mica; the second type is brown resin mastic. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 98% of the sample. The second type is 2% of the sample.

Lab H13667, Field 1068-033 0922, Floor Tile
This is a brown plastic and limestone tile with black tar mastic. **Asbestos is none detected.**

The tile is 99% of the sample. The mastic is 1% of the sample.

Lab H13668, Field 1068-034 0928, Floor Tile Mastic
This sample contains two types of material: The first type is **8% chrysotile asbestos** in black tar mastic; the second type is yellow mastic. This sample is non-homogeneous.

The first type is 30% of the sample. The second type is 70% of the sample.

Lab H13669, Field 1068-035 0940, Cove Base
This is tan rubber and limestone cove base. **Asbestos is none detected.**

Lab H13670, Field 1068-036 1110, Wall Panel
This sample contains three types of material: The first type is white caulk; the second type is 15% fiberglass in white binder; the third type is wood fragments. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 2% of the sample. The second type is 90% of the sample. The third type is 8% of the sample.

Lab H13671, Field 1068-037 1125, Joint Compound
This sample contains two types of material: The first type is white paint; the second type is white gypsum plaster with mica. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab H13672, Field 1068-038 1230, Window Caulk
This is **10% chrysotile asbestos** in black caulk.

Lab H13673, Field 1068-039 1155, Joint Compound
This sample contains three types of material: The first type is off-white limestone plaster with perlite; the second type is white paint; the third type is off-white limestone plaster with mica. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 40% of the sample. The second type is 1% of the sample. The third type is 59% of the sample.

Lab H13674, Field 1068-040 1215, Stair Tread
This is tan rubber and limestone stair tread. **Asbestos is none detected.**

Lab H13675, Field 1068-041 1200, Ceiling Tile/Mastic
This sample contains four types of material: The first type is 20% mineral wool and 30% plant fiber in resin binder with perlite; the second type is yellow mastic; the third type is brown resin mastic; the fourth type is white limestone plaster with mica. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 18% of the sample. The second type is 80% of the sample. The third type is 1% of the sample. The fourth type is 1% of the sample.

Lab H13676, Field 1068-042 1210, Floor Tile
This is **8% chrysotile asbestos** in a tan plastic and limestone tile.

**Note: Asbestos is none detected** in the black tar mastic.

The tile is 99% of the sample. The mastic is 1% of the sample.

Lab H13677, Field 1068-044 1100, Pipe Fitting
This is 5% organic fiber and 2% mineral wool in off-white plaster. **Asbestos is none detected.**

In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,

Steve H. Dixon, President

Analyst: Steve H. Dixon

Analyst: Ofir A. Sosa Date Analyzed: April 27, 2010

1165

# IHI

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89946

## Bulk Analytical Request Form

**RUSH: YES: ☐ NO: ☑**

Page # 1 of 5

IHI Project No: 1011-A1068-FS Date: 4/21/10

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South
Salt Lake City, UT 84115

Sampling Site SLU Middle School - Pool

Results Requested for Name: Jim Nicl by Date: 4/29/10 by Time: 0800

| Homog. Area | Sample Field Number | Laboratory Number | Time Collected | Type Friable | Type Non-Fri | Sample Description |
|---|---|---|---|---|---|---|
| 1 | 1068-001 | 13635 | 1530 | | X | Built-up Roofing |
| | 002 | 13636 | 1545 | | | ↓ |
| | 003 | 13637 | 1550 | | | Roof flashing felt |
| | 004 | 13638 | 1555 | | | ↓ |
| | 005 | 13639 | 1610 | | | tar sealant |
| | 006 | 13640 | 1605 | X | | Vibration Collar |
| | 007 | 13641 | 1607 | | | expansion joint fitting |
| | 008 | 13642 | 1635 | | | tank insulation |
| | 009 | 13643 | 1645 | | | ↓ |
| | 010 | 13644 | 1650 | | | pipe fitting insulation |

Comments Analyze bracketed samples until >1% asbestos

### SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

| Date | Time | Sealed | Printed Name | Signature | Company | Transfer Reason |
|---|---|---|---|---|---|---|
| | | | | | IHI | Sent to Lab |
| 4/21/10 | 2000 | | Jim Nicl | | IHI | Transported to Lab |
| 4-22-10 | 0800 | - | Dicna Keller | | Dixon | Received by Lab |
| 4-26-10 | 1500 | | Steve Dixon | | Dixon | Rec'd by Analyst |
| 4-26-10 | 2400 | | Steve Dixon | | Dixon | Analysis Complete |
| 4-27-10 | 1400 | | Steve Dixon | | Dixon | Supervisor OK |

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

IHI

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# Bulk Analytical Request Form

**RUSH: YES: ☐ NO: ☒**

IHI Project No: 10U-A1068 Page # 2 of 5

Date: 4/21/10

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South, Salt Lake City, UT 84115

Sampling Site: Salt Middle School - P661

Results Requested for Name: Jim Nicol by Date: 4/29/10 by Time: 6800

| Homog. Area | Sample Field Number | Laboratory Number | Time Collected | Type Friable | Type Non-Fri | Sample Description |
|---|---|---|---|---|---|---|
| | 1668-011 | 13645 | 1655 | Y | | pipe fitting |
| | 012 | 13646 | 1705 | Y | | gasket |
| | 013 | 13647 | 1305 | | X | stucco |
| | 014 | 13648 | 1755 | | | ↓ |
| | 015 | 13649 | 1758 | | | ↓ |
| | 016 | 13650 | 1815 | | | surface texturing |
| | 017 | 13651 | 936 | | | |
| | 018 | 13652 | 935 | | | ↓ |
| | 019 | 13653 | 939 | | Y | ↓ |
| | 020 | 13654 | 1010 | X | | ceiling tile |

Comments: Analyze bracketed samples until >1% asbestos

## SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

| Date | Time | Sealed | Printed Name | Signature | Company | Transfer Reason |
|---|---|---|---|---|---|---|
| | | | | | IHI | Sent to Lab |
| 4/21/10 | 2000 | | Jim Nicol | | IHI | Transported to Lab |
| 4-22-10 | 0800 | — | Diane Kelly | Diane Kelly | Dixon | Received by Lab |
| 4-26-10 | 1500 | | Steve Dixon | | Dixon | Rec'd by Analyst |
| 4-26-10 | 2400 | | Steve Dixon | | Dixon | Analysis Complete |
| 4-27-10 | 1400 | | Steve Dixon | | Dixon | Supervisor OK |

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

3 of 5

# IHI

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## Bulk Analytical Request Form

**RUSH: YES: ☐ NO: ☒**

IHI Project No: 10U-A1068-FS
Page # 3 of 5
Date: 4/21/10
Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800
Address: 78 West 2400 South
Salt Lake City, UT 84115
Sampling Site SLU Middle School Pool
Results Requested for Name: Jim Nick by Date: 4/29/10 by Time: 8:00 a

| Homog. Area | Sample Field Number | Laboratory Number | Time Collected | Type Friable | Type Non-Fri | Sample Description |
|---|---|---|---|---|---|---|
| | 1068-021 | 13655 | p.m. | | X | beige cove base adhesive |
| | 022 | 13656 | | | | Joint compound |
| | 023 | 13657 | | | | |
| | 024 | 13658 | | | | Floor tile |
| | 025 | 13659 | | | | brown cove base |
| | 026 | 13660 | p.m. | | | Wall system |
| | 027 | 13661 | | X | | ceiling tile |
| | 028 | 13662 | | | | |
| | 029 | 13663 | | | | |
| | 030 | 13664 | p.m. | | X | Joint compound |

Comments

**SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)**

| Date | Time | Sealed | Printed Name | Signature | Company | Transfer Reason |
|---|---|---|---|---|---|---|
| | | | | | IHI | Sent to Lab |
| 4/21/10 | 2000 | | Jim Nick | | IHI | Transported to Lab |
| 4-22-10 | 0800 | ✓ | Diane Keller | Diane Keller | Dixon | Received by Lab |
| 4-26-10 | 1400 | | Ofir Sosa | | Dixon | Rec'd by Analyst |
| 4-27-10 | 1000 | | Ofir Sosa | | Dixon | Analysis Complete |
| 4.27-10 | 1400 | | Steve Dixon | | Dixon | Supervisor OK |

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

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# Bulk Analytical Request Form

**RUSH: YES: ☐ NO: ☒**

IHI Project No: 104-A1068-FS

Page # 4 of 5

Date: 4/21/10

Laboratory Name: Dixon Information Inc. Telephone: (801) 486-0800

Address: 78 West 2400 South
Salt Lake City, UT 84115

Sampling Site SLCU Middle School - Pool

Results Requested for Name: Jim Nish by Date: 4/29/10 by Time: 8:00 am

| Homog. Area | Sample Field Number | Laboratory Number | Time Collected | Type Friable | Type Non-Fri | Sample Description |
|---|---|---|---|---|---|---|
| | 1068-031 | 13665 | 900 | X | | ceiling tile |
| | 032 | 13666 | 915 | | X | Joint compound |
| | 033 | 13667 | 922 | | | floor tile |
| | 034 | 13668 | 928 | | | " " mastic |
| | 035 | 13669 | 940 | | | cove base |
| | 036 | 13670 | 1110 | | | wall panel |
| | 037 | 13671 | 1125 | | | Joint compound |
| | 038 | 13672 | 1230 | | | window caulk |
| | 039 | 13673 | 1155 | | | Joint compound |
| | 040 | 13674 | 1215 | | | stair tread |

Comments

## SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

| Date | Time | Sealed | Printed Name | Signature | Company | Transfer Reason |
|---|---|---|---|---|---|---|
| | | | | | IHI | Sent to Lab |
| 4/21/10 | 2000 | | Jim Nish | | IHI | Transported to Lab |
| 4-22-10 | 0800 | | Dixon | Diane Kuhn | Dixon | Received by Lab |
| 4-26-10 | 1400 | | Ofir Sosa | | Dixon | Rec'd by Analyst |
| 4-27-10 | 1000 | | Ofir Sosa | | Dixon | Analysis Complete |
| 4-27-10 | 1400 | | Steve Dixon | | Dixon | Supervisor OK |

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

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# Bulk Analytical Request Form

**RUSH: YES: ☐ NO: ☒**

IHI Project No: 104-A1068-PS  Page # 5 of 5

Date: 4/21/10

Laboratory Name: Dixon Information Inc.  Telephone: (801) 486-0800

Address: 78 West 2400 South

Salt Lake City, UT 84115

Sampling Site Scull Middle School Pool

Results Requested for Name: Jim Nish  by Date: 4/29/10  by Time : 8:00

| Homog. Area | Sample Field Number | Laboratory Number | Time Collected | Type Friable | Type Non-Fri | Sample Description |
|---|---|---|---|---|---|---|
| | 1068-041 | 13675 | 1200 | X | X | ceiling tile/mastic |
| | 042 | 13676 | 1210 | | X | floor tile |
| | 043 | 13677 | 1100 | X | | pipe fitting |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |
| | | | | | | |

Comments

## SAMPLE TRANSFER RECORD (CHAIN OF CUSTODY)

| Date | Time | Sealed | Printed Name | Signature | Company | Transfer Reason |
|---|---|---|---|---|---|---|
| | | | | | IHI | Sent to Lab |
| 4/21/10 | 2000 | | Jim Nish | | IHI | Transported to Lab |
| 4-21-10 | 0800 | | Diane Keller | D Keller | Dixon | Received by Lab |
| 4-26-10 | 1400 | | Chris Sosa | | Dixon | Rec'd by Analyst |
| 4-27-10 | 1000 | | Chris Sosa | | Dixon | Analysis Complete |
| 4-27-10 | 1400 | | Steve Dixon | | Dixon | Supervisor OK |

Lab Results (along with this completed form) and Invoices should be sent to:

640 E. Wilmington Avenue, Salt Lake City, Utah 84106 Telephone: 801-466-2223 Fax: 801-466-9616

## Appendix "A"

"This report relates only to the items tested. This report must not be used to claim product endorsement by NVLAP or AIHA"

NVLAP and AIHA requires laboratories to state the condition of samples received for testing: These samples are in acceptable condition for analysis unless there is a statement in the report of analysis that a test item has some characteristics or condition that precludes analysis or requires a modification of standard analytical methodology. If a test item is not acceptable, the reasons for non-acceptability will be given under the laboratory number for that particular test item.

### Methods of Analysis and Limit of Detection

In air count analysis, the results may be biased when interferences are noted.

The accuracy of asbestos analysis in bulk samples increases with increasing concentration of asbestos. Pigments, binders, small size and multiple layers may affect the analysis sensitivity.

There are two methods for analysis of asbestos in a bulk test sample. Visual estimation is the most sensitive method. If an analyst makes a patient search, 0.1% or less asbestos can be detected in bulk sample.

The second method of analysis is a statistical approach called point counting. EPA will not accept visual estimations if a laboratory detects a trace of asbestos in a sample i.e. anything less than 1% asbestos. Government agencies regulate asbestos containing materials (ACM) whenever the ACM is more than 1% OSHA requirements apply on samples containing any amount of asbestos.

Due to the higher charge for a point count analysis, Dixon Information Inc. does not perform a point count unless authorized to do so by the client. If a sample is point counted, when possible, chemical treatments will be used to concentrate the asbestos in the sample. This is permitted by the EPA method and it increases the accuracy of the analysis.

IHI ENVIRONMENTAL

# LEAD INSPECTION

**Southern Utah University**
**Middle School Pool**
**450 West Center Street**
**Cedar City, Utah**

**May 5, 2010**

**Prepared for:**

**Mr. Robert J. Anderson**
**Improvements Project Manager**
**State of Utah - DFCM**
**4110 State Office Building**
**Salt Lake City, Utah 84114**

**Prepared by:**

Lono Folau, SL County Pre-Demo
Building Inspector PBI-1023

**Reviewed by:**

Randy P. McClure, JD, CSP
Manager, Industrial Hygiene Services

**Project #10U-A1068**

640 EAST WILMINGTON AVE SALT LAKE CITY UT 84106 TELEPHONE: 801-466-2223 FAX: 801-466-9616 E-MAIL: IHI@IHI-ENV.COM

SALT LAKE CITY SAN FRANCISCO PHOENIX DENVER SEATTLE

## TABLE OF CONTENTS



### APPENDICES

## 1.0 INTRODUCTION

During April 12-14, 2010, IHI Environmental (IHI) conducted a lead inspection of the Middle School Pool, located at 450 West Center Street in Cedar City, Utah. Mr. Robert J. Anderson, Improvements Project Manager with DFCM, requested this inspection to identify lead-containing coatings before the upcoming demolition project in this building.

## 2.0 LEAD DEFINITIONS

The U.S. Department of Housing and Urban Development (HUD) and EPA define "lead-based paint" as any coating that has a lead concentration of 1.0 milligram per square centimeter ($mg/cm^2$) or greater, or if the lead concentration is greater than 0.5% by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 600 parts per million (ppm) or 0.06% by weight. Both the CPSC and HUD definitions of lead paint are aimed at protecting the general population from exposure to lead in the residential setting.

By contrast, the mission of the Occupational Safety and Health Administration (OSHA) with respect to lead-containing paint is to protect workers during construction activities that could result in hazardous exposures. OSHA states that construction work (including renovation, maintenance, and demolition) performed on structures coated with paint that contains levels of lead lower than HUD and CPSC standards can still result in exposures that exceed the regulatory limits. For this reason, OSHA has not defined a lower threshold level of lead content for lead-containing paint, but states that paint having any measurable level of lead may – depending on the activity – pose a significant potential for overexposure.

Therefore, construction activities that create lead-containing dust or fume must be performed in accordance with OSHA's Lead in Construction Standard (29 CFR 1926.62). This standard requires, among other things, medical surveillance, lead training, initial exposure assessments, respiratory protection, and worker hygiene facilities.

## 3.0 SURVEY PROCEDURES

### 3.1 Paint Sampling Methods

IHI directly measured the lead in paint using a NITON 300 X-ray Fluorescence (XRF) Spectrum Analyzer (Serial Number U3658TR0320) and by analyzing paint chip samples.

The NITON 300 non-destructively measures lead concentrations in painted surfaces, regardless of the number of paint layers present. Because XRF instruments were designed to measure lead concentrations required in EPA/HUD regulations, their accuracy diminishes at concentrations below 1.0 mg/cm$^2$. Trace amounts of lead may be present even when an XRF reading is at or below 0.0 mg/cm$^2$. To confirm the accuracy of low-level XRF readings, IHI collects paint chip samples of widely prevalent materials that the XRF identifies as containing 0.10 mg/cm$^2$ or less of lead. Four paint chip samples were collected and analyzed for lead by EMS laboratories located at 117 West Bellevue Drive in Pasadena, California. EMS is accredited by AIHA and EPA's NLLAP for lead. Results of the chip sampling are contained in the **Chip Sample Results** table in **Section 4.0** below.

The XRF measurements were made according to the requirements of Chapter 7 of the HUD *Guidelines for the Control of Lead-based Paint Hazards in Housing*, with appropriate modifications for a non-residential structure.

### 3.2 XRF Calibration

Before beginning the testing and after the testing was completed each day, the internal calibration of the NITON was checked by taking three consecutive measurements on a red (1.04 mg/cm$^2$) National Institute for Standards and Technology (NIST #2573) standard paint film. Three more readings were taken on a lead-free white NIST #2570 film. These calibration checks are performed to detect changes in the instrument's performance over time. The calibration values obtained were compared to the calibration check tolerance values to ensure that it was operating within the stated tolerance limits.

### 3.3 Field Documentation

Field data forms were used to manually record information about individual XRF measurement. This information includes the structure, the building component, component substrate (for example, drywall, wood, metal, concrete), and paint condition. The field data forms are then used by the inspector to identify and describe the materials sampled once the instrument's electronic memory has been downloaded to a personal computer.

## 4.0 FINDINGS

The individual lead paint measurements made using the XRF during this survey are located in **Table 1** in **Appendix A**. **Table 1** lists all of the individual facility measurements. Measurements are reported in milligrams of lead per square centimeter ($mg/cm^2$).

The following building components contained measurable concentrations of lead in one or more locations.

- Red paint on fire alarm box in mechanical room (0.8 $mg/cm^2$)
- Red paint on concrete chlorine tank by stairs PS05 in P07 (0.6– 0.8 $mg/cm^2$)
- Lt. tan shower and toilet stalls in P112, P114 and P120 (0.00 – 0.47 $mg/cm^2$)
- Glazing on brick in pool 1 (0.11 – 0.22 $mg/cm^2$)
- Brown paint on metal doors, windows and railings (0.00 – 0.22 $mg/cm^2$)
- Red paint on metal ladders, railings and tank supports in mechanical room (0.01 – 0.07 $mg/cm^2$)

The lead containing paints were in good condition throughout the building.

**Chip Sampling Results**

| XRF Reading #/Chip Sample # Component/Location | XRF Results ($mg/cm^2$) | Analytical Results |
|---|---|---|
| 200/1068-1<br>White Drywall Wall/Pool 1 | 0.00 | **0.0012 $mg/cm^2$** |
| 154/1068-2<br>Brown Metal Door Jamb/Room P107 | 0.22 | **<0.001$mg/cm^2$** |
| 43/1068-3<br>Tan Ceramic Tile Wall/Room 111 | 0.04 | **0.0012%** |
| 193/1068-4<br>Blue Ceramic Tile/Pool 1 | 0.02 | **0.0040%** |

## 5.0 CONCLUSIONS AND DISCUSSION

In addition to the materials identified above, measureable, but relatively low, lead concentrations were also identified on other building components scattered throughout the building. If workers perform sanding, grinding, welding, or cutting, or any other activities that may create lead-containing dust or fume, they must follow the requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62. This standard requires, among

other things, lead training, an initial exposure assessment, and hygiene facilities for all potentially exposed workers.

### 5.1 OSHA Construction Requirements

The Lead in Construction Standard specifies that employers are responsible for ensuring that their employees are not exposed to airborne lead concentrations exceeding the OSHA permissible exposure limit (PEL) of fifty micrograms per cubic meter or air (50 $\mu g/m^3$) averaged over an 8-hour period, and to take appropriate precautions when exposures reach an Action Level of 30 $\mu g/m^3$ averaged over an 8-hour period. The standard was written to require initial exposure monitoring or the use of historical or objective data to ensure that employee exposures do not exceed the Action Level. Depending on the specific construction activities being performed (e.g., torch cutting, manual demolition, sanding, grinding, etc.), employers must assume their employees are overexposed to lead and must provide personal protective equipment – including respiratory protection – until an exposure assessment proves otherwise.[1]

### 5.2 EPA Requirements

The presence of lead in demolition debris from non-residential buildings has the potential to impose limitations on where and how the debris may be disposed. The Resource Conservation and Recovery Act (RCRA) requires each waste generator to determine if his wastes are hazardous. This can be determined either through generator knowledge or by testing. Toxicity Characteristic Leaching Procedure (TCLP) testing is the preferred method for determining if wastes are hazardous. The demolition wastes from this project should undergo TCLP testing prior to disposal to determine if they are hazardous.

## 6.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by EH&S consultants performing similar services.

The procedures used attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown

[1] See 29 CFR 1926(d)(2) Protection of employees during assessment of exposure.

conditions. Therefore, because the findings of this report were derived from the scope, costs, time and other limitations, the conclusions should not be construed as a guarantee that all universal, toxic and/or hazardous wastes have been identified and fully evaluated. Furthermore, IHI assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside of IHI or from omissions or errors in public records.

It is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

# Appendix A

## Table 1 – Measured Lead Concentrations in Building Components

# Table 1

## Measured Lead Concentration in Building Components

SUU Middle School Pool

State of Utah - DFCM

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| Boiler Room | 26 | 0 | Boiler | A | Metal | Gray | Good | |
| Boiler Room | 29 | 0 | Door | B | Metal | Brown | Good | |
| Boiler Room | 28 | 0 | Door Jamb | B | Metal | Brown | Good | |
| Boiler Room | 25 | 0 | Electrical Panel | A | Metal | Gray | Good | |
| Boiler Room | 22 | 0 | Ladder | D | Metal | Brown | Good | |
| Boiler Room | 23 | 0 | Motor | D | Metal | Red | Good | |
| Boiler Room | 24 | 0 | Pipe | A | Metal | Black | Good | |
| Boiler Room | 20 | 0 | Wall | A | Plaster | White | Good | |
| Boiler Room | 21 | 0.02 | Wall | D | Plaster | White | Good | |
| Boiler Room | 27 | 0.01 | Window-Jamb | A | Metal | Brown | Good | |
| Exterior | 231 | 0 | Door | A | Metal | Brown | Good | |
| Exterior | 232 | 0 | Door Jamb | A | Metal | Brown | Good | |
| Exterior | 236 | 0 | Electrical Cabinet | A | Metal | Gray | Good | |
| Exterior | 237 | 0 | Gas Meter | A | Metal | Gray | Good | |
| Exterior | 229 | 0 | Railing | A | Metal | Red | Good | |
| Exterior | 230 | 0.01 | Railing | A | Metal | Red | Good | |
| Exterior | 228 | 0.01 | Railing | A | Metal | Red | Good | |
| Exterior | 233 | 0.05 | Window-Jamb | A | Metal | Brown | Good | |
| Exterior | 234 | 0.11 | Window-Sash | A | Metal | Brown | Good | |
| Exterior | 235 | 0.07 | Window-Sash | A | Metal | Brown | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| Mechanical Room | 12 | 0.03 | Door | D | Metal | Brown | Good | |
| Mechanical Room | 13 | 0.04 | Door Jamb | D | Metal | Brown | Good | |
| Mechanical Room | 16 | 0 | Electrical Cabinet | B | Metal | Gray | Good | |
| Mechanical Room | 18 | 0.8 | Fire Alarm Box | C | Metal | Red | Good | |
| Mechanical Room | 9 | 0.04 | Ladder | D | Metal | Red | Good | |
| Mechanical Room | 15 | 0.01 | Pipe Flange | B | Metal | Red | Good | |
| Mechanical Room | 19 | 0 | Post | B | Metal | Red | Good | |
| Mechanical Room | 10 | 0.01 | Railing | D | Metal | Red | Good | |
| Mechanical Room | 11 | 0.07 | Stair | D | Metal | Red | Good | |
| Mechanical Room | 14 | 0.01 | Tank Support | B | Metal | Red | Good | |
| Mechanical Room | 17 | 0.03 | Tank Support | C | Metal | Brown | Good | |
| P01 | 86 | 0 | Door | A | Metal | Brown | Good | |
| P01 | 89 | 0.04 | Door | D | Metal | Brown | Good | |
| P01 | 83 | 0.03 | Door | D | Metal | Brown | Good | |
| P01 | 87 | 0.13 | Door Jamb | A | Metal | Brown | Good | |
| P01 | 84 | 0.04 | Door Jamb | D | Metal | Brown | Good | |
| P01 | 90 | 0.06 | Door Jamb | D | Metal | Brown | Good | |
| P01 | 85 | 0.01 | Heater | D | Metal | Tan | Good | |
| P01 | 76 | 0 | Wall | A | Plaster | White | Good | |
| P01 | 77 | 0 | Wall | B | Brick | Varnish | Good | |
| P01 | 78 | 0 | Wall | D | Brick | Varnish | Good | |
| P01 | 88 | 0 | Window-Jamb | A | Metal | Brown | Good | |
| P03 | 36 | 0 | Door | A | Metal | Brown | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P03 | 40 | 0.14 | Door | B | Metal | Brown | Good | |
| P03 | 35 | 0 | Door Jamb | A | Metal | Brown | Good | |
| P03 | 41 | 0.02 | Door Jamb | B | Metal | Brown | Good | |
| P03 | 37 | 0 | Heater | C | Metal | Brown | Good | |
| P03 | 30 | 0 | Wall | A | Brick | White | Good | |
| P03 | 31 | 0.04 | Wall | B | Brick | White | Good | |
| P03 | 33 | 0 | Wall | C | Brick | White | Good | |
| P03 | 32 | 0 | Wall | C | Brick | White | Good | |
| P03 | 34 | 0 | Wall | D | Drywall | White | Good | |
| P03 | 38 | 0.02 | Window-Jamb | A | Metal | Brown | Good | |
| P03 | 39 | 0.07 | Window-Jamb | B | Metal | Brown | Good | |
| P07 | 220 | 0 | Door | D | Metal | Brown | Poor | |
| P07 | 219 | 0.02 | Door Jamb | D | Metal | Brown | Poor | |
| P07 | 212 | 0 | Railing | A | Metal | Brown | Good | |
| P102 | 59 | 0.17 | Door | A | Metal | Brown | Good | |
| P102 | 63 | 0 | Door | B | Wood | Varnish | Good | |
| P102 | 60 | 0.01 | Door Jamb | A | Metal | Brown | Good | |
| P102 | 62 | 0.06 | Door Jamb | B | Metal | Brown | Good | |
| P102 | 61 | 0 | Door-Casing | A | Metal | Brown | Good | |
| P102 | 57 | 0.01 | Floor | A | Ceramic Tile | Lt. Tan | Good | |
| P102 | 58 | 0 | Heater | D | Metal | Lt. Tan | Good | |
| P102 | 51 | 0.06 | Wall | A | Brick | White | Good | |
| P102 | 52 | 0 | Wall | B | Brick | White | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P102 | 53 | 0 | Wall | C | Brick | White | Good | |
| P102 | 56 | 0 | Wall | C | Drywall | White | Good | |
| P102 | 54 | 0 | Wall | D | Brick | White | Good | |
| P102 | 55 | 0 | Wall | D | Drywall | White | Good | |
| P103 | 104 | 0.01 | Door | B | Metal | Brown | Good | |
| P103 | 103 | 0.01 | Door Jamb | B | Metal | Brown | Good | |
| P103 | 98 | 0 | Wall | A | Brick | White | Good | |
| P103 | 99 | 0.01 | Wall | B | Brick | White | Good | |
| P103 | 100 | 0 | Wall | C | Brick | White | Good | |
| P103 | 101 | 0 | Wall | D | Brick | White | Good | |
| P103 | 102 | 0 | Window-Jamb | B | Metal | Brown | Good | |
| P104 | 120 | 0.03 | Baseboard | C | Ceramic Tile | Tan | Good | |
| P104 | 121 | 0.01 | Door Jamb | B | Metal | Brown | Good | |
| P104 | 117 | 0.02 | Wall | A | Ceramic Tile | Tan | Good | |
| P104 | 113 | 0 | Wall | A | Brick | White | Good | |
| P104 | 118 | 0.05 | Wall | B | Ceramic Tile | Tan | Good | |
| P104 | 114 | 0 | Wall | B | Brick | White | Good | |
| P104 | 115 | 0 | Wall | C | Brick | White | Good | |
| P104 | 116 | 0 | Wall | D | Brick | White | Good | |
| P104 | 119 | 0.05 | Wall | D | Ceramic Tile | Tan | Good | |
| P105 | 109 | 0.03 | Alarm Panel | D | Metal | Gray | Good | |
| P105 | 112 | 0.01 | Door | C | Metal | Brown | Good | |
| P105 | 111 | 0 | Door Jamb | C | Metal | Brown | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P105 | 110 | 0 | Electrical Panel | D | Metal | Gray | Good | |
| P105 | 105 | 0 | Wall | A | Brick | White | Good | |
| P105 | 106 | 0 | Wall | B | Brick | White | Good | |
| P105 | 107 | 0 | Wall | C | Brick | White | Good | |
| P105 | 108 | 0 | Wall | D | Brick | White | Good | |
| P106 | 68 | 0 | Door | B | Metal | Brown | Good | |
| P106 | 69 | 0.18 | Door Jamb | B | Metal | Brown | Good | |
| P106 | 70 | 0.04 | Door-Casing | B | Metal | Brown | Good | |
| P106 | 64 | 0.03 | Wall | A | Brick | White | Good | |
| P106 | 65 | 0 | Wall | B | Brick | White | Good | |
| P106 | 66 | 0 | Wall | C | Brick | White | Good | |
| P106 | 67 | 0 | Wall | D | Brick | White | Good | |
| P107 | 155 | 0 | Door | B | Metal | Brown | Good | |
| P107 | 154 | 0.22 | Door Jamb | B | Metal | Brown | Good | <0.001 |
| P107 | 150 | 0.01 | Wall | A | Brick | White | Good | |
| P107 | 151 | 0 | Wall | B | Brick | White | Good | |
| P107 | 152 | 0.01 | Wall | C | Brick | White | Good | |
| P107 | 153 | 0 | Wall | D | Brick | White | Good | |
| P108 | 160 | 0 | Cabinet Door | B | Wood | Varnish | Good | |
| P108 | 161 | 0.01 | Countertop | B | Wood | Brown | Good | |
| P108 | 156 | 0 | Wall | A | Brick | White | Good | |
| P108 | 157 | 0.01 | Wall | B | Brick | White | Good | |
| P108 | 158 | 0 | Wall | C | Brick | White | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P108 | 159 | 0 | Wall | D | Brick | White | Good | |
| P110 | 211 | 0.21 | Door | B | Metal | Brown | Good | |
| P110 | 210 | 0.01 | Door Jamb | B | Metal | Brown | Good | |
| P110 | 206 | 0.01 | Wall | A | Brick | Brown | Good | |
| P110 | 207 | 0 | Wall | B | Brick | Yellow | Good | |
| P110 | 208 | 0 | Wall | C | Wood | Brown | Good | |
| P110 | 209 | 0 | Wall | D | Brick | Yellow | Good | |
| P111 | 49 | 0.01 | Floor | A | Ceramic Tile | Lt. Tan | Good | |
| P111 | 50 | 0 | Heater | A | Metal | Tan | Good | |
| P111 | 42 | 0.1 | Wall | A | Brick | White | Good | |
| P111 | 43 | 0.04 | Wall | A | Ceramic Tile | Tan | Good | |
| P111 | 44 | 0 | Wall | B | Brick | White | Good | |
| P111 | 48 | 0.06 | Wall | B | Ceramic Tile | Tan | Good | |
| P111 | 45 | 0 | Wall | C | Brick | White | Good | |
| P111 | 46 | 0 | Wall | D | Brick | White | Good | |
| P111 | 47 | 0 | Wall | D | Ceramic Tile | Tan | Good | |
| P112 | 140 | 0.41 | Toilet Stall | C | Metal | Lt. Tan | Good | |
| P112 | 139 | 0.35 | Toilet Stall | C | Metal | Lt. Tan | Good | |
| P112 | 138 | 0.46 | Toilet Stall | C | Metal | Lt. Tan | Good | |
| P112 | 134 | 0 | Wall | A | Brick | White | Good | |
| P112 | 135 | 0 | Wall | B | Brick | White | Good | |
| P112 | 136 | 0.05 | Wall | C | Ceramic Tile | Tan | Good | |
| P112 | 137 | 0.07 | Wall | D | Ceramic Tile | Tan | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P113 | 148 | 0 | Bench | A | Metal | Blue | Good | |
| P113 | 149 | 0 | Bench | B | Metal | Blue | Good | |
| P113 | 146 | 0 | Coat Hanger | D | Wood | White | Good | |
| P113 | 147 | 0.2 | Pipe | D | Metal | White | Good | |
| P113 | 141 | 0.01 | Wall | A | Brick | White | Good | |
| P113 | 142 | 0 | Wall | B | Brick | White | Good | |
| P113 | 143 | 0.01 | Wall | C | Brick | White | Good | |
| P113 | 144 | 0 | Wall | D | Brick | White | Good | |
| P113 | 145 | 0.01 | Wall | D | Concrete | White | Good | |
| P114 | 133 | 0 | Bench | A | Metal | Blue | Good | |
| P114 | 131 | 0.03 | Ceiling | C | Drywall | White | Good | |
| P114 | 132 | 0 | Shower Stall | C | Metal | Lt. Tan | Good | |
| P114 | 122 | 0 | Wall | A | Brick | White | Good | |
| P114 | 123 | 0.13 | Wall | A | Ceramic Tile | Tan | Good | |
| P114 | 124 | 0 | Wall | B | Drywall | White | Good | |
| P114 | 126 | 0 | Wall | B | Ceramic Tile | Tan | Good | |
| P114 | 125 | 0 | Wall | B | Brick | White | Good | |
| P114 | 127 | 0 | Wall | C | Brick | White | Good | |
| P114 | 128 | 0.03 | Wall | C | Ceramic Tile | Tan | Good | |
| P114 | 129 | 0 | Wall | D | Brick | White | Good | |
| P114 | 130 | 0.11 | Wall | D | Ceramic Tile | Tan | Good | |
| P117 | 173 | 0.13 | Ceiling | C | Drywall | White | Good | |
| P117 | 169 | 0 | Wall | A | Ceramic Tile | Tan | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| P117 | 170 | 0.11 | Wall | B | Ceramic Tile | Tan | Good | |
| P117 | 171 | 0.05 | Wall | C | Ceramic Tile | Tan | Good | |
| P117 | 172 | 0.1 | Wall | D | Ceramic Tile | Tan | Good | |
| P119 | 180 | 0 | Bench | D | Metal | Blue | Good | |
| P119 | 181 | 0 | Coat Hanger | D | Wood | White | Good | |
| P119 | 174 | 0 | Wall | A | Brick | White | Good | |
| P119 | 175 | 0 | Wall | B | Brick | White | Good | |
| P119 | 176 | 0 | Wall | C | Drywall | White | Good | |
| P119 | 177 | 0.04 | Wall | C | Wood | White | Good | |
| P119 | 178 | 0 | Wall | D | Brick | White | Good | |
| P119 | 179 | 0 | Wall | D | Concrete | White | Good | |
| P120 | 167 | 0.19 | Toilet Stall | A | Metal | Lt. Tan | Good | |
| P120 | 168 | 0.47 | Toilet Stall | A | Metal | Lt. Tan | Good | |
| P120 | 162 | 0.12 | Wall | A | Ceramic Tile | Tan | Good | |
| P120 | 163 | 0.05 | Wall | B | Ceramic Tile | Tan | Good | |
| P120 | 165 | 0 | Wall | C | Brick | White | Good | |
| P120 | 164 | 0.03 | Wall | C | Ceramic Tile | Tan | Good | |
| P120 | 166 | 0.02 | Wall | D | Ceramic Tile | Tan | Good | |
| Pool 1 | 187 | 0.06 | Baseboard | A | Brick | Brown | Good | |
| Pool 1 | 190 | 0.03 | Baseboard | B | Brick | Brown | Good | |
| Pool 1 | 196 | 0 | Baseboard | C | Brick | Brown | Good | |
| Pool 1 | 203 | 0.03 | Baseboard | D | Brick | Brown | Good | |
| Pool 1 | 191 | 0 | Column | B | Concrete | Dk. Brown | Good | |

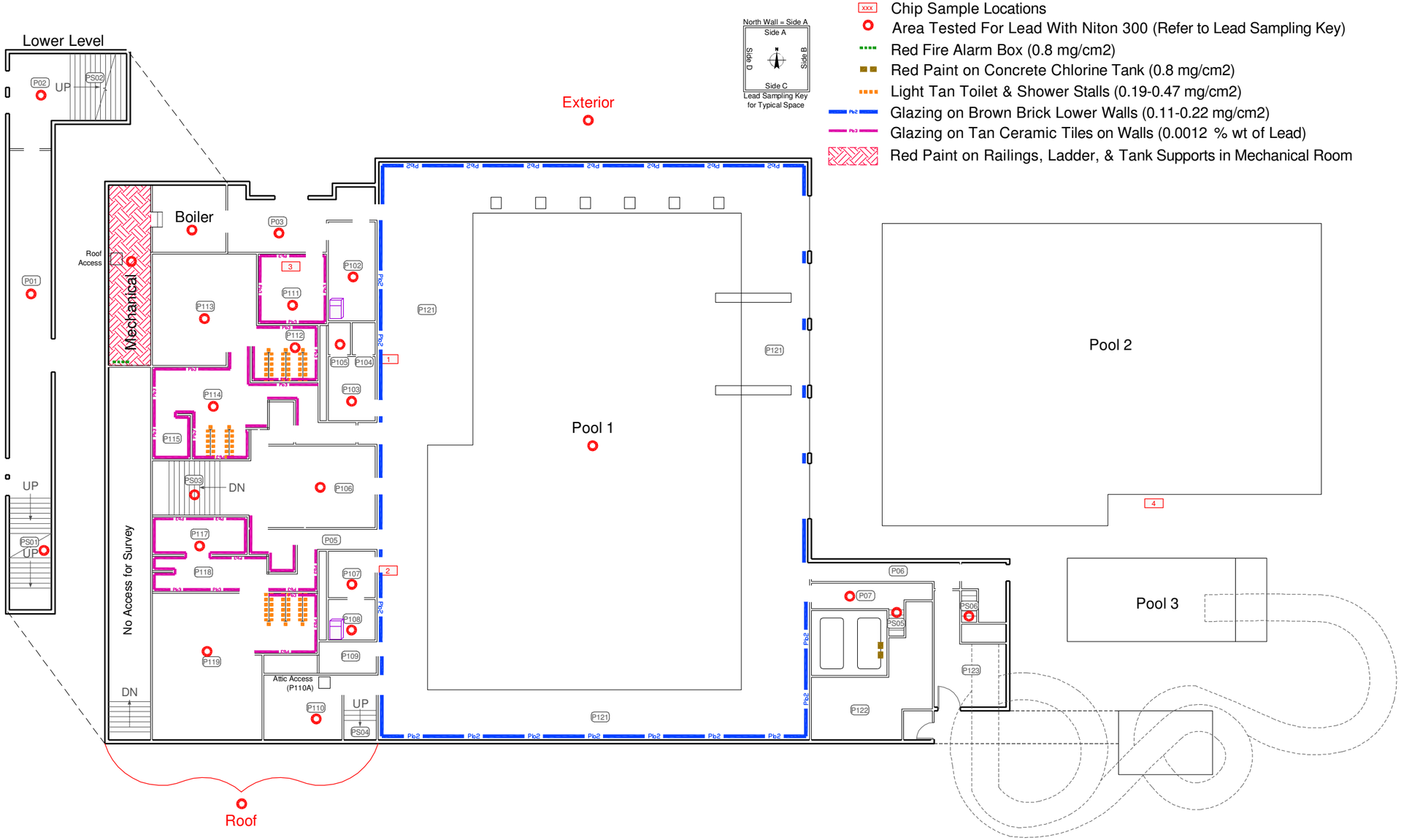
| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| Pool 1 | 205 | 0.05 | Door | D | Metal | Dk. Brown | Good | |
| Pool 1 | 204 | 0.02 | Door Jamb | D | Metal | Dk. Brown | Good | |
| Pool 1 | 186 | 0 | Floor | A | Ceramic Tile | Blue | Good | |
| Pool 1 | 185 | 0.01 | Floor | A | Ceramic Tile | Blue | Good | |
| Pool 1 | 193 | 0.02 | Floor | B | Ceramic Tile | Blue | Good | |
| Pool 1 | 198 | 0 | Floor | C | Ceramic Tile | Blue | Good | |
| Pool 1 | 194 | 0.01 | Floor Marking | B | Concrete | Yellow | Good | |
| Pool 1 | 183 | 0.02 | Wall | A | Drywall | White | Good | |
| Pool 1 | 182 | 0.21 | Wall | A | Brick | Brown | Good | |
| Pool 1 | 189 | 0 | Wall | B | Drywall | White | Good | |
| Pool 1 | 188 | 0.18 | Wall | B | Brick | Brown | Good | |
| Pool 1 | 197 | 0 | Wall | C | Drywall | White | Good | |
| Pool 1 | 195 | 0.22 | Wall | C | Brick | Brown | Good | |
| Pool 1 | 199 | 0.11 | Wall | D | Brick | Brown | Good | |
| Pool 1 | 202 | 0.01 | Wall | D | Drywall | Yellow | Good | |
| Pool 1 | 200 | 0 | Wall | D | Drywall | White | Good | 0.001 |
| Pool 1 | 201 | 0 | Wall | D | Drywall | Brown | Good | |
| Pool 1 | 192 | 0.01 | Window-Jamb | B | Metal | Dk. Brown | Good | |
| Pool 1 | 184 | 0.01 | Window-Sash | A | Metal | Brown | Good | |
| PS01 Stairs | 81 | 0 | Door | C | Metal | Brown | Good | |
| PS01 Stairs | 82 | 0.04 | Door Jamb | C | Metal | Brown | Good | |
| PS01 Stairs | 79 | 0.01 | Stair | C | Metal | Brown | Good | |
| PS01 Stairs | 80 | 0 | Stair-Railing Cap | C | Wood | Varnish | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| PS03 Stairs | 75 | 0 | Door | D | Metal | Brown | Good | |
| PS03 Stairs | 74 | 0 | Door Jamb | D | Metal | Brown | Good | |
| PS03 Stairs | 73 | 0.02 | Railing | C | Wood | Varnish | Good | |
| PS03 Stairs | 71 | 0 | Wall | A | Brick | White | Good | |
| PS03 Stairs | 72 | 0.01 | Wall | C | Brick | White | Good | |
| PS05 Stairs | 214 | 0.01 | Railing | B | Metal | Brown | Good | |
| PS05 Stairs | 213 | 0.01 | Railing | D | Metal | Brown | Good | |
| PS05 Stairs | 218 | 0 | Tank I-beam | D | Metal | Gray | Poor | |
| PS05 Stairs | 215 | 0.8 | Wall | D | Concrete | Red | Good | |
| PS05 Stairs | 216 | 0.6 | Wall | D | Concrete | Red | Good | |
| PS05 Stairs | 217 | 0 | Wall | D | Concrete | White | Good | |
| PS06 Stairs | 226 | 0 | Door | B | Metal | Brown | Fair | |
| PS06 Stairs | 227 | 0 | Door Jamb | B | Metal | Brown | Fair | |
| PS06 Stairs | 225 | 0.01 | Door Jamb | D | Metal | Brown | Fair | |
| PS06 Stairs | 221 | 0 | Stair | A | Metal | Black | Poor | |
| PS06 Stairs | 223 | 0 | Stair-Baseboard | D | Metal | Black | Poor | |
| PS06 Stairs | 222 | 0 | Stair-Railing Cap | A | Metal | Black | Poor | |
| PS06 Stairs | 224 | 0 | Stair-Stringer | D | Metal | Black | Fair | |
| Roof | 2 | 0.03 | Exterior-Fascia | D | Metal | Green | Good | |
| Roof | 3 | 0.02 | Exterior-Fascia | D | Metal | Green | Good | |
| Roof | 4 | 0.1 | Exterior-Fascia | D | Metal | Green | Good | |
| Roof | 8 | 0.1 | Mechanical Unit | D | Metal | Green | Good | |
| Roof | 5 | 0.01 | Mechanical Unit | D | Metal | Green | Good | |

| Room | Sample Number | XRF Result (mg/cm2) | Component | Room Side | Substrate | Color | Condition | Chip Sample Result (mg/cm2) |
|---|---|---|---|---|---|---|---|---|
| Roof | 7 | 0 | Mechanical Unit | D | Metal | Green | Good | |
| Roof | 6 | 0.01 | Mechanical Unit | D | Metal | Green | Good | |
| XRF Calibration | 240 | 1.1 | Calibration | | NIST | Red | | |
| XRF Calibration | 242 | 0 | Calibration | | NIST | White | | |
| XRF Calibration | 241 | 0 | Calibration | | NIST | White | | |
| XRF Calibration | 239 | 1 | Calibration | | NIST | Red | | |
| XRF Calibration | 238 | 1.1 | Calibration | | NIST | Red | | |
| XRF Calibration | 94 | 1.3 | Calibration | | NIST | Red | | |
| XRF Calibration | 93 | 1.2 | Calibration | | NIST | Red | | |
| XRF Calibration | 92 | 1.2 | Calibration | | NIST | Red | | |
| XRF Calibration | 97 | 0 | Calibration | | NIST | White | | |
| XRF Calibration | 243 | 0.01 | Calibration | | NIST | White | | |
| XRF Calibration | 96 | 0 | Calibration | | NIST | White | | |
| XRF Calibration | 95 | 0 | Calibration | | NIST | White | | |
| XRF Niton 300 | 91 | | Niton calibration | | | | | |
| XRF Niton 300 | 1 | | Niton Calibration | | | | | |

# Appendix B

# Building Floor Plans




## Explanation

- ## Room / Space ID
- xxx Chip Sample Locations
- Area Tested For Lead With Niton 300 (Refer to Lead Sampling Key)
- Red Fire Alarm Box (0.8 mg/cm2)
- Red Paint on Concrete Chlorine Tank (0.8 mg/cm2)
- Light Tan Toilet & Shower Stalls (0.19-0.47 mg/cm2)
- Ps2 Glazing on Brown Brick Lower Walls (0.11-0.22 mg/cm2)
- Ps3 Glazing on Tan Ceramic Tiles on Walls (0.0012 % wt of Lead)
- Red Paint on Railings, Ladder, & Tank Supports in Mechanical Room


IHI ENVIRONMENTAL
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Salt Lake City, UT 84106
801.466.2223
ihi@ihi-env.com


IHI Environmental 30th Anniversary 1980 – 2010

Southern Utah University
Middle School Pool
450 West Center Street
Cedar City, Utah

Lead Paint Inspection

N

0 10' 20'

| | |
|---|---|
| PROJECT No: | 10U-A1068 |
| SHEET: | 3 |
| DRAWN BY: | MBradley |
| DATE: | 5-4-10 |
| REVISED BY: | |
| DATE: | |
| REVIEWED BY: | |
| DATE: | |

V:\- 10 Projects\10U-A1068 DFCM SUU Middle School Pool Pre-Demo Svy\Drawings\10U-A1068.dwg, Lead, 5/6/2010 10:42:26 AM, mkeb

# Appendix C

# Photographs


**Photograph 1**
A VIEW OF THE SUU MIDDLE SCHOOL.


**Photograph 2**
This alarm box contained 0.8 mg/cm$^2$ of lead as measured by the Niton 300 XLP.


**Photograph 3**
The red paint above measured 0.8 mg/cm$^2$ of lead by the Niton 300 XLP.


**Photograph 4**
The stalls in the boys' and girls' locker rooms contained up to 0.47 mg/cm$^2$ of lead.


**Photograph 5**
There is a thin layer of glazing on the brick walls that contained low levels of lead up to 0.22 mg/cm$^2$.


**Photograph 6**
A paint chip sample of the ceramic tiles showed 0.0012% of lead.


**Photograph 7**
The Niton XRF measured 0.22 mg/cm$^2$ of lead. The paint chip result was reported at 0.001 mg/cm$^2$ below the reporting limit of 0.007.


**Photograph 8**
The paint chip sample of the white paint on drywall was reported at 0.001 mg/cm$^2$ of lead concentration.


**Photograph 9**
These painted surfaces measured 0.00 to 0.07 mg/cm$^2$ of lead concentration by the Niton XLP.


**Photograph 10**
The metal fascia and mechanical equipment measured 0.00 to 0.03 mg/cm$^2$ of lead concentration.


**Photograph 11**
These red surfaces have very low concentration of lead. OSHA Lead in Construction Standards must be followed during demolition.


**Photograph 12**
A view of some of the main building components of the building.

# Appendix D

# Chip Sampling Analytical Results

## EMS LABORATORIES CHEMISTRY REPORT



| | |
|---|---|
| CLIENT: | IHI Environmental |
| LABORATORY ID: | 137273 |
| PROJECT NO: | 10U-A1068 |
| MATRIX: | PAINT CHIP |
| ANALYTE: | Pb |
| ANALYTICAL METHOD: | EPA 3050M/7420 |
| DATE OF ANALYSIS: | 4/29/2010 |

| | |
|---|---|
| REPORTING LIMIT (mg): | <0.007 |
| METHOD BLANK (mg): | <0.007 |

| Sample ID | Area ($cm^2$) | Pb Weight (mg) | | Concentration ($mg/cm^2$) |
|---|---|---|---|---|
| A1068-1 | 12.9 | 0.012 | | 0.001 |
| A1068-2 | 12.9 | <0.007 | < | 0.001 |

Chemist _____

## Laboratory Report

### Sample Info

| | |
|---|---|
| Date of Analysis: | 4/29/2010 |
| Lab ID: | 137273 |
| Client: | IHI Environmental |
| Date Received: | 4/27/2010 |
| Project Number: | 10U-A1068 |
| Analyte: | Pb |
| Matrix: | PAINT CHIP |
| Method: | EPA 3050M/7420 |
| Comments: | |

| | |
|---|---|
| Reporting Limit (mg): | 0.007 |
| Method blank (mg): | <0.007 |

### Sample Results

| *Sample Name* | *Bulk Weight (g)* | *Pb Weight (mg)* | *Pb Concentration (%)* |
|---|---|---|---|
| **A1068-3** | **0.9298** | **0.012** | **0.0012** |
| **A1068-4** | **0.8328** | **< 0.007** | **< 0.00084** |

Chemist:

# SUBMITTAL FORM/Laboratory Services

137273

PAGE 1 OF 1

TURNAROUND TIME: STD ✓ 48 HR. 24 HR.
<8 HR. WKND OTHER:

RELINQUISHED BY [signature]
TIME / DATE 13:50 / 4/26/10

CLIENT IHI Environmental
ADDRESS 640 E. Wilmington Ave
Salt Lake City, UT 84106
TELEPHONE (801) 466-2223
CONTACT Lono Folau

DATE OF SHIPMENT CARRIER FEDEX
CLIENT P.O. NO. 10U-A1068
CLIENT JOB/PROJECT ID NO(S). DFCM-SU
Middle School Pool Pre-demo
PACKAGE SHIPPED FROM

RESULTS REQUESTED VIA VERBAL ☐ FAX ☐ [redacted] lfolau@ihi-env.com
(NOTE: Complete written reports will follow all analyses, in addition to any prior transmitted verbal, fax or e-mail results) FAX NO.

DATE/TIME OF SAMPLE COLLECTION 4/13/2010 14:50 hrs
SAMPLE PRESERVATIVES HOLDING TIMES
NO. OF SAMPLES SENT 4 SAMPLER'S NAME [signature] / LONO FOLAU
SIGNATURE PRINTED

TYPE: ☐ WATER ☐ WASTE WATER ☐ SOIL ☐ FILTER ☐ SORBENT TUBE ☐ IMPINGER ☒ OTHER

| (FOR EMS ONLY) EMS Sample No. | CLIENT SAMPLE NO. | DESCRIPTION/LOCATION/ANALYSIS | VOL. (ml) TIME (min) OR AREA (IF APPLICABLE) |
|---|---|---|---|
| | | | 12.9 $cm^2$ |
| 137273-1 | A1068-1 | White paint - - | 0.5656 2 $in^2$ |
| -2 | A1068-2 | Brown paint | 0.1538 2 $in^2$ |
| -3 | A1068-3 | Tan ceramic tile | 0.9298 |
| -4 | A1068-4 | Blue ceramic tile | 0.8328 |
| | | 4-27-10 | |
| | | Pb analysis in all 4 samples | |
| | | Per client BP | |
| | | Note: Please report samples 1 and 2 in $cm g/(cm^2)$ and samples 3 and 4 in % wt. | |

137273

FOR EMS ONLY

Laboratory No.
Received By [signature] Time 915
Date of Package Delivery 4/27/10
Shipping Bill Retained: YES ☒ NONE ☐
Condition of Package on Receipt OK
Condition of Custody Seal NONE
(NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact the project manager and the shipper.)
No. of Samples 4
Chain-of-Custody Signature
Date of Acceptance into Sample Bank 4/27/10
Misc. Info.
Disposition of Samples EMC LABS

(SF 6/07)

IHI ENVIRONMENTAL

# UNIVERSAL, HAZARDOUS, AND TOXIC WASTE INSPECTION

**Southern Utah University**
**Middle School Pool**
**450 West Center Street**
**Cedar City, Utah**

**May 5, 2010**

**Prepared for:**

**Mr. Robert J. Anderson**
**Improvements Project Manager**
**State of Utah - DFCM**
**4110 State Office Building**
**Salt Lake City, Utah 84114**

**Prepared by:**

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Building Inspector PBI-015

**Reviewed by:**

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Manager, Industrial Hygiene Services

**Project #10U-A1068**

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SALT LAKE CITY SAN FRANCISCO PHOENIX DENVER SEATTLE

## TABLE OF CONTENTS

## 1.0 INTRODUCTION

During April 19-20, 2010, IHI Environmental (IHI) conducted an inspection to identify universal, hazardous, and/or toxic wastes in the Southern Utah University Middle School Pool located at 450 West Center Street in Cedar City, Utah. Mr. Robert J. Anderson, Improvements Project Manager with DFCM, requested this inspection so that these materials could be identified and removed before the upcoming demolition of this building.

The materials included in the scope of this inspection included the following:

- batteries
- pesticides
- mercury thermostats and lamps
- PCB light ballasts and oil-containing transformers
- identified and/or potential hazardous wastes
- CFC-containing air conditioning units or refrigerators
- other containerized toxic or special wastes in the building

This building is a 23,192-square-foot reinforced concrete and brick structure constructed in 1975. The building has been used as a swimming pool since its construction.

## 2.0 METHODS

IHI conducted a visual inspection of all accessible areas throughout the building but did not conduct any destructive inspection to characterize any material.

## 3.0 FINDINGS

The following materials were identified in the building:

| Material | Location* | Quantity | Est. Removal Cost |
|---|---|---|---|
| Mercury vapor fluorescent light tubes | Throughout | 120 (4') | $144 |
| Ballasts containing PCBs | Throughout | 52 | $312 |
| Refrigerant (AC) units containing CFCs | Room P102, P108 and West roof | 4 | $1,100 |

| Material | Location* | Quantity | Est. Removal Cost |
|---|---|---|---|
| Mercury/Sodium vapor light bulbs | P121 and Exterior | 20 | $200 |
| Hazardous Chemicals (paints, cleaners, polishes, sealers, aerosols, acids, etc.) liquid and solid state | P02, P109, P122 and P125 | ~990 gal. liquid<br>~825 lbs. solid | ~$4,000 |

*Building floor plans identifying material locations are included in **Appendix A**.

## 4.0 CONCLUSIONS AND DISCUSSION

The Salt Lake Valley Health Department requires that building owners follow EPA Guidance outlined in 40 CFR 273 (Standards for Universal Waste Management) and 40 CFR 261 and 262 (Resource Conservation and Recovery Act), and Department of Transportation regulations outlined at 49 CFR 173 (Shippers - General Requirements for Shipments and Packaging) for the removal, transport and disposal of these wastes. These protocols require building owners to identify and remove all universal, hazardous, and/or toxic wastes from buildings before they are demolished. As such, IHI recommends that all identified materials be removed and disposed of by properly trained and licensed contractors.

## 5.0 COST ESTIMATE

The estimated cost for the removal, packaging, transportation, and proper waste disposal of these materials is **$5,756**. This estimate does not include fees for design or management consulting services.

## 6.0 PROJECT LIMITATIONS

This Project was performed using, as a minimum, practices consistent with standards acceptable within the industry at this time, and a level of diligence typically exercised by EH&S consultants performing similar services.

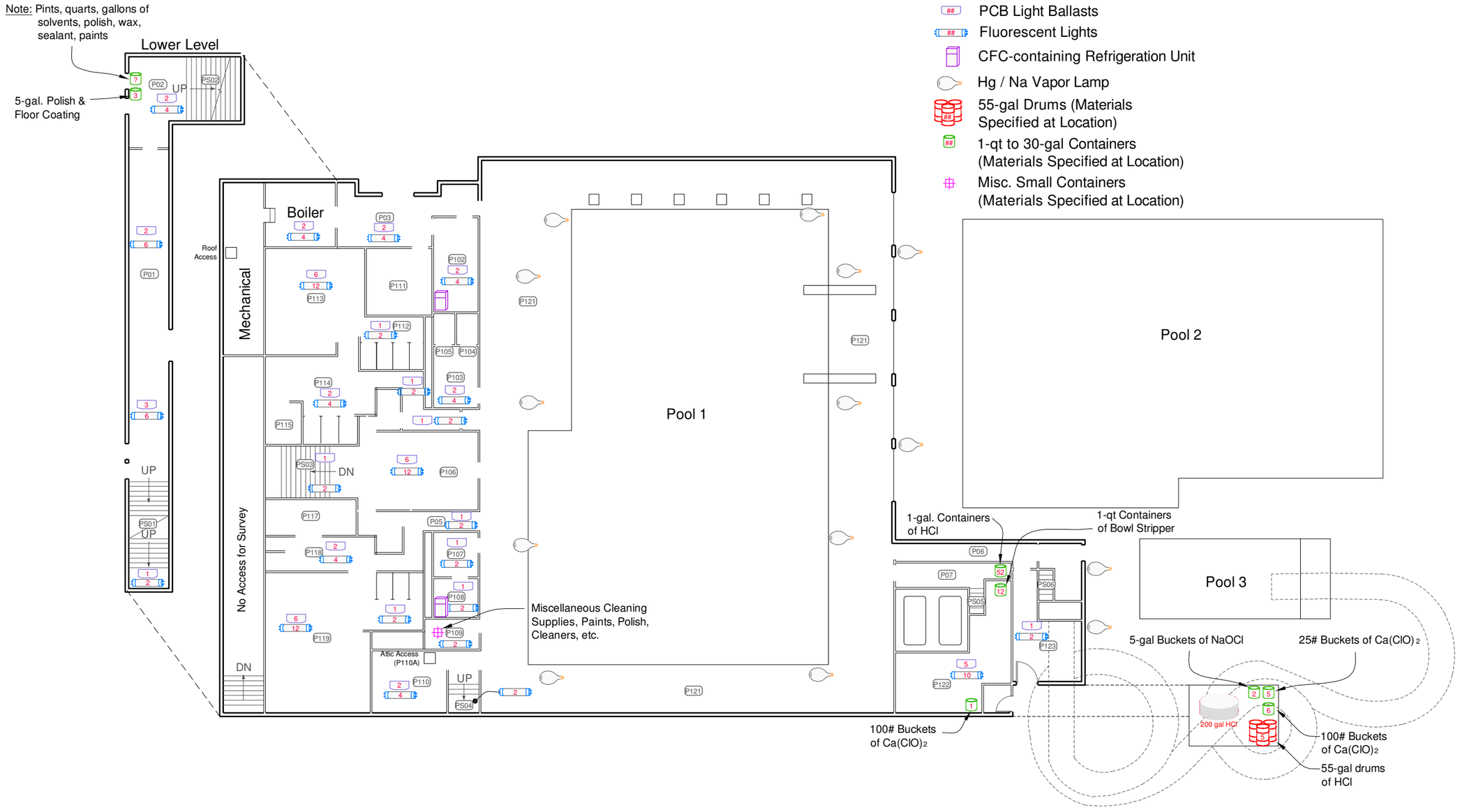
The procedures used attempt to establish a balance between the competing goals of limiting investigative and reporting costs and time, and reducing the uncertainty about unknown conditions. Therefore, because the findings of this report were derived from the scope, costs, time and other limitations, the conclusions should not be construed as a guarantee that all universal, toxic and/or hazardous wastes have been identified and fully evaluated.

Furthermore, IHI assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside of IHI or from omissions or errors in public records.

It is emphasized that the final decision on how much risk to accept always remains with the client since IHI is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

# Appendix A

# Material Locations




## Explanation

- ## Room / Space ID
- ## PCB Light Ballasts
- ## Fluorescent Lights
- CFC-containing Refrigeration Unit
- Hg / Na Vapor Lamp
- ## 55-gal Drums (Materials Specified at Location)
- ## 1-qt to 30-gal Containers (Materials Specified at Location)
- Misc. Small Containers (Materials Specified at Location)

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# Universal Hazardous Materials Locations

Southern Utah University
Middle School Pool
450 West Center Street
Cedar City, Utah

N

0 10' 20'

| | |
|---|---|
| PROJECT No: | 10U-A1068 |
| SHEET: | 1 |
| DRAWN BY: | MBradley |
| DATE: | 5-4-10 |
| REVISED BY: | |
| DATE: | |
| REVIEWED BY: | |
| DATE: | |

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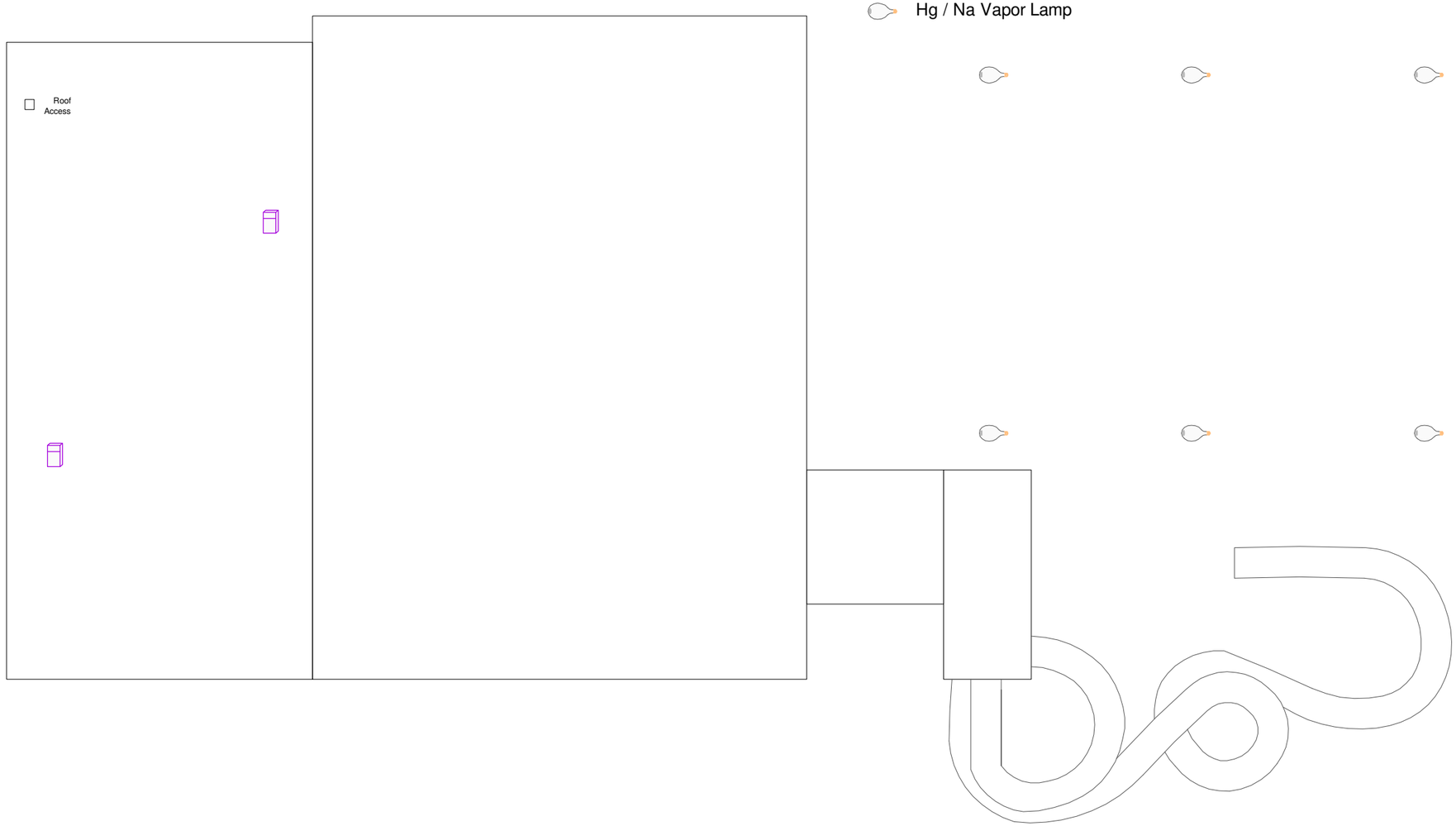
Explanation

CFC-containing Refrigeration Unit

Hg / Na Vapor Lamp

Roof Access

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Southern Utah University
Middle School Pool
450 West Center Street
Cedar City, Utah

Universal Hazardous Materials Locations - Roof

N

0 10' 20'

| | |
|---|---|
| PROJECT No: | 10U-A1068 |
| SHEET: | 2 |
| DRAWN BY: | MBradley |
| DATE: | 5-4-10 |
| REVISED BY: | |
| DATE: | |
| REVIEWED BY: | |
| DATE: | |

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