

# Hammond Bay Biological Station

## Facility & Equipment Available to Researchers

This document outlines the space and equipment at Hammond Bay Biological Station available to researchers. Researchers requesting infrastructure and technical support from HBBS are asked to complete and submit a [HBBS Facility and Equipment Request Form](#). Researchers applying for funding from the GLFC should submit the form with their full proposal. Non-commission funded researchers should submit forms directly to Nick Johnson, HBBS Facility Coordinator, at [njohnson@usgs.gov](mailto:njohnson@usgs.gov). GLFC-funded research is given priority relative to all other requests. **For more information about the facility and equipment available, contact Nick Johnson at [njohnson@usgs.gov](mailto:njohnson@usgs.gov).**

### Please note:

- No year-round storage available at HBBS; some seasonal storage of equipment is available on-site.
- HBBS has very limited office space available; visiting researchers should arrange for off-site office space.
- Researchers requesting animal holding space will be required to provide the HBBS facility coordinator with their Institutional Animal Use and Care (IACUC) forms from their agency/institution.

## Hammond Bay Biological Station Equipment Inventory List

The tables below indicate equipment that may be available for use by visiting researchers. Note that HBBS will work to accommodate requests as best as possible however, some of the equipment listed below may not be available depending upon ongoing research. Investigators will be contacted by the Facility Coordinator if any conflicts arise.

### Tank Inventory

Tank Type	Total #	Volume (L)	Location
Acclimation Tank	24	23 L	Physiology Lab
Small Aquarium	24	40 L	Physiology Lab
Large Aquarium	24	204 L	Physiology Lab
4ft Holding Tank	12	711 L	Outdoors
5ft Holding Tank	5	1,385 L	Physiology Lab
6ft Holding Tank	4	1,597 L	Physiology Lab
8ft Holding Tank	2	3,695 L	Physiology Lab

**Equipment Inventory: Dry Fish Lab**

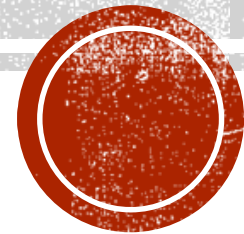
<b>Item</b>	<b>Make/Model</b>	<b>Quantity</b>
Analytical Balance	METTLER TOLEDO AT-400	1
Balance, Portable Compact	AE ADAM CQT202	1
Centrifuge	EPPENDORF 5804	1
Flammable Liquid Storage Cabinet & Laboratory Hood	HEMCO	1
High Intensity Illuminator	FIBER-LITE 9475-00	2
LED Cold Light Source	ZEISS CL600	1
Microbiological Incubator & Drying and Heating Oven	THERMO SCIENTIFIC	1
Microscope	NIKON SMZ645	2
Microscope	LEICA Stereo Zoom 7	1
Microscope, American Optical One-Ten	MICROSTAR	1
Precision Saw	BUEHLER Iso-met 1000	1
Rotavapor & Heating Bath	BUCHI R-200 & B-490	1
Stereo Microscope	ZEISS Discovery V12	1
Transformer/Power Supply	NIKON Model XN	2
Variable Speed Grinder/Polisher	BUEHLER Eco-met 3000	1

**Equipment Inventory: Chemistry Lab**

<b>Item</b>	<b>Make/Model</b>	<b>Quantity</b>
Analytical Balance	METTLER TOLEDO XS-204	1
Autosampler	WATERS 2707	1
Color Laser Multi-function Printer	XEROX Work Centre 6515	1
Flammable Liquid Storage Cabinet	JUSTRITE Sure-Grip EX	2
Flask Scrubber	LABCANCO	1
HPLC Pump	WATERS 1525	1
In-line Degasser AF	WATERS	1
Laboratory Hood	HEMCO	1
Refrigerated Kinematic Viscosity Bath	KOEHLER	1
Spectrometer	THERMO ELECTRON CORPORATION Genesys 6	1
UV/Visible Light Detector	WATERS 2489	1

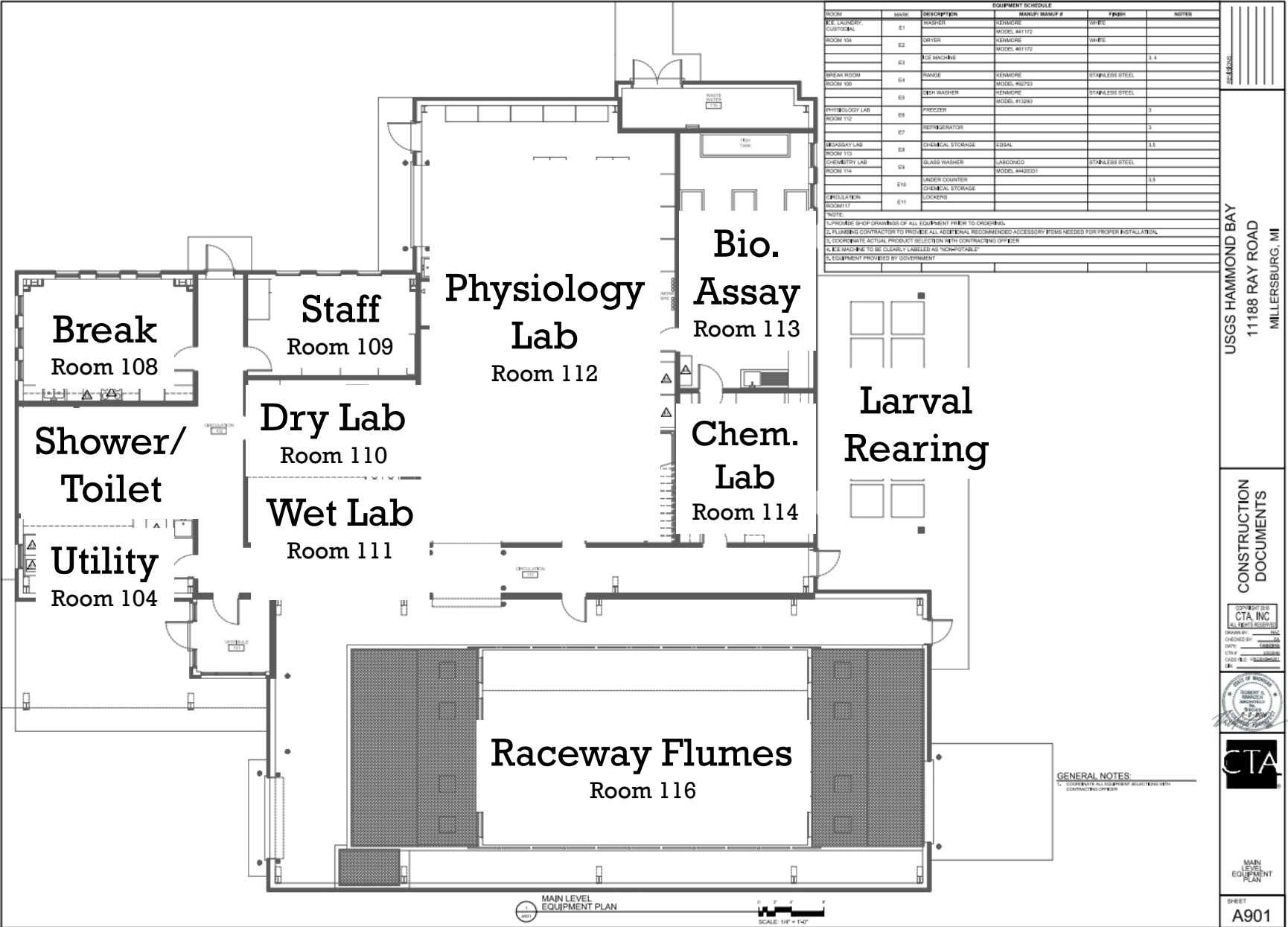
# HAMMOND BAY BIOLOGICAL STATION

Laboratory Layout





# OVERALL FLOOR PLAN



# TANK INVENTORY

Tank Type	Quantity	Volume (L)	Location
Acclimation Tank	24	23 L	Physiology Lab
Small Aquarium	24	40 L	Physiology Lab
Large Aquarium	24	204 L	Physiology Lab
4ft Holding Tank	12	711 L	Outdoors
5ft Holding Tank	5	1,385 L	Physiology Lab
6ft Holding Tank	4	1,597 L	Physiology Lab
8ft Holding Tank	2	3,695 L	Physiology Lab



# EQUIPMENT INVENTORY: DRY FISH LAB

<b>Make/Model</b>	<b>Item</b>	<b>Quantity</b>
HEMCO	Flammable Liquid Storage Cabinet & Laboratory Hood	1
THERMO SCIENTIFIC	Microbiological Incubator & Drying and Heating Oven	1
EPPENDORF 5804	Centrifuge	1
BUCHI R-200 & B-490	Rotavapor & Heating Bath	1
METTLER TOLEDO AT-400	Analytical Balance	1
BUEHLER Eco-met 3000	Variable Speed Grinder/Polisher	1
NIKON SMZ645	Microscope	2
FIBER-LITE 9475-00	High Intensity Illuminator	2
LEICA Stereo Zoom 7	Microscope	1
ZEISS Discovery V12	Stereo Microscope	1
NIKON Model XN	Transformer/Power Supply	2
ZEISS CL600	LED Cold Light Source	1
BUEHLER Iso-met 1000	Precision Saw	1
AE ADAM CQT202	Portable Compact Balance	1
MICROSTAR	American Optical One-Ten Microscope	1





## EQUIPMENT INVENTORY: CHEMISTRY LAB

<b>Make/Model</b>	<b>Item</b>	<b>Quantity</b>
LABCANCO	Flask Scrubber	1
METTLER TOLEDO XS-204	Analytical Balance	1
JUSTRITE Sure-Grip EX	Flammable Liquid Storage Cabinet	2
XEROX Work Centre 6515	Color Laser Multi-function Printer	1
KOEHLER	Refrigerated Kinematic Viscosity Bath	1
HEMCO	Laboratory Hood	1
THERMO ELECTRON CORPORATION Genesys 6	Spectrometer	1
WATERS	In-line Degasser AF	1
WATERS 2489	UV/Visible Light Detector	1
WATERS 1525	HPLC Pump	1
WATERS 2707	Autosampler	1



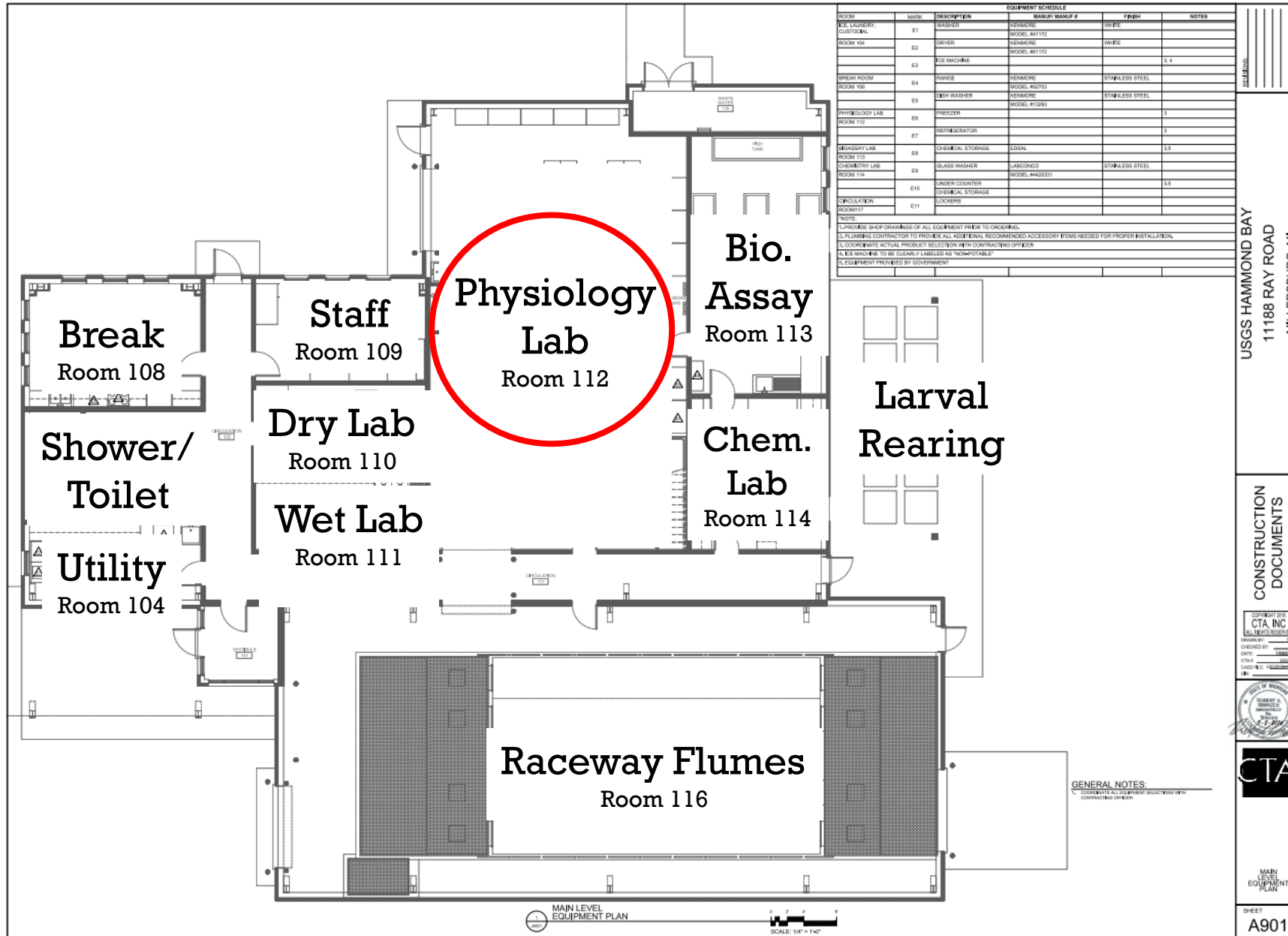


**WATER STORAGE TANK: 3,785,411,800 L (1,000,000,000 GAL)**

Allows for adjustable water inflow and outflow rates on each tank both inside and outside of the laboratory.



# OVERALL FLOOR PLAN



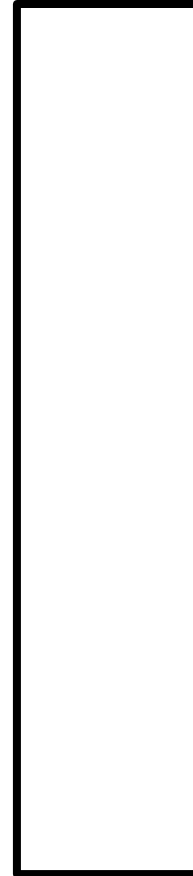
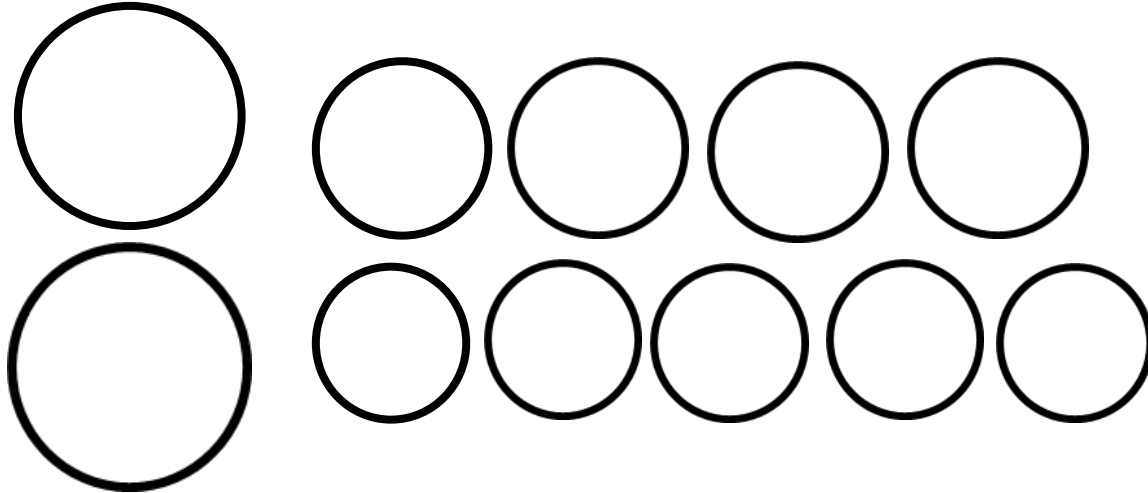
# PHYSIOLOGY LAB

ROOM 112



# PHYSIOLOGY LAB: OVERHEAD VIEW

Circular Holding Tanks



Rack Tank Storage



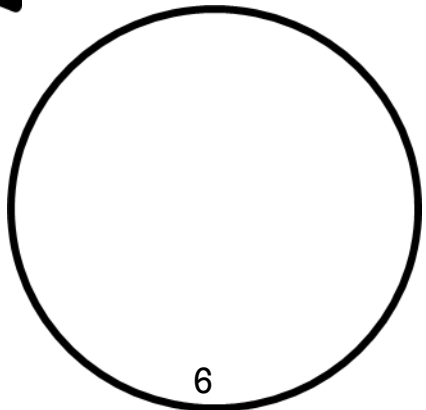
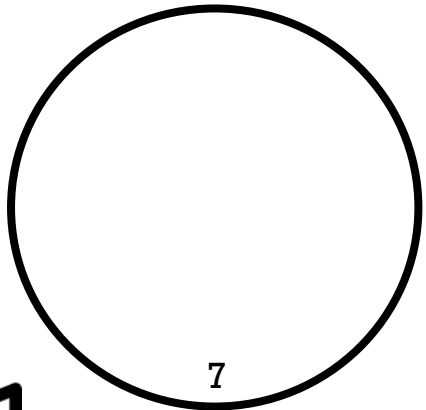
Picture taken here



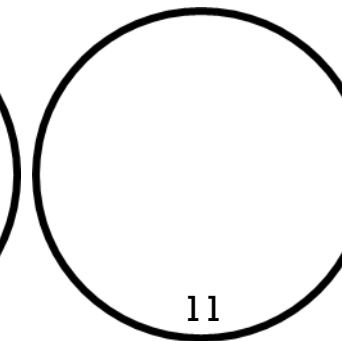
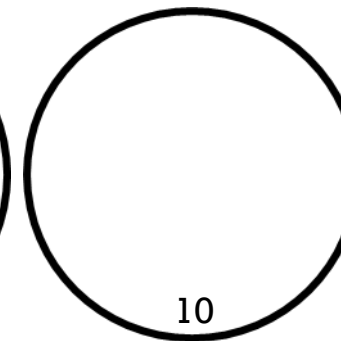
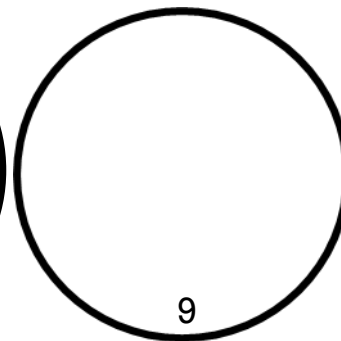
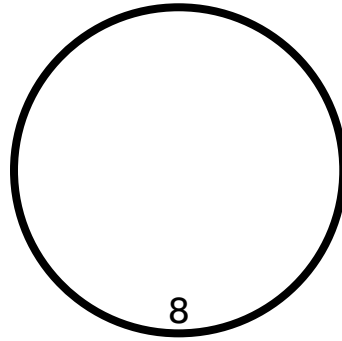
# PHYSIOLOGY LAB: OVERHEAD VIEW

All tanks have temperature control

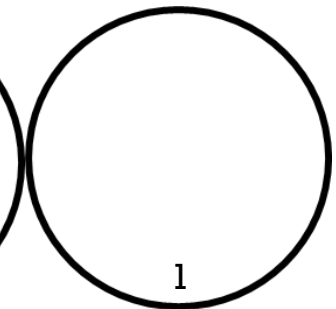
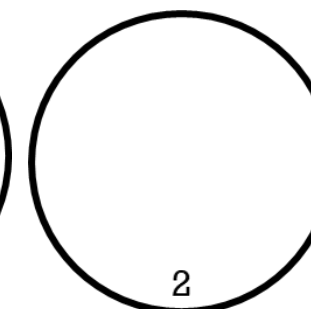
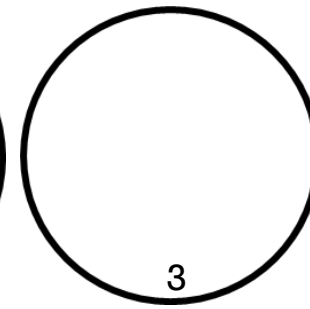
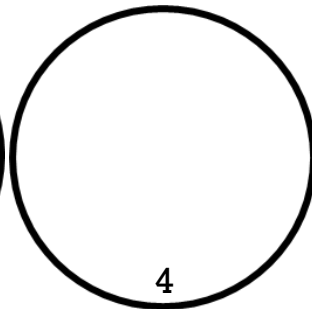
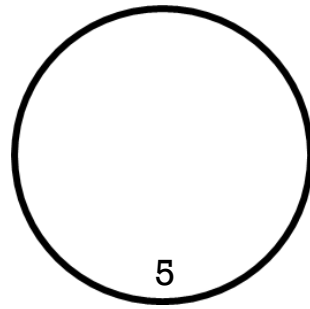
Volume: 3695 L (976 gal)  
Dimensions: 2.4m x 0.8m  
(8ft x 2.6ft)  
Max Flow Rate:



Volume: 1597 L (422 gal)  
Dimensions: 1.8m x 0.6m (6ft x 2ft)



Volume: 1385 L (366 gal)  
Dimensions: 1.5m x 0.6m (5ft x 2.5ft)



# PHYSIOLOGY LAB

(5FT) 1385 L (366 GAL) HOLDING TANK



# PHYSIOLOGY LAB

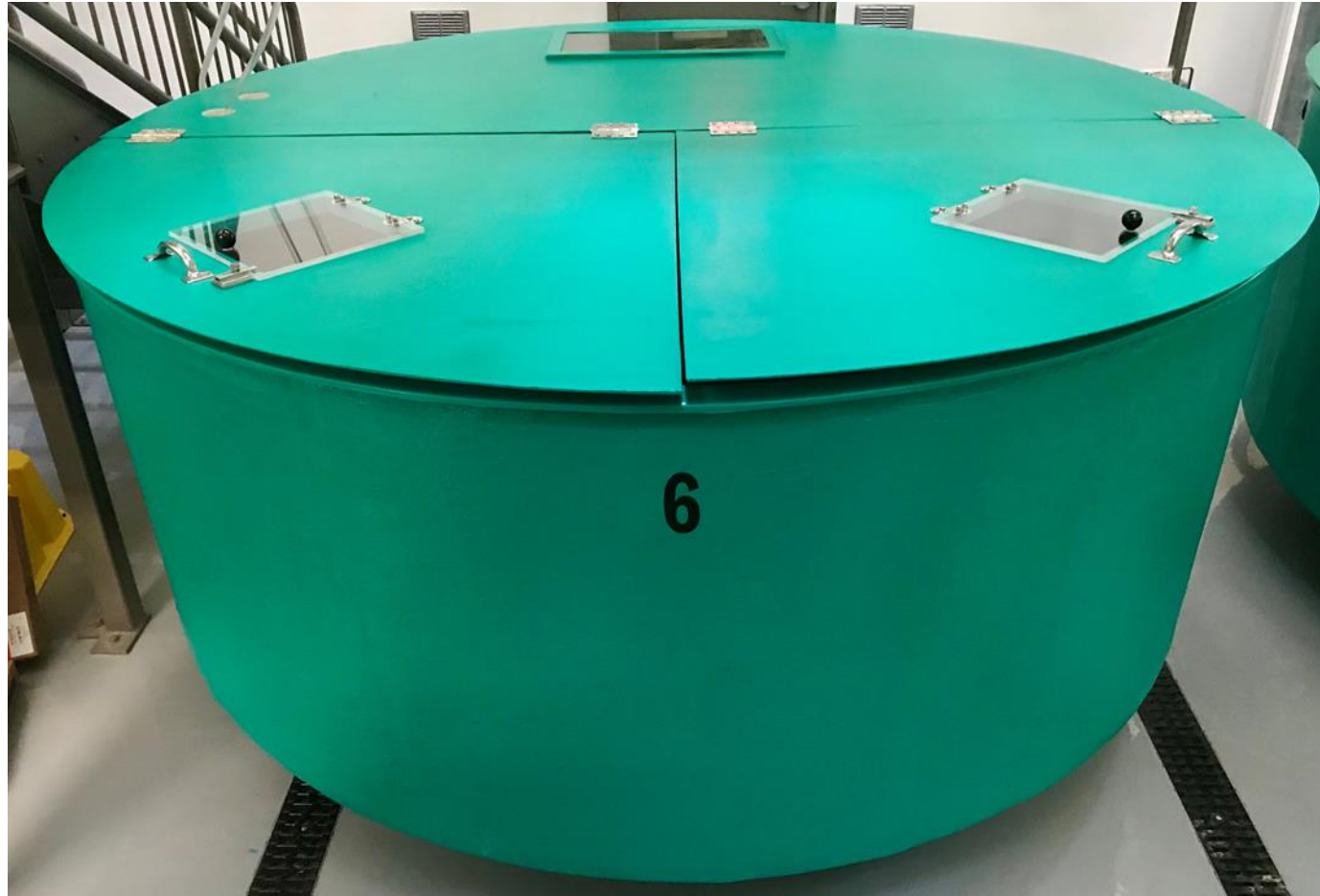
(6FT) 1597 L (422 GAL) HOLDING TANK





# PHYSIOLOGY LAB

## (8FT) 3695 L (976 GAL) HOLDING TANK



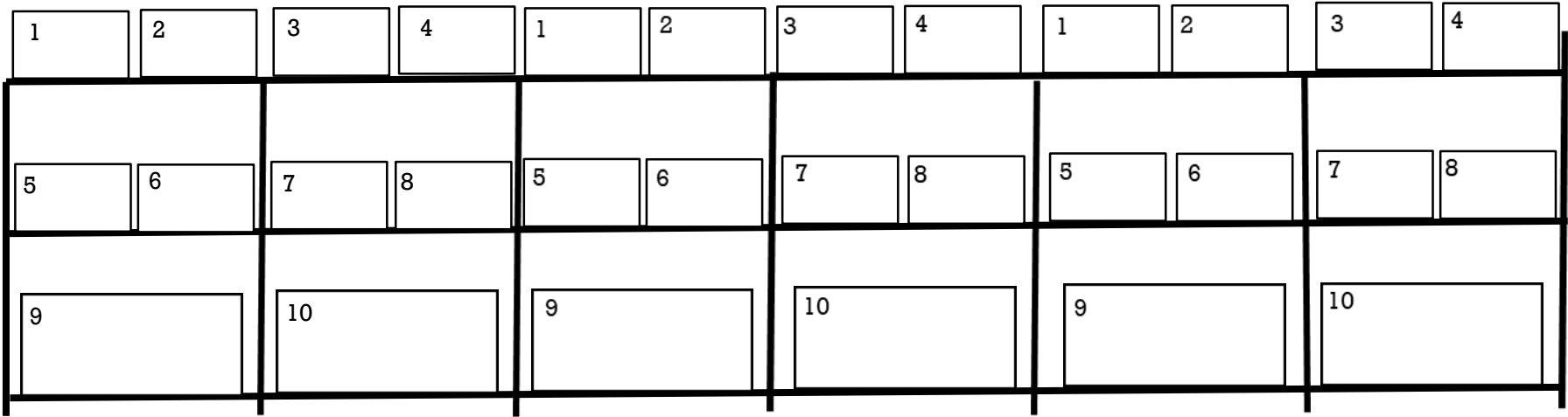
# PHYSIOLOGY LAB RACK SYSTEMS: EYE LEVEL VIEW

Rack systems with no temperature control

A

B

C

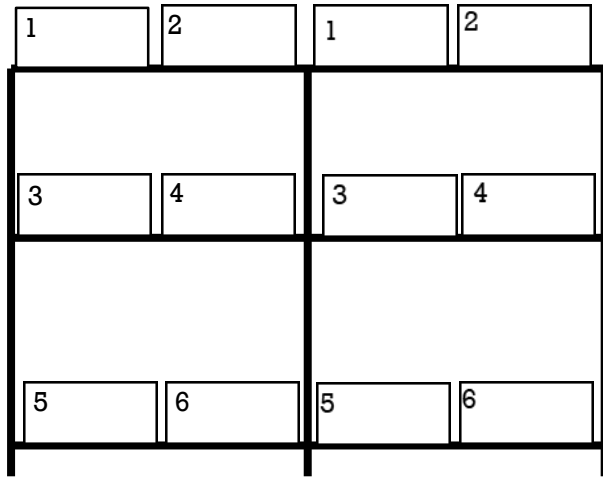


Volume: 40 L (10.7 gal)  
Dimensions: 0.4m x 0.4m x 0.3m  
(1.5ft x 1.5ft x 1ft)

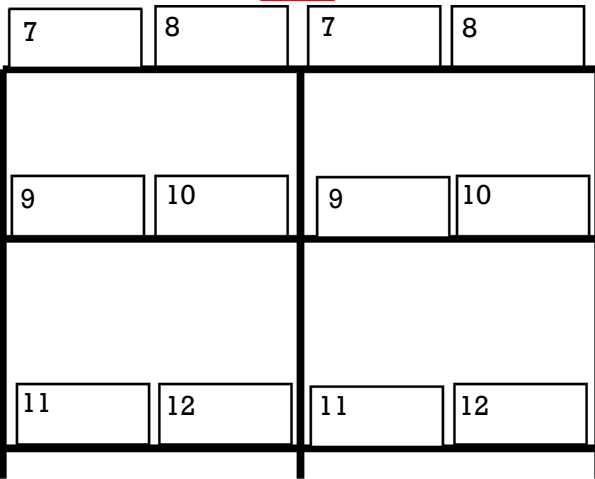
Volume: 204 L (54 gal)  
Dimensions: 0.9m x 0.6m x 0.5m  
(3ft x 2ft x 1.7ft)



## Acclimation Aquariums



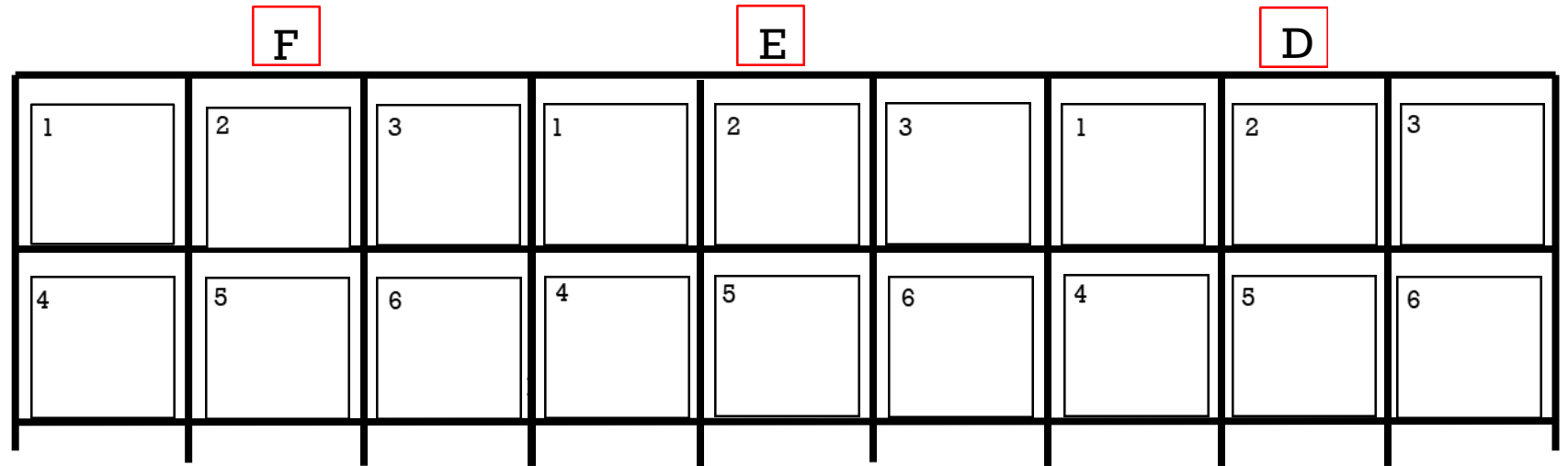
G



Volume: 23 L (6.1 gal)  
Dimensions: 0.4m x 0.22m x  
.26m (1.25ft x 0.75ft x 0.875ft)

# PHYSIOLOGY LAB

## Rack systems with temperature control

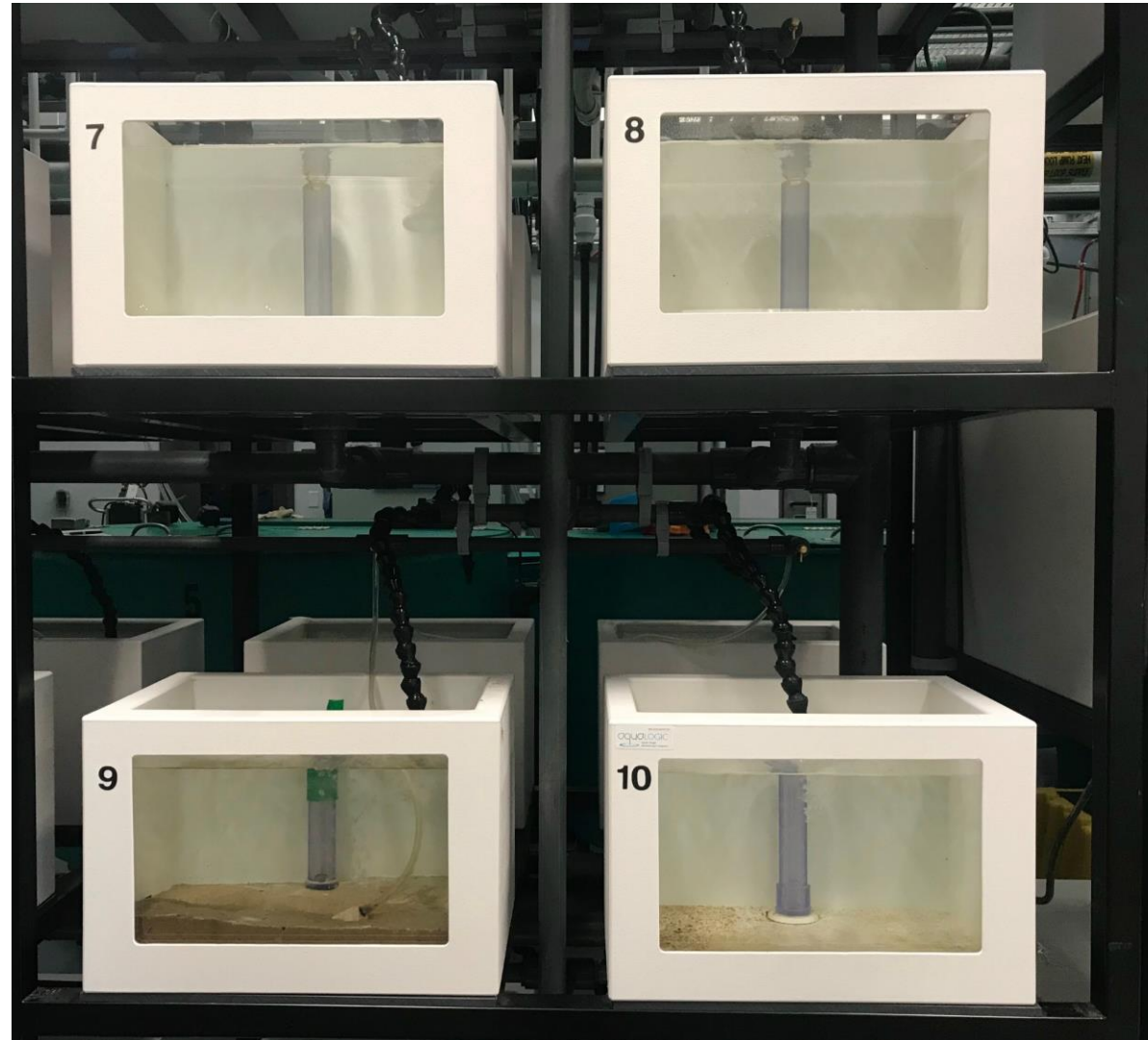


Volume: 204 L (54 gal)  
Dimensions: 0.9m x 0.6m x 0.5m  
(3ft x 2ft x 1.7ft)



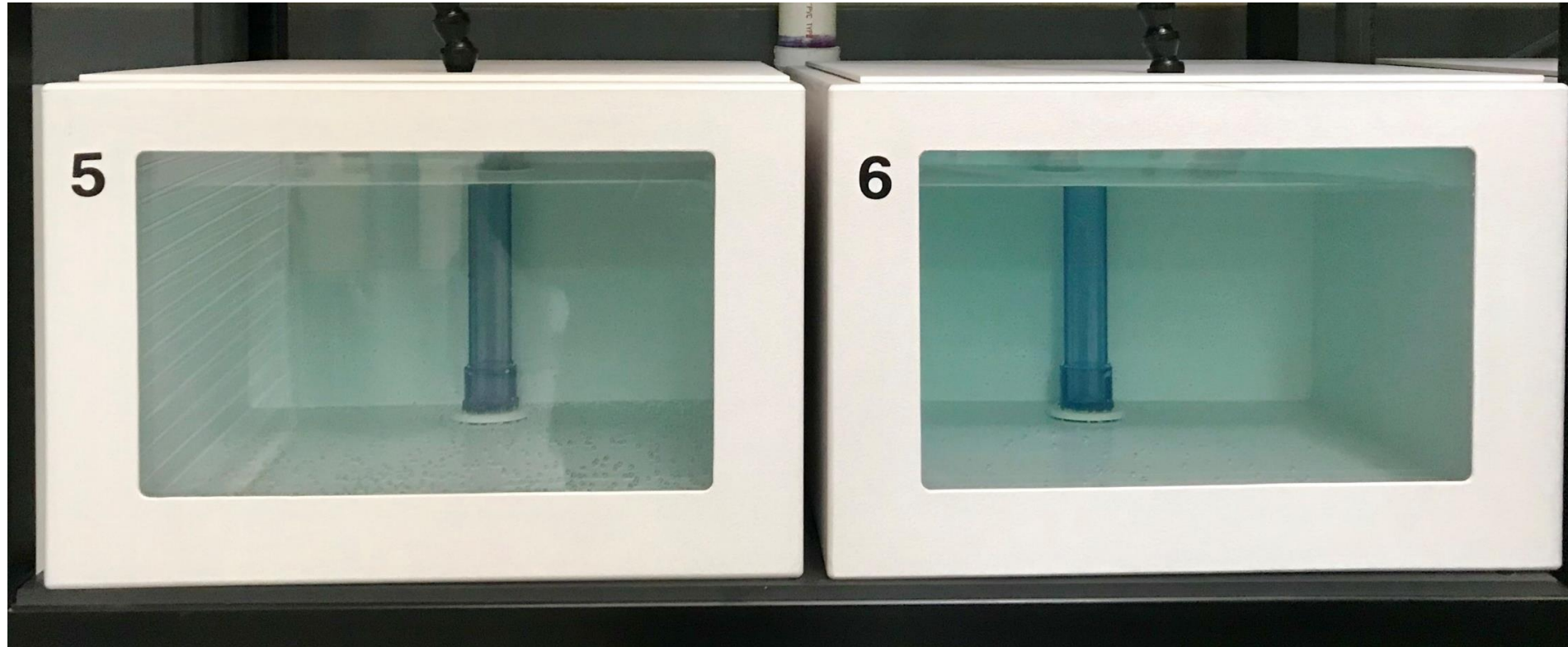
# PHYSIOLOGY LAB

## 23 L (6.1 GAL) ACCLIMATION AQUARIUMS ON RACK SYSTEM



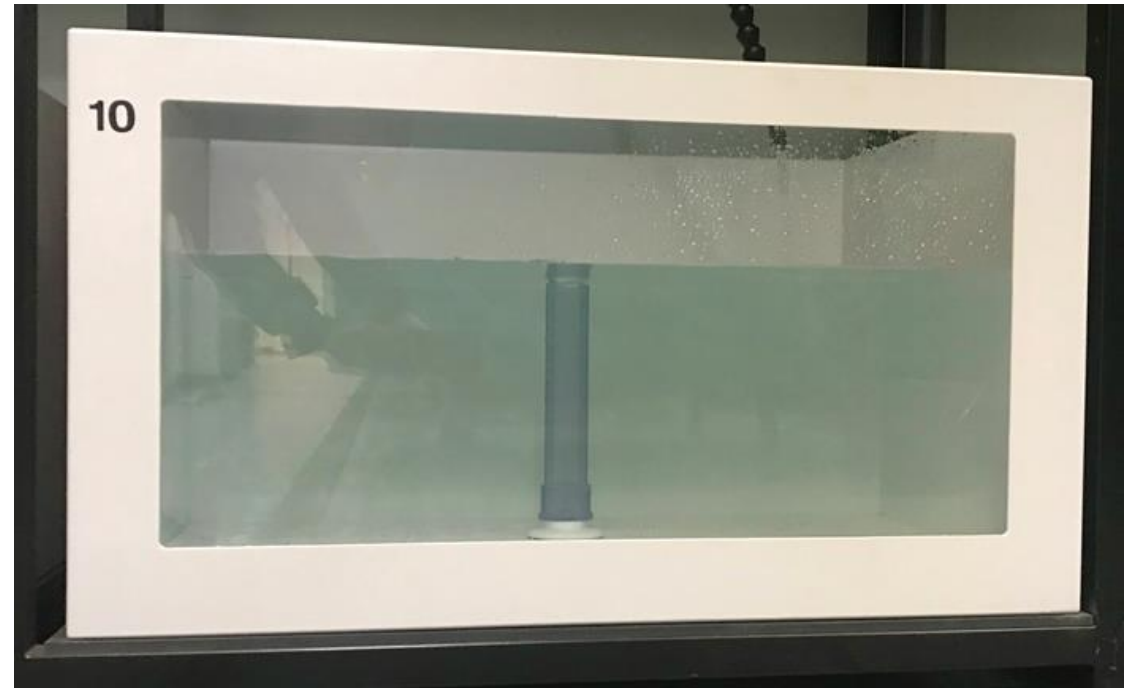
# PHYSIOLOGY LAB

## 40 LITER (10.7 GAL) AQUARIUMS ON RACK SYSTEMS

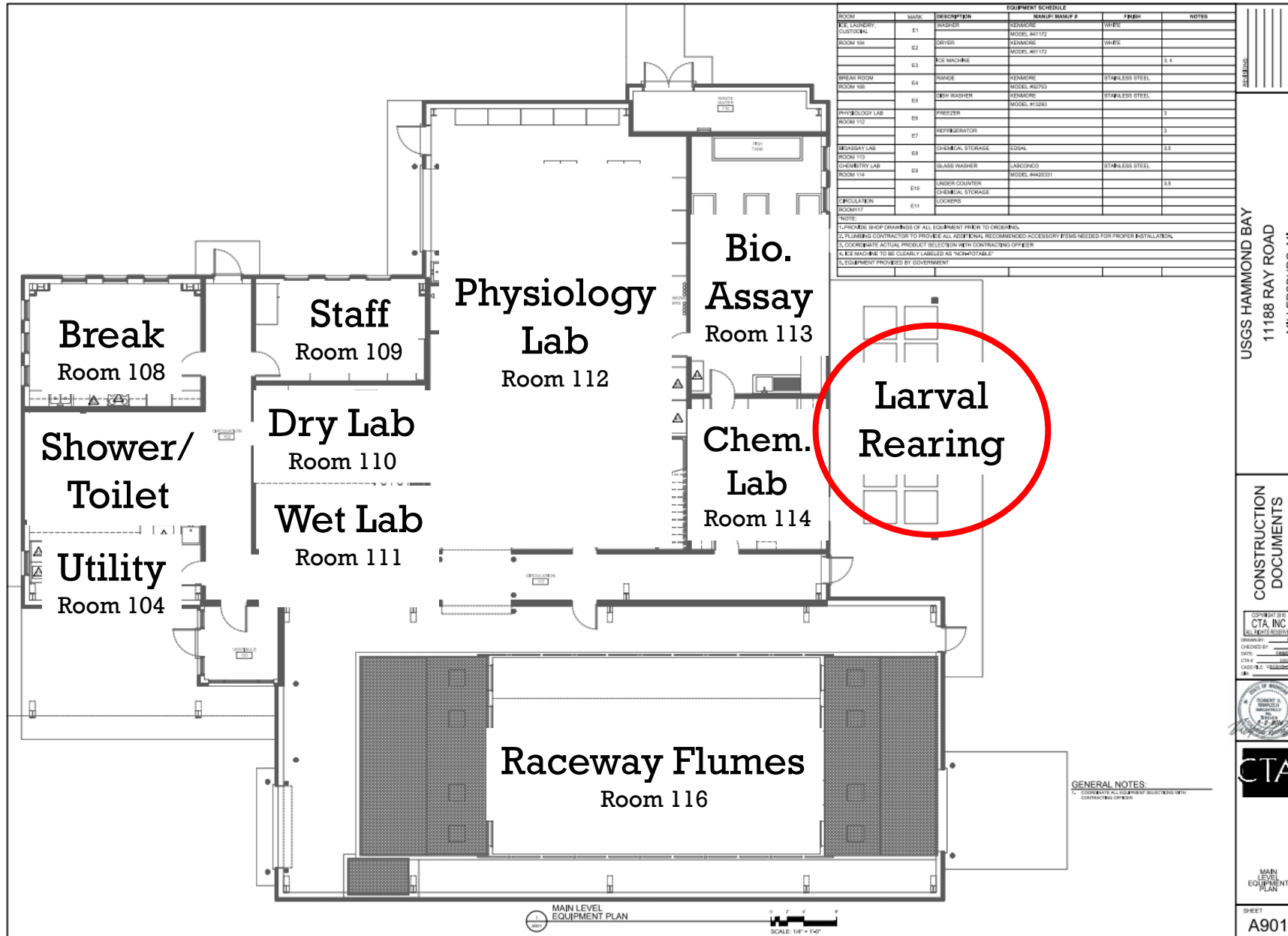


# PHYSIOLOGY LAB

## 204 L (54 GAL) AQUARIUMS ON RACK SYSTEMS



# OVERALL FLOOR PLAN



# OUTDOOR LARVAL REARING TANKS

NO TEMPERATURE CONTROL



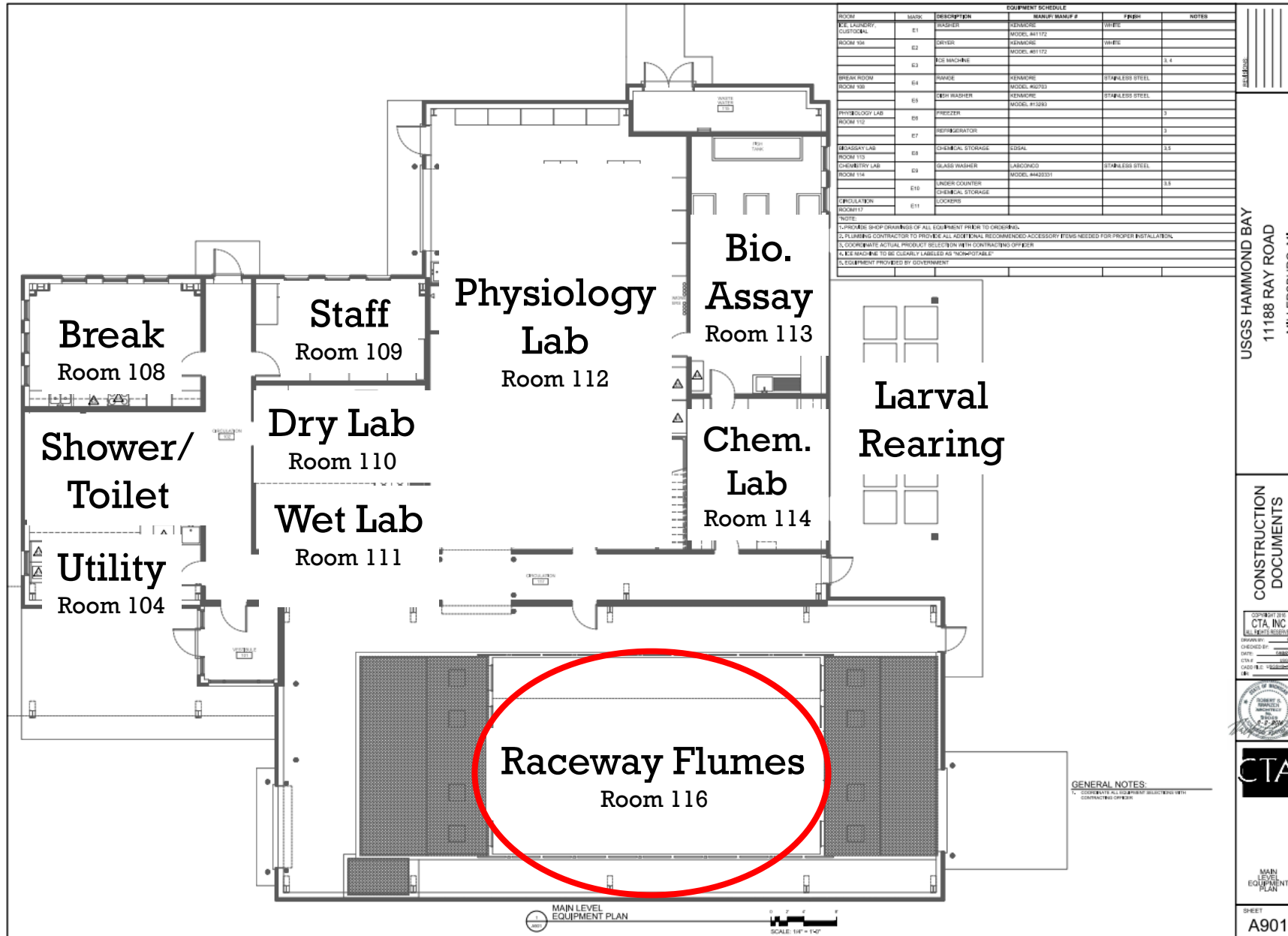
12 – 4FT Holding Tanks

Volume: 711 L (188 gal)





# OVERALL FLOOR PLAN



# RACEWAY FLUMES

ROOM 116



# RACEWAY LAB: OVERHEAD VIEW

Rack System Storage

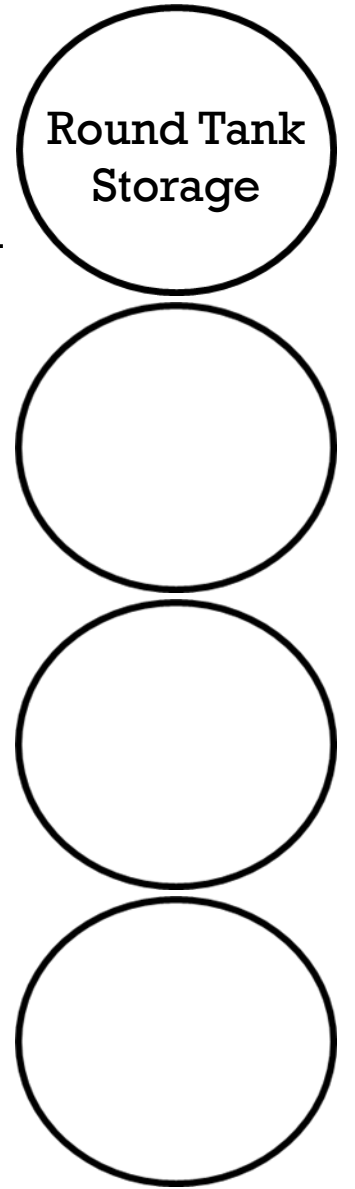
Raceway #1

Raceway #2

Volume: 40,260 L (10,636 gal)  
Dimensions: 3m x 12.2m x 1.1m (10ft x 40ft 3.6ft)

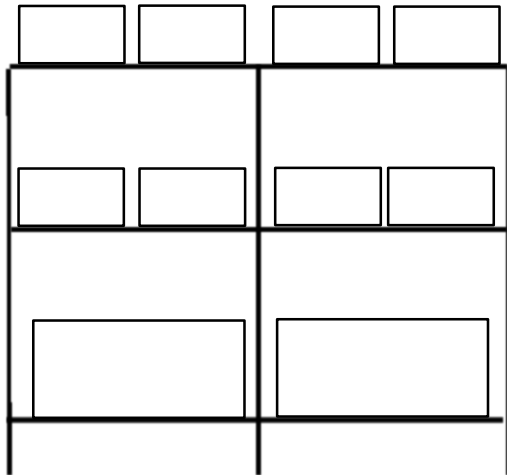
Volume: 1385 L (366 gal)  
Dimensions: 1.5m x 0.6m  
(5ft x 2.5ft)

Round Tank  
Storage



# RACEWAY LAB: EYE LEVEL VIEW

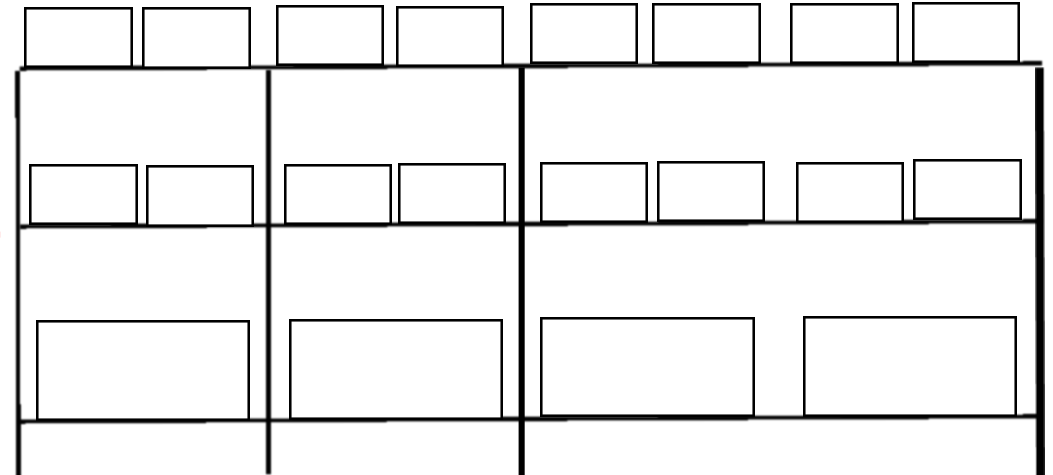
## RACK SYSTEMS WITH NO TEMPERATURE CONTROL



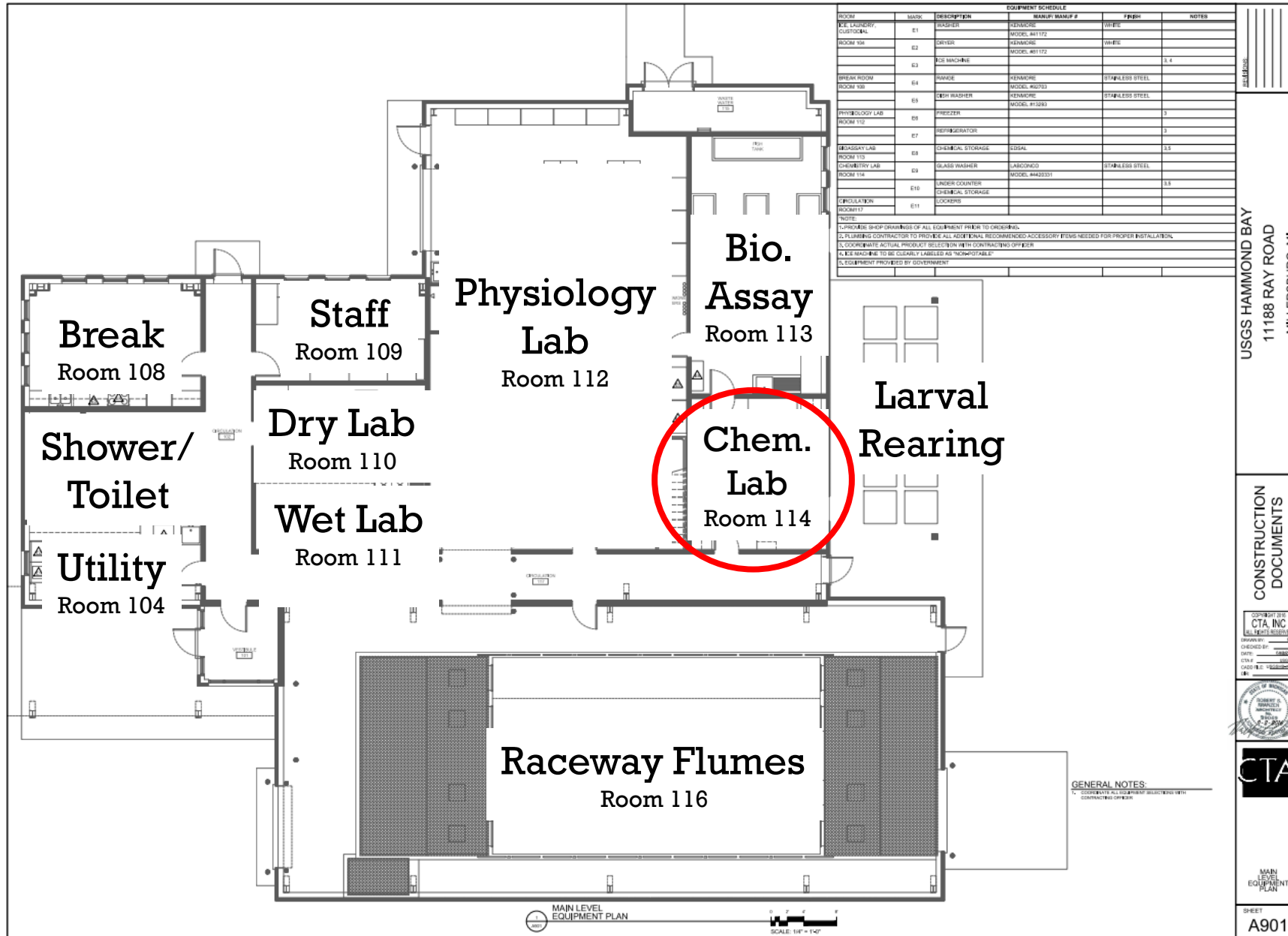
Volume: 40 L (10.7 gal)  
Dimensions: 0.4m x 0.4m x 0.3m  
(1.5ft x 1.5ft x 1ft)

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Volume: 204 L (54 gal)  
Dimensions: 0.9m x 0.6m x 0.5m  
(3ft x 2ft x 1.7ft)



# OVERALL FLOOR PLAN



USGS HAMMOND BAY  
11188 RAY ROAD  
MILLERSBURG, MI

CONSTRUCTION DOCUMENTS

CONTRACTOR  
CTA, INC  
11111 RAY ROAD  
MILLERSBURG, MI 48928

DESIGNED BY  
ROBERT C. BARNETT  
REGISTERED PROFESSIONAL ENGINEER  
STATE OF MICHIGAN  
NO. 27534

CTA

MAIN LEVEL EQUIPMENT PLAN  
SHEET  
A901

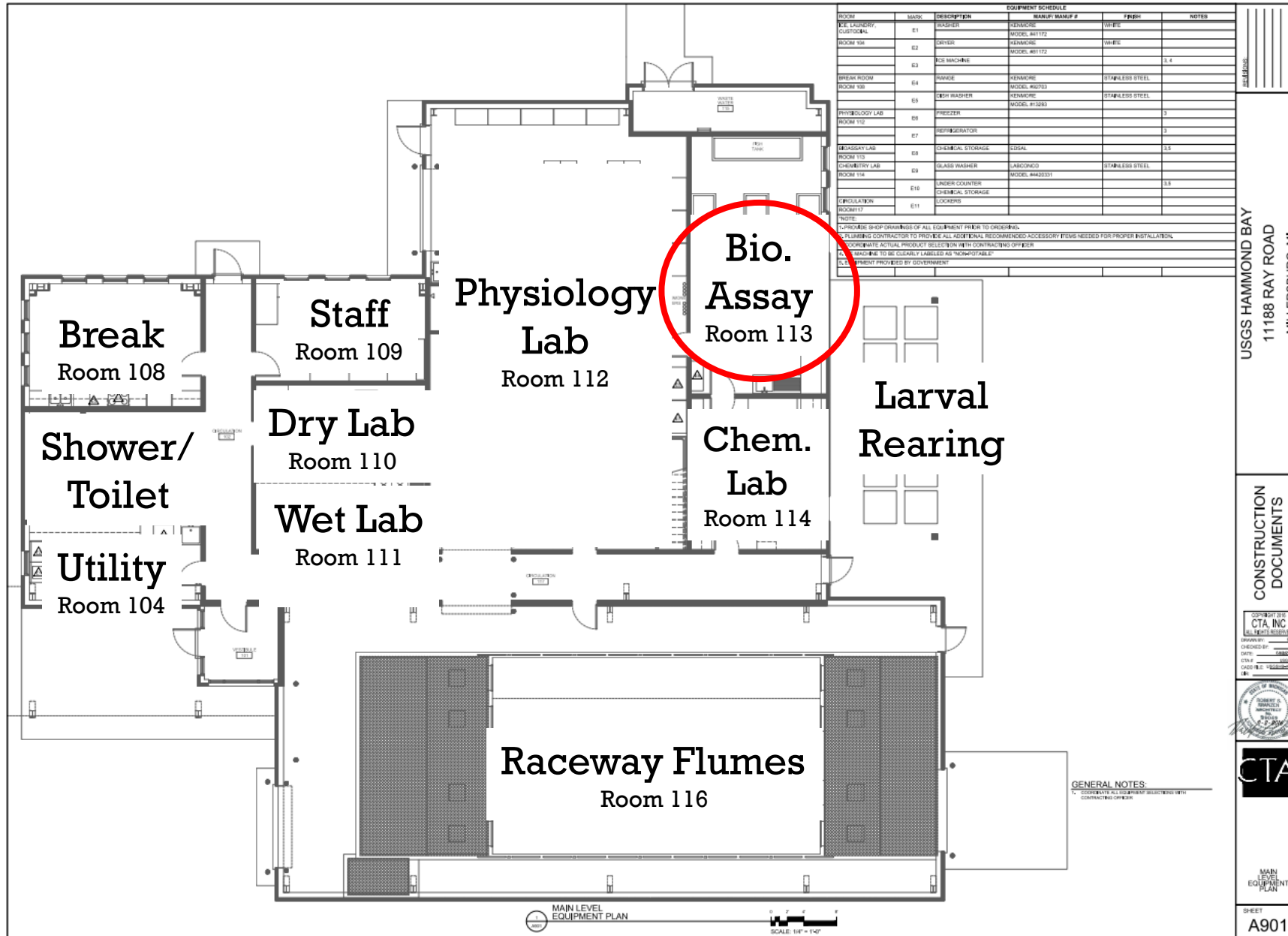


# CHEMISTRY LAB

ROOM 114



# OVERALL FLOOR PLAN



# BIOASSAY LAB

ROOM 113

## CONSTANT TEMPERATURE WATER BATHS





# OVERHEAD VIEW: BIOASSAY AND CHEMISTRY LAB

Constant Temperature Tanks

**Water Bath Dimensions:**

3m x 0.6m x 0.3m

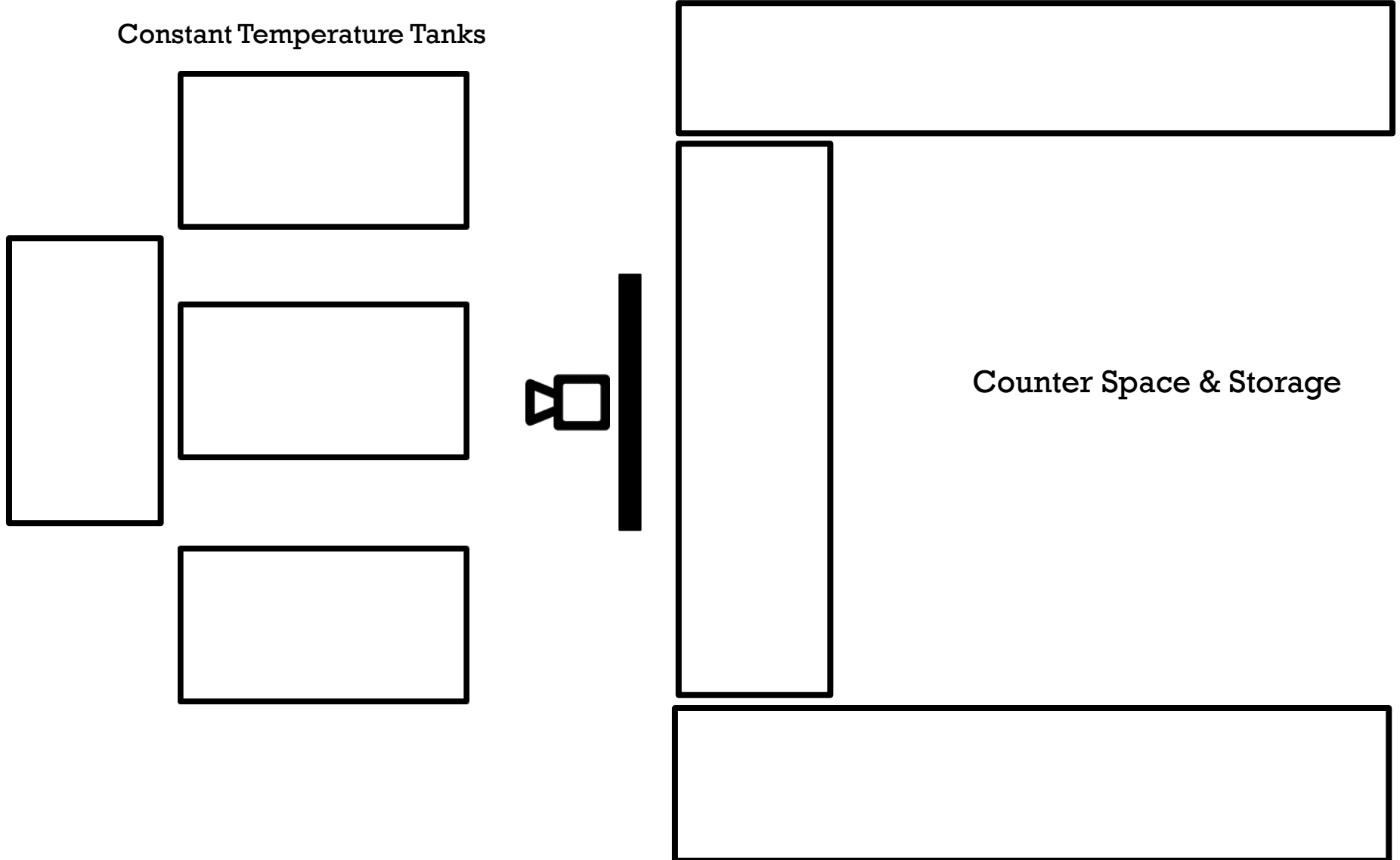
(10ft x 2ft x .8ft)

Quantity: 4

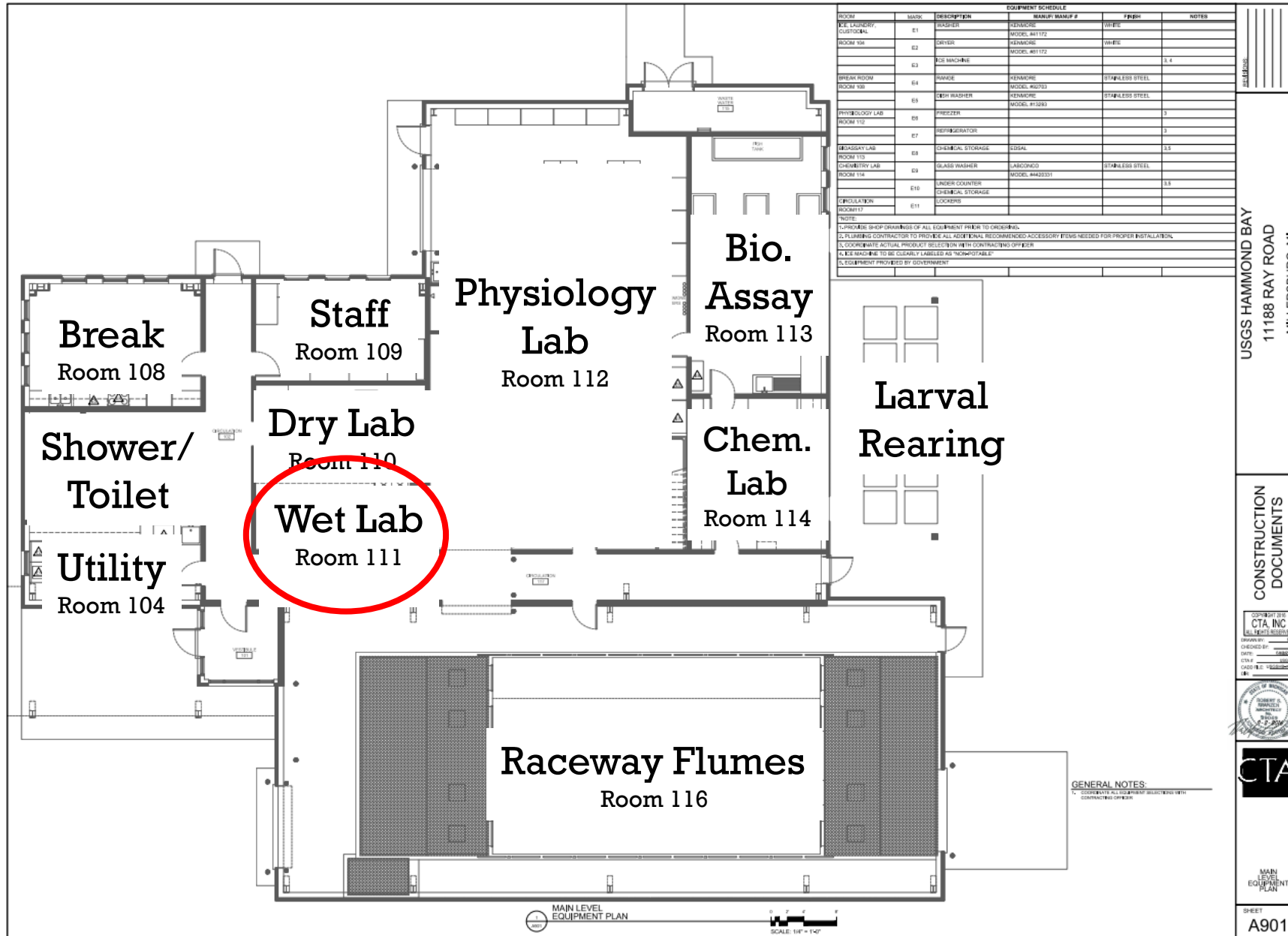
**Aquarium Inventory**

15 L (3.9 GAL) Tank - 40

30 L (7.9 GAL) Tank - 25



# OVERALL FLOOR PLAN

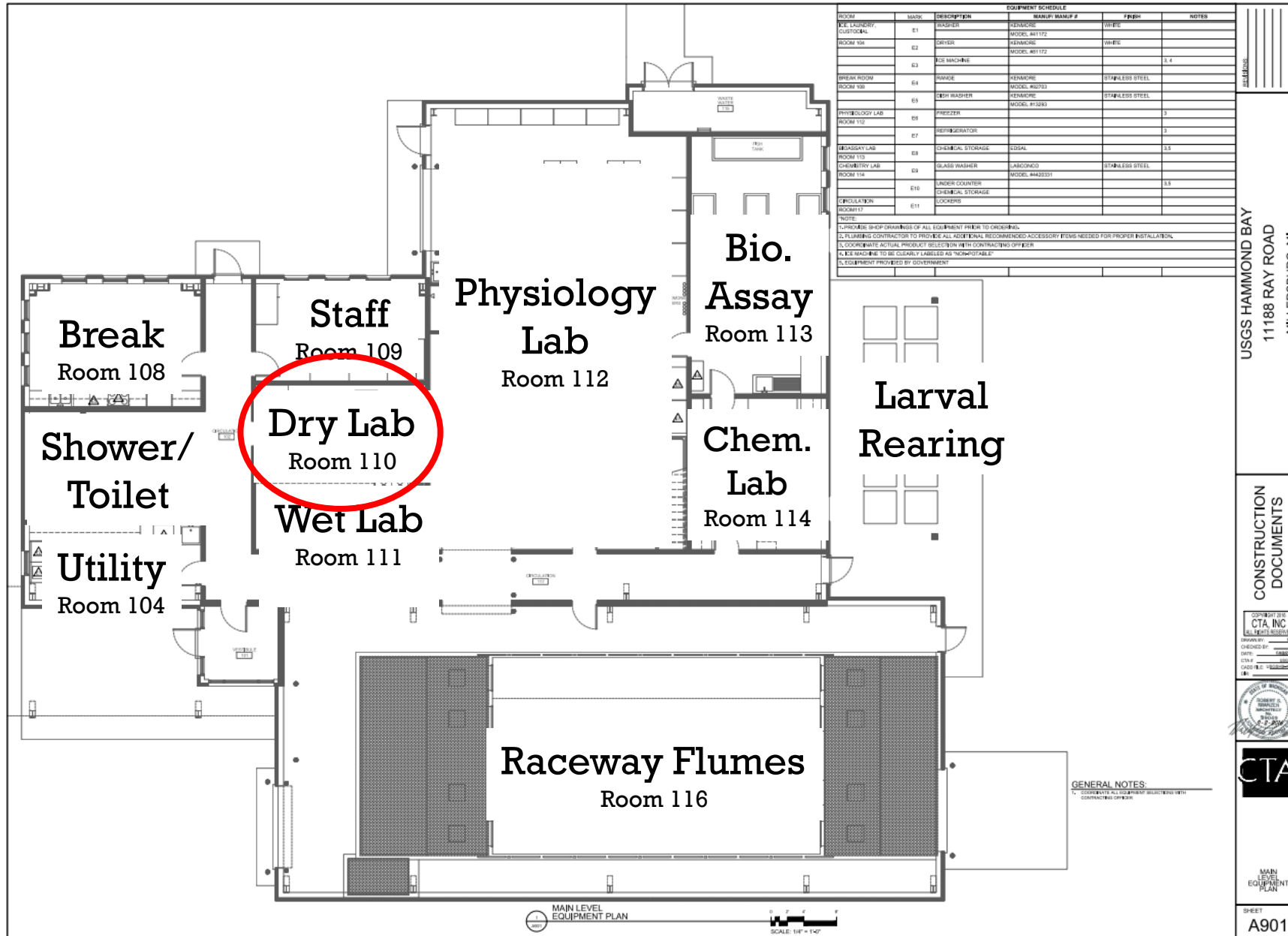


# WET FISH PROCESSING LAB

ROOM 111



# OVERALL FLOOR PLAN



USGS HAMMOND BAY  
11188 RAY ROAD  
MILLERSBURG, MI

CONSTRUCTION DOCUMENTS

CONTRACTOR  
CTA, INC  
11111 RAY ROAD  
MILLERSBURG, MI 48853

DESIGNED BY  
CHECKED BY  
DATE  
SCALE  
CADD FILE  
DATE

CTA

MAIN LEVEL EQUIPMENT PLAN  
SHEET A901

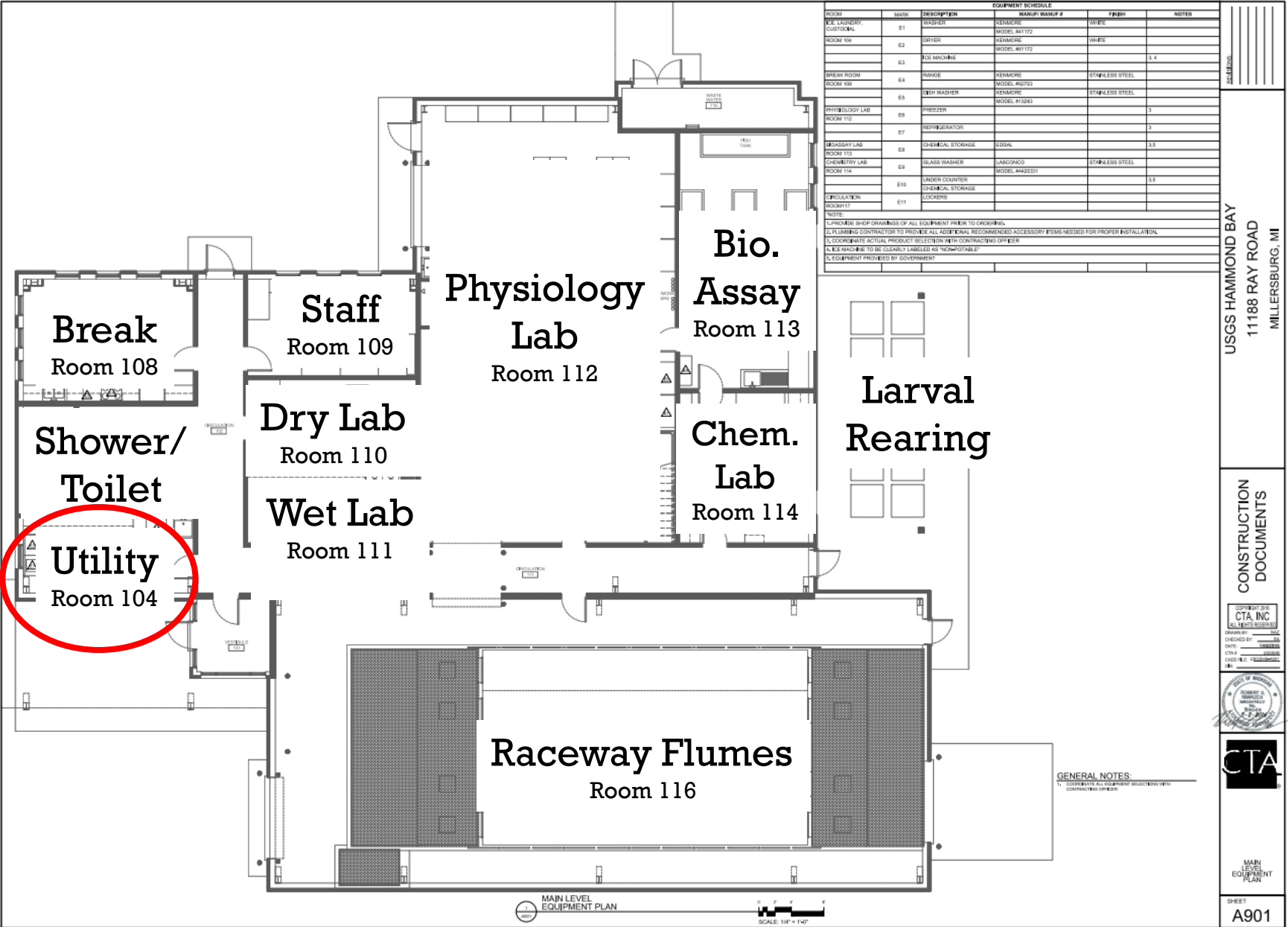


# DRY FISH PROCESSING LAB

ROOM 110



# OVERALL FLOOR PLAN



USGS HAMMOND BAY  
11188 RAY ROAD  
MILLERSBURG, MI

CONSTRUCTION DOCUMENTS

CONTRACTOR  
CTA, INC  
11111 RAY ROAD  
MILLERSBURG, MI 48901



MAIN LEVEL EQUIPMENT PLAN  
SHEET  
A901

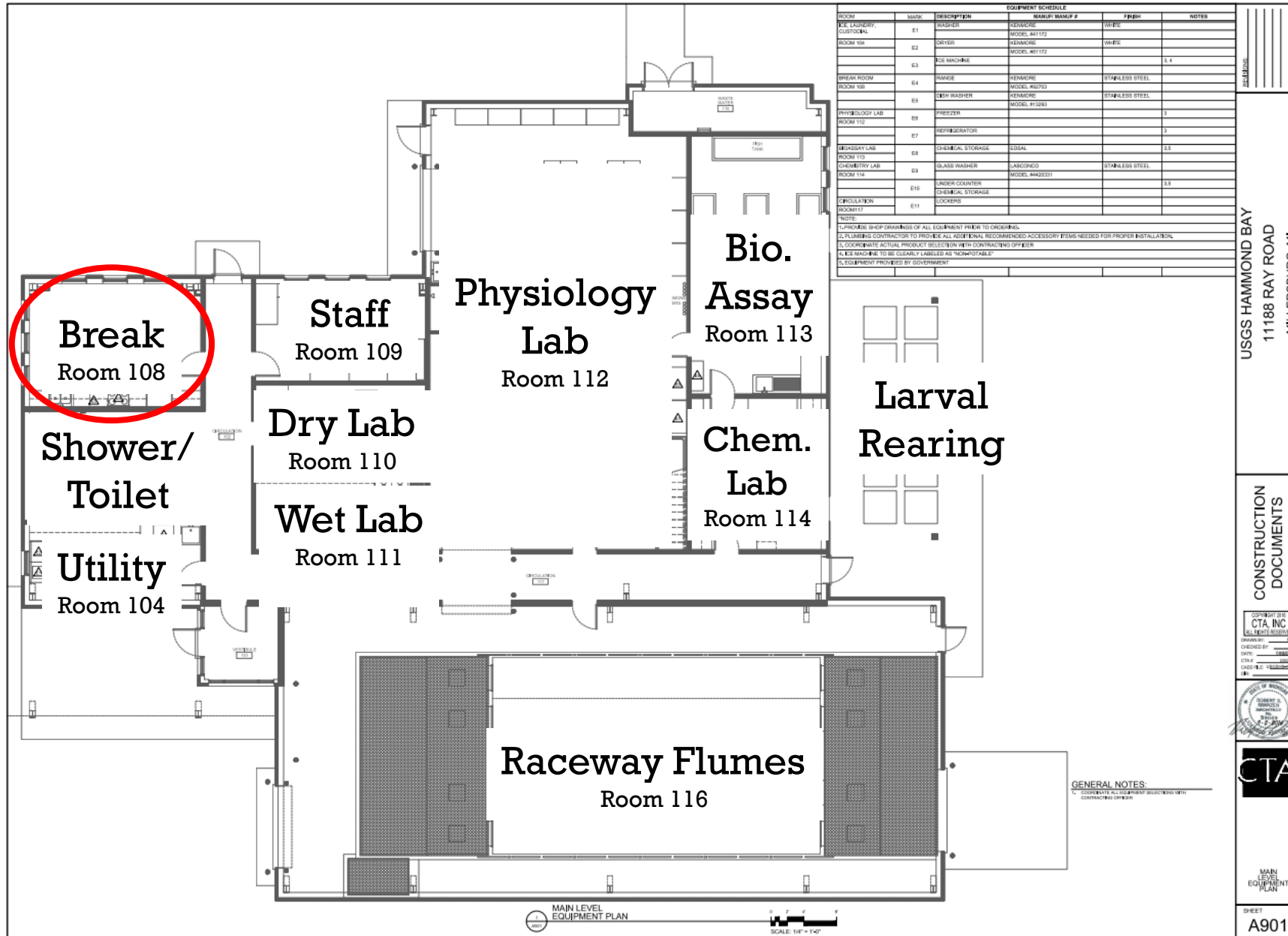


# LAUNDRY & UTILITY

ROOM 104



# OVERALL FLOOR PLAN





# KITCHEN / BREAKROOM

ROOM 108

