



**SABINE RIVER AUTHORITY  
ENVIRONMENTAL SERVICES LABORATORY BUILDING  
ORANGE, TX**

**DESIGN CRITERIA PACKAGE**

December 9, 2019

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The project will consist of a new environmental services building, single story, approximately 15,000 square feet, located at 12777 State Highway 87 N, Orange, TX. The site is located in the northern section of the property adjacent to Woodland Ridge Drive, see attached plans. The principal purpose of the building will be to house a water quality laboratory - NELAP Accredited by Texas Commission on Environmental Quality for Chemical, Trace Metal, Microbiological analysis for surface water, wastewater and drinking water.

The preliminary building program includes: reception area; eight (8) private offices; kitchen; break/training room; sample receiving and prep area; laboratory and work rooms; sample refrigerator room; field prep room; restrooms; records room; storage rooms; computer network/server/telecom room and electrical and mechanical rooms. The environmental services building shall meet all applicable codes, including Americans with Disabilities' Act.

SRA's Environmental Laboratory currently occupies the building located approximately 1.7 miles off State Highway 87 on IP Way on the SRA property marked as the Sabine River Authority of Texas Gulf Coast Division Environmental Services Division. A photo of the existing Environmental Laboratory and a location map can be found at:

<https://www.sratx.org/sra-offices/environmental-services/>

This Project will include the relocation of the existing laboratory operations to the new environmental services building. Existing lab equipment (not exhaust hoods) and furniture will be relocated by the SRA vendor and any new components will be provided by SRA. It may be required for the DB to disconnect and reconnect certain equipment. The DB will provide lab casework, fume hoods and associated systems. A transition plan will be developed by the DB to minimize interruptions to the ongoing laboratory operations during the transition to the new environmental services building. A workflow efficiency study for lab layouts may be required by the Design-Builder design's staff.

Site requirements to include entrance, driveways, sidewalks, parking for staff and visitors, secure parking for Authority vehicles, covered entry and sample drop off, back-up generator, delivery drop off, outside storage room, lab supply storage and outside storage room, chemical disposal room and landscaping.

Documents provided in this DCP are:

- Preliminary Facility Program Statement
- Conceptual Space Plan
- Conceptual Site Plan
- Conceptual Front Elevation
- Site power lines
- Site water/wastewater lines
- Site fiber lines
- Site topography plans
- Laboratory facilities requirements (per SM-9200 B.3)

#### SRA Design Preferences:

- The building will be located on the northern section of the SRA property with specific location and orientation to be determined.
- Consider a pre-engineered building and/or other conventional construction methods.
- Prefer a standing seam metal roof with no penetrations for HVAC, fresh air intake or exhaust.
- Exterior appearance and materials to match existing Administration Building on front elevation.
- Floors polished concrete or poly-resin (or similar for easy maintenance and chemical resistance).
- All counter tops to be poly propylene or similar solid surface material.
- Maintain requirements of Laboratory Facilities Requirements (SM-9200 B.3)

Sabine River Authority  
Water Quality Lab



Executive Summary

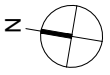
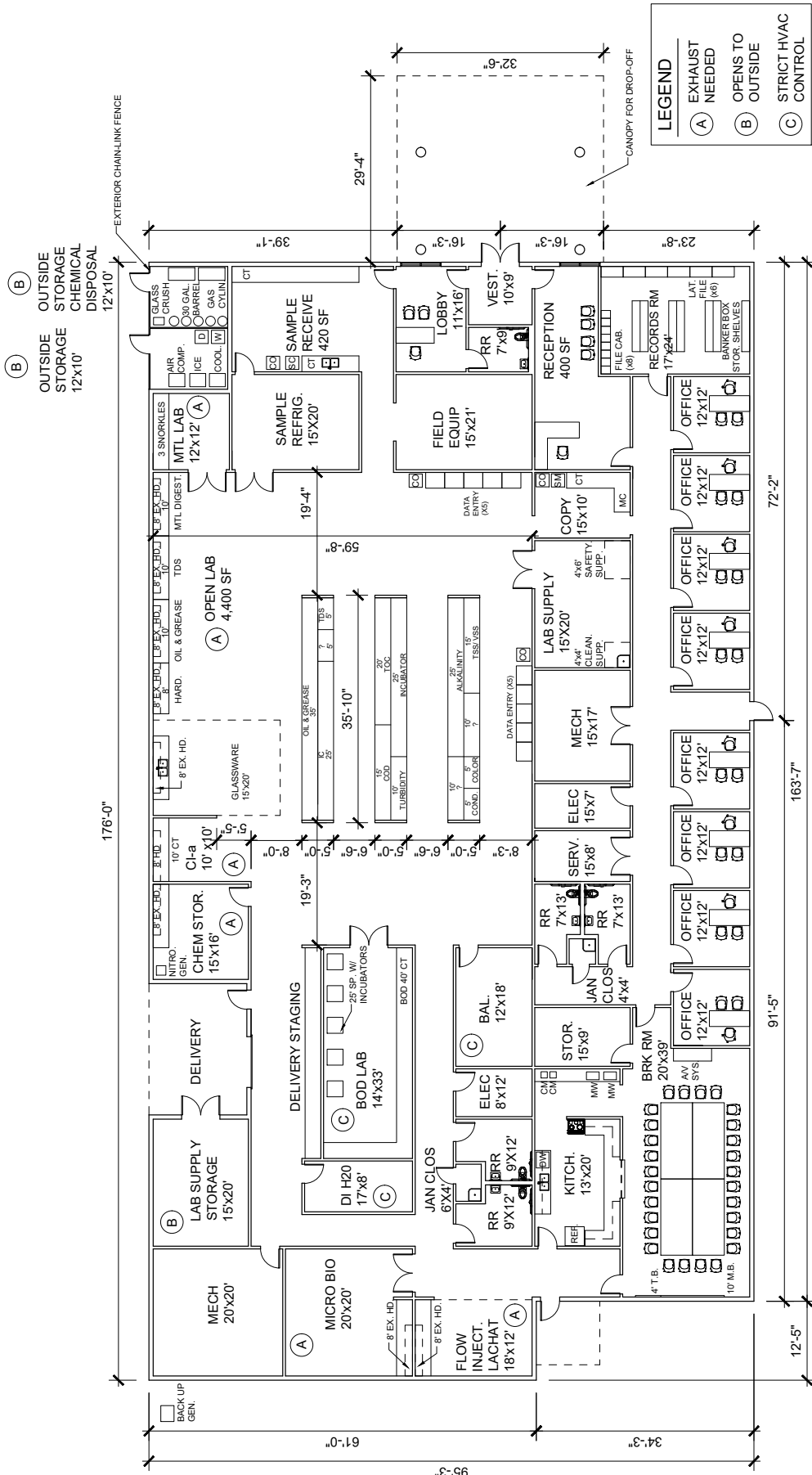
Preliminary Program

11/19/2019

NELAP Accredited per TECO. Chemical, Trace Metal, Microbiological analysis for surface water, wastewater and drinking water

Item No	Description	Qty	Area (NSF)	Total Area (NSF) PROGRAM	Remarks	Adjacent to
	<b>Site Requirements</b>					
	Visitor Parking				With sample drop-off area - spaces per code	
	Staff & Vehicle Parking				Secure area - 20 staff spaces covered + 6 service vehicles (crew cab)	1, 2
	Covered entry & sample drop off				N/A <i>outside of sample receiving lobby</i>	
	Backup generator				N/A For new lab building	1, 2
	Delivery drop off				N/A Access for 18 wheeler deliveries - covered	
	Outside Storage Room	1	120	120	10'x12' (ice machine/cooler storage and washer/dryer? air compressor?) NO A/C	
	Lab supply storage	1	300	300	no A/C	
	Outside Storage Room - Chemical Disposal	1	120	120	10'x12' (15-30gallon barrels; lgass crusher, gas cylendar storage) - no A/C	
	<b>Building Requirements</b>					
1	Reception Area for private offices	1	200	200	Receives visitors - Reception desk w/ 2 guest seating; near mail center and private offices	3, 4
1a	Unisex Rest Room	3	64	192	Single handicap restrooms - 2 in reception/private offices & 1 in sample receiving with 10x10 lobby to receive samples-secure; near sample refrigeration room with countertop space, sink, copy/scan	1, 2, 3
2	Sample Receiving lobby and prep	1	400	400	Min 12' X 12'	1, 2
3	Private Offices	8	144	1152		1
4	Records Room	1	400	400	Banker box storage shelves, (4-8) file cabinets, & (6) 42"x20" lateral files	1, 3
5	Copy, print, mail	1	120	120	Equipment plus document layout space - (copier, stamp machine, mail center)	1
6	Break / Training Room	1	625	625	Table seats 25-30, dbl sink, coffee maker, OH cab'ts, bulletin & marker bds - full A/V system - separate adjacent kitchen from break room	
	Kitchen	1	200	200	Off Break/Training Room - Dbl sink, large microwave, double range, dbl refrig, coffee maker, DW, OH cab'ts	6
7	Field Equipment Prep/Storage Room	1	340	340	12'X18' plus internal 10'X12' storage closet (near sample receiving area) 3 walls & open to lab	17
10	Chem Storage Room	1	200	200	Adjacent to Chem Lab w/ Exterior exhaust w/ nitrogen generator	17
11	Microbiological Lab Room	1	400	400	20' X 20', double doors; snorkel or vent hood (air circulation requirements)	
12	ICP-MS Metals Lab Room	1	144	144	12' X 12' min, double doors, 3 snorkles, 10 LF X 30" deep	
13	Flow Injection Lachat Lab Room	1	216	216	12' X 18' min, 8' canopy exhaust hood - 3 walls & open to lab	
14	Balance / Weighing Room	1	216	216	12' X 18, glass window, enclosed w/ dust/air containment	
15	BOD Lab & Incubator Room	1	432	432	18' X 24' with 30" deep counters - BOD 40 LF, Incubators 25 LF - floor space, strict HVAC control	
16						

Item No	Description	Qty	Area (NSF)	Total Area (NSF)	Remarks	Adjacent to
17	General Lab (open area)		4,200	4,200	64'X64'	
18	Data entry	1			2 1/2' X 3' wide data workstations open to lab - 10 work cubicles	
19	Alkalinity	1			24 LF counter X 30" deep	
20	Incubator (ovens & furnaces)	1			25 LF counter X 30" deep for ovens & furnaces	
21	TOC	1			20 LF counter X 30" deep	
22	COD	1			15 LF counter X 30" deep	
23	IC	1			24 LF counter X 30" deep	
24	Cl-a	1			10 LF counter X 30" deep, 8' hood (light sensitive analysis-needs separate room-not fully enclosed)	
25	Color	1			5 LF counter X 30" deep	
26	Conductivity	1			5 LF counter X 30" deep	
27	Hardness	1			5 LF counter X 30" deep, 8' hood	
28	Oil & Grease	1			40 LF counter X 30" deep, 8' hood	
29	TDS	1			15 LF counter X 30" deep, 8' hood	
31	TSS/VSS	1			15 LF counter X 30" deep	
32	Metals Digestion	1			8' canopy hood 5 LF counter	
33	Turbidity	1			10 LF counter X 30" deep	
34	Glassware	1			Equipment plus hood or snorkel exhaust over sink - 15'X20'	
37	Lab Supply Storage	1			8'X20' lab supplies; 4'X4' Cleaning supplies (mop sink?); 4'X6' safety supplies	
39	DI Water (Lab Pure Water)	1	80	80	Strict HVAC control	
41	Sample Refrigeration Room	1	300	300	Double entrance-1 from open lab area & 1 from sample receiving area	17
42	Restrooms	2	400	800	2 adjacent to Breakroom - multi-stall ( 1-women; 1- men)	3, 6
43	Server Room	1	100	100	12'X8' min double door	
44	Electrical Room	1	100	100		
45	Mechanical Room	1	200	200		
46						
47						
	<b>Sub-Totals (NSF)</b>			<b>11,557</b>		
	NSF x 1.35 = USF Circulation/Support 80%		0.35	3,236		
	NSF x 1.15 = USF Circulation/Support 20%		0.15	347		
	USF x 1.15 = GSF Circulation/Support		0.15	2,271		
	<b>Total Area (GSF)</b>			<b>17,411</b>		

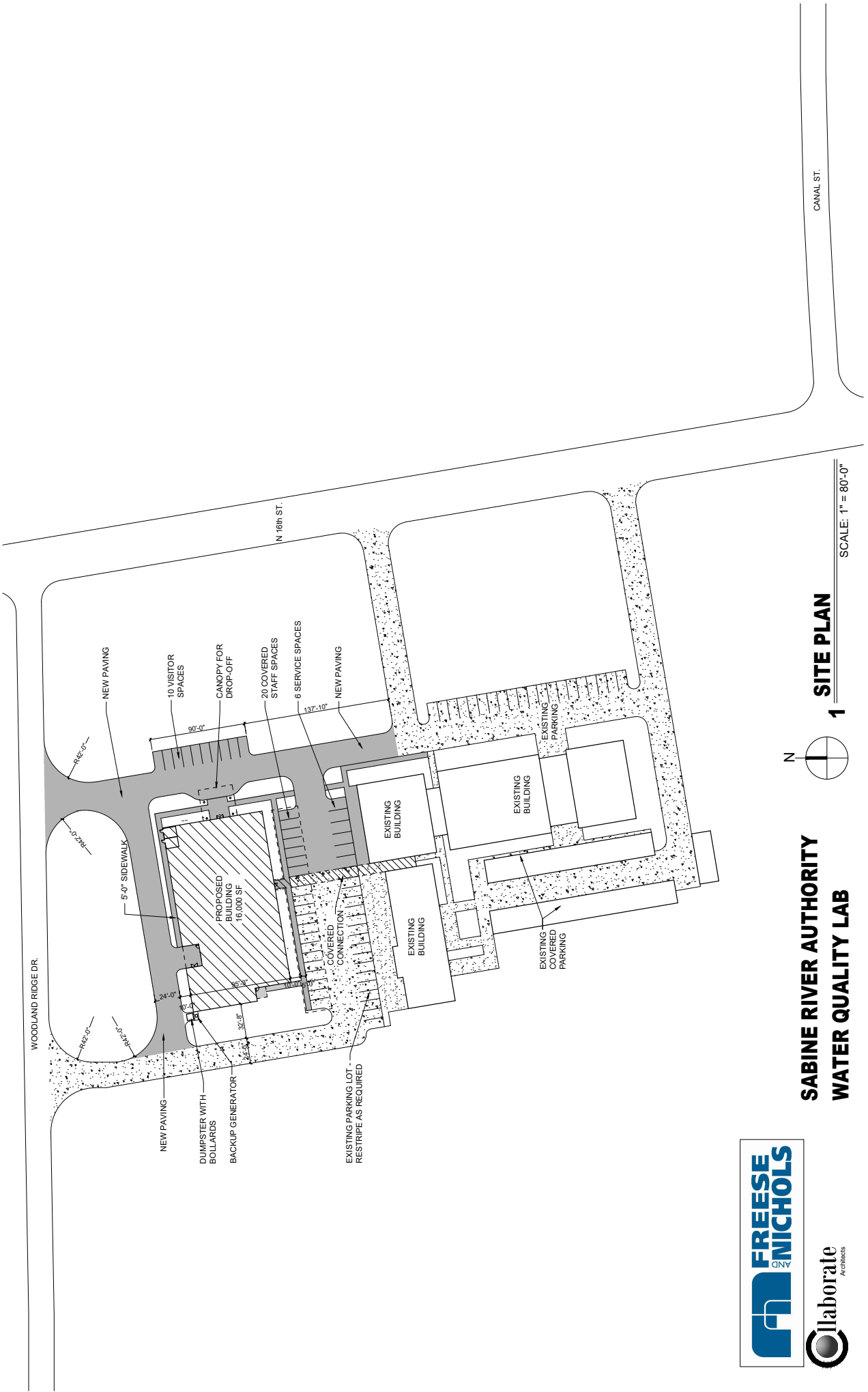


**SABINE RIVER AUTHORITY  
WATER QUALITY LAB**

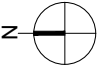
**1 FLOOR PLAN**

SCALE: 1/16" = 1'-0"





**SABINE RIVER AUTHORITY  
WATER QUALITY LAB**



**1 SITE PLAN**

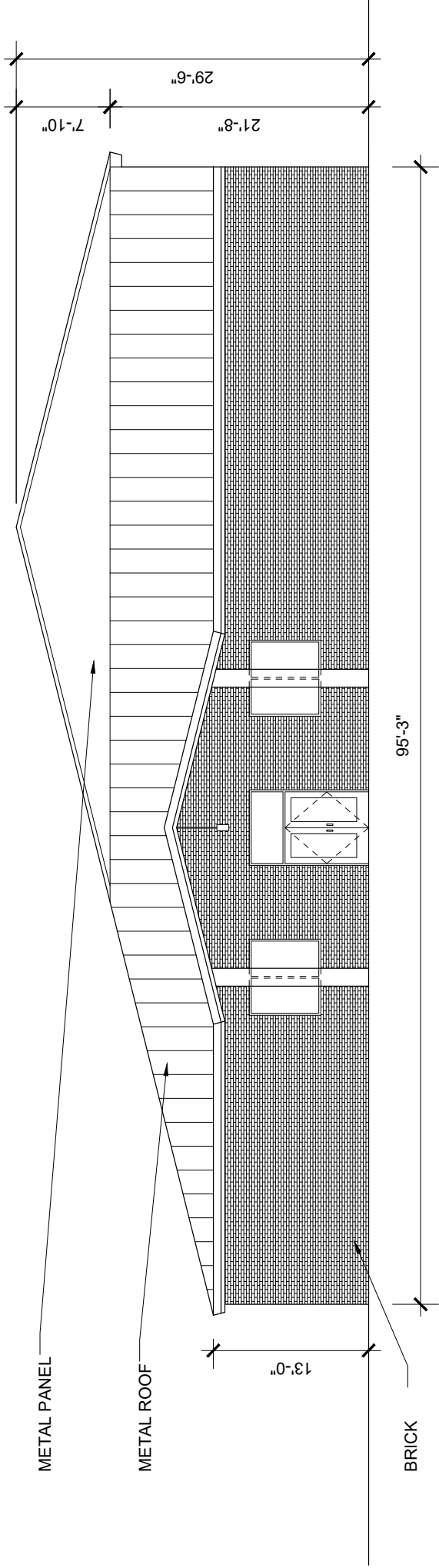
SCALE: 1" = 80'-0"

CANAL ST.

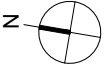








**SABINE RIVER AUTHORITY  
WATER QUALITY LAB**



**1 EAST ELEVATION**

SCALE: 1/8" = 1'-0"







D -701-0280-00

D -701-0290-00

D -750-0010-00

D -750-0015-00

D -750-0020-00

D -750-0025-00

D -750-0030-00

D -701-0300-00

D -701-0310-00

D -701-0320-00

D -701-0325-00

D -750-0020-10

D -750-0020-20

D -750-0020-40

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WOODLAND RIDGE DR

WOODLAND DR

CANAL ST

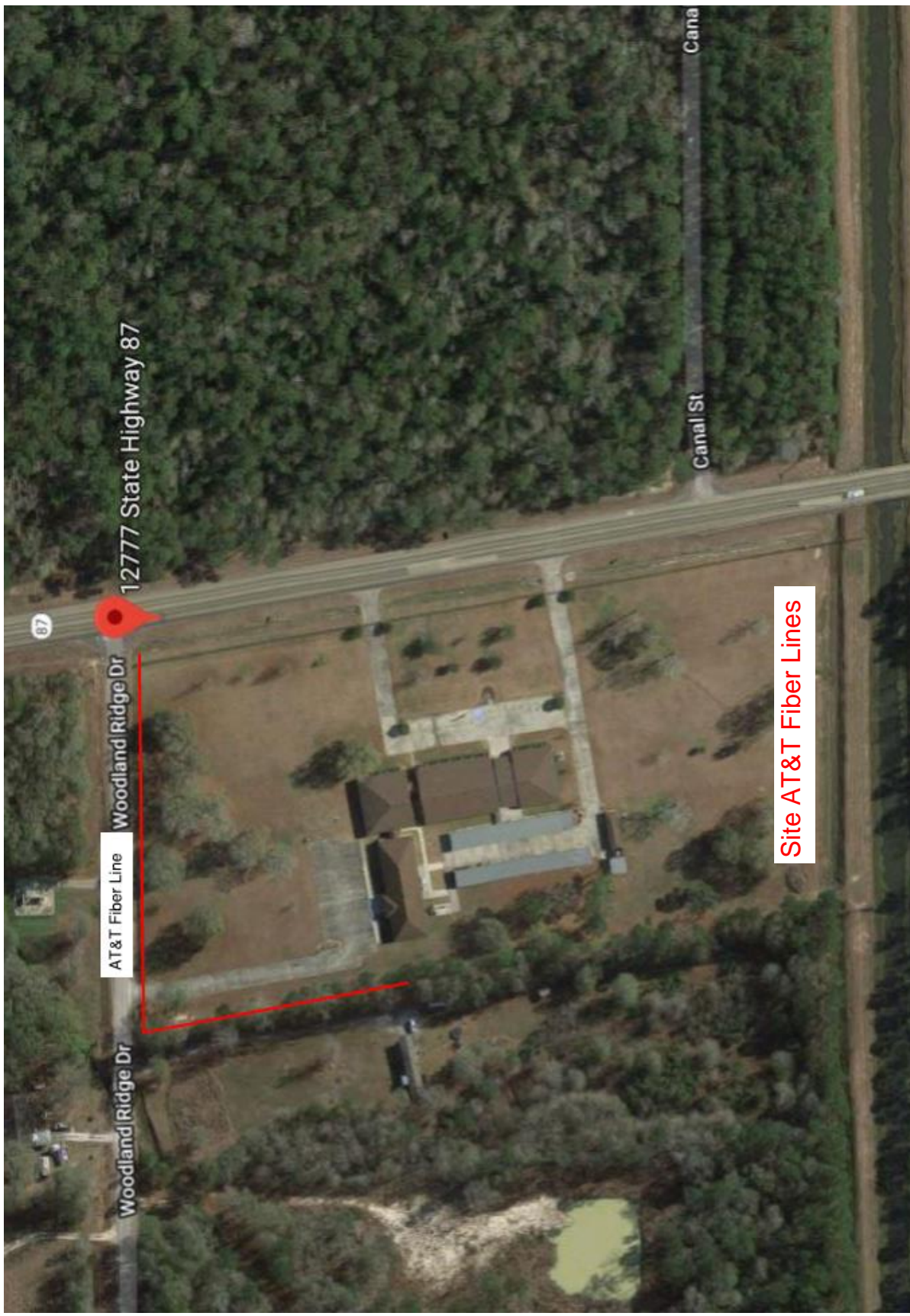
CANAL ST

Site Power Lines

25.0







12777 State Highway 87

Woodland Ridge Dr

Canal St

AT&T Fiber Line

Site AT&T Fiber Lines

AT&T Fiber Line -- connect new building MDF to existing building MDF





SRA Lab – Site topo 2' increments

**Laboratory Facilities Requirements (per SM-9200 B.3.)**

**Standard Methods for the Examination of Water and Wastewater, 22<sup>nd</sup> Edition**

<b>Ventilation</b>	<ul style="list-style-type: none"><li>• The laboratory must be well-ventilated so that it can be maintained free of dust, drafts, and extreme temperature changes.</li><li>• Install air conditioning and temperature- and humidity-control systems to permit more stable operation of incubators, and decrease moisture problems.</li><li>• Air system vents should be adjusted so air flow does not flow directly onto working surface areas.</li><li>• Where feasible, air flow should be negative into the laboratory (so airflow is always into, rather than out of, the laboratory) to avoid risk of contamination of the exterior.</li></ul>
<b>Space Utilization</b>	<ul style="list-style-type: none"><li>• Design and operate the laboratory to minimize through traffic and visitors in order to ensure test and sample integrity and minimize potential contamination.</li><li>• Ensure that there is sufficient work space available for the volume of work to be performed. For example:<ul style="list-style-type: none"><li>○ Maintain separate work areas for sample receipt, bottle preparation, analysis, storage, etc.</li><li>○ For microbiology, testing of wastewater and drinking water should be separated to minimize contamination.</li><li>○ Maintain heat-generating equipment (ovens, autoclave, etc.) away from incubators.</li><li>○ Have sufficient storage space so that materials (chemicals, supplies, etc.) can be stored appropriately.</li></ul></li></ul>
<b>Laboratory Bench Areas</b>	<ul style="list-style-type: none"><li>• Provide at least 2 meters of linear bench space per analyst and additional areas for preparation and support activities.</li><li>• Bench height should be reasonable and comfortable for technicians<ul style="list-style-type: none"><li>○ Stand-up work: Typically from 90-97 cm high and 70 to 76 cm deep</li><li>○ Sit-down activities: Typically from 75 – 80 cm high</li></ul></li><li>• Bench tops of stainless steel, epoxy plastic, or other smooth, impervious surfaces that are inert and corrosion-resistant with a minimum number of seams and free of cracks and crevices.</li><li>• Install even, glare-free lighting with about 1000 lux (100 ft-c) intensity at the work surface.</li></ul>
<b>Walls, Floors, and Ceilings</b>	<ul style="list-style-type: none"><li>• Walls should be covered with a smooth surface that is easily cleaned and disinfected.</li><li>• Floors should be of smooth concrete, vinyl, asphalt tile, or other impervious, sealed washable surfaces.</li><li>• Ceiling surfaces should be smooth, non-fibrous, and with recessed lights.</li></ul>



	<ul style="list-style-type: none"> <li>• Cover or eliminate and overhead pipes that cannot be cleaned routinely.</li> </ul>
<b>Work Area</b>	<ul style="list-style-type: none"> <li>• Work areas should be easy to clean and disinfect.</li> <li>• Prevent any adverse sound and vibration levels within the laboratory.</li> <li>• Temperature should be able to be maintained within strict limits. Install easy-to-clean sun shades on large glass windows to prevent heat build-up.</li> </ul>
<b>Electricity</b>	<ul style="list-style-type: none"> <li>• Ensure a stable electric source a sufficient number of outlets, circuit breaker protected, and the placement of surge protectors.</li> <li>• The laboratory utilizes both 120V and 240V equipment.</li> <li>• An emergency power backup may be necessary for areas where work is critical.</li> </ul>
<b>Water Purification System</b>	<ul style="list-style-type: none"> <li>• A commercial system that includes some combination of pre-filtration, activated carbon, mixed-bed resins, and reverse osmosis with final filtration should be used to produce reagent grade water.</li> <li>• This system should be plumbed to faucets throughout the laboratory (in addition to the regular hot and cold tap water faucets).</li> </ul>