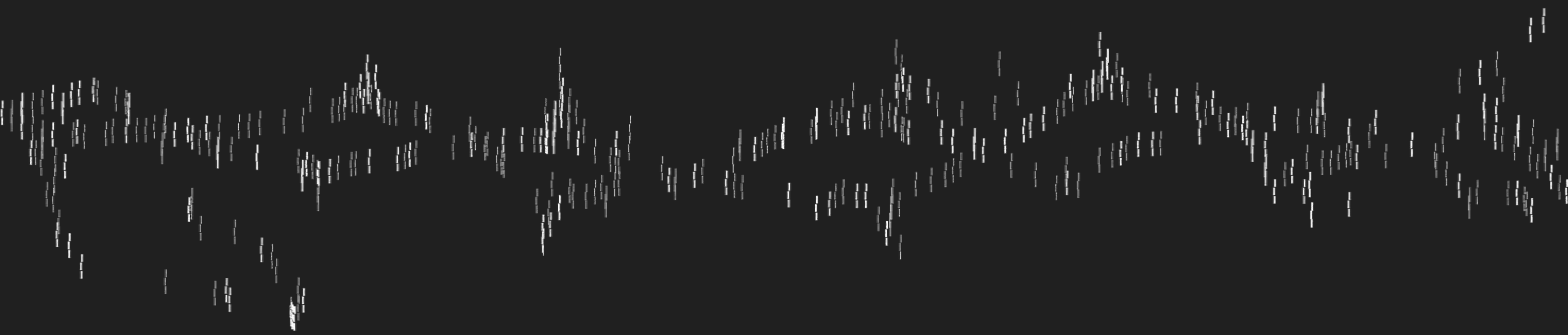




EDISON RESEARCH & DEVELOPMENT CENTER FINAL CONCEPT DESIGN REPORT



DESIGN VISION

INTRODUCTION

This study summarizes the conceptual design process for the New Research & Development Center as part of the Phase I Campus for Samsung Group's Edison Project. The campus is located in the Songdo Free Economic Zone (FEZ) south of Seoul Korea and west of the Incheon International Airport and is a key component Incheon's ambitious vision of becoming a world-class metropolitan city. Located in the Dream Zone of the Songdo FEZ Master Plan, the building will occupy a highly visible corner with primary frontage on Park Avenue between the Community Work Axis and the heavily landscaped Green Corridor - Campus Axis. In addition to the R&D component, Phase I includes the adjacent manufacturing plant, the first of five planned for the campus.

DESIGN PHILOSOPHY AND THE 3-T'S

Underlying all of the conceptual explorations for the Edison R&D Center is a strong philosophy that buildings should be a poetic and genuine expression of their content, program and purpose. The buildings should respond to and engage in a clear dialogue with the landscape and adjacent buildings. They should be responsive to their climate, respectful of the local culture, and take advantage of the best orientation to control solar heat gain. Ideally building footprints are narrow in order to maximize daylight and views for the comfort of users and to minimize the need for artificial lighting during the day.

In parallel with this design philosophy, the Samsung Group has defined three important characteristics which the new facility must embody. They have been referred to these as the "3 T's". Each of the conceptual explorations summarized in this report has the capacity to accomplish these principles.

BIOTECHNOLOGY: THE RECREATION OF HUMAN ACTIVITY

The science of bio-similar research within the building, like the nucleus of a cell, is powerful and transformative. The building is an active living cell of innovation and discovery with research at its heart, both architecturally and metaphorically. The building is a fertile environment that encourages and provides for spontaneous interactions among scientists as an essential part of creativity and exploration.

INFORMATION TECHNOLOGY: THE FUSION OF HUMANITY AND TECHNOLOGY

The building utilizes state-of-the-art technologies to enhance building performance, building systems and building security. Communication, way finding and systems monitoring are digitally-based and integrated into the architecture. The building is sustainable. It strives for carbon neutrality by conserving and generating energy.

The primary purpose of the R&D Center is to house bioscience and bio-pharmaceutical laboratories focused on the research and development of bio-similar drugs. The laboratory spaces will support state-of-the-art research organized on a flexible module. In future phases the laboratory spaces may be utilized as office and support spaces. The labs may relocate to other facilities on the campus. Additionally, the building will house amenity spaces, cafeteria, auditorium, conferencing center, exhibition hall and fitness facility that will serve the entire Edison Project Campus upon completion of subsequent phases. The R&D Center will be approximately 10,000GSM.

The Edison Project R&D Center will become the icon for the new campus. It will be a highly interactive working environment for research scientists and a showcase hosting investors and dignitaries who support this cutting edge research.³

POETIC FORM: THE BUILDING ITSELF AS A WORK OF ART

The building makes a poetic statement about its purpose, commitment to science, the environment and makes use of daylight, color, texture, shade and shadow artfully. Strategic uses of color, transparency, translucency and night time lighting contribute to the icon and memorable image of the building. The building envelope protects the living environment within and is a beautiful art piece.

ORGANIZING ELEMENT: R&D CENTER IN RELATIONSHIP TO MANUFACTURING

Given the site configuration, the Center conceptually is organized in a linear fashion along Park Avenue parallel to the Manufacturing Plant to its north. Despite the significant difference in scale, the R&D Center is the foreground feature on the campus and depends upon the Manufacturing Plant to act as a neutral backdrop to it. Through volumetric expression of program elements, development of the exterior envelope (including sun control systems) introduction of landscape features (stands of bamboo, water features, landscaped berms), the R&D Center achieves a rich quality, texture and scale as a counterpoint to Manufacturing Plant.

The space in between the R&D Center and Manufacturing Plant is developed as a landscaped pedestrian place that enriches the ground level experience for both buildings. The cafeteria, auditorium, exhibition and amenity spaces engage a garden area which is accessible from the employee parking area to the east and to future phases of the campus.

DESIGN VISION

INTRODUCTION

INTERACTION: R&D CENTER INTERIOR EXPERIENCE

The Edison R&D Center project R&D will become the icon for the new campus. The project integrates highly interactive working environment for research scientists and functions as a showcase facility for hosting investors and dignitaries who support this cutting edge research. The R&D center will be approximately 10,000 GSM and will serve as the central research, meeting, dining and exercise facility for the entire Edison campus.

HEADQUARTERS

The R&D building is comprised of a straight “service bar” to the north and a rotated or curved “headquarters bar” to the south. The resulting void in-between the bars create an atrium space that serves as the “heart” of the facility. The three-story atrium utilizes natural lighting from skylights and window walls. It offers stunning views of the main entrance and future headquarters and serves as an organizing element for various uses such as gathering space and a circulation spine. The atrium will have three points of exterior access: the primary VIP entrance under the two-story Porte-cochère to the south; an access point below the manufacturing pedestrian bridge to the north; and an entrance that directly accesses the employee parking lot to the east. The first floor comprises the main auditorium and cafeteria which are located to either side of the atrium. The open floor area serves as a multi-use space for overflow seating for the cafeteria, an area for special events, and a special exhibit space. The fitness facility on the second floor is directly accessed by pedestrian bridge, features adjacent balcony for outdoor activities and views of the manufacturing building and exterior campus. The southern bar contains senior staff cubicles, director’s offices, support facilities and a double height meeting room with views of the future headquarters and exterior balcony. The VIP area on the third floor is accessed by a bridge straddling the atrium. The VIP area features 360 degree views to both interior and exterior spaces and an exterior balcony off the board room. The northern bar features views to the north and provides additional exterior area for employees. At grade the exterior connecting space between R&D and the manufacturing building visually connects campus elements and creates an enhanced natural environment for employee circulation, relaxation, dining and congregating.

LABORATORIES

The primary purpose of the R&D Center is to house bioscience and bio-pharmaceutical laboratories focused on the research and development of bio similar drugs. The laboratory spaces will support state-of-the-art research organized on a flexible module. Laboratory and office spaces are located adjacent to building atrium. The building atrium encourages daily intermingling of scientist and management on the shared grand stair. The pilot plant allows visitors to the facility to get a first hand glimpse into the laboratory working area from the first floor. Office spaces that feature views and natural lighting are located on the second and third floors. Interior work spaces are enhanced by indirect light through integrated light shelves at the building exterior window system, high interior ceilings and light colored spaces. Exterior sun shading devices will be utilized to mitigate effects of solar gain and glare. A double height break room anchors the west end of the research bar. The design of the break room creates a strong visual connection between the two primary research floors and features direct access to outdoor balconies. In future phases the laboratory spaces may be utilized as office and support spaces if the labs relocate to other facilities on campus.

FINAL CONCEPT

CURVILINEAR BAR SCHEME

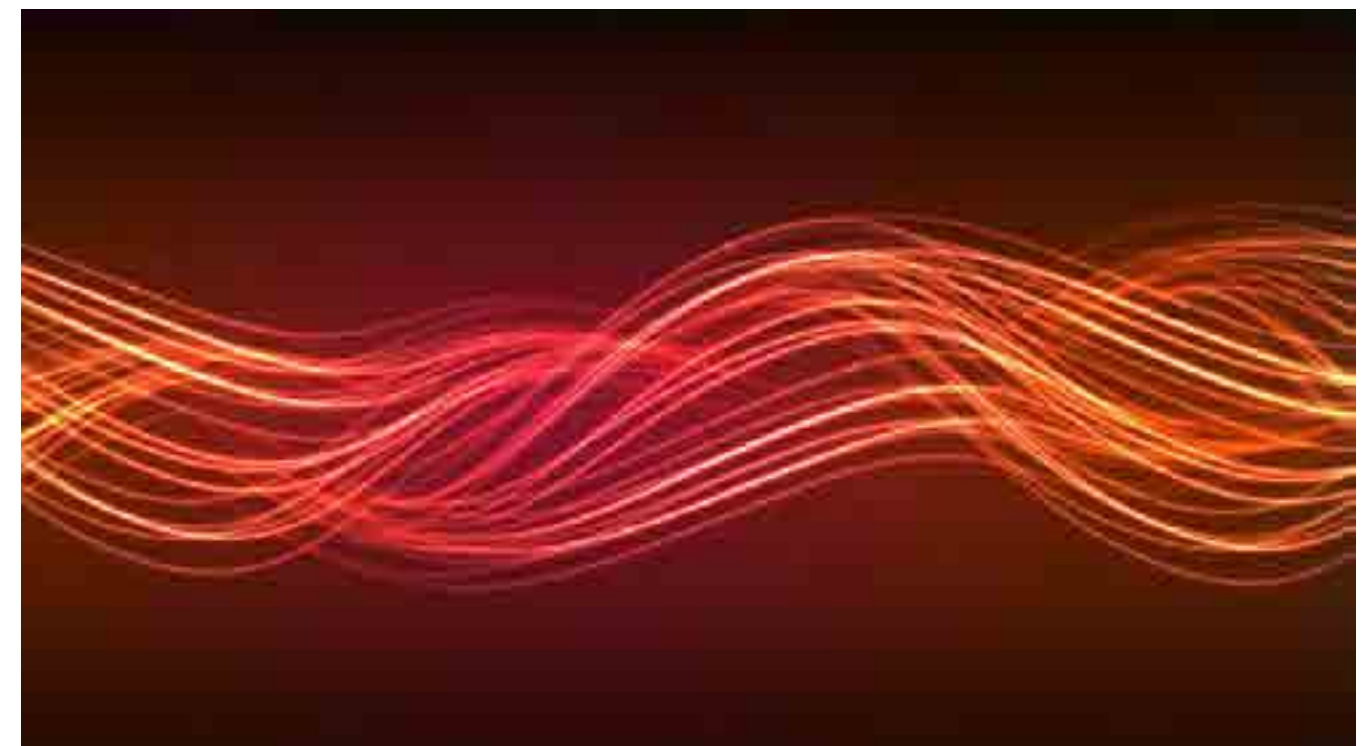
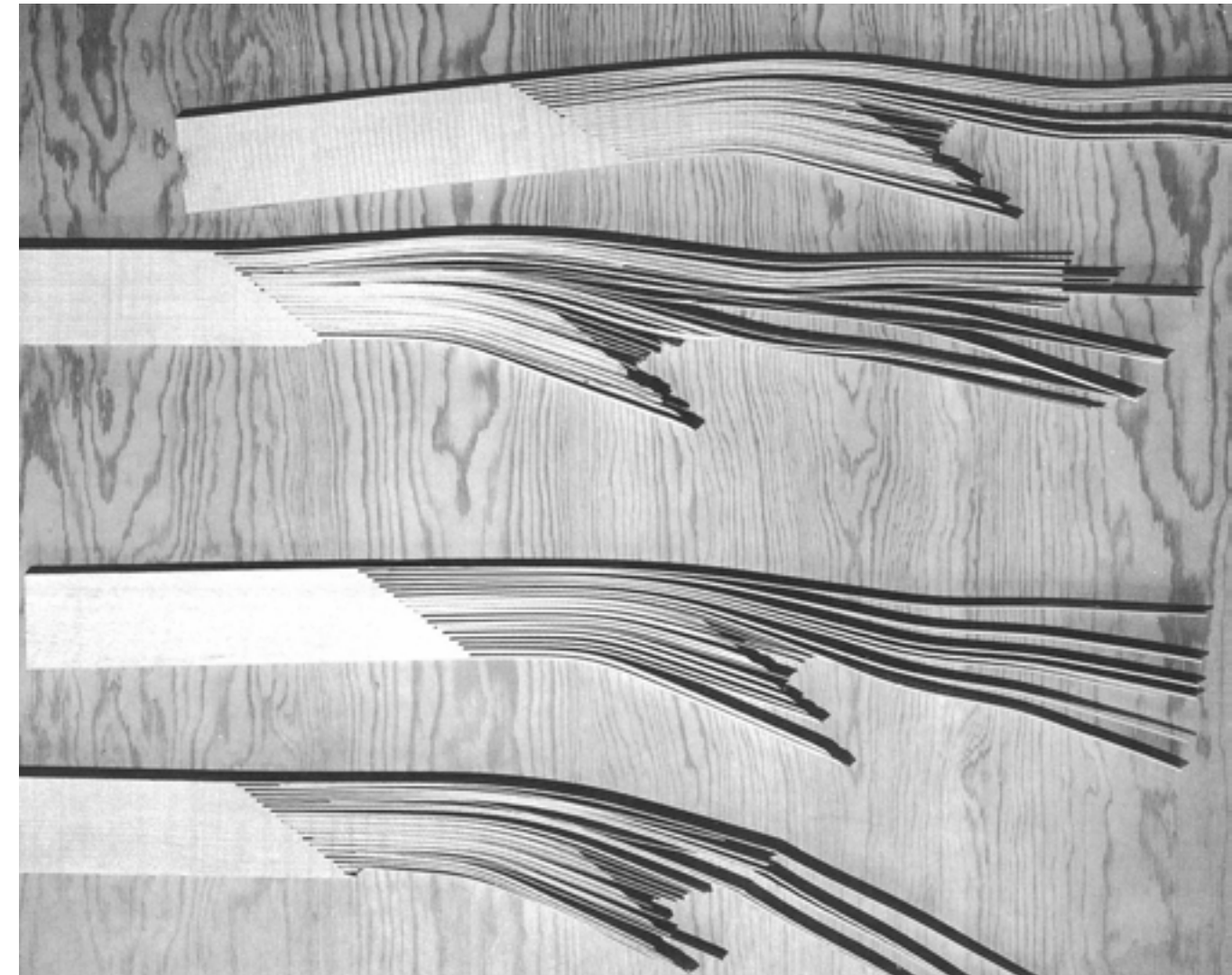
The course of scientific discovery is open-ended and “if we base our technical plans primarily on nature, we have a chance to ensure that the course of development is once again in a direction in which our everyday work and all its forms will increase freedom rather and decrease it”Alvar Aalto

Two distinct bars define the curvilinear scheme: the “northern bar” houses building services and support spaces for the labs; and in “southern bar” houses headquarter. The office bar warps to the south away from the support bar creating an interstitial atrium space that serves as a gathering space and circulation spine at the building center. The Curved Bar scheme is based on a rational module of 3.3M x 3.3M. The compositional layering of program creates dynamic spaces where constituent program elements are enhanced with double height spaces housed at either end of the lab and headquarters bar. The curved scheme enhances and differentiates the headquarters portion of the bar from the more rectilinear lab bar by creating a provocative composition that addresses specific site, solar, circulation and functional requirements.

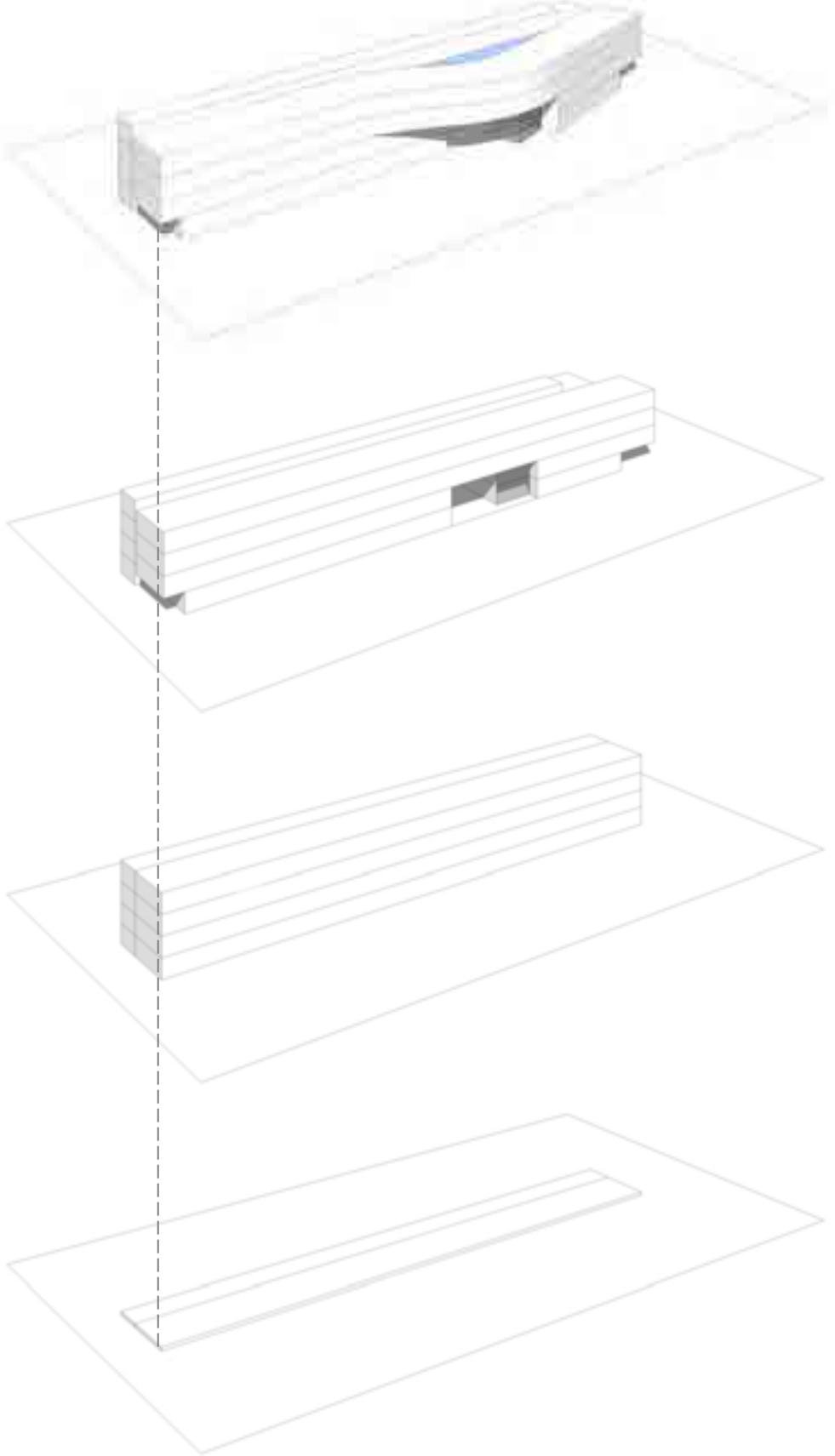
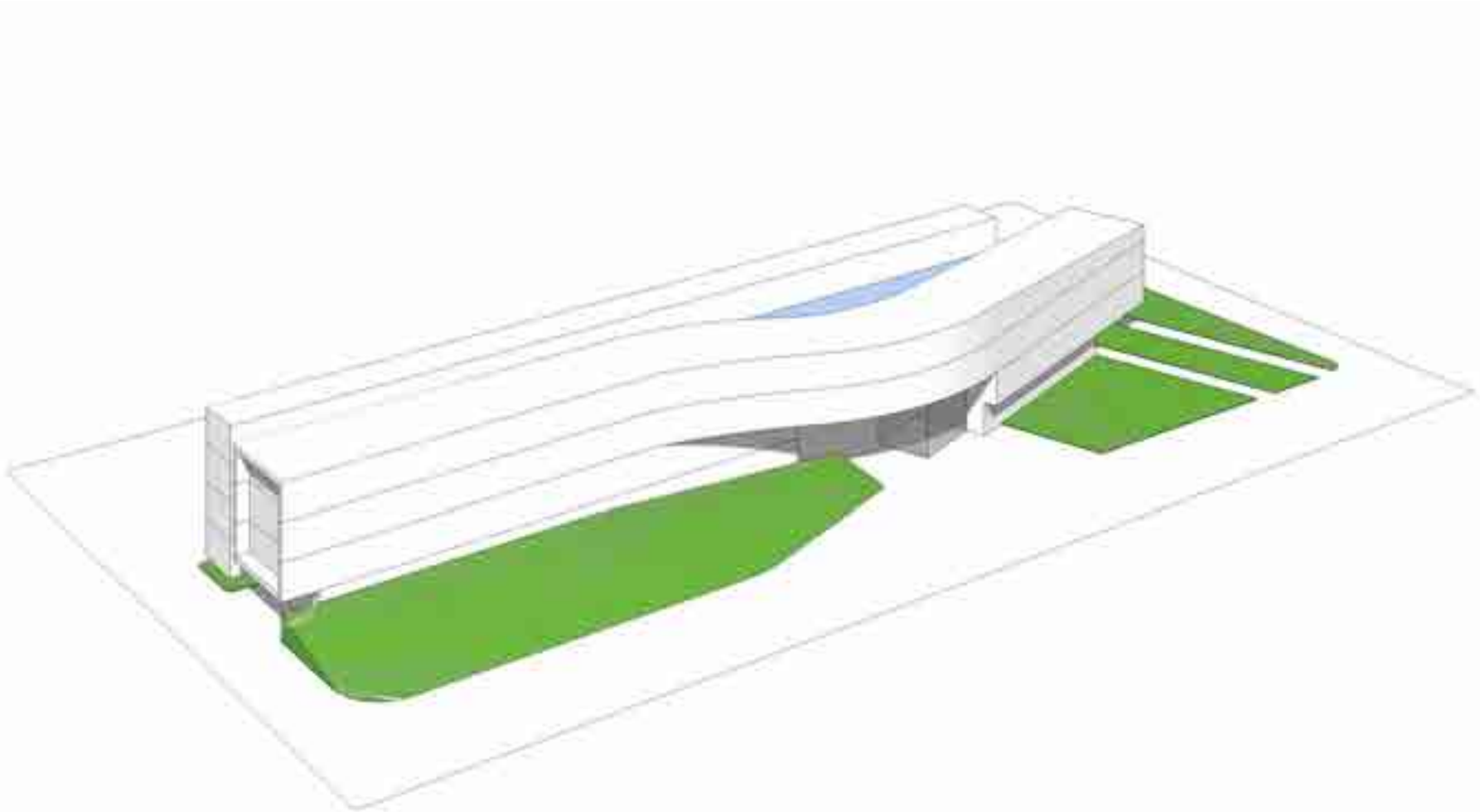
In an analogy to scientific discovery, this bending and cantilevering of the bars creates gardens, overhangs and an unexpected provocative irregularity in a building composed of primarily rectilinear spaces. A pattern of vertical windows, metal panels and projecting mullions reinforce each floor level. Color is introduced into the

exterior skin by metal and translucent glass panels, and projecting vertical fin walls. The interior features would be accentuated by lighting and a dramatic inner glow of program amenities at night.

The Curved Bar scheme consists of three levels of building program. Laboratory spaces are at the west end of the plan and all amenities and administrative spaces located at the east end. Dramatic entry to the building is under the curved bar and into an energetic and socially active multi-level atrium space.



OPTION 4 CURVED BAR



OPTION 4 CURVED BAR
PRECEDENTS



OPTION 4 CURVED BAR
PRECEDENTS



OPTION 4 CURVED BAR
PRECEDENTS



LABORATORIES EXISTING CONDITIONS
PRECEDENTS



LABORATORIES
PRECEDENTS



CLARK CENTER



CORIXA

LABORATORIES
PRECEDENTS

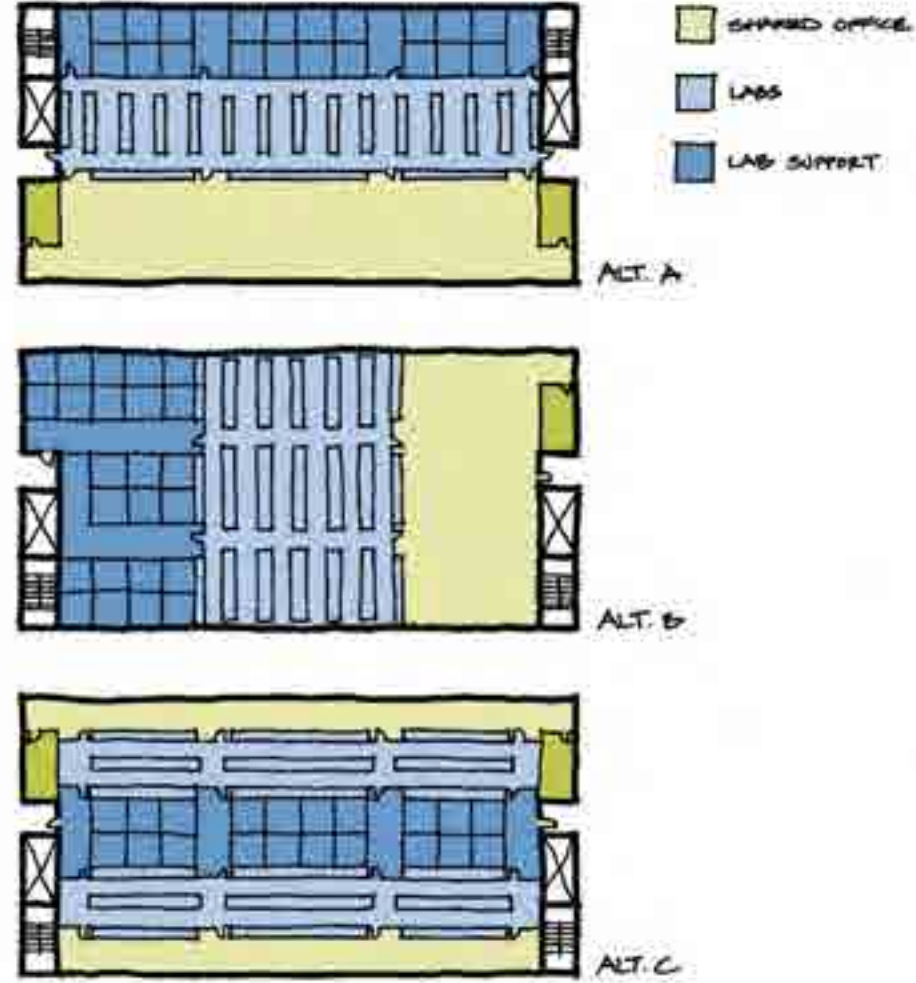
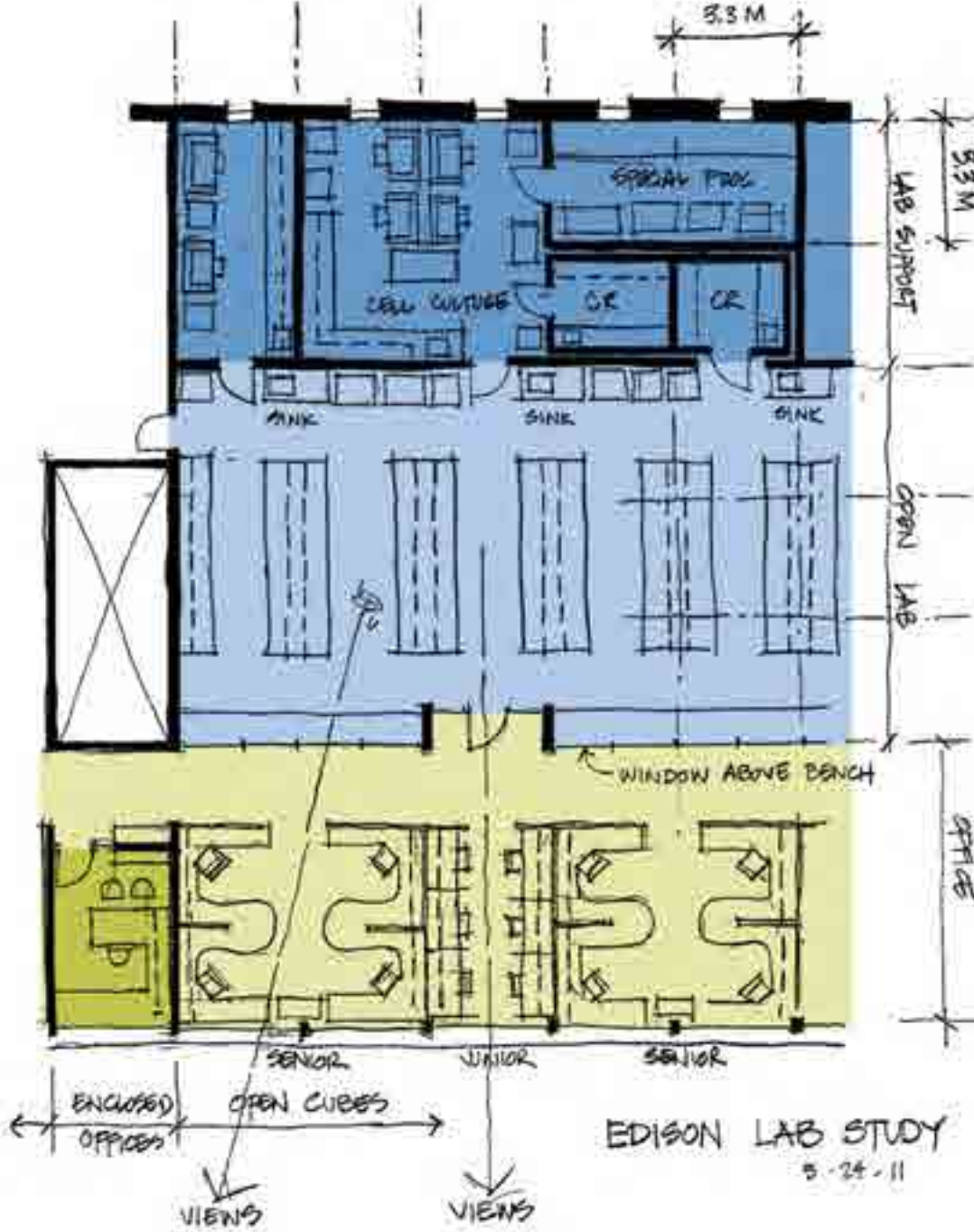


LABORATORIES AMENITY SPACES
PRECEDENTS



LAB DEVELOPMENT

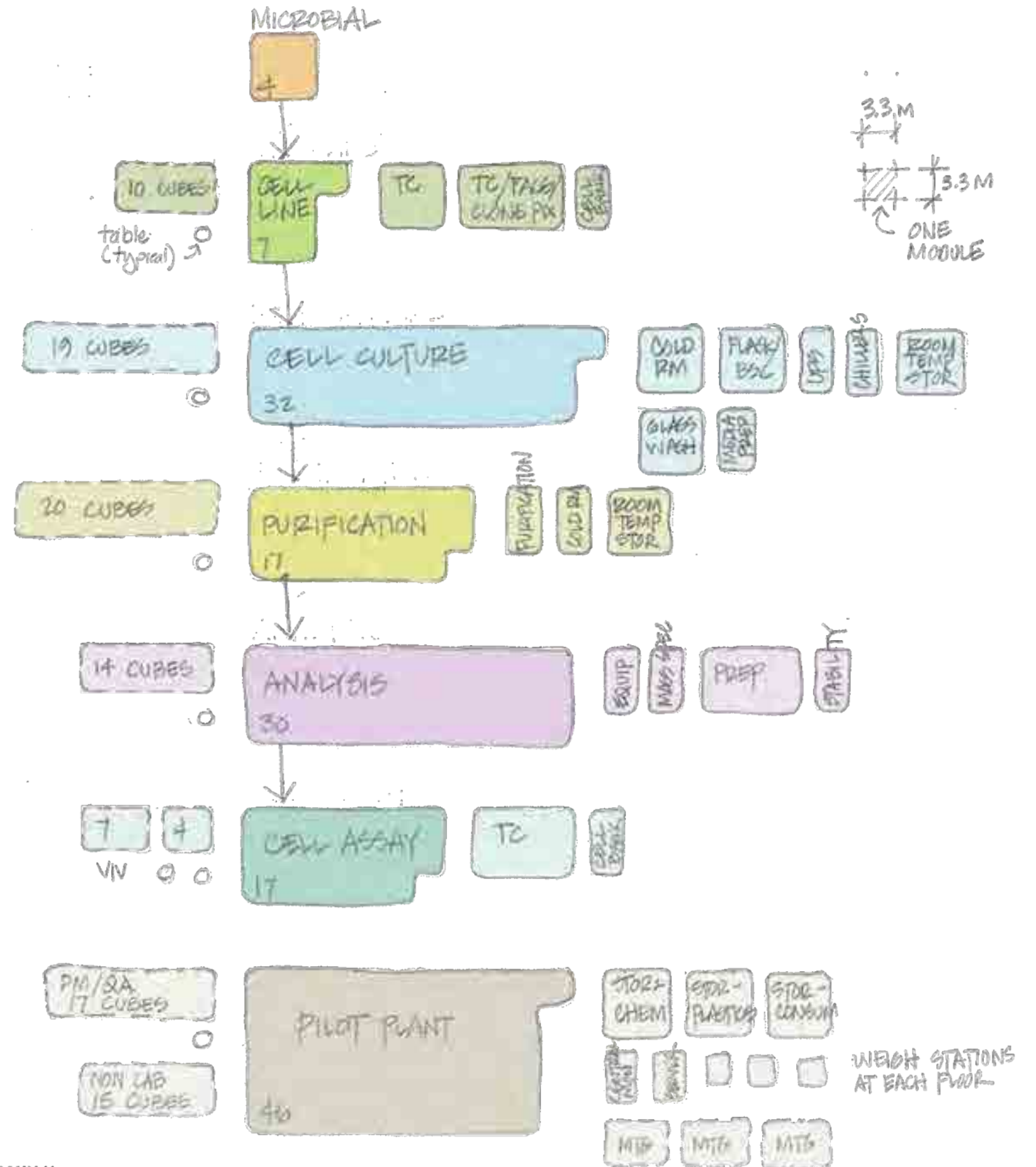
CONCEPTUAL LAB LAYOUT



LAB DEVELOPMENT COMPONENTS

EDISON LABORATORY LAYOUTS

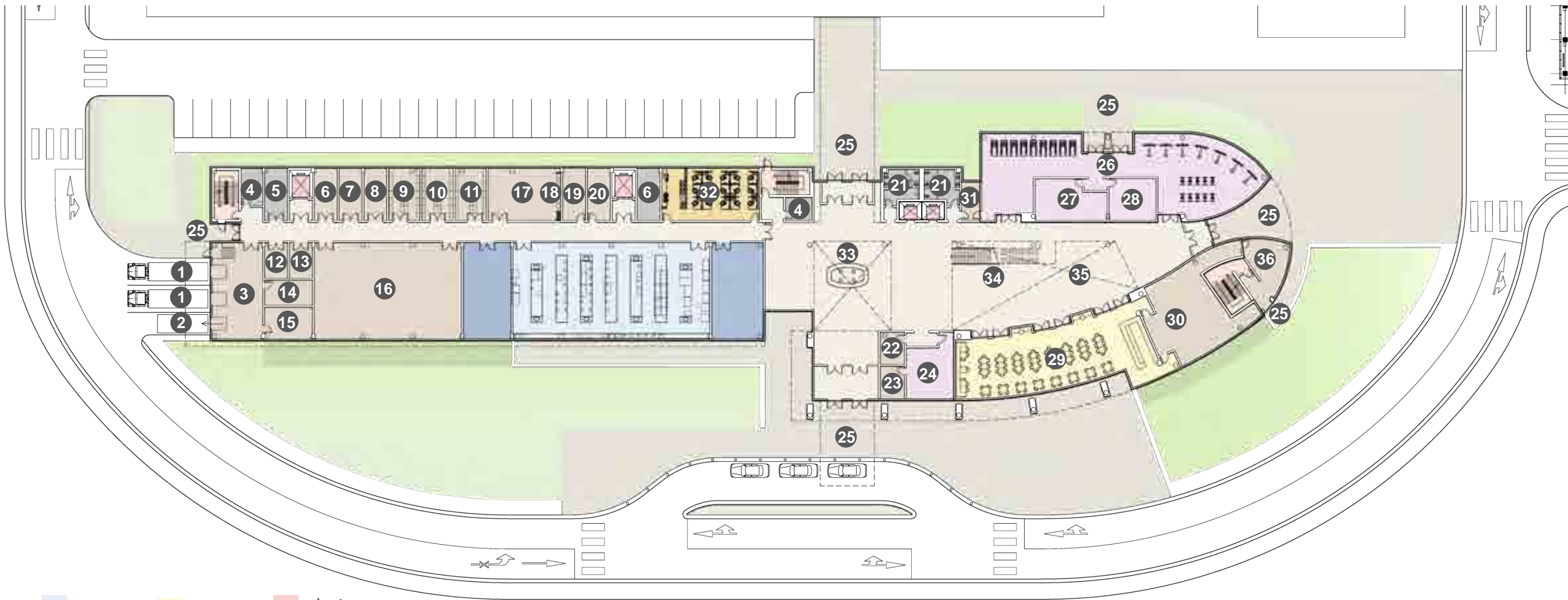
The lab layout diagrams are based on the flow diagrams received on 23 Mar 11. The sizes of the spaces are based on the equipment list provided at the same time, and as modified by input from users received on 13 and 15 Jun 11.



30 MAY 11
 13 JUN 11 REVISED PER 13 JUN 11 EMAIL
 15 JUN 11 REVISED PER 15 JUN 11 EMAIL

OPTION 5 CURVED BAR

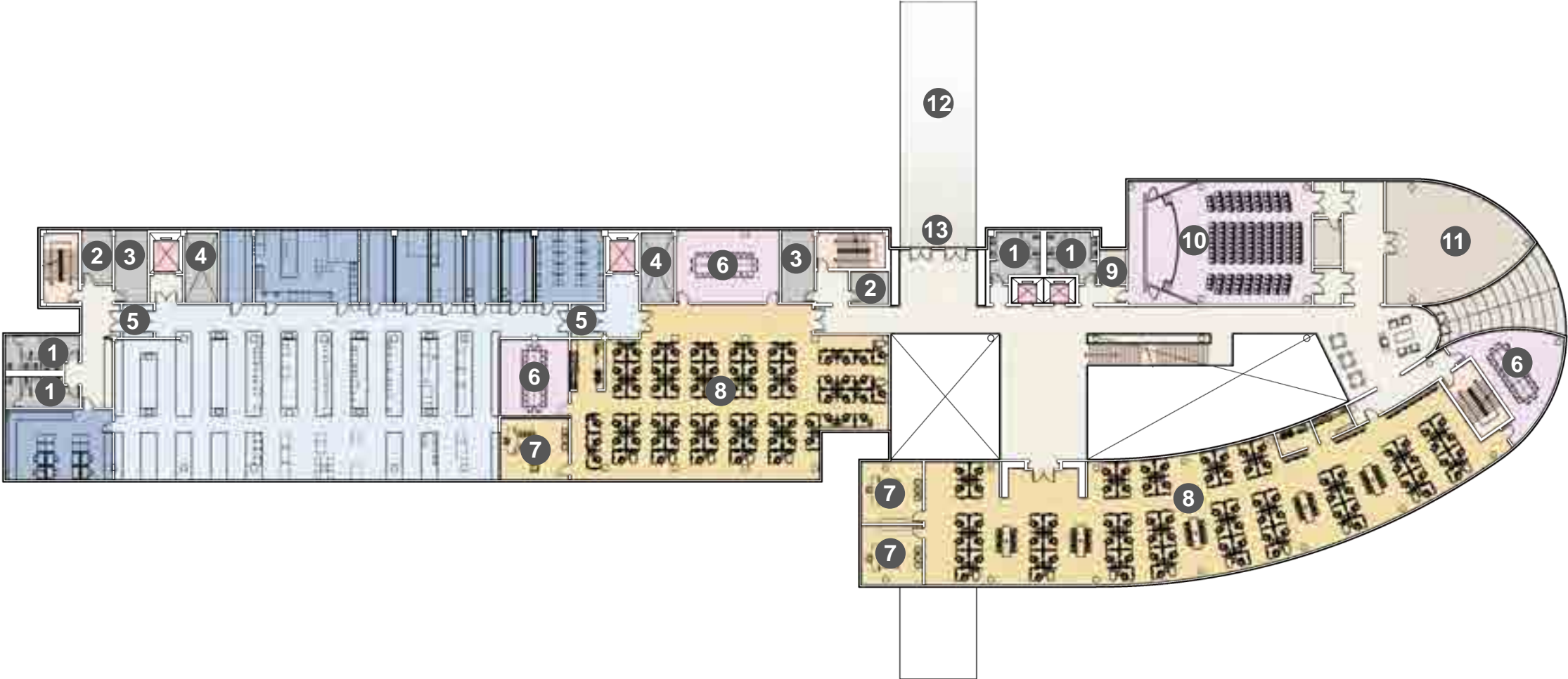
LEVEL 1 - GROUND



- lab
- lab support
- office
- core
- landscape
- (varies)
- (varies)
- support
- circulation
- stair
- elevator

- | | | | | | | | | |
|-------------------------|------------------------------|-------------------------------|-----------------------------|----------------------------|------------------------|--------------------|---------------------|-----------------------------|
| 1 10.7m truck | 5 electrical | 9 storage chemical | 13 flammable liquids | 17 storage | 21 restrooms | 25 entrance | 29 cafeteria | 33 lobby / reception |
| 2 6.7m dumpster | 6 elevator mechanical | 10 storage plastics | 14 dock office | 18 cylinder holding | 22 security | 26 fitness | 30 kitchen | 34 atrium |
| 3 receiving area | 7 biowaste | 11 storage consumables | 15 mail room | 19 central monitor | 23 it / av | 27 shower | 31 janitor | 35 exhibit |
| 4 idf | 8 waste chemical | 12 recycling | 16 plumbing | 20 server | 24 broadcasting | 28 gym | 32 office | 36 wash off garbage |

OPTION 5 CURVED BAR
LEVEL 2

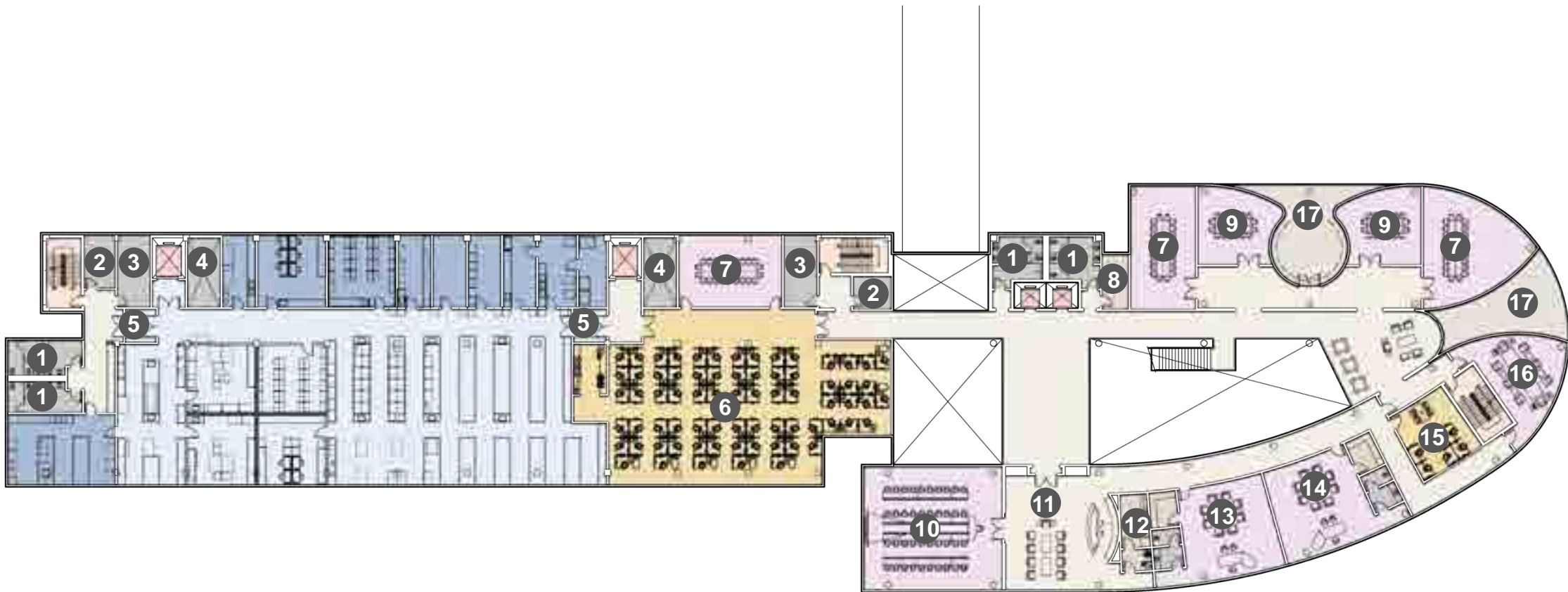


- lab
- lab support
- office
- core
- landscape
- (varies)
- (varies)
- support
- circulation
- stair
- elevator

- 1 restroom
- 2 idf
- 3 electrical
- 4 elevator mechanical
- 5 gowning
- 6 conference room
- 7 office
- 8 work station cubicles
- 9 janitor
- 10 auditorium
- 11 archive
- 12 pedestrian bridge to manufacturing
- 13 main entrance second level



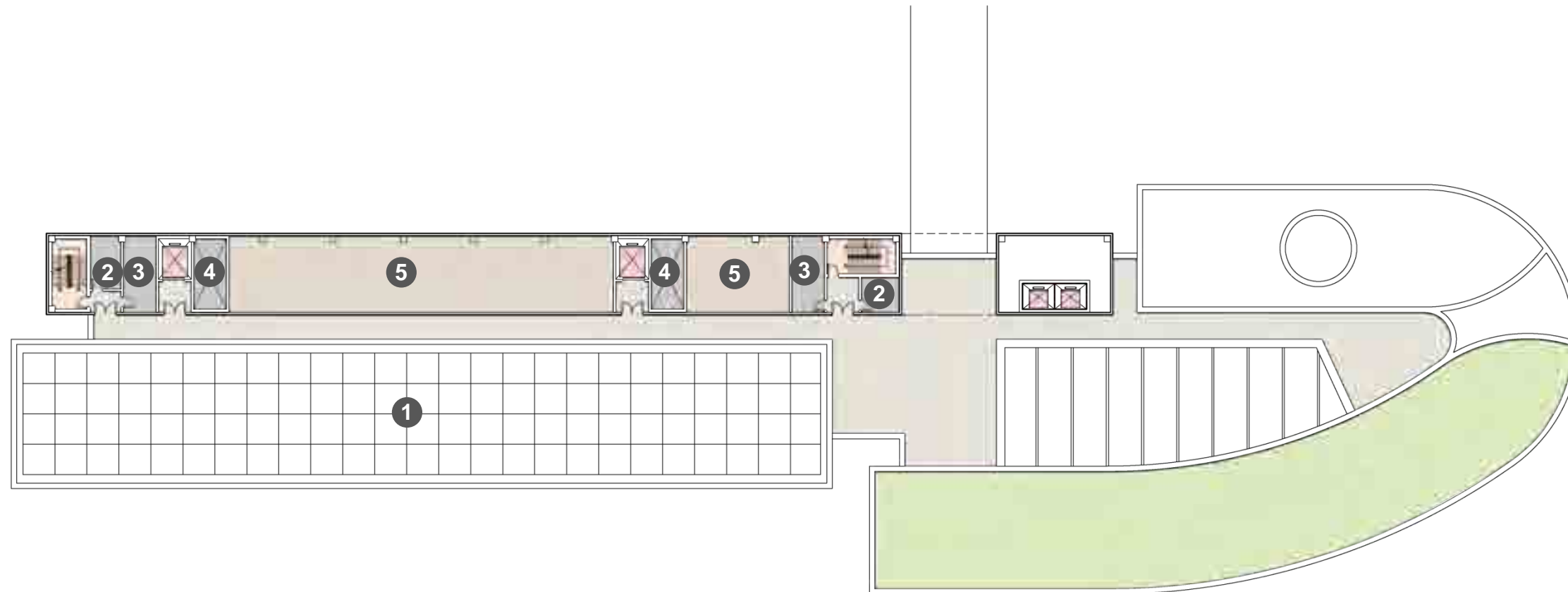
OPTION 5 CURVED BAR
LEVEL 3



- | | | | | | | | |
|-------------|-------------|----------|---------------------|-----------------------|------------------------|---------------------|-----------------|
| lab | (varies) | elevator | restroom | gowning | small conference rooms | CEO room | outdoor balcony |
| lab support | (varies) | | idf | work station cubicles | board room | VIP room | |
| office | support | | electrical | conference rooms | reception | office | |
| core | circulation | | elevator mechanical | janitor | kitchen | CEO conference room | |
| landscape | stair | | | | | | |

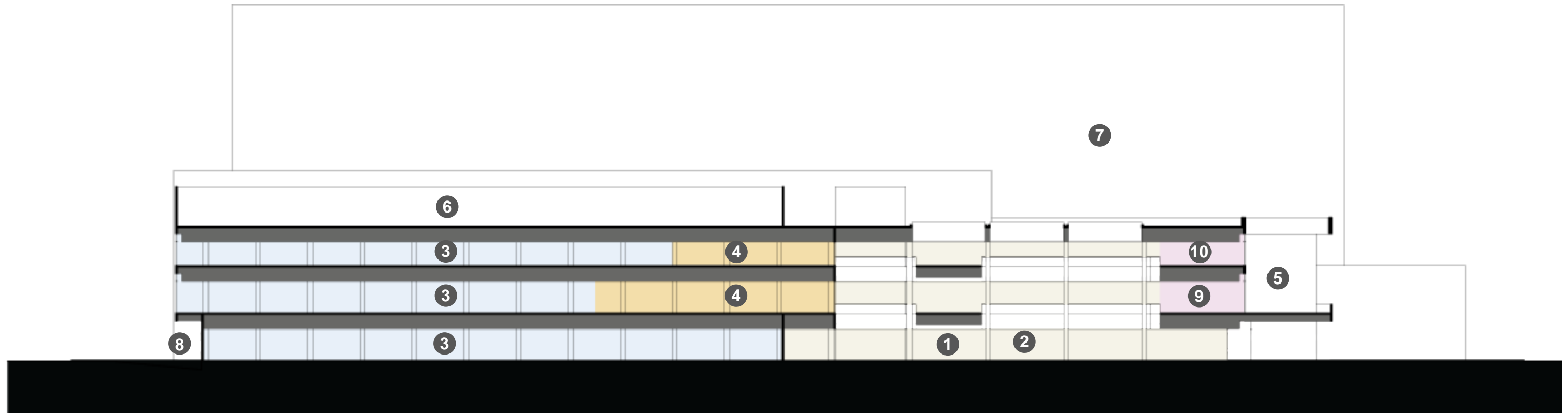


OPTION 5 CURVED BAR
LEVEL 4



- | | | | | |
|-------------|-------------|----------|----------------------------|--------------|
| lab | (varies) | elevator | 1 roof top mechanical area | 5 mechanical |
| lab support | (varies) | | 2 idf | |
| office | support | | 3 electrical | |
| core | circulation | | 4 elevator mechanical | |
| landscape | stair | | | |

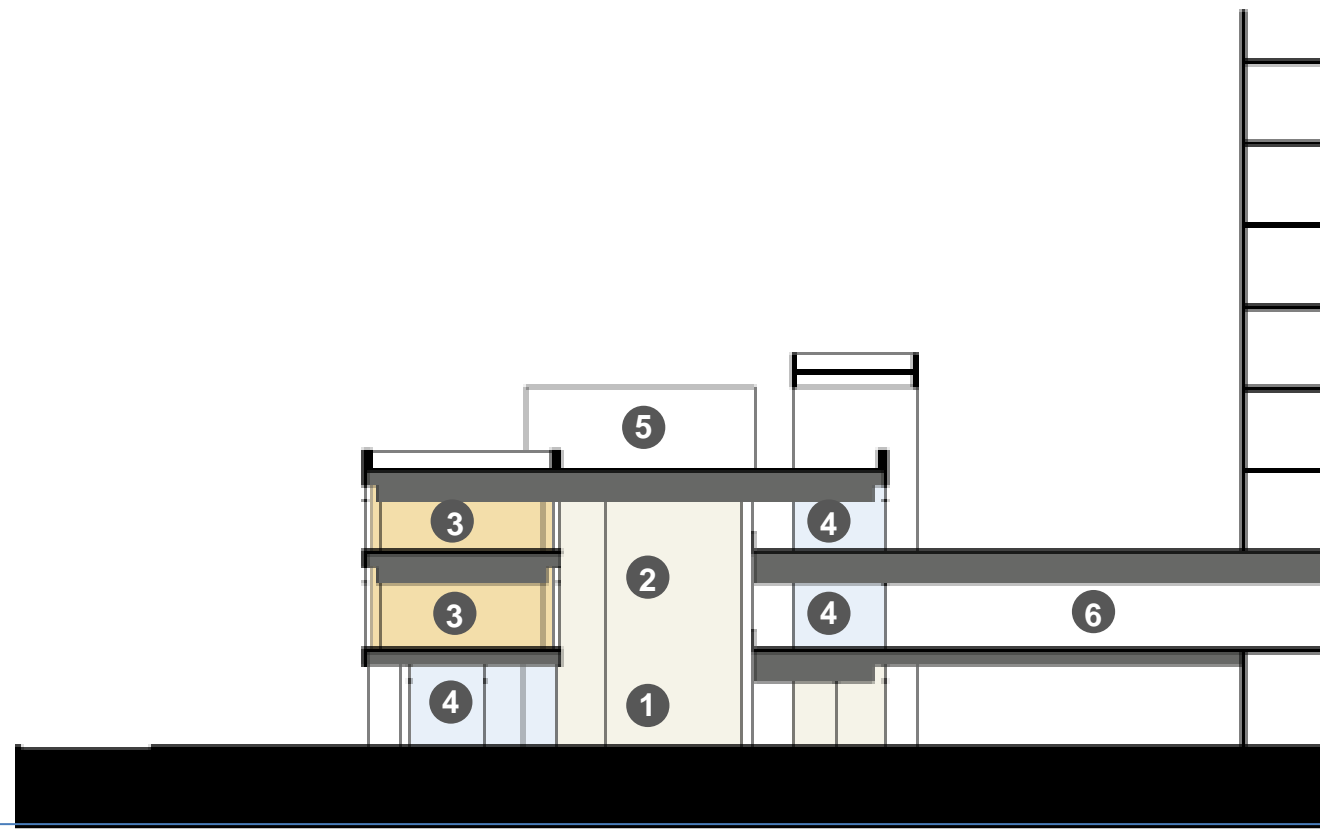
OPTION 5 CURVED BAR SECTION 1



- | | | | | | |
|--|--|---|--|------------------------------|-------------------------|
| lab | (varies) | elevator | 1 lobby/reception | 5 exterior terrace | 9 auditorium |
| lab support | (varies) | | 2 atrium | 6 roof top mechanical | 10 lecture halls |
| office | support | | 3 labs | 7 beyond | |
| core | circulation | | 4 work station cubicles and offices | 8 truck dock | |
| landscape | stair | | | | |

OPTION 5 CURVED BAR

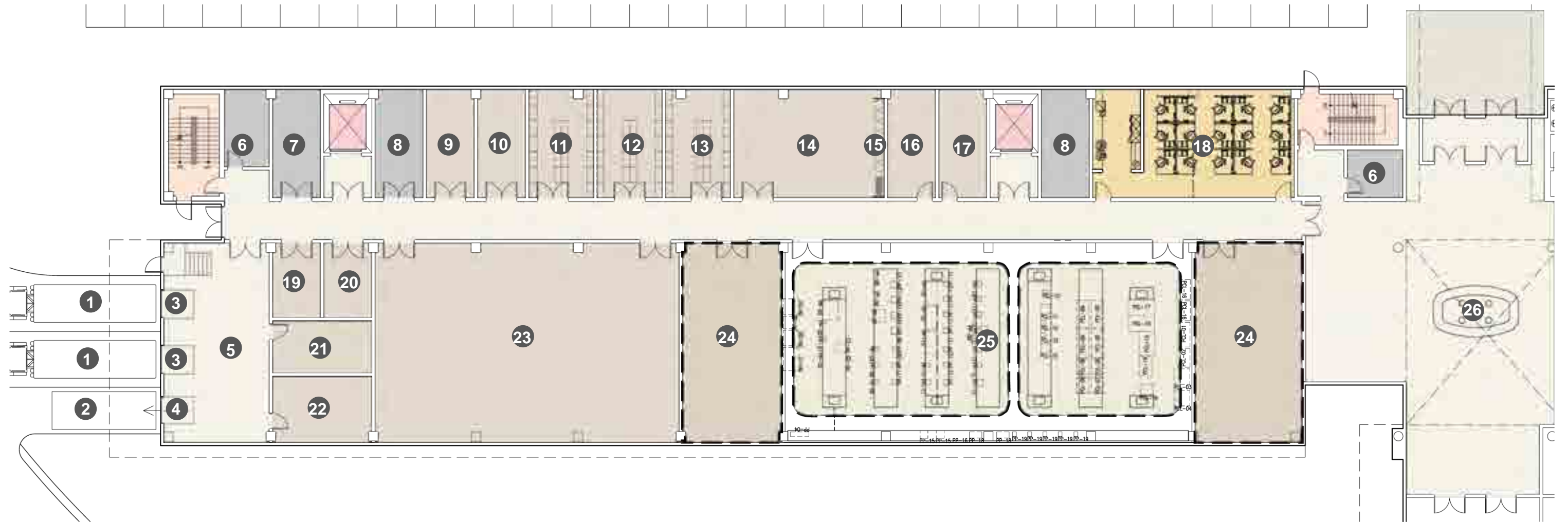
SECTION 2



- | | | | | |
|-------------|-------------|----------|-----------------|-------------------------|
| lab | (varies) | elevator | lobby/reception | roof top mechanical |
| lab support | (varies) | | atrium | bridge to manufacturing |
| office | support | | office | |
| core | circulation | | labs | |
| landscape | stair | | | |

OPTION 5 CURVED BAR

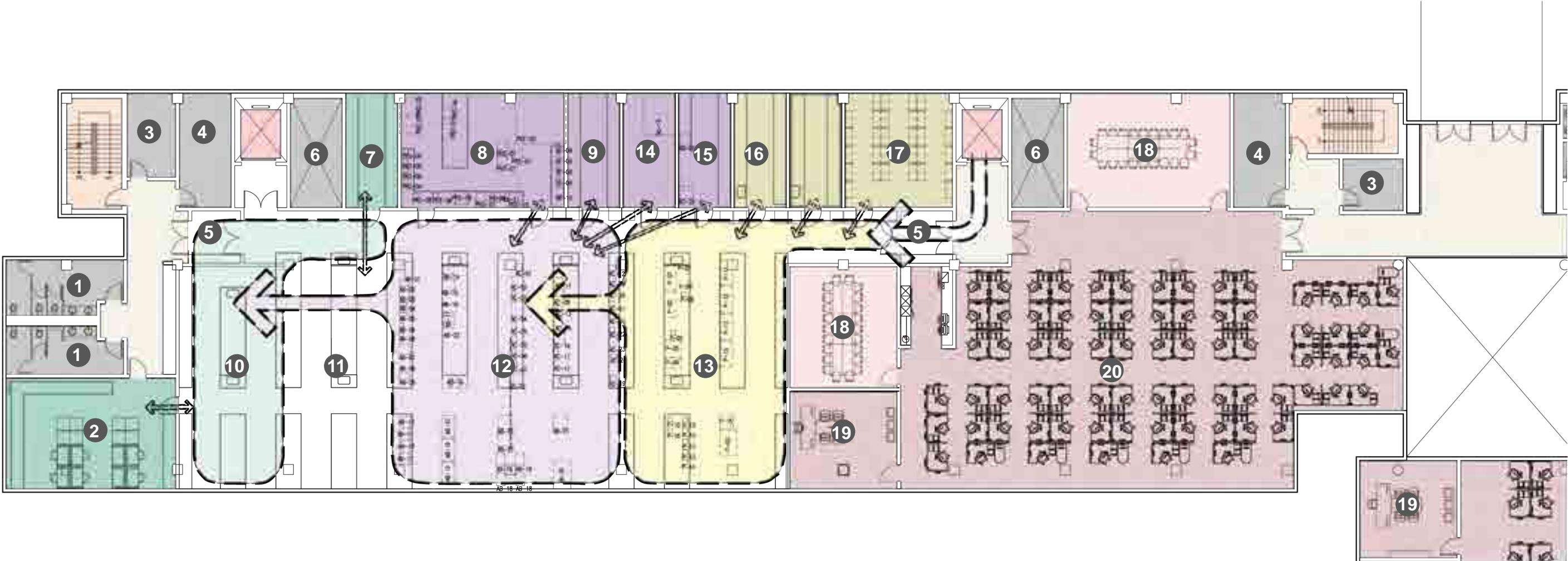
LEVEL 1 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | | | |
|----------------|------------------|------------------------|------------------------------|-----------------------------|-------------------------------|-----------------------------|-----------------------|-----------------------|
| pilot plant | research support | 1 10.7m truck | 5 receiving area | 9 biowaste | 13 storage consumables | 17 server | 21 dock office | 25 pilot plant |
| stairs | elevator | 2 6.7m dumpster | 6 idf | 10 waste chemical | 14 storage | 18 office | 22 mail room | 26 reception |
| non lab spaces | circulation | 3 dock leveler | 7 electrical | 11 storage chemicals | 15 cylinder holding | 19 recycling | 23 plumbing | |
| | | 4 compactor | 8 elevator mechanical | 12 storage plastics | 16 central monitor | 20 flammable liquids | 24 lab supply | |

OPTION 5 CURVED BAR

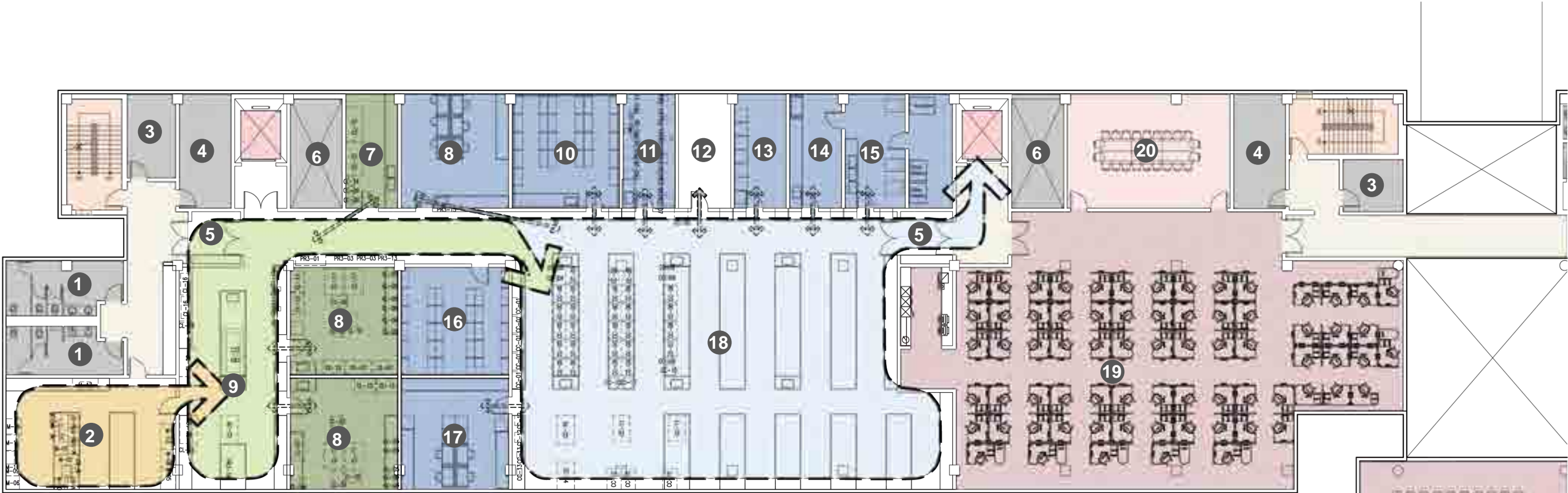
LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



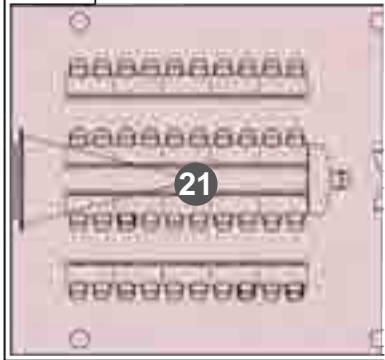
- | | | | | | |
|---|---|--|---|---|---|
| cell assay | cell assay support | 1 restroom | 7 cell bank | 11 expansion open lab space | 16 purification |
| analysis | analysis support | 2 tissue culture | 6 elevator mechanical | 12 analysis | 17 room temperature storage |
| purification | purification support | 3 idf | 8 preparation | 13 purification open lab | 18 conference rooms |
| stairs | elevator | 4 electrical | 9 stability | 14 mass spec, structural analysis | 19 office |
| non lab spaces | meeting space | 5 gowning | 10 cell assay | 15 equipment | 20 work station cubicles |
| | circulation | | | | |

OPTION 5 CURVED BAR

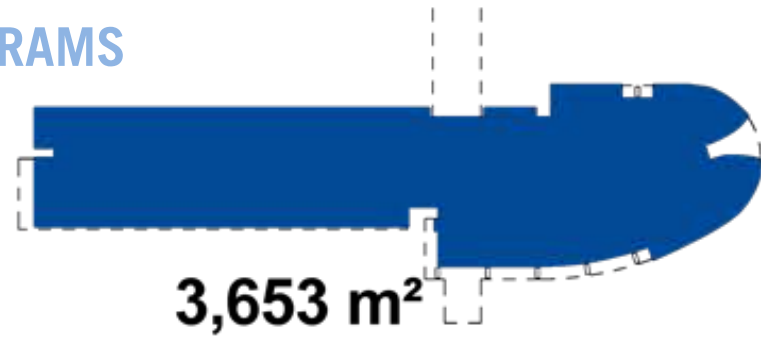
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



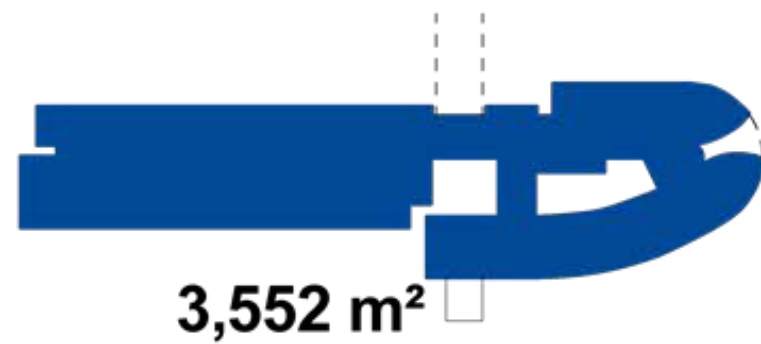
- | | | | | | | |
|---|---|--|---|---|---|---|
| cell line | cell line support | 1 restrooms | 6 elevator mechanical | 11 expansion | 16 room temperature storage | 16 board room |
| cell culture | cell culture support | 2 microbial | 7 cell bank | 12 USC | 17 flask / BSC | |
| pilot plant | microbial | 3 idf | 8 tissue culture | 13 chillers | 18 cell culture | |
| stairs | elevator | 4 electrical | 9 cell line | 14 media prep | 19 work station cubicles | |
| non lab spaces | meeting space | 5 gowning | 10 cold room | 15 glass wash | 20 conference room | |
| | circulation | | | | | |



OPTION 5 CURVED BAR
GROSS AREA DIAGRAMS



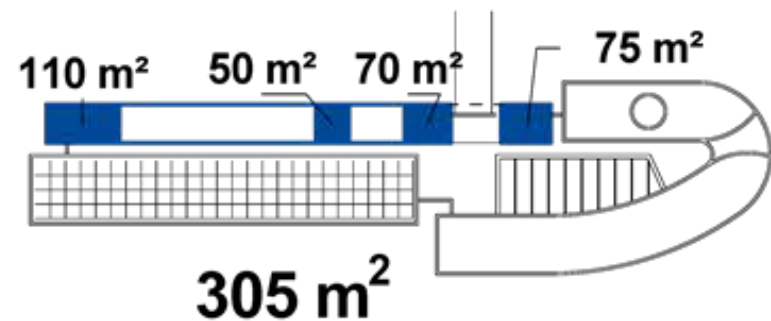
Level 1
1: 1500



Level 2
1: 1500



Level 3
1: 1500



Level 4
1: 1500

10,987 m²
Curved Bar Scheme Total Gross Area

OPTION 5 CURVED BAR EQUIPMENT LIST

MICROBIAL LEVEL 2

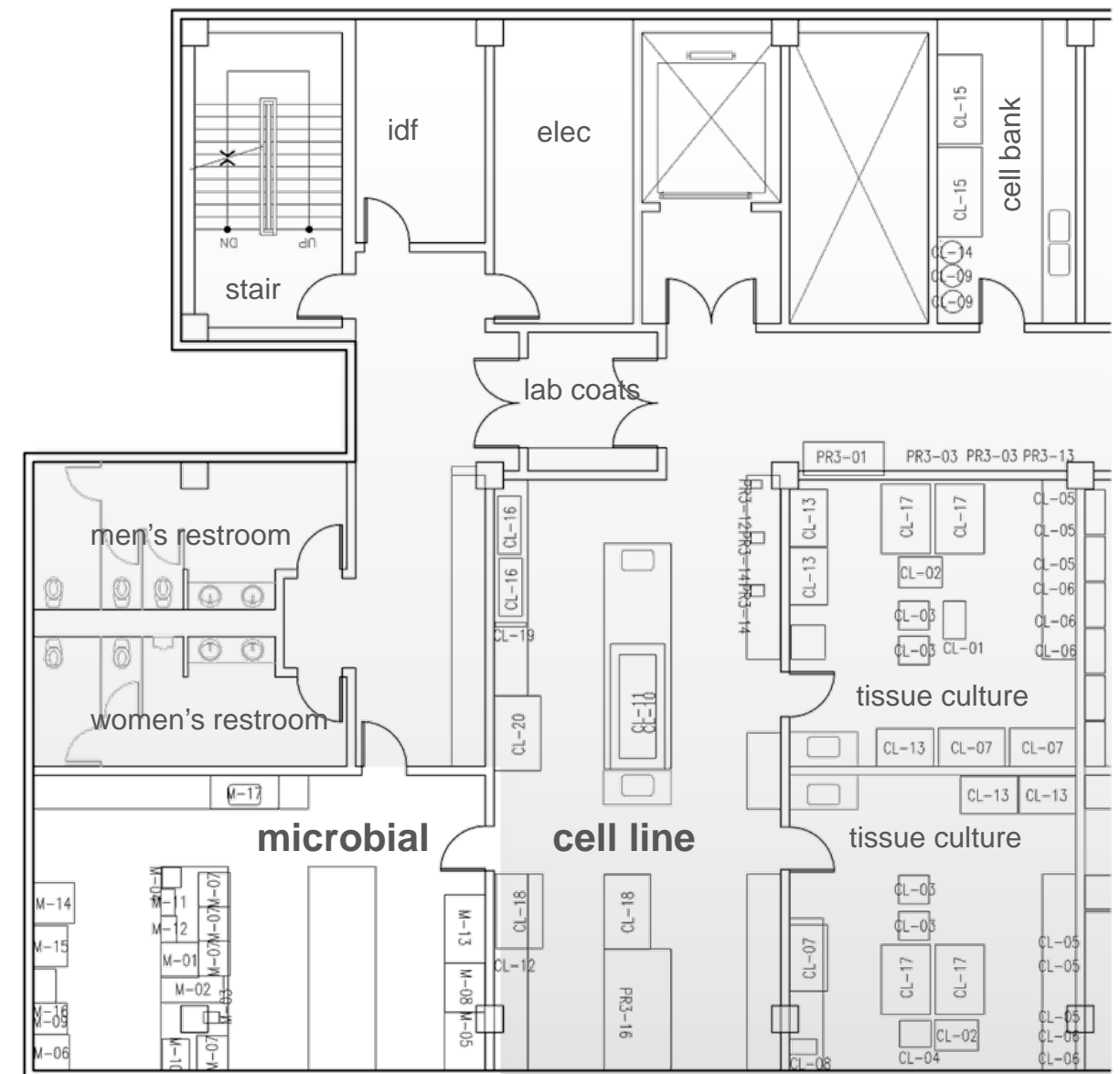
NO	LOC	EQUIPMENT NAME	QTY
M-01	B	FORCED CONVECTION OVEN	1
M-02	B	IMAGING SYSTEM	1
M-03	B	GENE PULSER II APPARATUS	1
M-04	B	HYBRIDIZATION OVEN	1
M-05	F	CLEAN BENCH	1
M-06	F	HIGH SPEED CENTRIFUGE	1
M-07	B	PCR SYSTEM	4
M-08	F	SHAKER	1
M-09	F	37C INCUBATOR	1
M-10	B	CENTRIFUGE	1
M-11	B	CENTRIFUGE	1
M-12	B	WATER BATH	1
M-13	F	REFRIGERATOR FOR REAGENT	1
M-14	F	REFRIGERATOR FOR REAGENT (-20)	1
M-15	F	REFRIGERATOR FOR REAGENT (-70)	1
M-16	F	STORAGE CABINET 개수대	1
M-17	F	SINK	1

Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT



Equipment Location (LOC) Legend

B: Open Lab Bench

BLS: Bench Lab Support

F: Open Lab Floor

FLS: Floor Lab Support

OPTION 5 CURVED BAR EQUIPMENT LIST

CELL LINE LEVEL 2

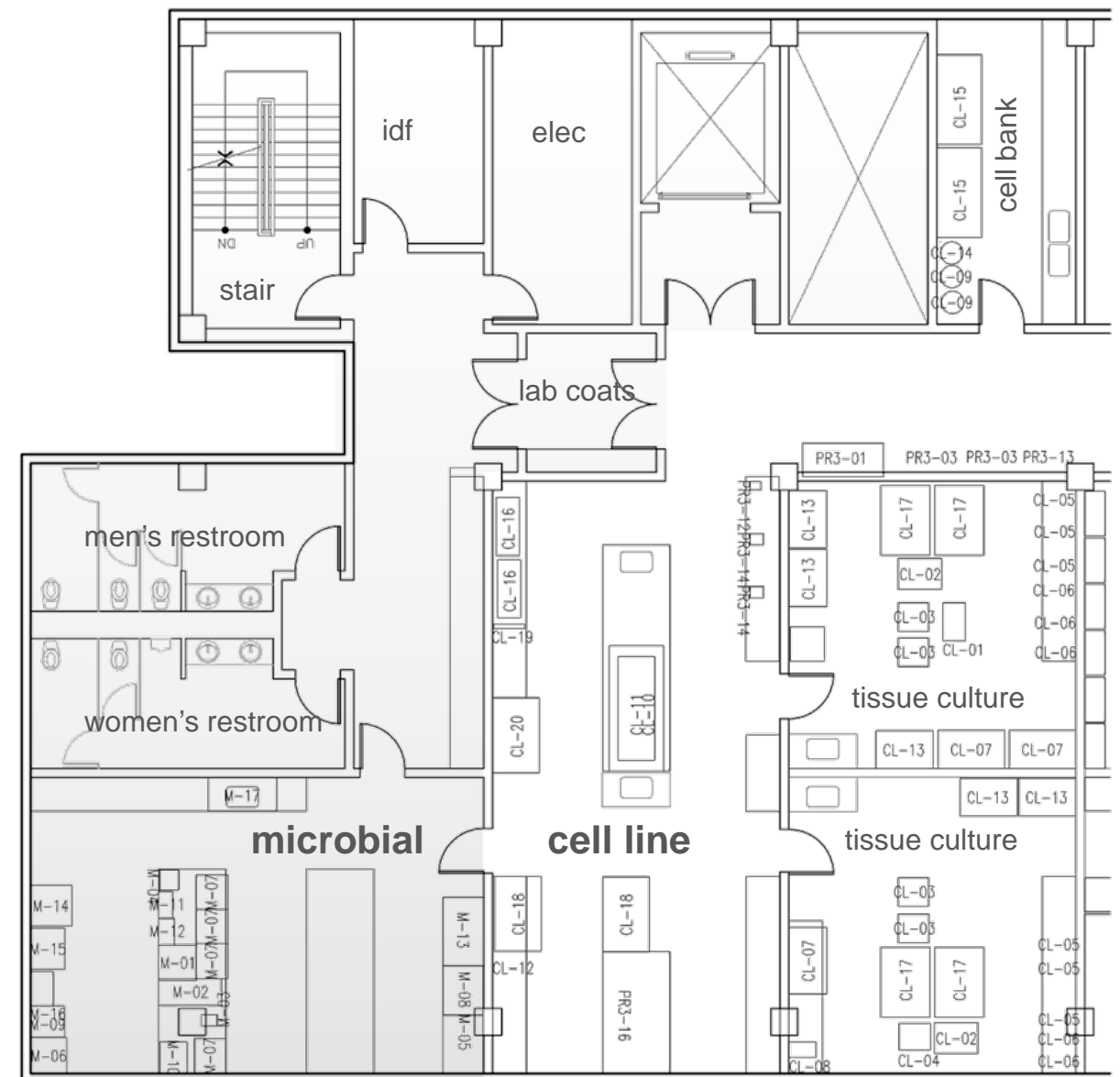
NO	LOC	EQUIPMENT NAME	QTY
CL-01	BLS	INVERTED MICROSCOPE SYS.	1
CL-02	BLS	C02 INCUBATOR (#3951)	2
CL-03	BLS	C02 INCUBATOR (FORMA STERI CYCLES)	4
CL-04	BLS	CENTRIFUGE	1
CL-05	BLS	ORBITAL SHAKER UNIMAX 2010	6
CL-06	BLS	ORBITAL SHAKER UNIMAX 1010	5
CL-07	BLS	SHAKING INCUBATOR	3
CL-08	BLS	WATER BATH MODEL 285	1
CL-09	FLS	LN2 TANK	2
CL-10	B	FACS (BD)	1
CL-11	B	CLEAN BENCH FOR FACS	1
CL-12	B	CLONEPIX FL	1
CL-13	FLS	SHAKING INCUBATOR (SMX 1503)	6
CL-14	FLS	LN2 TANK	1
CL-15	FLS	LN2 TANK (LARGE)	2
CL-16	B	COUNTLESS AUTOMATED CELL COUNTER	2
CL-17	F	BIOLOGICAL SAFETY CABINET	4
CL-18	F	REFRIGERATOR (DONG-A)	2
CL-19	BLS	CLONE SELECT IMAGER	1
CL-20	F	FREEZER	1

Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT



Equipment Location (LOC) Legend

B: Open Lab Bench

BLS: Bench Lab Support

F: Open Lab Floor

FLS: Floor Lab Support

OPTION 5 CURVED BAR EQUIPMENT LIST

CELL CULTURE LEVEL 2

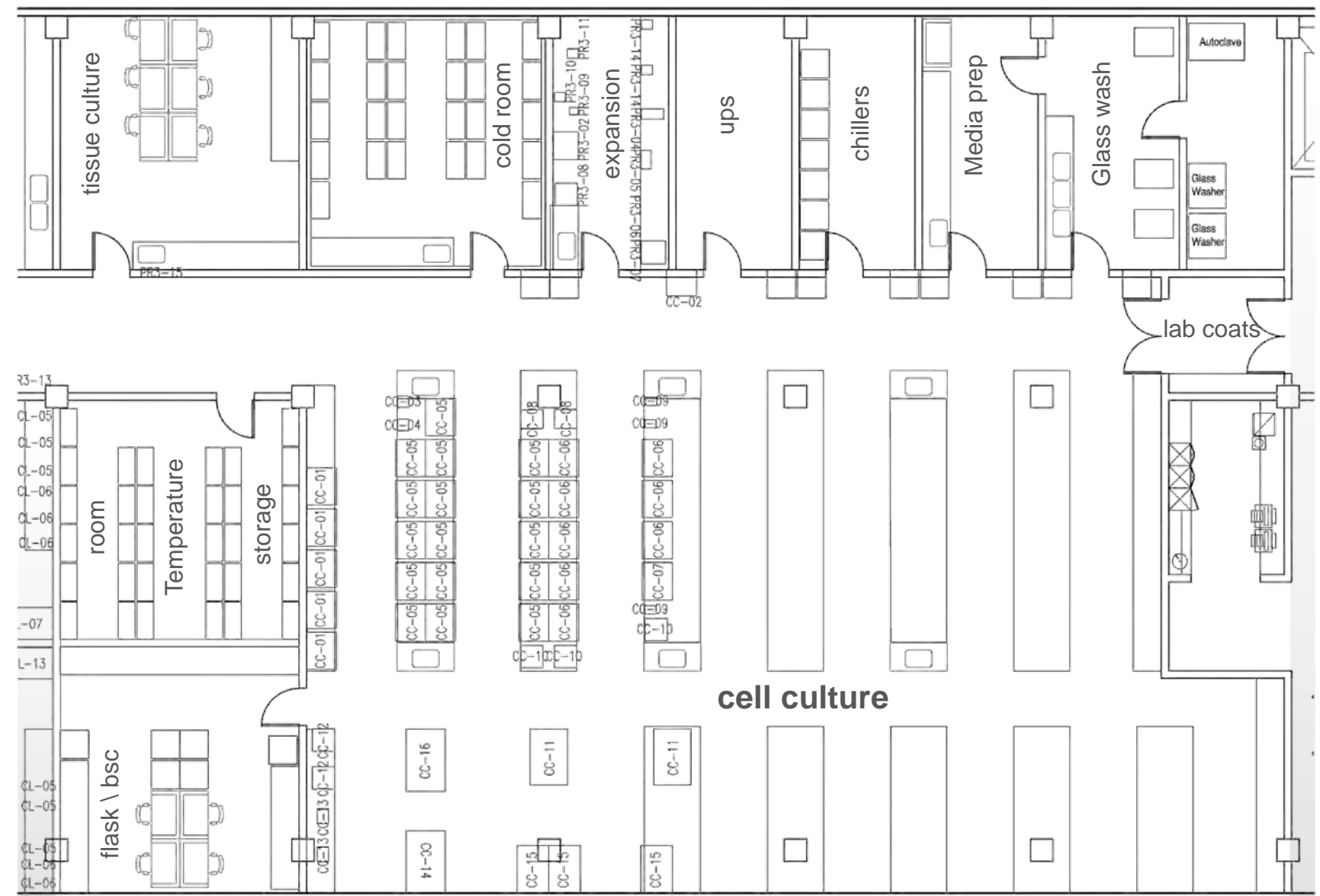
NO	LOC	EQUIPMENT NAME	QTY
CC-01	B	BIOREACTOR (1L)	5
CC-02	F	CENTRIFUGE	1
CC-03	B	PERISTALTIC PUMP	1
CC-04	B	OSMOMETER	1
CC-05	B	BIOREACTOR (2L)	16
CC-06	B	BIOREACTOR (5L)	8
CC-07	B	BIOREACTOR (10L)	1
CC-08	F	AUTOCLAVE	2
CC-09	B	WELDER	3
CC-10	B	METABOLITE ANALYZER	3
CC-11	F	BIOLOGICAL SAFETY CABINET	2
CC-12	B	CELL COUNTER	2
CC-13	B	PH METER/ COND.	2
CC-14	F	DEEFPREEZER	1
CC-15	F	SHAKING INCUBATOR (SMX 1503)	3
CC-16	F	FREEZER	1

Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT



Equipment Location (LOC) Legend

B: Open Lab Bench

BLS: Bench Lab Support

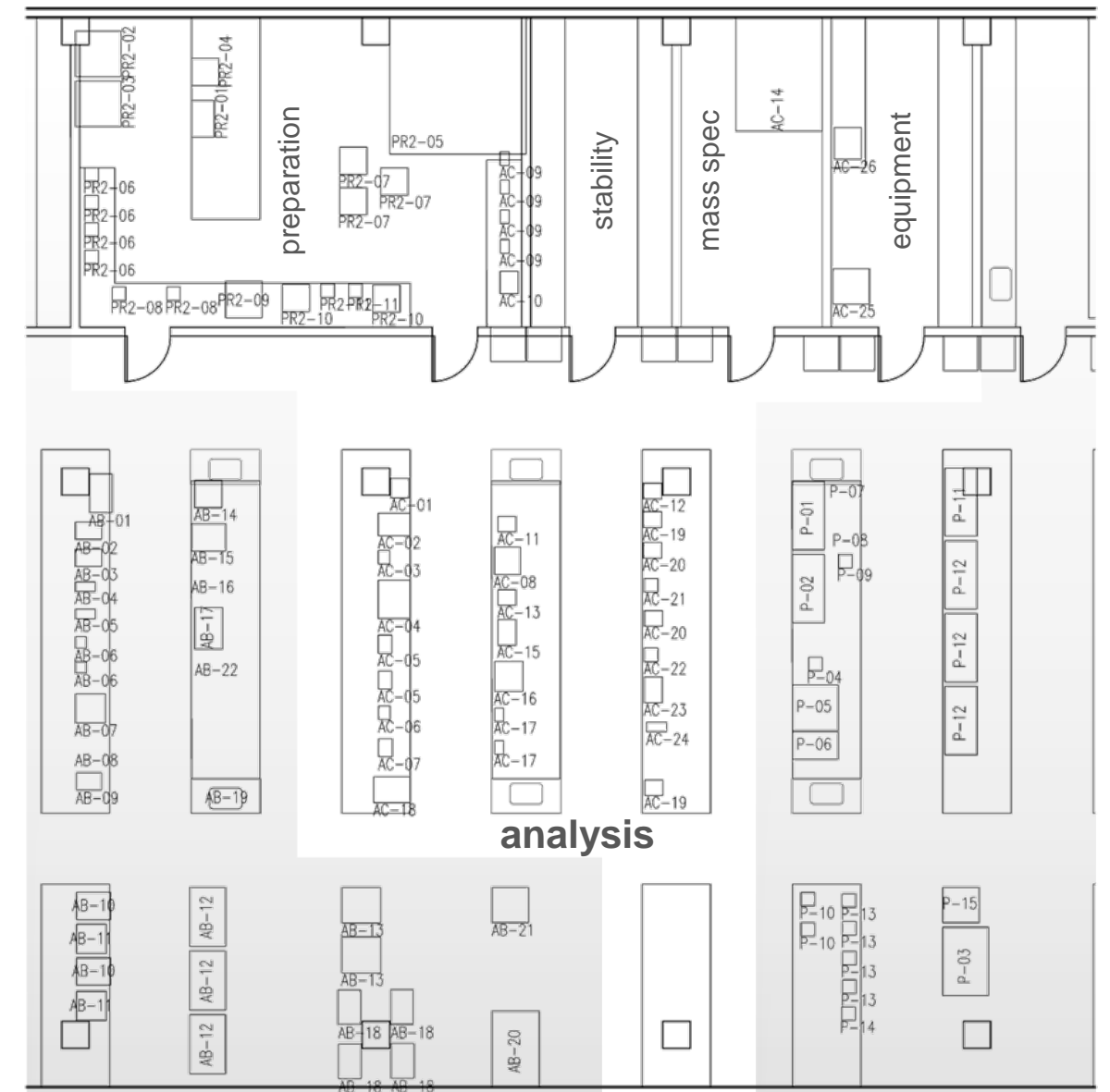
F: Open Lab Floor

FLS: Floor Lab Support

OPTION 5 CURVED BAR EQUIPMENT LIST

ANALYSIS - CHEM LEVEL 2

NO	LOC	EQUIPMENT NAME	QTY	NO	LOC	EQUIPMENT NAME	QTY
AC-001	B	HPLC	1	AC-034	B	LAL ELISA ELS 808	1
AC-002	B	IEF SYSTEM	1	AC-024	B	AUTOMATIC WASHER	1
AC-003	B	AGILENT BIOANALYZER	1	AC-025	BLS	FREEZER (EQUIPMENT)	1
AC-004	B	AMINO ACID ANALYZER	1	AC-026	BLS	INCUBATOR (EQUIPMENT)	1
AC-005	B	CENTRIFUGE	2				
AC-006	B	ENDOSAFE PTS	1				
AC-007	BLS	MICROCENTRIFUGE (REFRIGERATION) (EQUIP)	1				
AC-008	B	CAPILLARY ELECTROPHORESIS	1				
AC-009	BLS	THERMOMIXER (PREPARATION)	4				
AC-010	BLS	LABEL PRINTER (PREPARATION)	1				
AC-011	B	HPLC-UV	1				
AC-012	B	HPLC-FL	1				
AC-013	B	BLACORE	1				
AC-014	BLS	LC MS/ MS-SYNAPT G2Q – TOF (MS) (UPLC)	1				
AC-015	BLS	NANOACQUITY UPLC (MS)	1				
AC-016	BLS	SPEEDVAC (PREPARATION)	1				
AC-017	B	POWER SUPPLY	2				
AC-018	B	UPLC-FL	1				
AC-019	B	HPLC	2				
AC-020	B	HPLC	2				
AC-021	B	UF SYSTEM (SMALL SCALE)	1				
AC-022	B	PROTEIN IEF SYSTEM (HORIZONTAL)	1				



Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT

Equipment Location (LOC) Legend

B: Open Lab Bench

BLS: Bench Lab Support

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FLS: Floor Lab Support

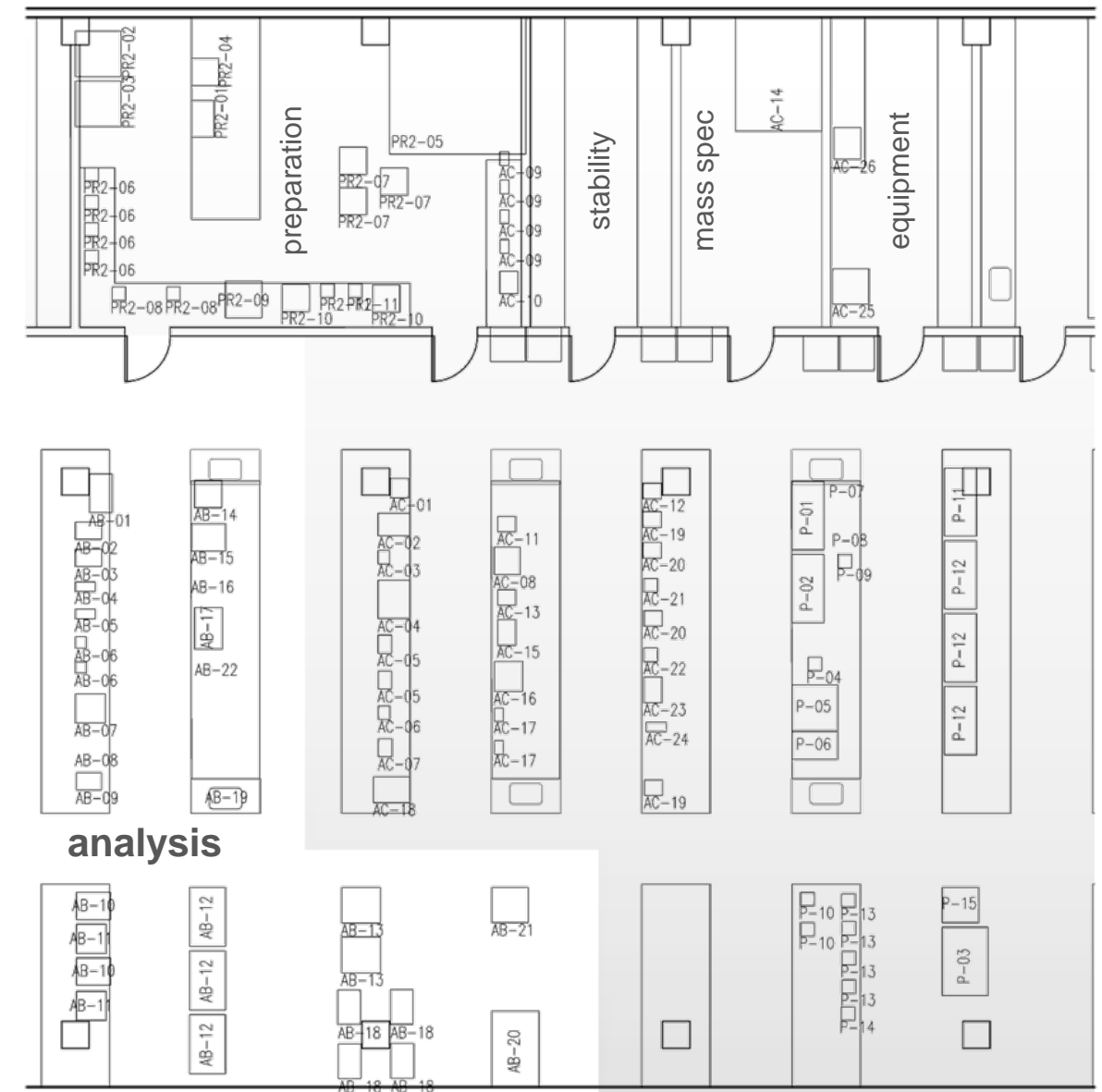
OPTION 5 CURVED BAR EQUIPMENT LIST

ANALYSIS - BIO LEVEL 3

NO	LOC	EQUIPMENT NAME	QTY
AB-01	B	INVERTED MICROSCOPE	1
AB-02	B	MICROPLATE READER	1
AB-03	B	MICROPLATE READER	1
AB-04	B	MICROPLATE WASHER	1
AB-05	B	MICROPATE WASHER	1
AB-06	B	CENTRIFUGE	2
AB-07	B	CO2 INCUBATOR	1
AB-08	B	WATER BATH	1
AB-09	B	MICROPLATE READER	1
AB-10	B	CENTRIFUGE	2
AB-11	B	CO2 INCUBATOR	2
AB-12	F	BIOLOGICAL SAFETY CABINET	3
AB-13	F	FREEZER/ REFRIGERATOR	2
AB-14	B	COUNTLESS AUTOMATED CELL COUNTER	1
AB-15	B	EPPENDORF CENTRIFUGE	1
AB-16	B	MICROSCOPE	1
AB-17	B	FACS (BD)	1
AB-18	F	STORAGE CABINET	4
AB-19	F	SINK 개수대	1
AB-20	F	REFRIGERATOR (DONG-A)	1
AB-21	F	FREEZER	1
AB-22	B	CENTRIFUGE	1

Equipment Color Legend
GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT
RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT



Equipment Location (LOC) Legend
B: Open Lab Bench
BLS: Bench Lab Support

F: Open Lab Floor
FLS: Floor Lab Support

OPTION 5 CURVED BAR EQUIPMENT LIST

PILOT PLANT – CELL CULTURE LEVEL 1

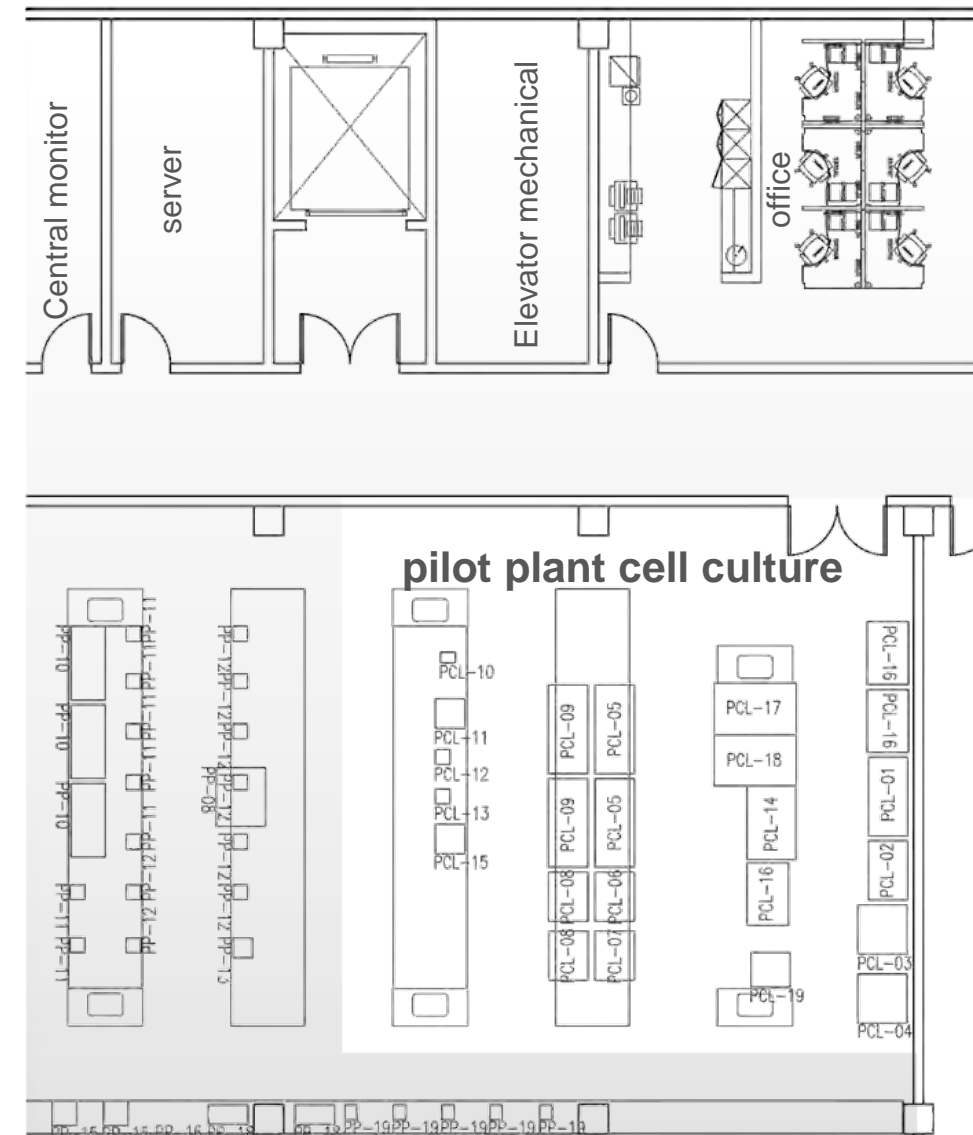
NO	LOC	EQUIPMENT NAME	QTY
PCL-01	F	MEDIA HOLDING TANK	1
PCL-02	F	MEDIA PREPARATION TANK	1
PCL-03	F	MEDIA HOLDING TANK	1
PCL-04	F	MEDIA PREPARATION TANK	1
PCL-05	F	BIOREACTOR (200L)	2
PCL-06	F	BIOREACTOR (10L)	1
PCL-07	F	BIOREACTOR (10L)	1
PCL-08	F	BIOREACTOR (2L)	2
PCL-09	F	BIOREACTOR (50L)	2
PCL-10	B	WELDER	1
PCL-11	B	METABOLITE ANALYZER	1
PCL-12	B	OSMOMETER	1
PCL-13	B	PH METER/ COND.	1
PCL-14	F	BIOLOGICAL SAFETY CABINET	1
PCL-15	B	CELL COUNTER	1
PCL-16	F	SHAKING INCUBATOR (SMX 1503)	3
PCL-17	F	DEEFPREEZER	1
PCL-18	F	FREEZER	1
PCL-19	B	AUTOCLAVE	1

Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT



Equipment Location (LOC) Legend

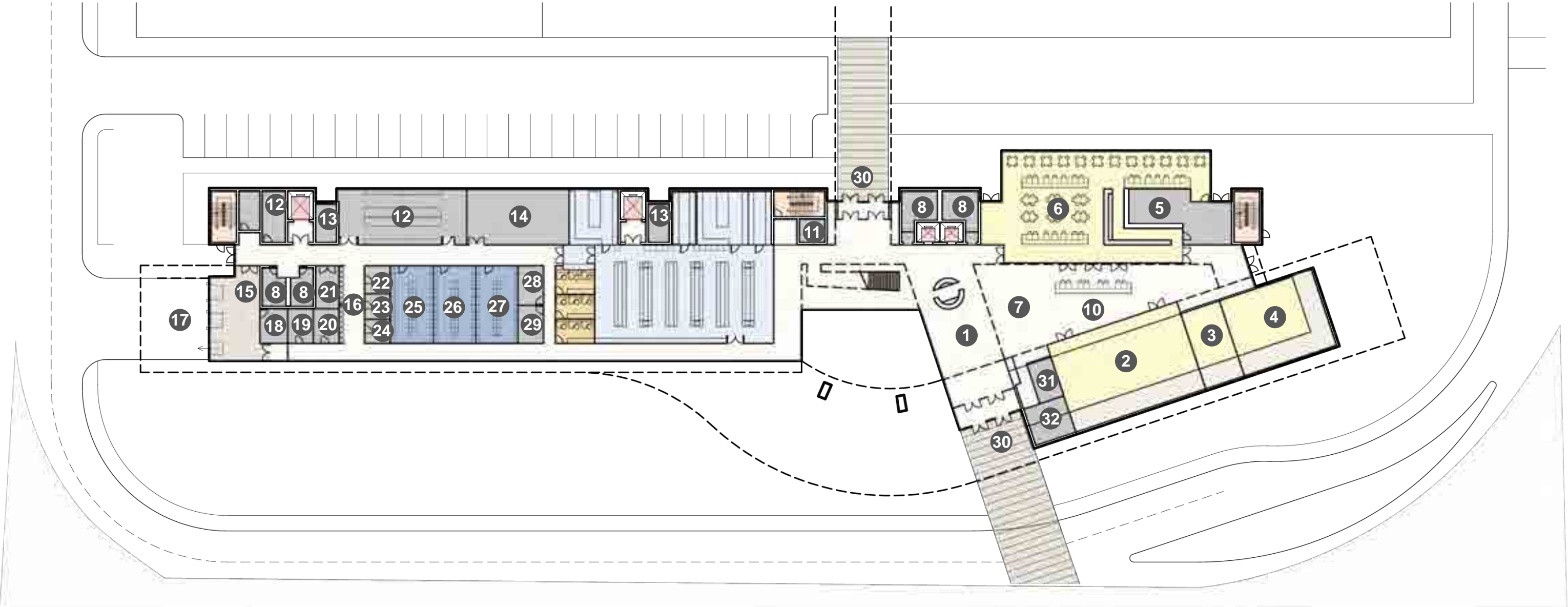
B: Open Lab Bench

BLS: Bench Lab Support

F: Open Lab Floor

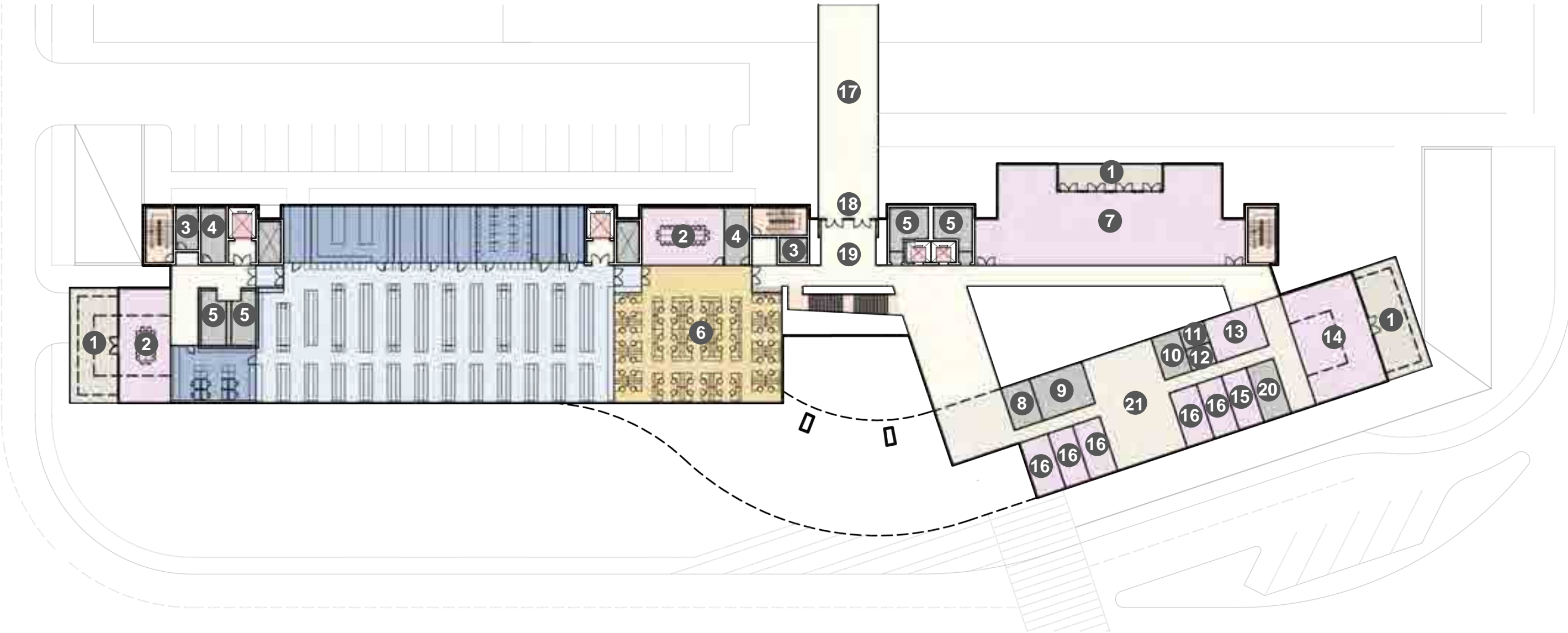
FLS: Floor Lab Support

OPTION 4 CURVED BAR
LEVEL 1 - GROUND



- | | | | | | | | | | | |
|-------------|-------------|----------|--------------------------|--------------------|----------------------|-------------------------------|----------------------------|-----------------------------|-------------------------------|--------------------|
| lab | (varies) | elevator | 1 lobby/reception | 5 kitchen | 9 conference | 13 elevator mechanical | 17 truck dock | 21 recycling | 25 storage chemical | 29 server |
| lab support | (varies) | | 2 lecture room | 6 cafeteria | 10 exhibition | 14 plumbing | 18 dock office | 22 biowaste | 26 storage plastics | 30 entrance |
| office | support | | 3 broadcasting | 7 atrium | 11 idf | 15 receiving area | 19 mail room | 23 waste chemical | 27 storage consumables | 31 security |
| core | circulation | | 4 archive | 8 restrooms | 12 electrical | 16 cylinder holding | 20 custodial supply | 24 flammable liquids | 28 central monitor | 32 it/av |
| landscape | stair | | | | | | | | | |

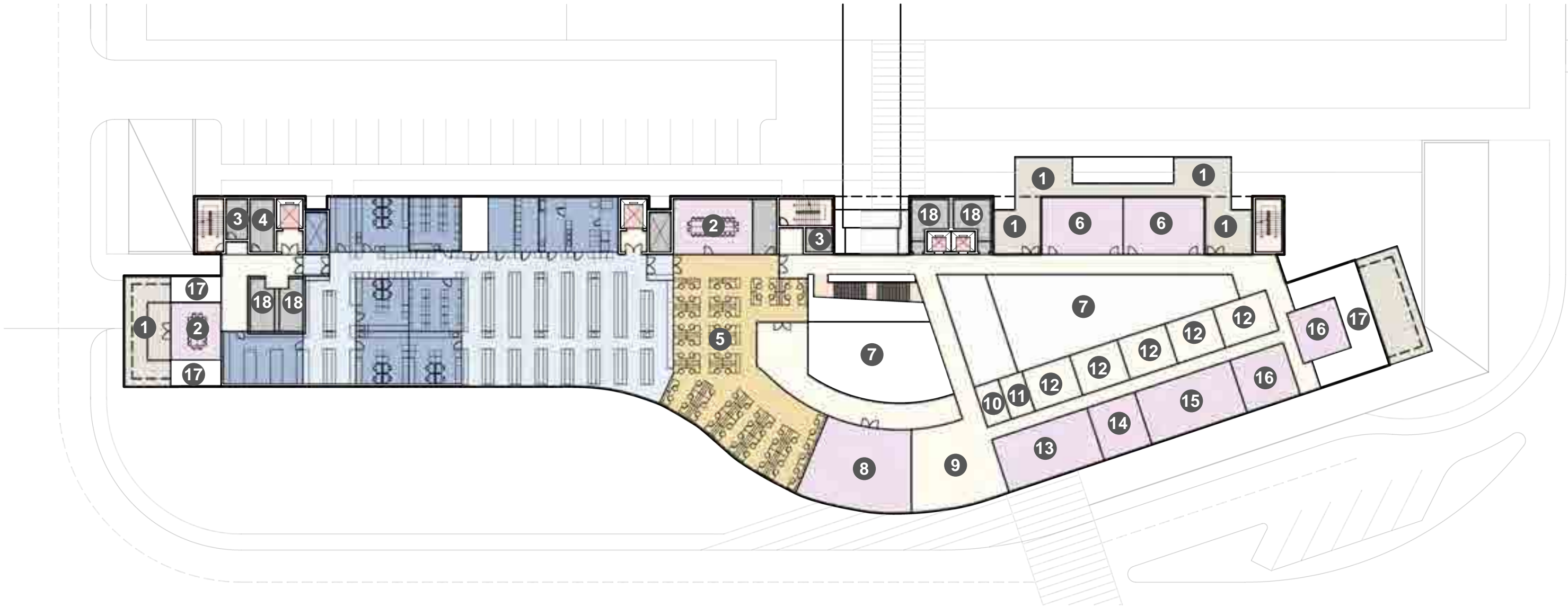
OPTION 4 CURVED BAR
LEVEL 2



- | | | | | | | | | |
|-------------|-------------|----------|---------------------------|--------------------------------|------------------------------|---------------------------------|--|---------------------------|
| lab | (varies) | elevator | 1 exterior balcony | 5 restrooms | 9 server | 13 break room | 17 pedestrian bridge to manufacturing | 21 senior cubicles |
| lab support | (varies) | | 2 conference room | 6 work station cubicles | 10 copy and mail room | 14 large conference room | 18 main entrance second level | |
| office | support | | 3 idf | 7 fitness | 11 lac | 15 director research | 19 lobby | |
| core | circulation | | 4 electrical | 8 storage | 12 printer room | 16 director office | 20 files | |
| landscape | stair | | | | | | | |



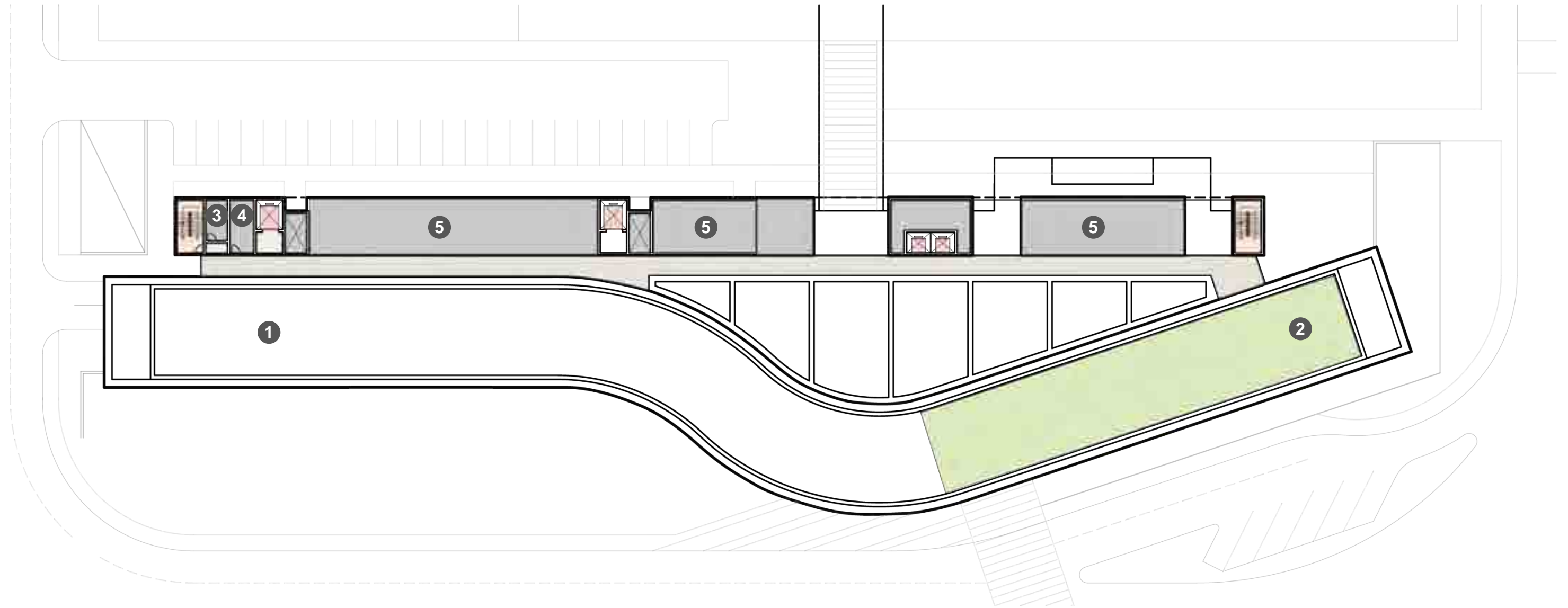
OPTION 4 CURVED BAR
LEVEL 3



- | | | | | | | | |
|-------------|-------------|----------|---------------------------|----------------------------------|------------------------|---------------------------------|-------------------------|
| lab | (varies) | elevator | 1 exterior balcony | 5 work station cubicles | 9 reception | 13 VIP room | 17 open to below |
| lab support | (varies) | | 2 conference rooms | 6 medium conference rooms | 10 kitchen | 14 CEO conference room | 18 restrooms |
| office | support | | 3 idf | 7 atrium | 11 printer copy | 15 CEO room | |
| core | circulation | | 4 electrical | 8 board room | 12 seminar | 16 small conference room | |
| landscape | stair | | | | | | |

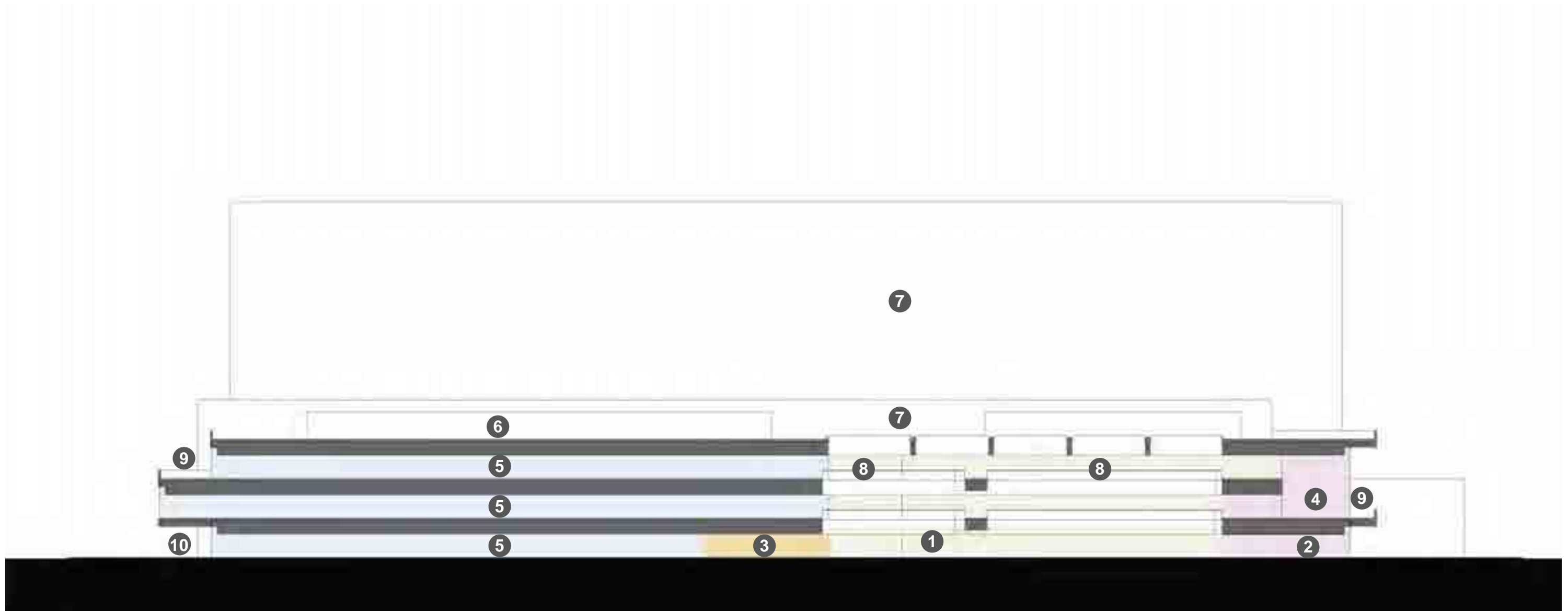


OPTION 4 CURVED BAR
LEVEL 4



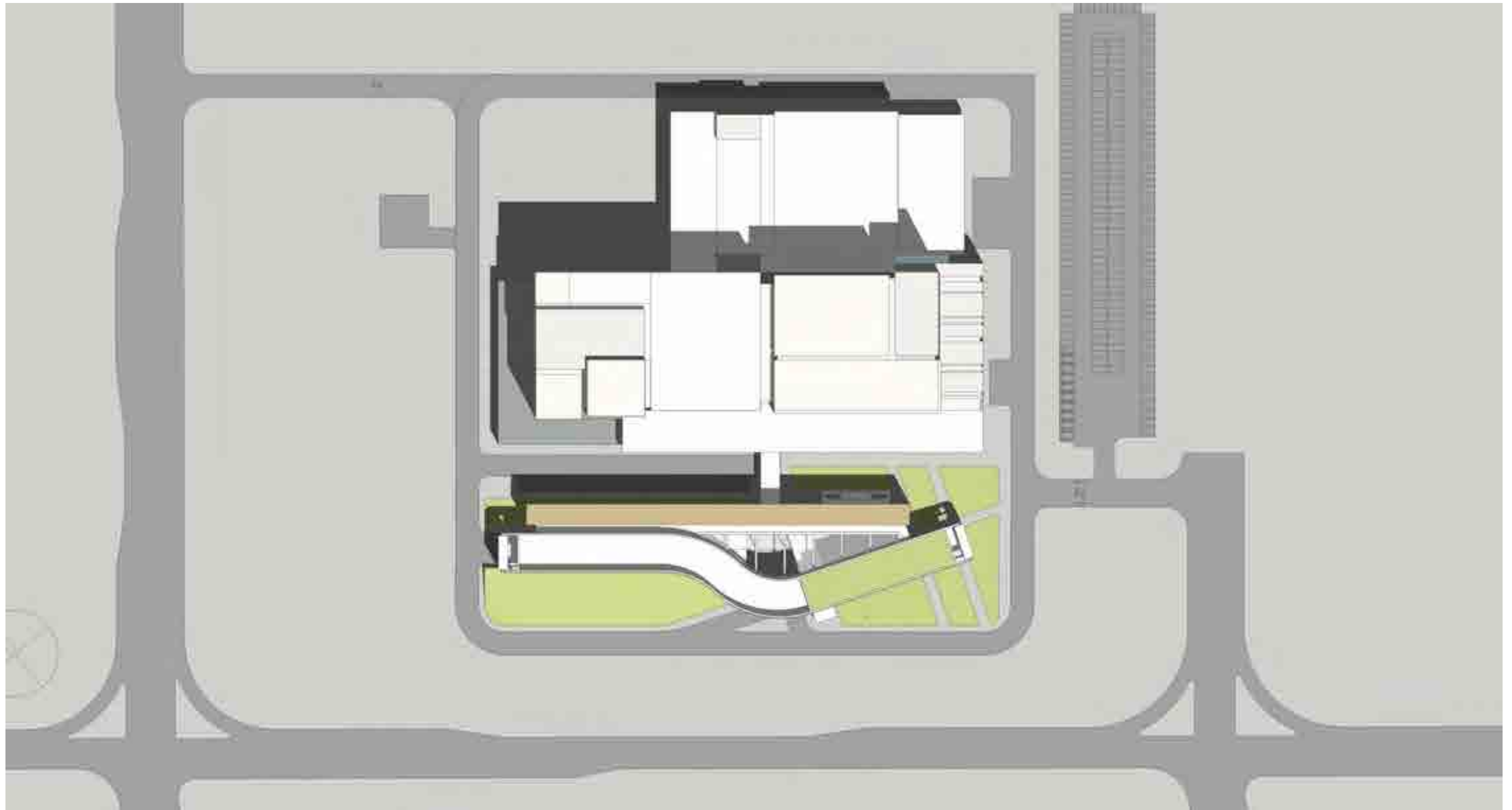
- | | | | | |
|-------------|-------------|----------|----------------------------|--------------|
| lab | (varies) | elevator | 1 roof top mechanical area | 5 mechanical |
| lab support | (varies) | | 2 green roof | |
| office | support | | 3 idf | |
| core | circulation | | 4 electrical | |
| landscape | stair | | | |

OPTION 4 CURVED BAR SECTION



- | | | | | | |
|---|--|--|--------------------------|------------------------------|---------------------------|
| lab | (varies) | elevator | 1 lobby/reception | 5 labs | 9 exterior balcony |
| lab support | (varies) | | 2 lecture room | 6 roof top mechanical | 10 truck dock |
| office | support | | 3 broadcasting | 7 beyond | |
| core | circulation | | 4 archive | 8 atrium | |
| landscape | stair | | | | |

OPTION 4 CURVED BAR
SITE PLAN



OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH CLOSE UP VIEW



OPTION 4 CURVED BAR
SOUTH CLOSE UP VIEW



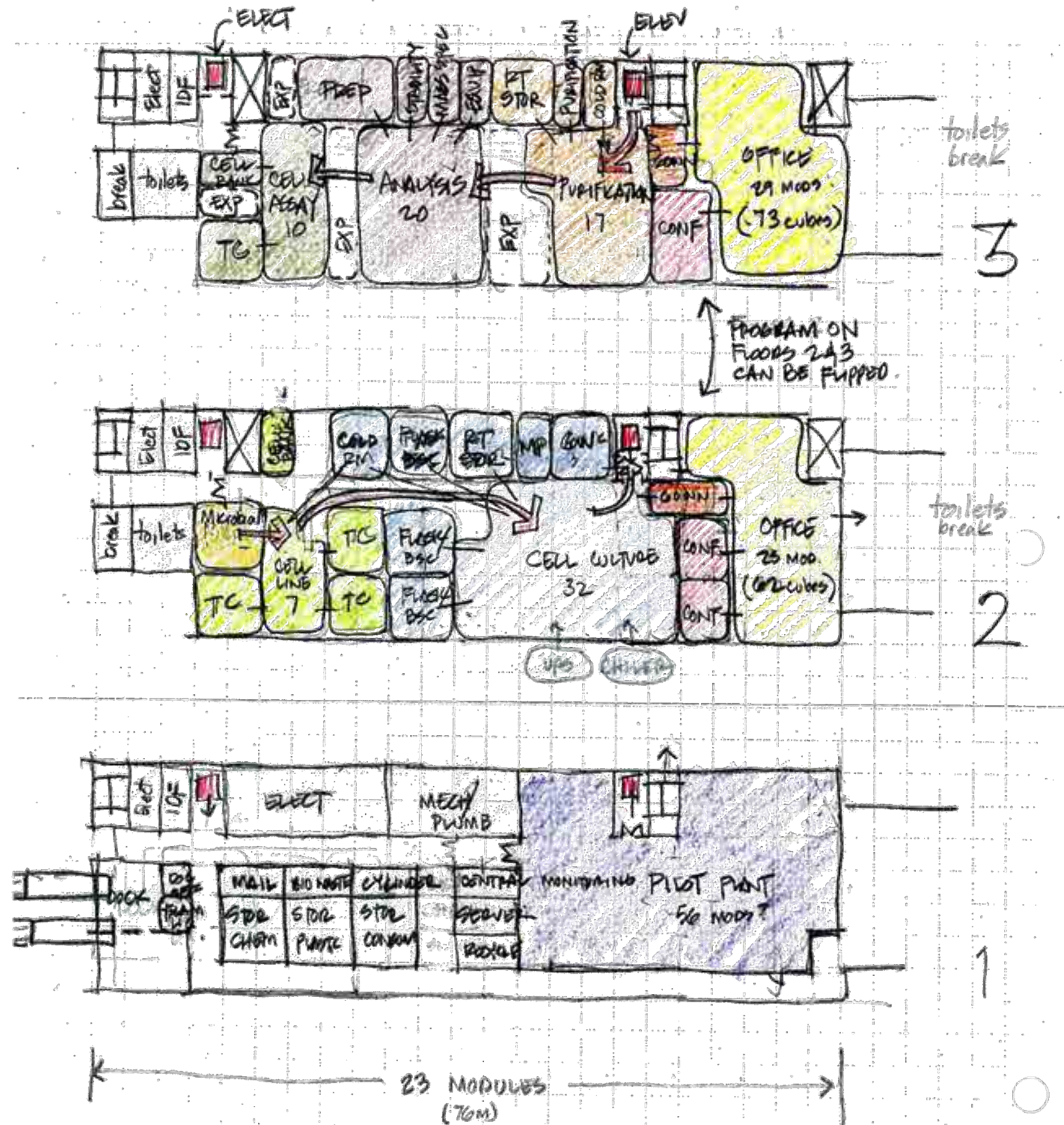
LAB DEVELOPMENT ORGANIZATION

OPTION 4 (CURVED BAR)

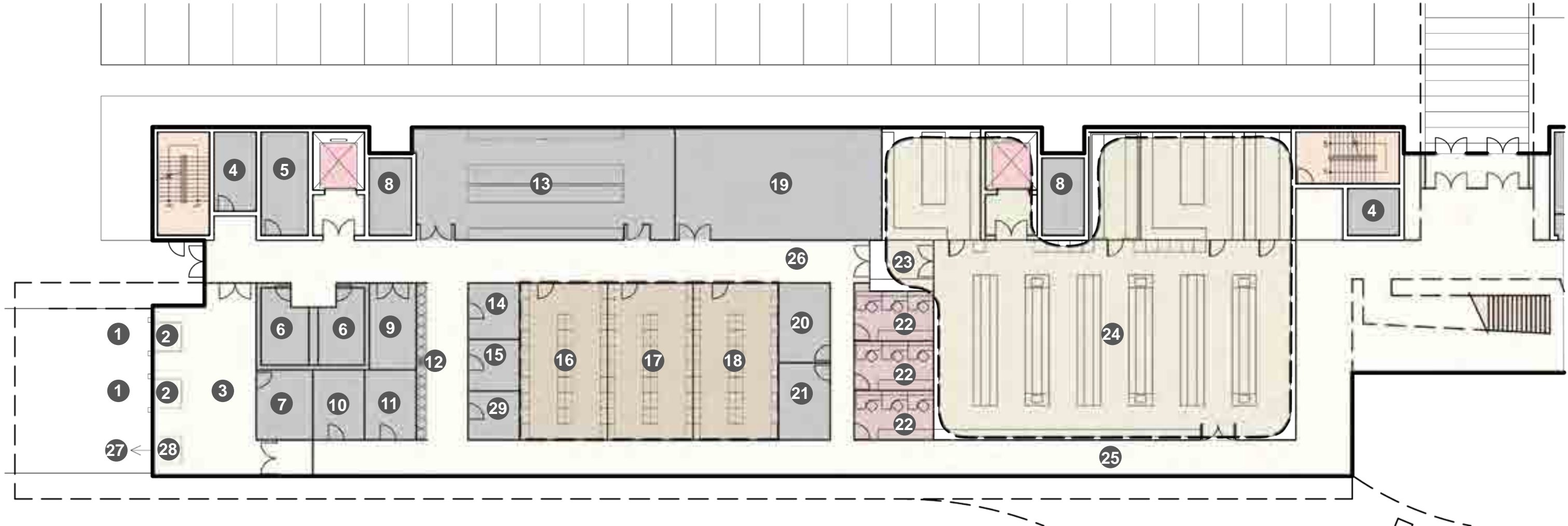
The lab tech cubical area is located on the north east side of the lab bar and the open labs are located on the south side of the bar. The lab support spaces are in the along the north east and west. Access from the open office area to the open lab area is at several points through the lab support area.

The flow of research begins in the microbial lab on the east end of the third floor. It proceeds to the cell line area and then to the cell culture area on the same floor. The flow then goes down the elevator at the west end of the lab block to the purification area on the second floor, and then to the analysis area and finally the cell assay area at the east end of the bar.

The diagram shows some unassigned expansion space.



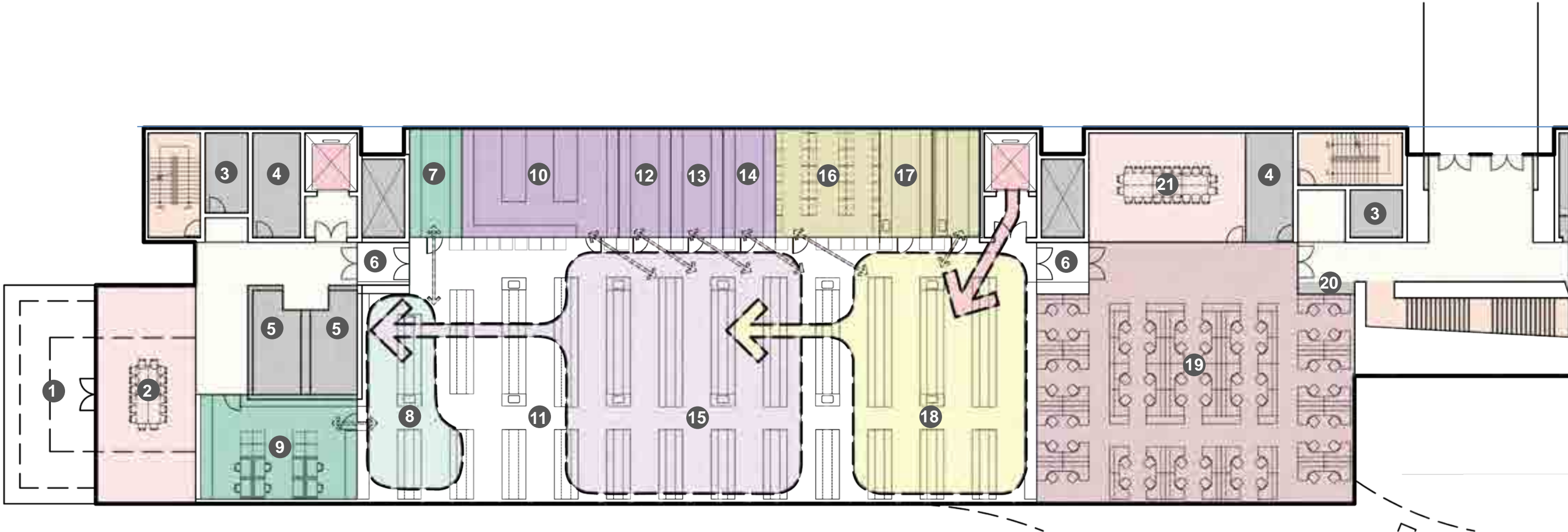
OPTION 4 CURVED BAR
LEVEL 1 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|---|---|----------------------------|------------------------------|-------------------------------|---------------------------|-----------------------------|
| pilot plant | research support | 1 truck dock | 8 elevator mechanical | 15 waste chemical | 21 server | 27 dumpster |
| stairs | elevator | 2 dock leveler/seal | 9 recycling | 16 chemical storage | 22 partner offices | 28 compactor |
| non lab spaces | circulation | 3 receiving area | 10 mail room | 17 plastics storage | 23 gowning | 29 flammable liquids |
| | | 4 idf | 11 custodial supply | 18 consumables storage | 24 pilot plant | |
| | | 5 electrical | 12 cylinder holding | 19 plumbing | 25 to kitchen | |
| | | 6 restrooms | 13 electrical | 20 central monitoring | 26 to pilot plant | |
| | | 7 dock office | 14 biowaste | | | |



OPTION 4 CURVED BAR
LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | |
|---|---|---------------------------|--|------------------------------------|---------------------------|
| cell assay | cell assay support | 1 exterior balcony | 8 cell assay | 15 analysis | 20 display alcove |
| analysis | analysis support | 2 break room | 9 tissue culture | 16 room temperature storage | 21 conference room |
| purification | purification support | 3 idf | 10 preparation | 17 purification | |
| stairs | elevator | 4 electrical | 11 expansion open lab space | 18 purification open lab | |
| non lab spaces | meeting space | 5 restrooms | 12 stability | 19 work station cubicles | |
| | circulation | 6 gowning | 13 mass spec, structural analysis | | |
| | | 7 cell bank | 14 equipment | | |



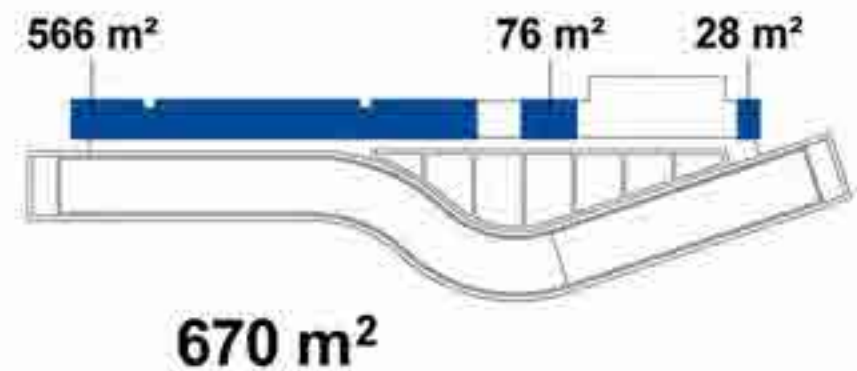
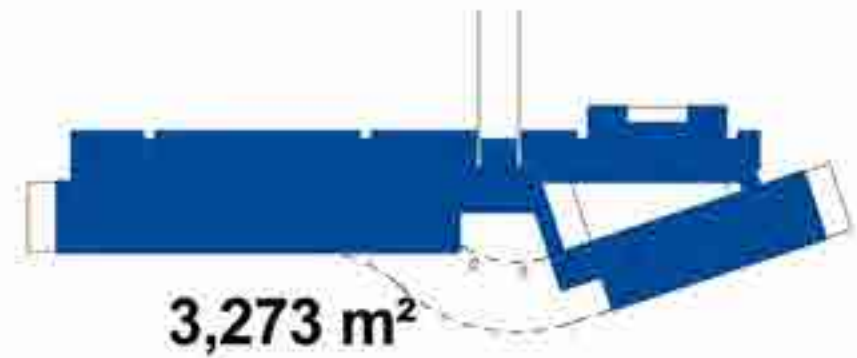
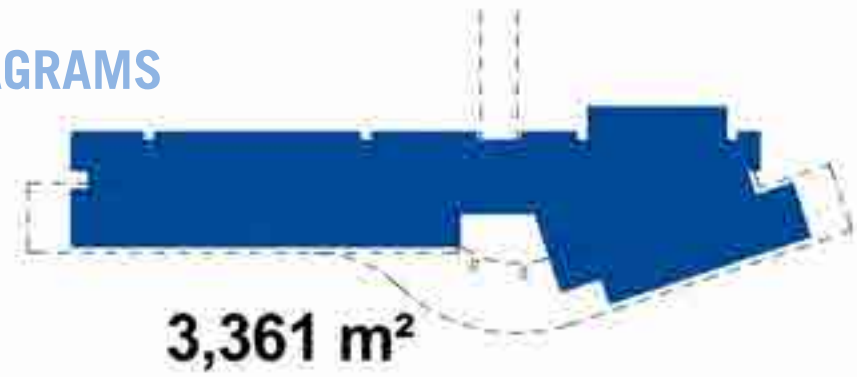
OPTION 4 CURVED BAR
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | |
|---|---|--|---|---|--|
| cell line | cell line support | 1 exterior balcony | 7 gowning | 13 room temperature storage | 19 glass wash |
| cell culture | cell culture support | 2 open to below | 8 microbial | 14 Flask / BSC | 20 cell culture |
| pilot plant | microbial | 3 break room | 9 cell bank | 15 expansion | 21 conference room |
| stairs | elevator | 4 idf | 10 cell line | 16 USC | 22 work station cubicles |
| non lab spaces | meeting space | 5 electrical | 11 tissue culture | 17 chillers | 23 display alcove |
| | circulation | 6 restrooms | 12 cold room | 18 media prep | 24 board room |



GROSS AREA DIAGRAMS

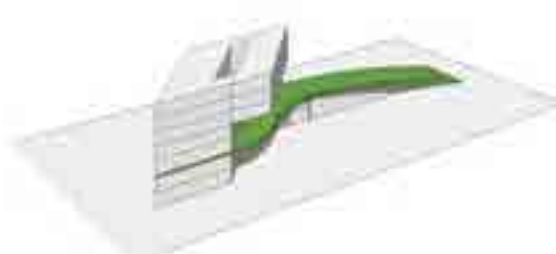
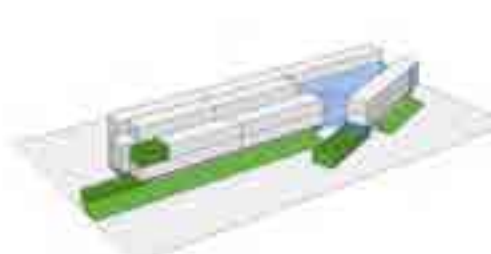


10,789 m²
Curved Bar Scheme Total Gross Area

DECISION MATRIX

The following criteria on the Decision Matrix is recommended for use by Samsung to evaluate the Options provided and to arrive at a selection of option(s) for the design team to develop in a greater level of detail.

Excellent 3
 Good 2
 Not Strong 1



	Option 1 Bar	Option 2 Rotated Bar	Option 3 Bent Bar
Efficiency Adherence to space program	3	2	1
Compliance/Integration with Master Plan	3	3	2
Sustainable Opportunities	2	2	2
Building Envelope Technology	3	3	3
Future Flexibility	3	3	2
Iconic Civic Presence	3	2	3
Spatial Organization of Research	3	3	2
Totals	20	18	15

OPTION 3 BENT BAR

BENT BAR SCHEME

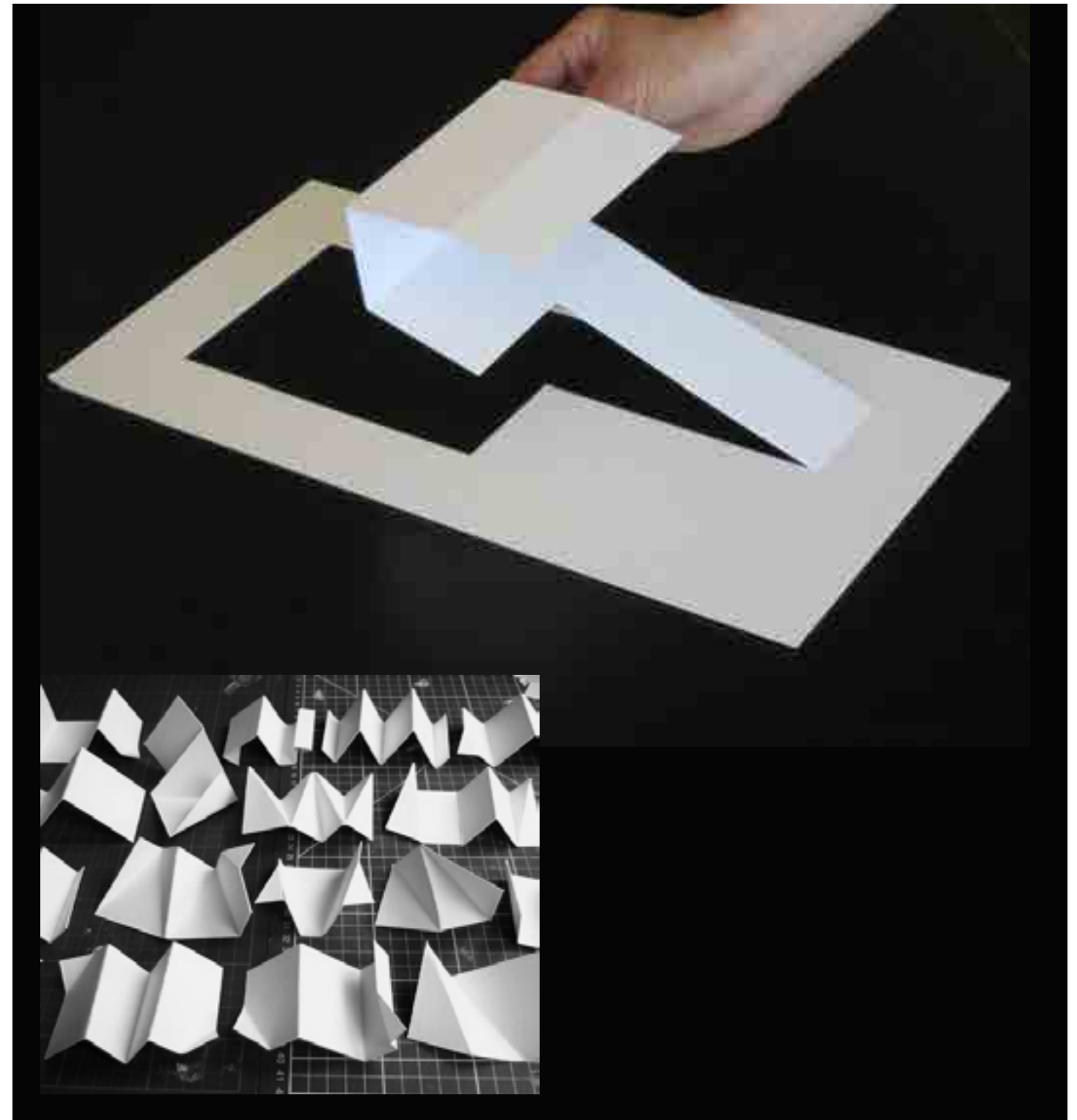
The folding of paper to create an elevated plane and geometric form is a perfect metaphor for the bent bar scheme.

The design for the Bent Bar scheme is the creation of topography where there is none by lifting a layer of landscape in an otherwise flat context of the campus. Folded paper art is a metaphor for the building massing which is articulated by crisp geometric forms that orient the six story tower for best solar conditions. A sloping green roof is an active focal point for gathering pedestrians with accessible areas under, above, and through the landscaping. The sloped plane establishes a second ground plane as an elevated porch and garden at the third level and offers protection from sun by overhang of the floors above. Building program is situated beneath and above the sloping green roof.

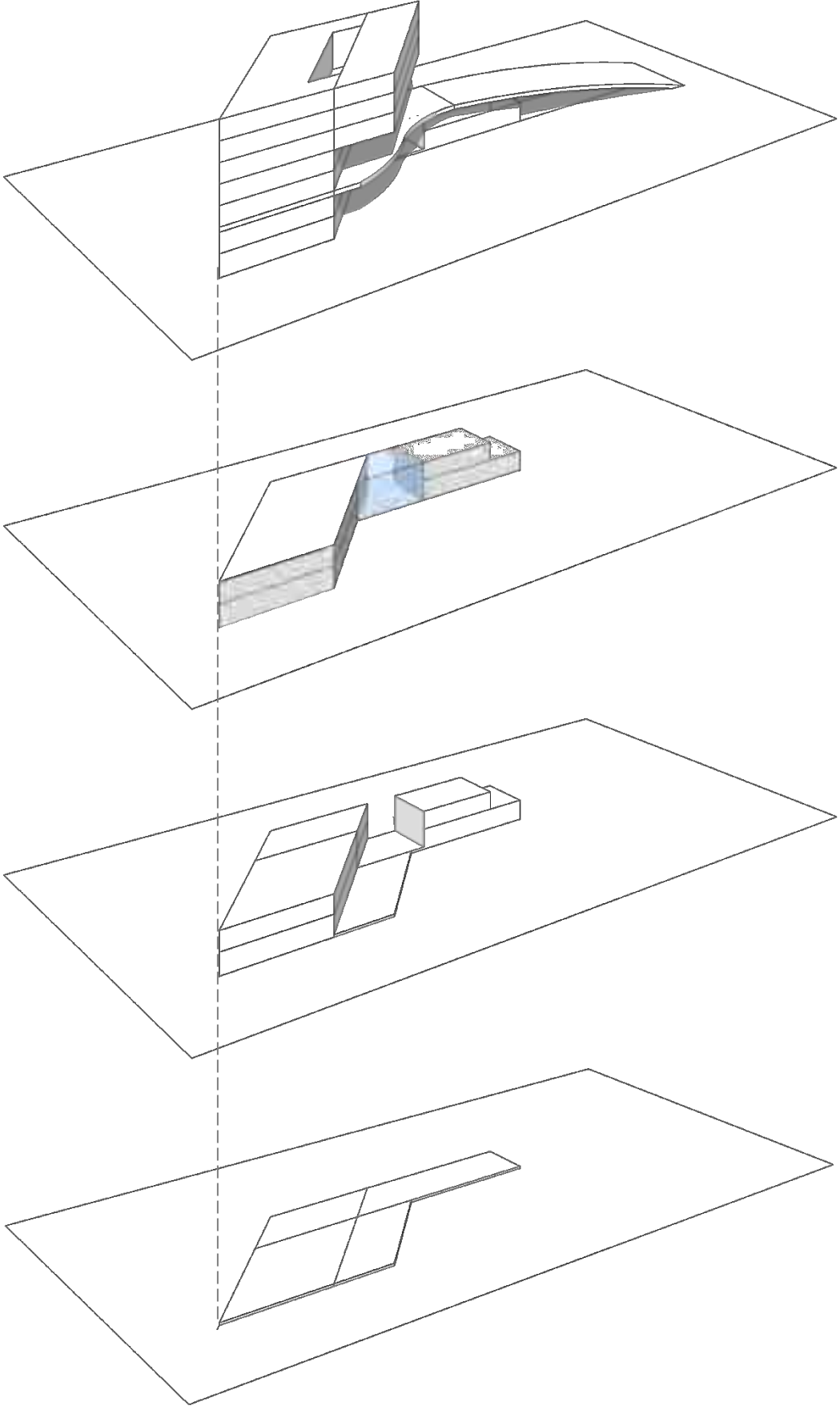
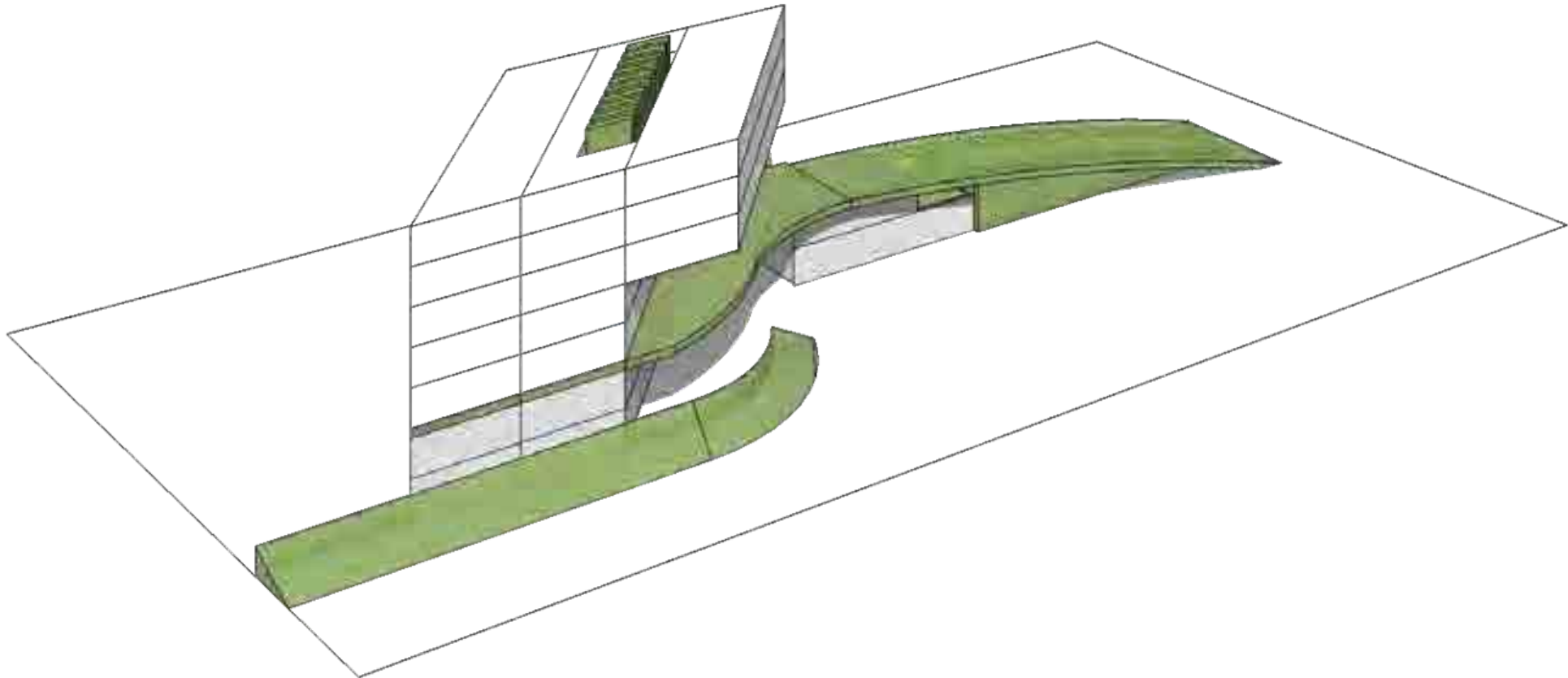
The Bent Bar scheme features a lobby, cafeteria, conference rooms and auditorium at the ground level where it engages outdoor spaces during many months of the year. The fitness center is located at the bridge level. Laboratory spaces are based on a 3.3M x 3.3M planning module and occupy levels two, three, four, and a large floor plate at level five. The cores are pulled to the outer edges of floor plates to

create a flexible ballroom for lab, office and lab support arrangements. Administrative and VIP functions feature prime views out on the sixth level. The sixth level also features a linear courtyard at the center of the floor plate. The courtyard is open to the sky and offers an intimate garden setting and additional daylight opportunity on the large floor plate.

The iconic power of this option is its striking simplicity and precision as it emerges from the landscape. The Bent Bar scheme is trapezoidal in plan and the form of the tower presents a unique frontage along the entry road from both directions. The tower is draped with an external diagonal louvered system that responds to the solar needs of each orientation. As a six story mass, this option can command the foreground as a signature statement for the campus.



OPTION 3 BENT BAR



OPTION 3 BENT BAR
PRECEDENTS



OPTION 3 BENT BAR
PRECEDENTS

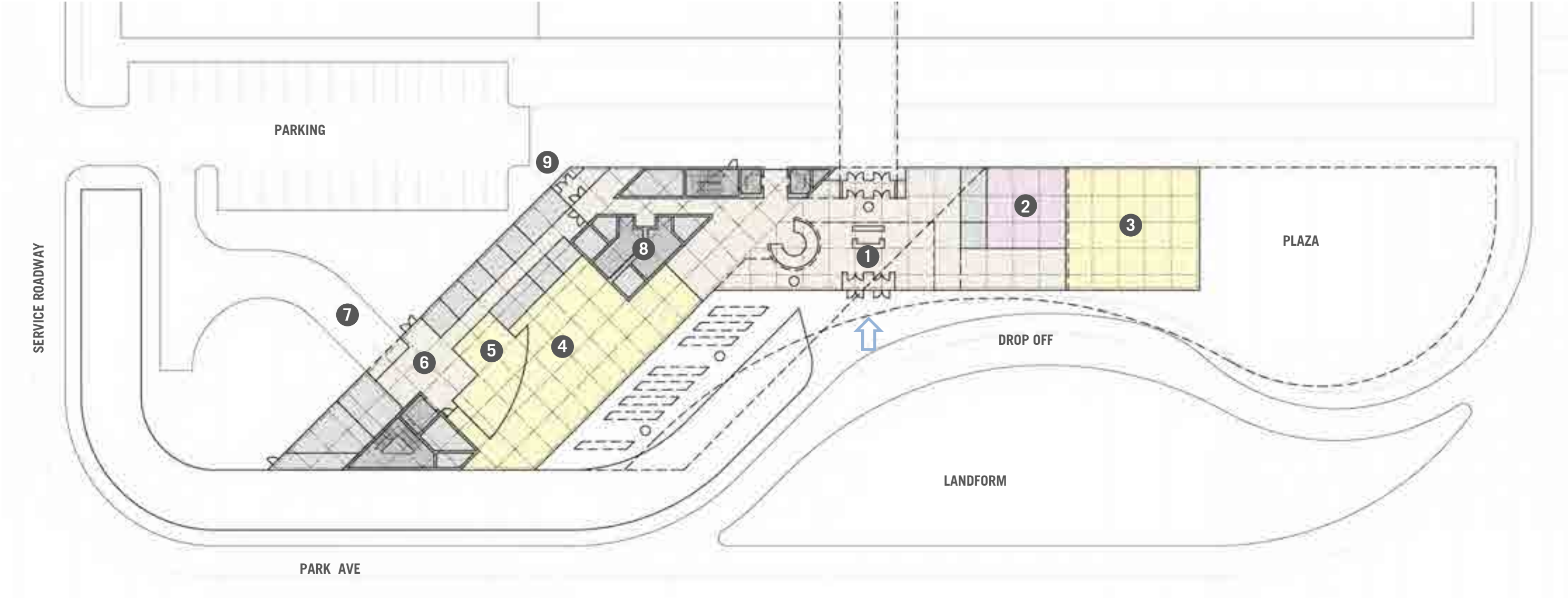


BCU UNIVERSITY, CHYUTIN ARCHITECTS



HIGH LINE, DILLER SCOFIDIO + RENFRO

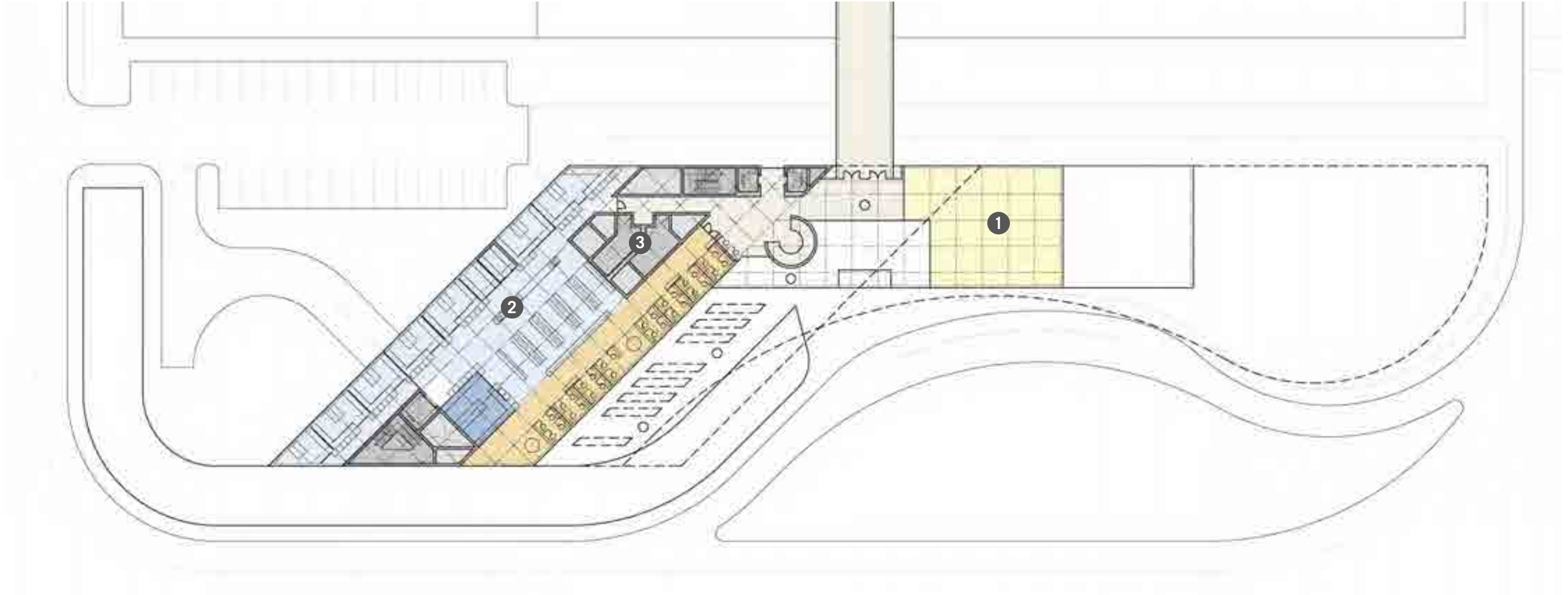
OPTION 3 BENT BAR
LEVEL 1 - GROUND



- | | | | | |
|-------------|-------------|--------------------------------|---------------------------|-----------------------|
| lab | (varies) | 1 lobby/reception | 5 kitchen | 9 VIP entrance |
| lab support | (varies) | 2 large conference room | 6 receiving area | |
| office | support | 3 lecture room | 7 service entrance | |
| core | circulation | 4 cafeteria | 8 restrooms | |
| landscape | | | | |



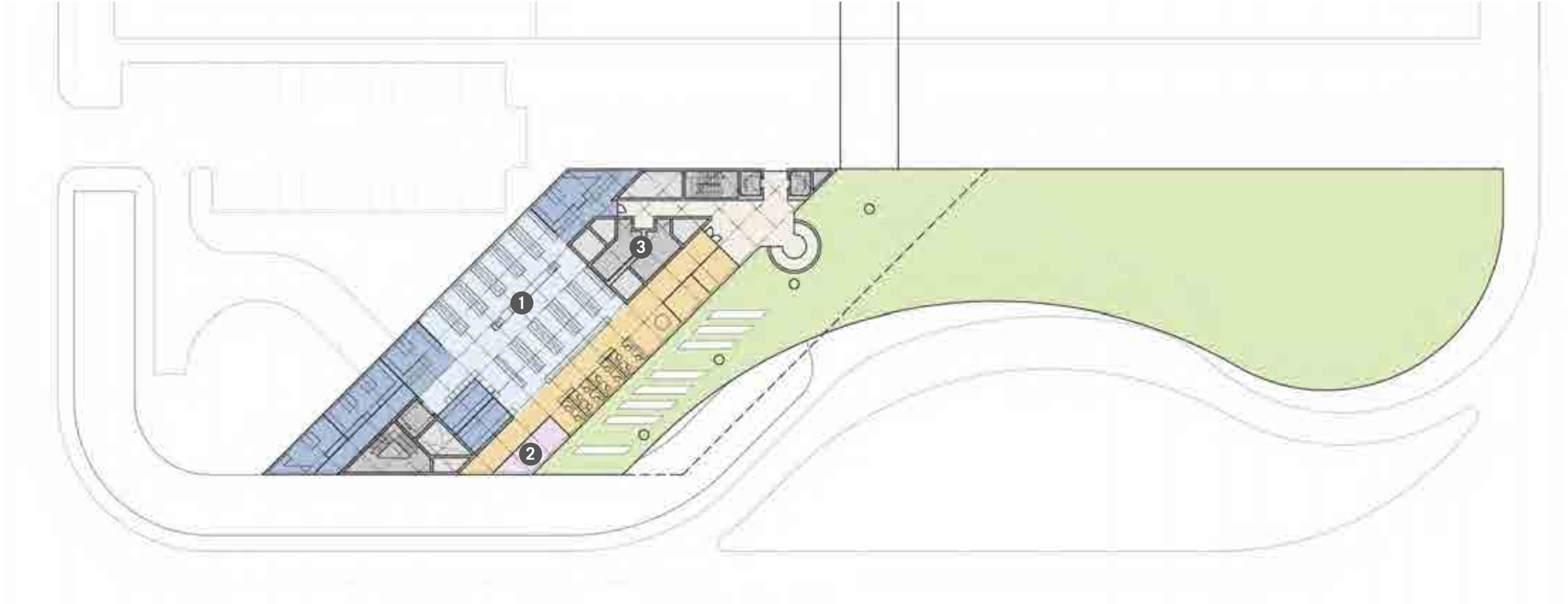
OPTION 3 BENT BAR
LEVEL 2



- | | | |
|---|---|---|
| lab | (varies) | 1 fitness |
| lab support | (varies) | 2 pilot plant |
| office | support | 3 restrooms |
| core | circulation | |
| landscape | | |

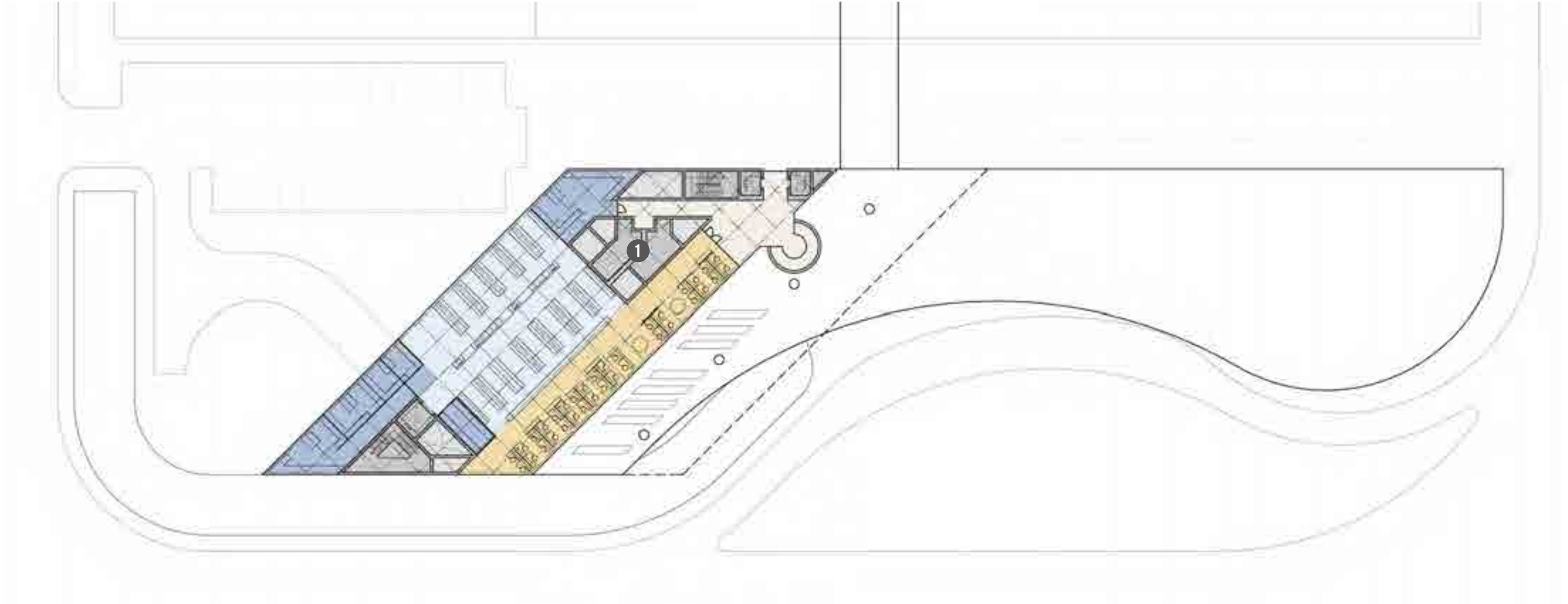


OPTION 3 BENT BAR
LEVEL 3



- | | | |
|---|---|---|
| lab | (varies) | 1 analysis |
| lab support | (varies) | 2 conference room |
| office | support | 3 restrooms |
| core | circulation | |
| landscape | | |

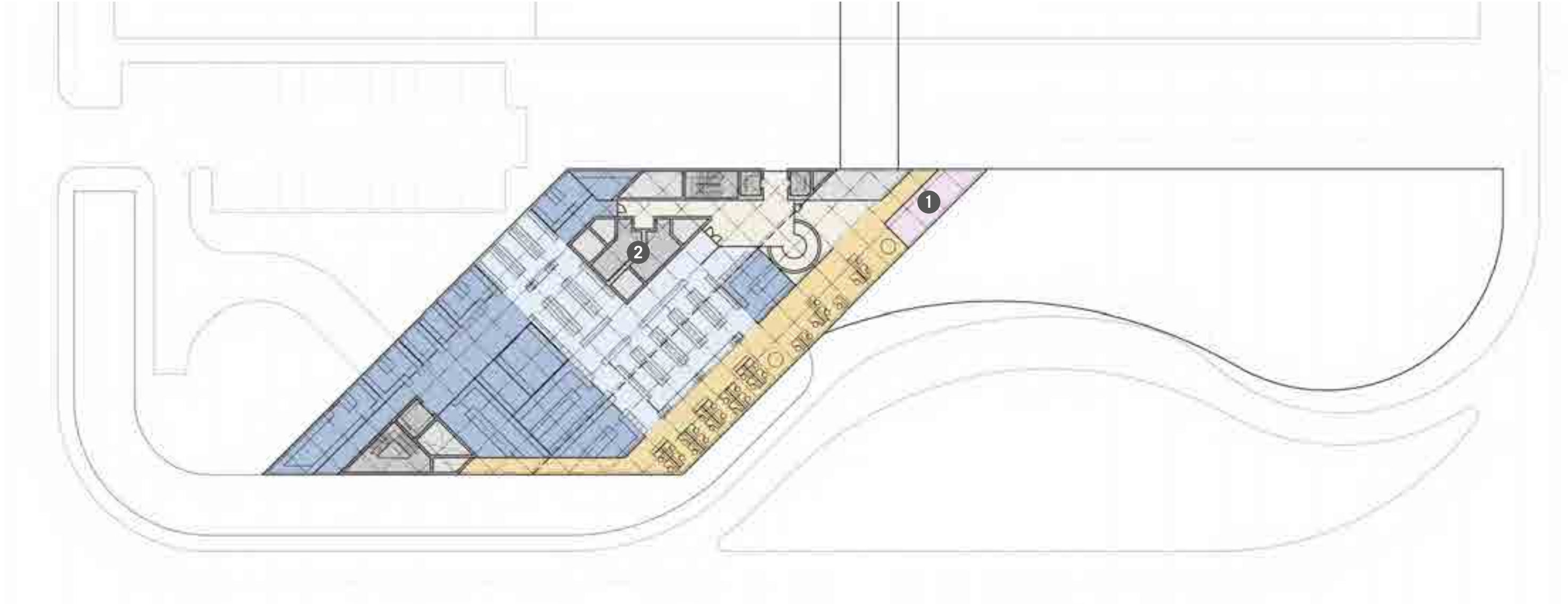
OPTION 3 BENT BAR
LEVEL 4














- lab
- lab support
- (varies)
- office
- core
- landscape
- (varies)
- support
- circulation
- 1 restrooms

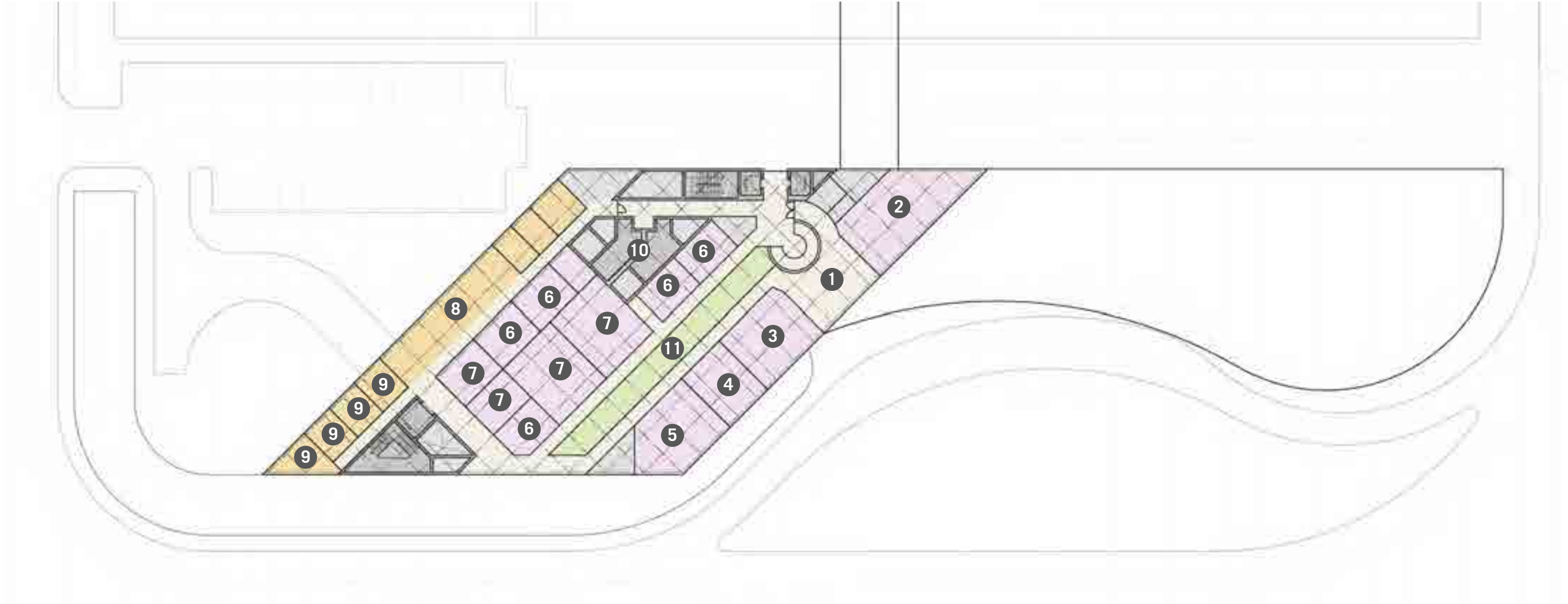


OPTION 3 BENT BAR
LEVEL 5



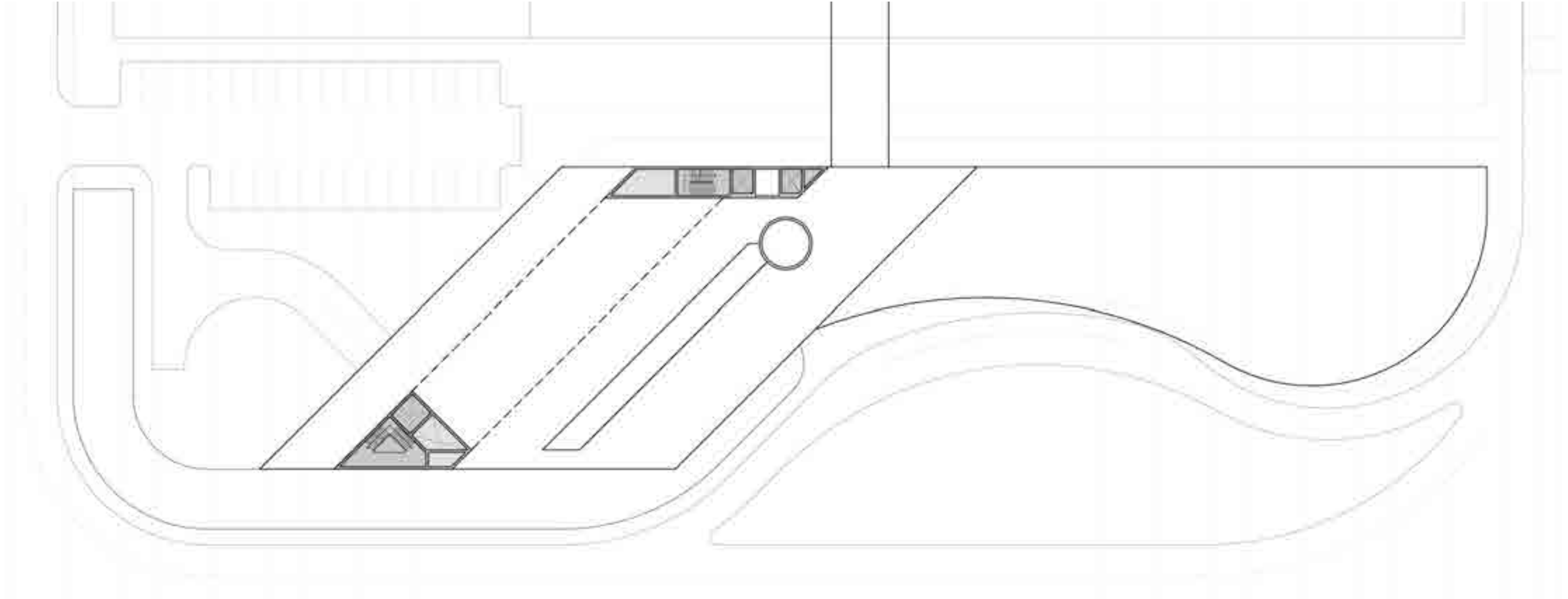
- | | | |
|---|---|---|
|  lab |  (varies) |  conference room |
|  lab support |  (varies) |  restrooms |
|  office |  support | |
|  core |  circulation | |
|  landscape | | |

OPTION 3 BENT BAR
LEVEL 6



- | | | | | |
|---|--|---|---|--|
| lab | (varies) | 1 reception | 5 CEO room | 9 director |
| lab support | (varies) | 2 board room | 6 seminar | 10 restrooms |
| office | support | 3 VIP room | 7 conference | 11 courtyard |
| core | circulation | 4 CEO conference room | 8 senior cubicles | |
| landscape | | | | |

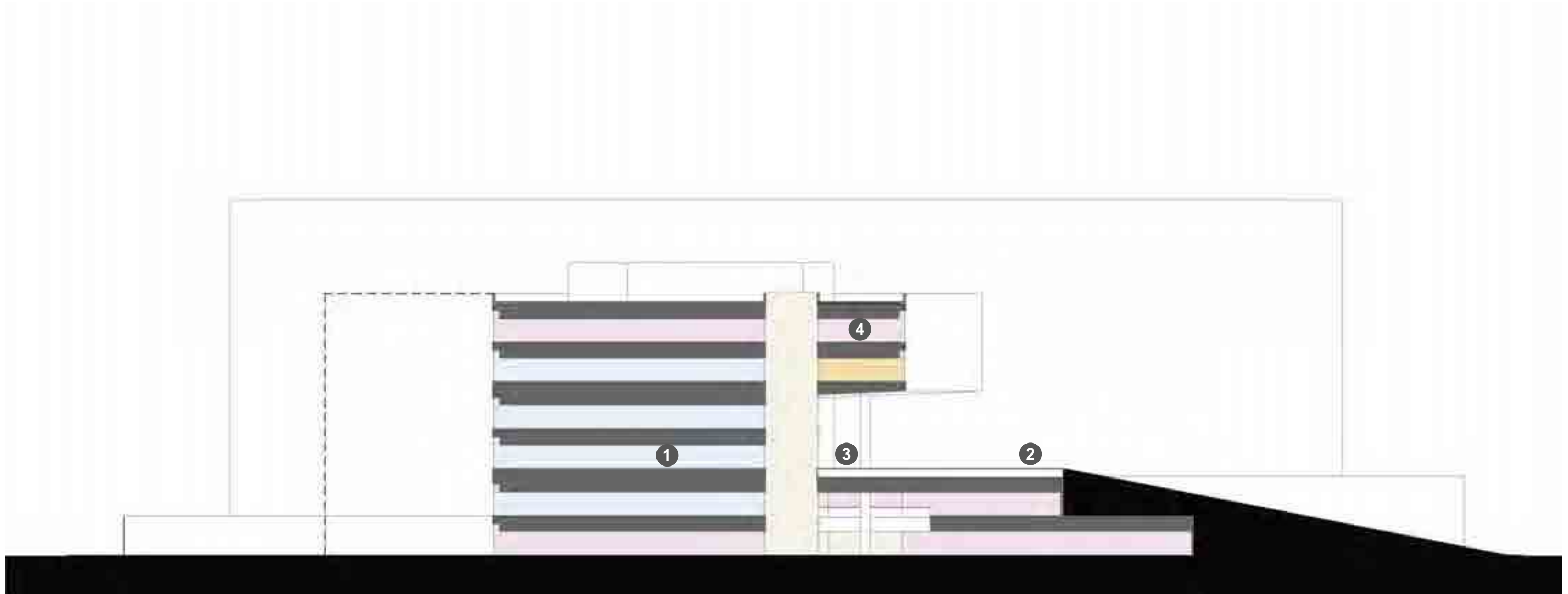
OPTION 3 BENT BAR
LEVEL 7 – ROOF PLAN/ PENTHOUSE



- | | |
|--|--|
| lab | (varies) |
| lab support | (varies) |
| office | support |
| core | circulation |
| landscape | |

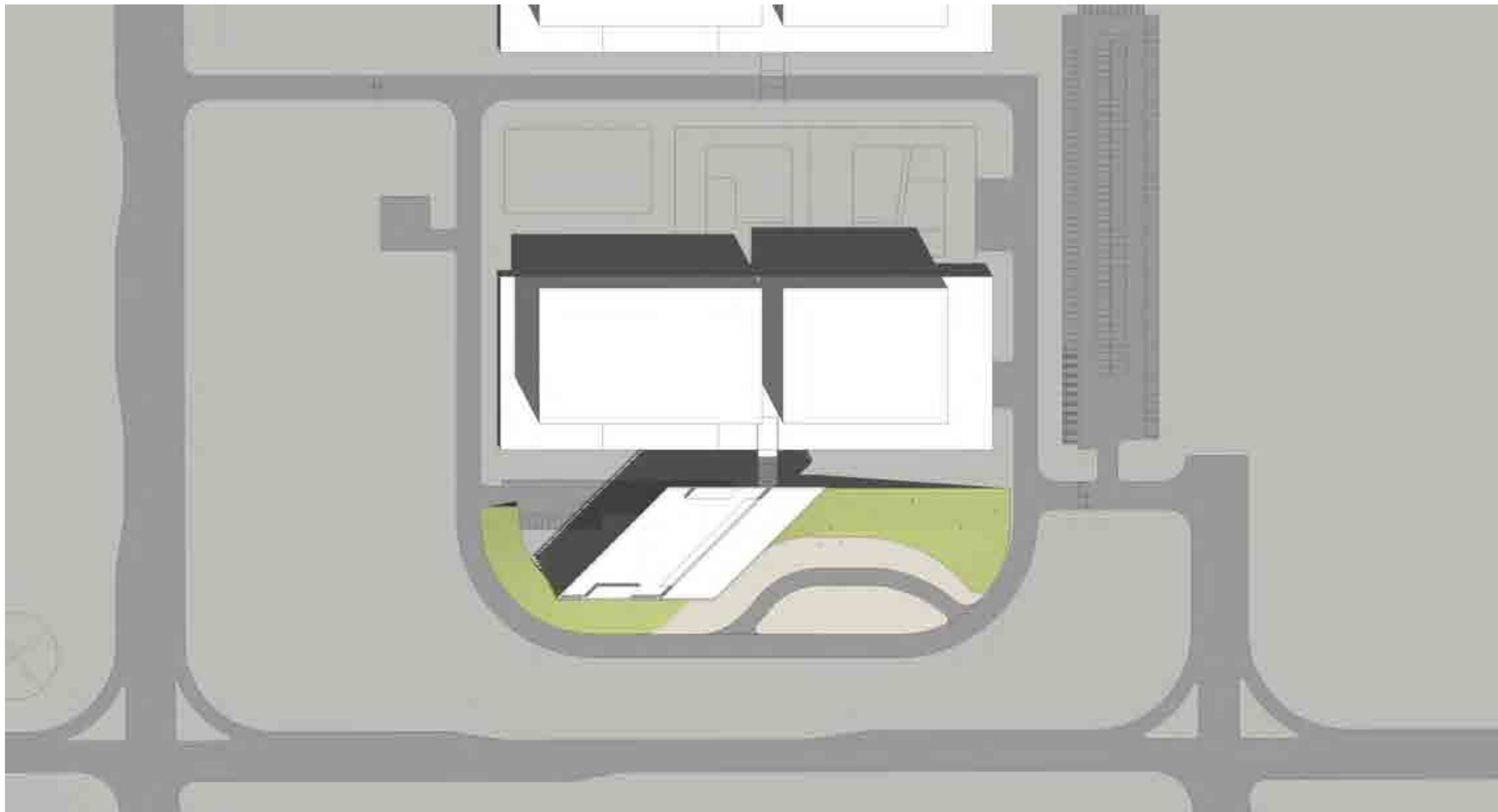


OPTION 3 BENT BAR SECTION



- | | | |
|--|--|--|
| lab | (varies) | 1 lab |
| lab support | (varies) | 2 plaza |
| office | support | 3 cafeteria |
| core | circulation | 4 conference |
| landscape | | |

OPTION 3 BENT BAR
SITE PLAN



OPTION 3 BENT BAR
SOUTH BIRDS EYE VIEW



OPTION 3 BENT BAR
SOUTH STREET VIEW



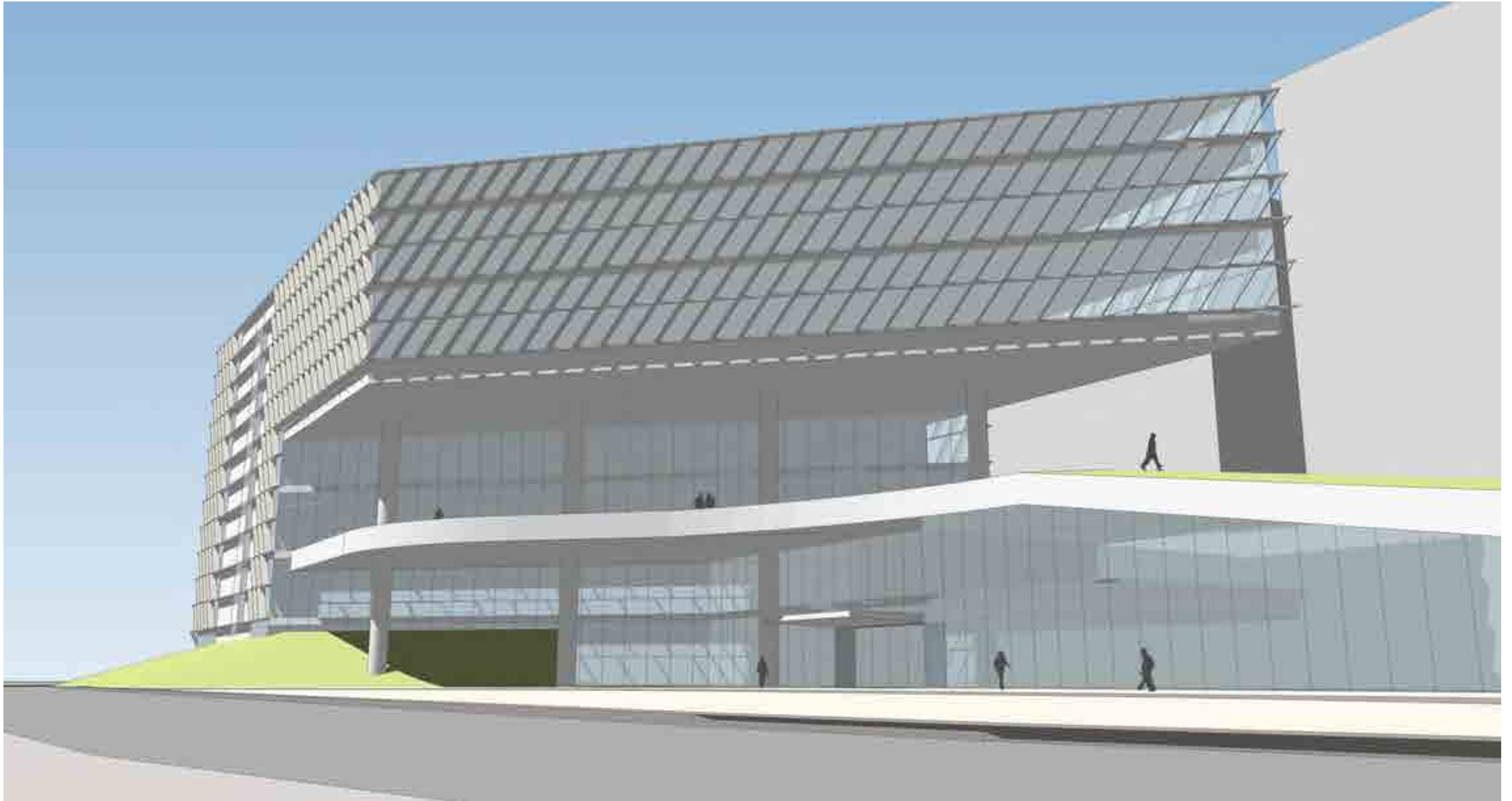
OPTION 3 BENT BAR
SOUTH STREET VIEW



OPTION 3 BENT BAR
SOUTH STREET VIEW



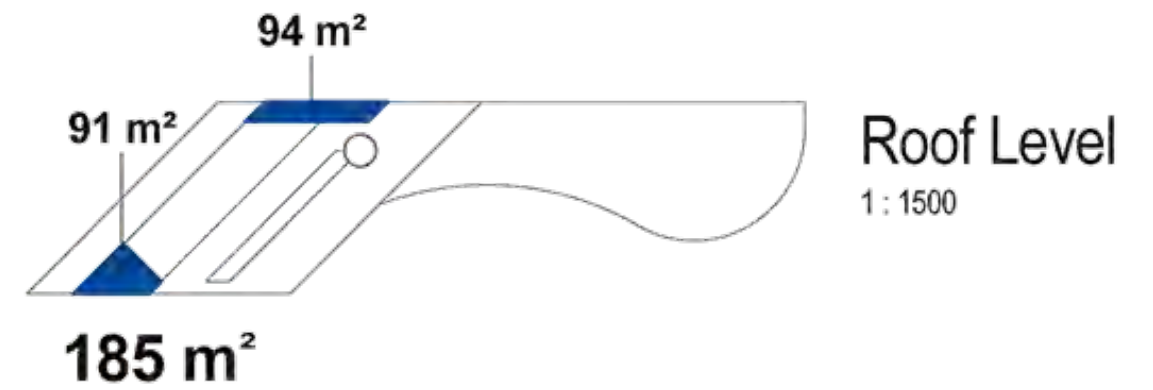
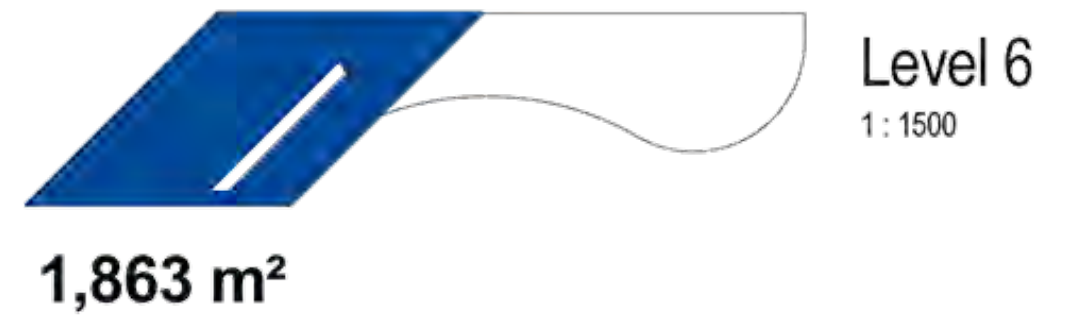
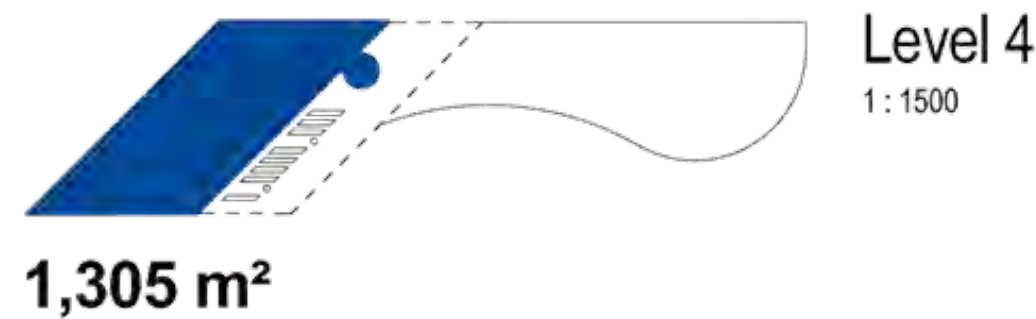
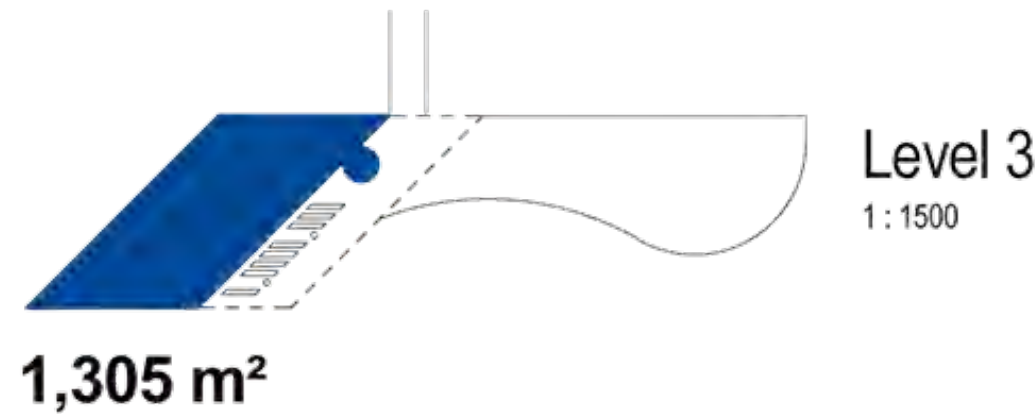
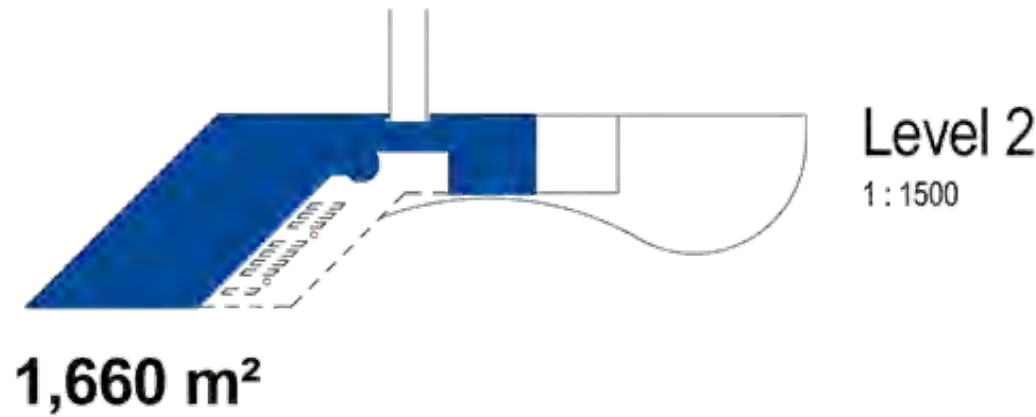
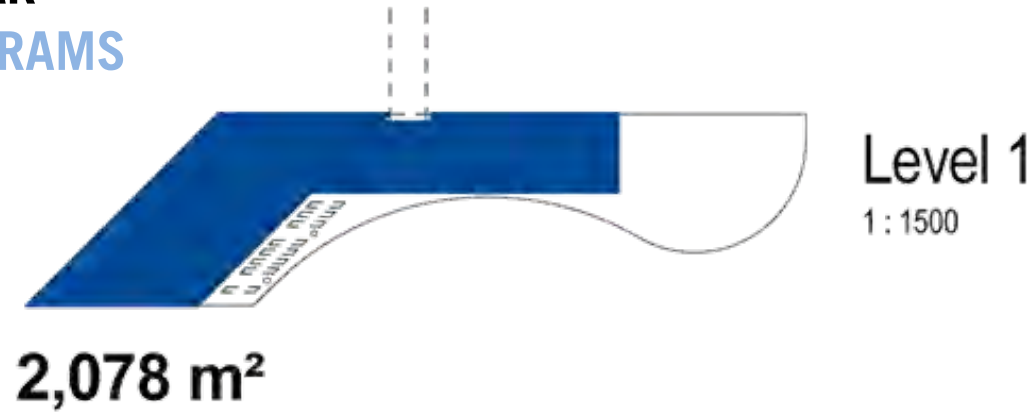
OPTION 3 BENT BAR
SOUTH CLOSE UP VIEW



OPTION 3 BENT BAR
SOUTH CLOSE UP VIEW



OPTION 3 BENT BAR
GROSS AREA DIAGRAMS



10,376 m²
Bent Bar Scheme Total Gross Area

LABORATORIES EXISTING CONDITIONS
PRECEDENTS



LABORATORIES
PRECEDENTS



CLARK CENTER



CORIXA

LABORATORIES
PRECEDENTS

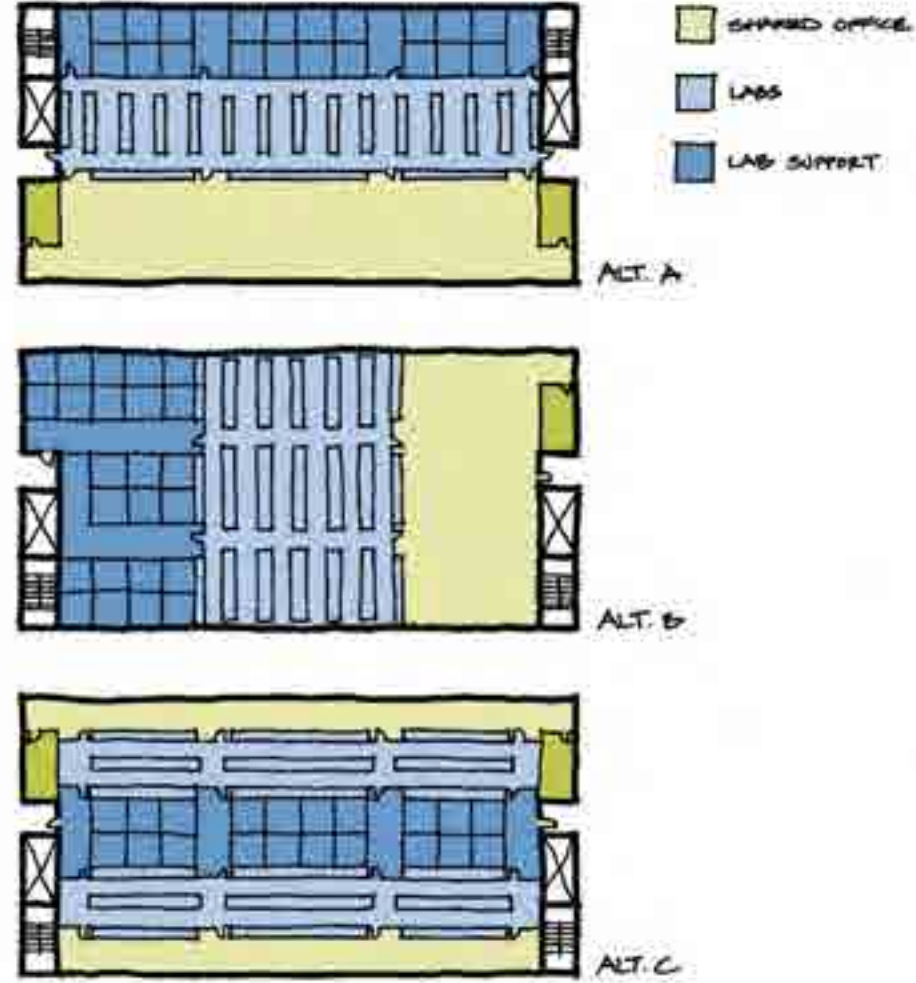
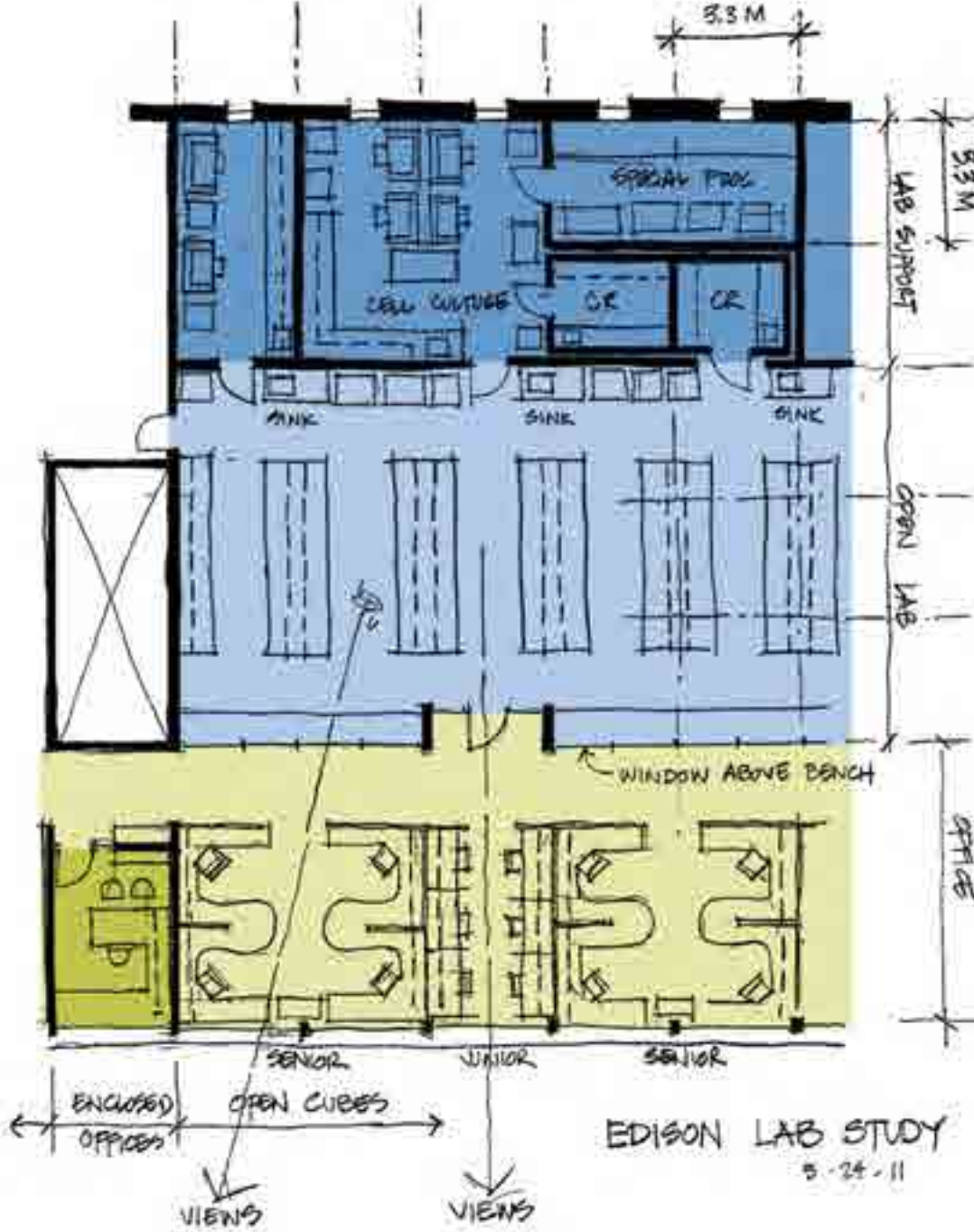


LABORATORIES AMENITY SPACES
PRECEDENTS



LAB DEVELOPMENT

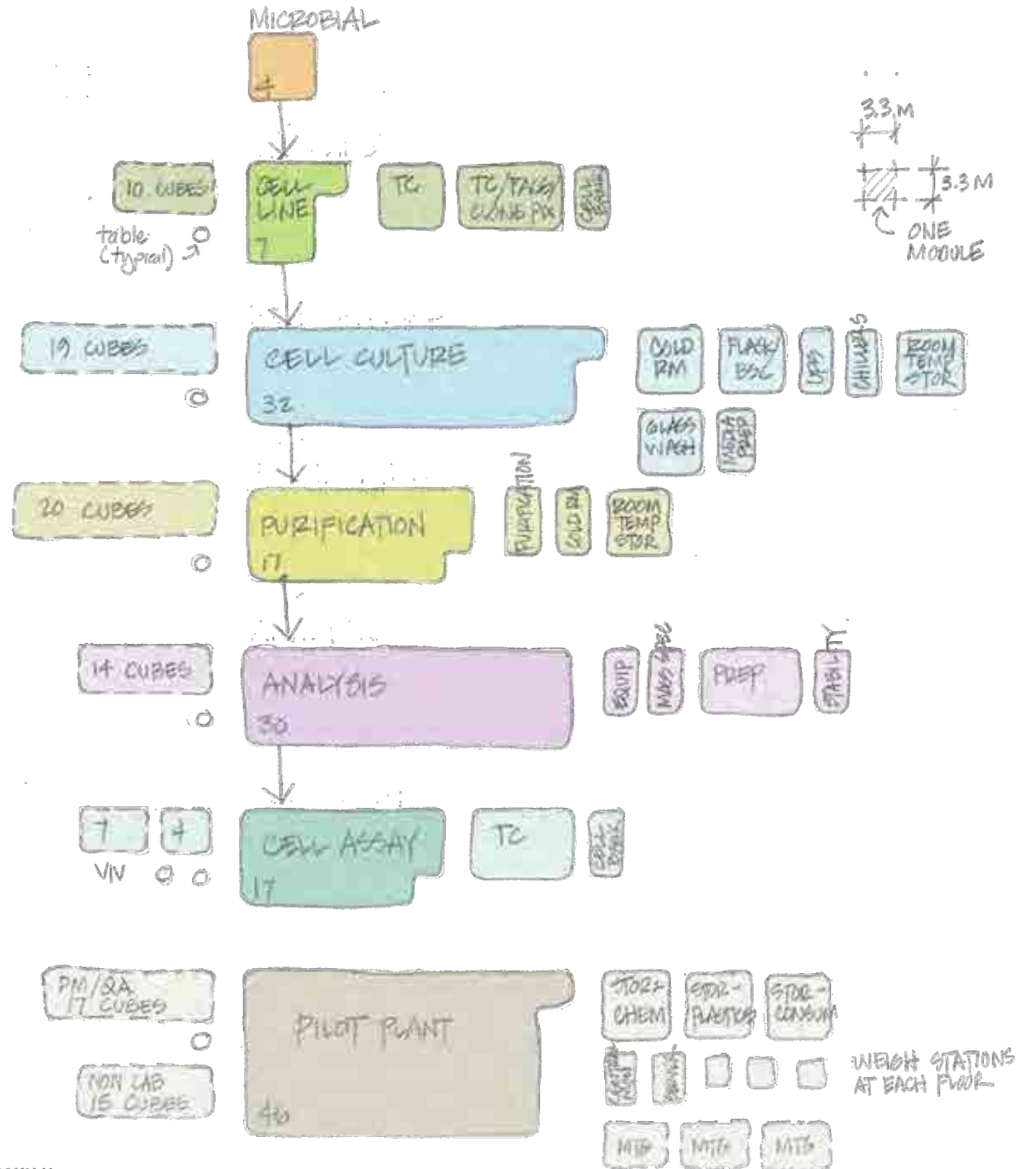
CONCEPTUAL LAB LAYOUT



LAB DEVELOPMENT COMPONENTS

EDISON LABORATORY LAYOUTS

The lab layout diagrams are based on the flow diagrams received on 23 Mar 11. The sizes of the spaces are based on the equipment list provided at the same time, and as modified by input from users received on 13 and 15 Jun 11.



30 MAY 11
 13 JUN 11 REVISED PER 13 JUN 11 EMAIL
 15 JUN 11 REVISED PER 15 JUN 11 EMAIL

LAB DEVELOPMENT ORGANIZATION

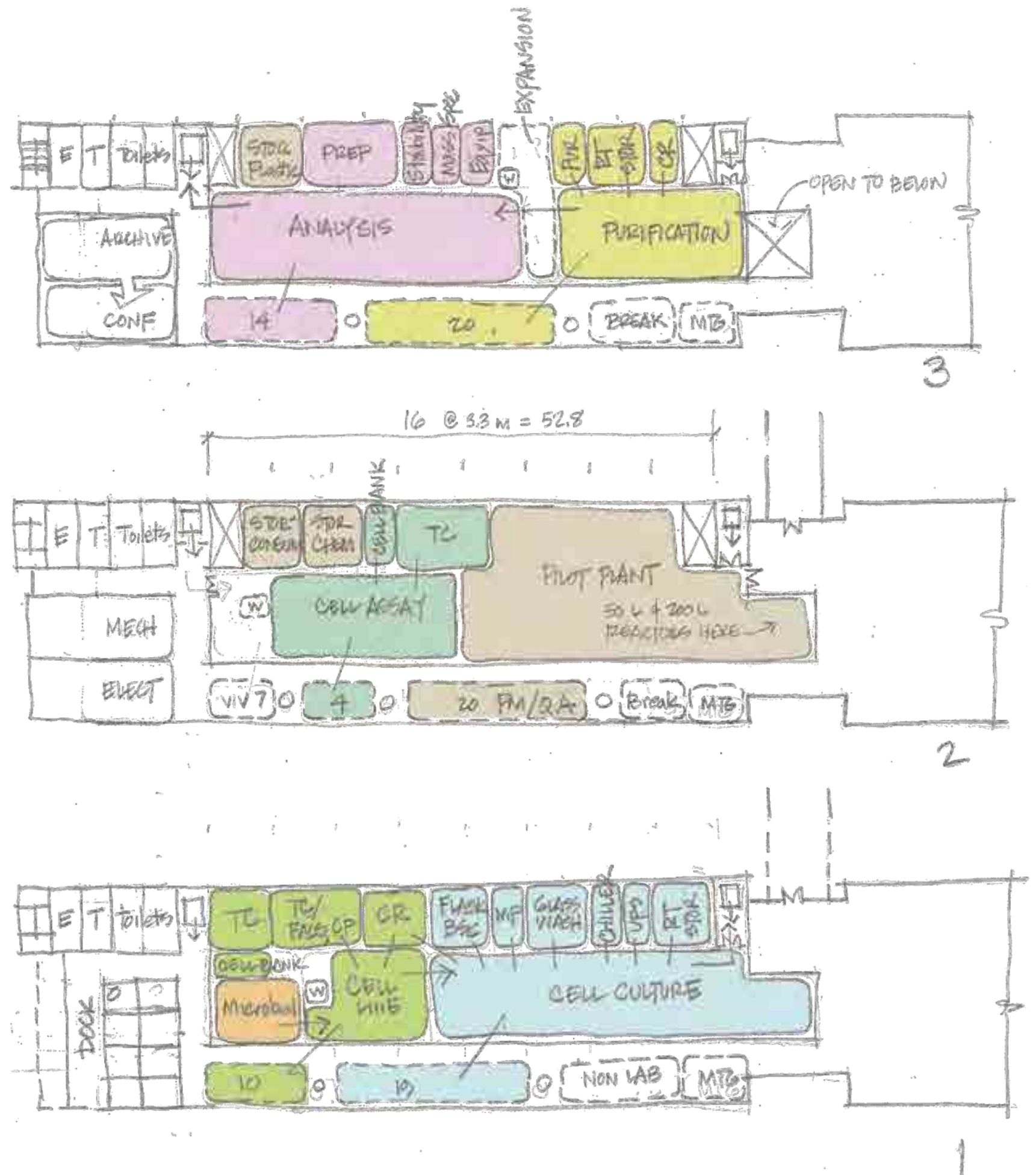
OPTION 1 (BAR)

The lab tech cubical area is on the south side of the bar along the windows. The open labs are inboard of the offices and separated from them by a glass wall. Natural light (but no direct sunlight) will penetrate through the open office area and into the open labs. The lab support spaces are on the north side of the bar.

The Pilot plant is located at the east end of the second floor to feature the 50 liter and 200 liter in a glass enclosed, two story high space that is visible from outside the building as well as from the second and third floor within the building. This feature is at the end of the view corridor that crosses the bridge from the manufacturing plant.

The flow of research begins in the microbial lab at the west end of the first level and proceeds east through the cell line and cell culture areas. From the cell culture area the flow is up the elevator on the east end of the bar to the purification area on the third floor. The flow continues west through the analysis area and then down the west elevator to cell assay on the second floor.

The diagram shows some unassigned expansion space.



LAB DEVELOPMENT ORGANIZATION

OPTION 2 (ROTATED BAR)

The lab tech cubical area is located on the south side of the lab bar and the open labs are located on the north side of the bar. The lab support spaces are in the middle. Access from the open office area to the open lab area is at several points through the lab support area.

The flow of research begins in the microbial lab on the east end of the third floor. It proceeds to the cell line area and then to the cell culture area on the same floor. The flow then goes down the elevator at the west end of the lab block to the purification area on the second floor, and then to the analysis area and finally the cell assay area at the east end of the bar.

The diagram shows some unassigned expansion space.



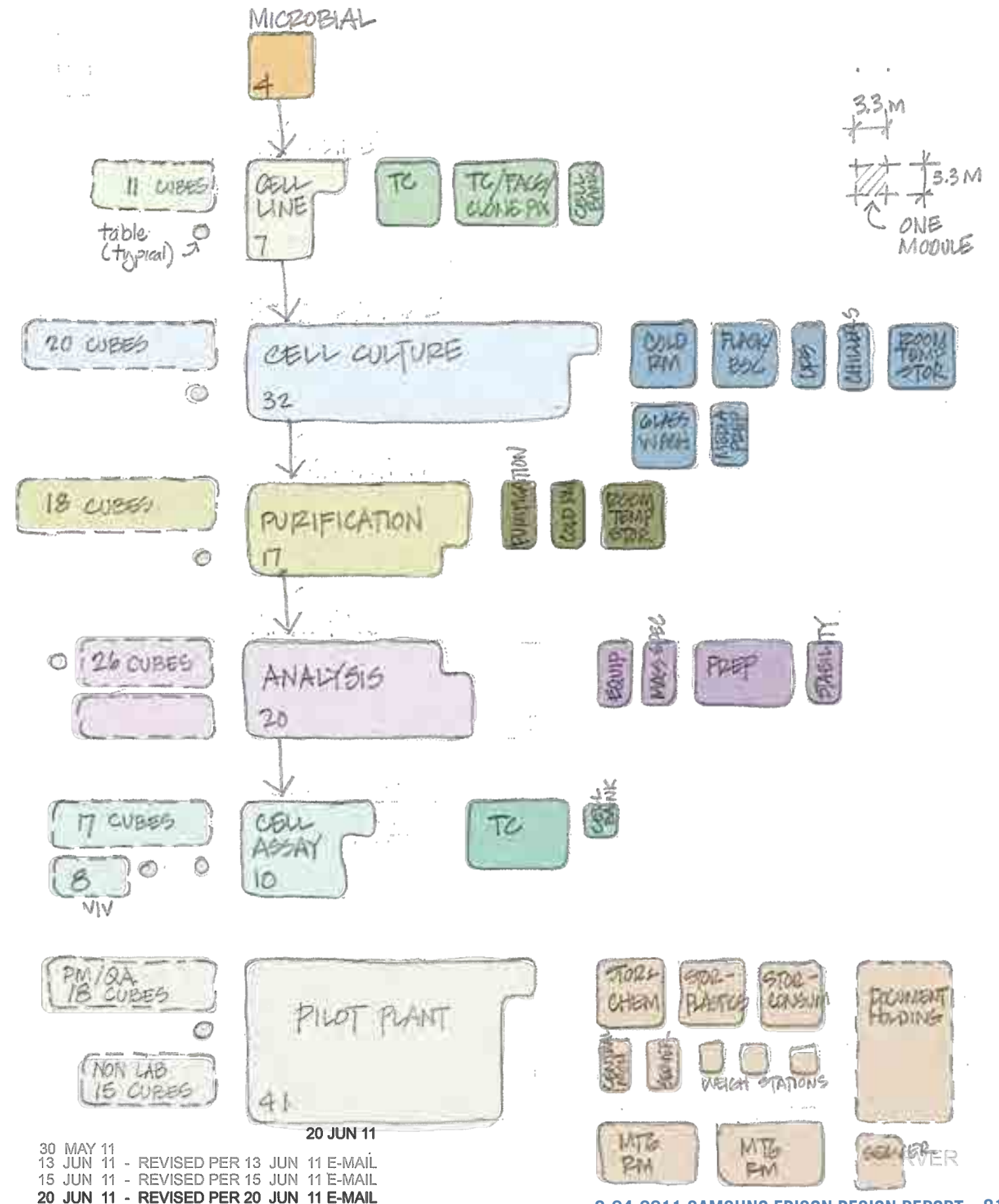
LAB DEVELOPMENT ORGANIZATION

COMBINED OPTION 1 & 2

The lab tech cubical area is located on the south side of the lab bar and the open labs are located on the north side of the bar. The lab support spaces are in the middle. Access from the open office area to the open lab area is at several points through the lab support area.

The flow of research begins in the microbial lab on the west end of the third floor. It proceeds to the cell line area and then to the cell culture area on the same floor. The flow then goes down the elevator at the east end of the lab block to the purification area on the second floor, and then to the analysis area and finally the cell assay area at the west end of the bar.

The diagram shows some unassigned expansion space.



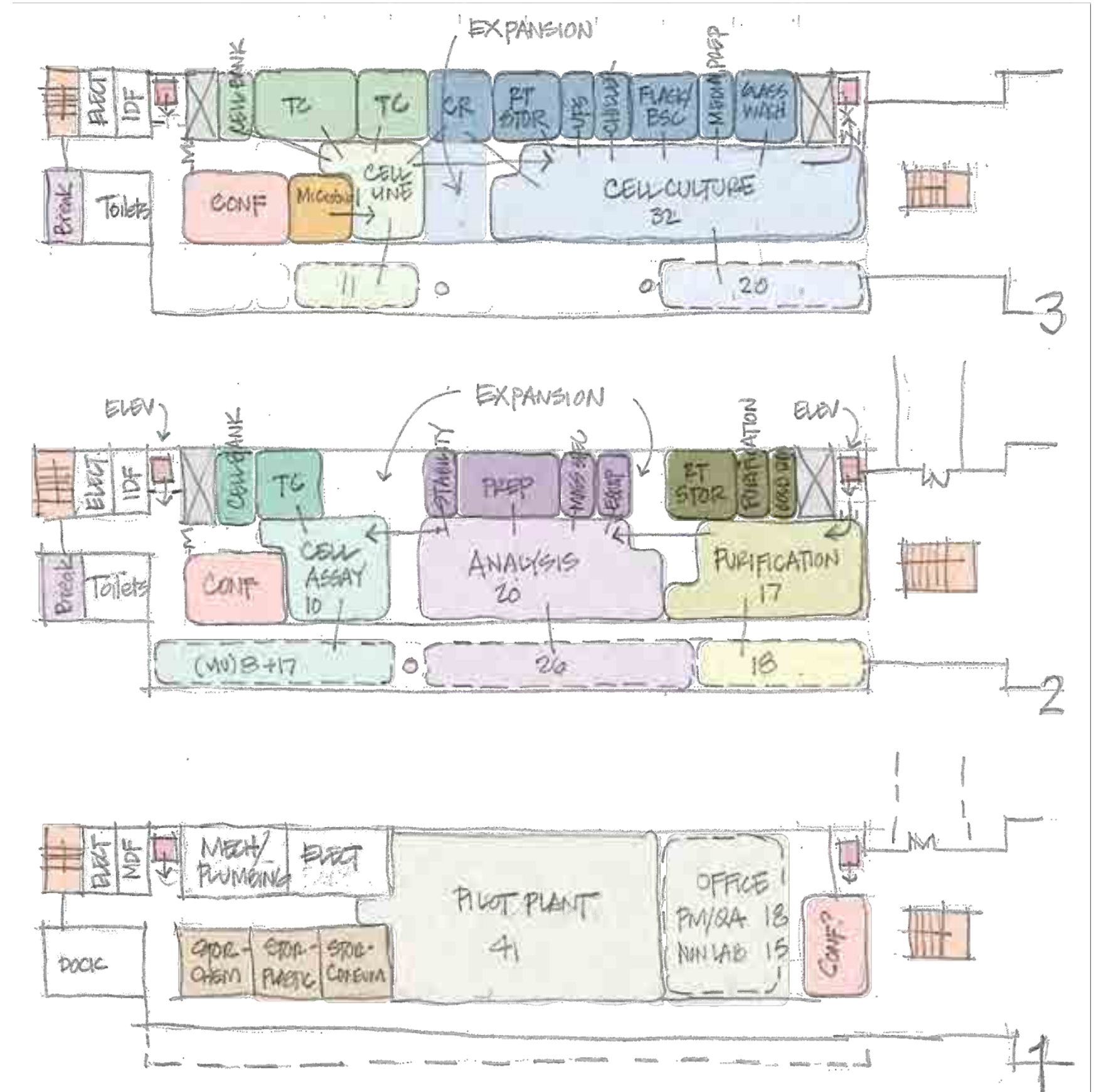
LAB ORGANIZATION

COMBINED OPTION 1 & 2

The lab tech cubical area is located on the south side of the lab bar and the open labs are located on the north side of the bar. The lab support spaces are in the middle. Access from the open office area to the open lab area is at several points through the lab support area.

The flow of research begins in the microbial lab on the west end of the third floor. It proceeds to the cell line area and then to the cell culture area on the same floor. The flow then goes down the elevator at the east end of the lab block to the purification area on the second floor, and then to the analysis area and finally the cell assay area at the west end of the bar.

The diagram shows some unassigned expansion space.



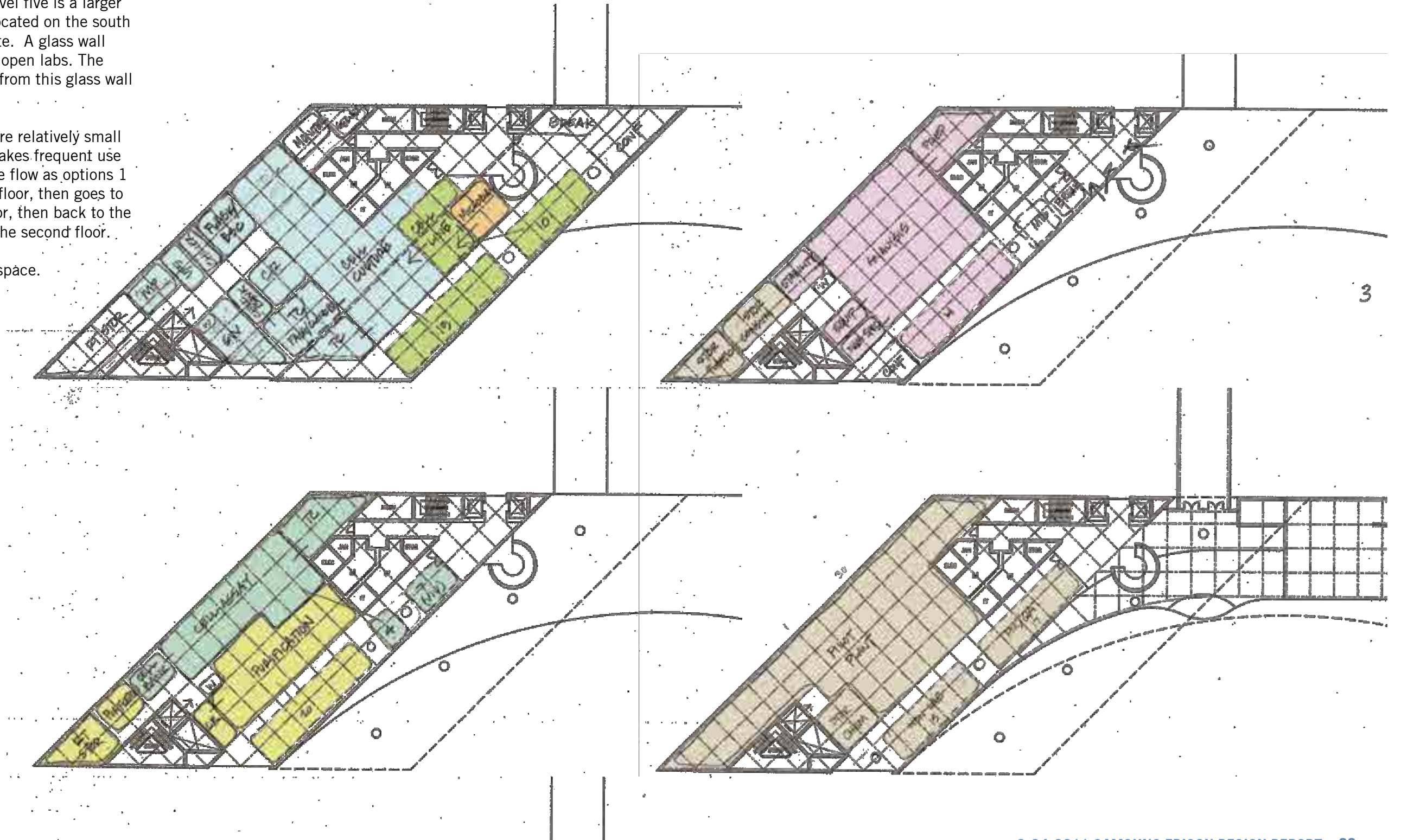
LAB ORGANIZATION

OPTION 3 (BENT BAR)

In this six story building the lab functions are on levels two, three, four and five. Level five is a larger floor plate. The open offices are located on the south side of the parallelogram floor plate. A glass wall separates the office area from the open labs. The open labs run across the building from this glass wall to the north exterior wall.

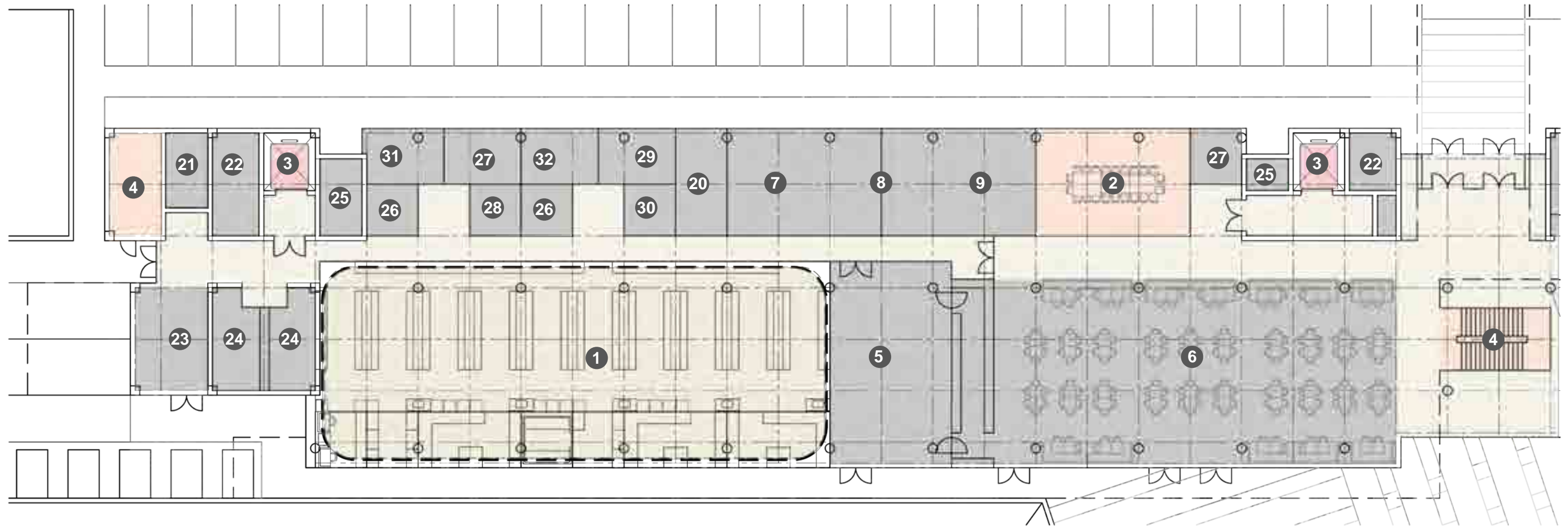
Because most of the floor plates are relatively small the flow of research necessarily makes frequent use of the elevator. Following the same flow as options 1 and 2, research starts at the fifth floor, then goes to the fourth floor, then the third floor, then back to the fourth floor. The pilot plant is on the second floor.

The diagram shows no expansion space.



OPTION 2 ROTATED BAR

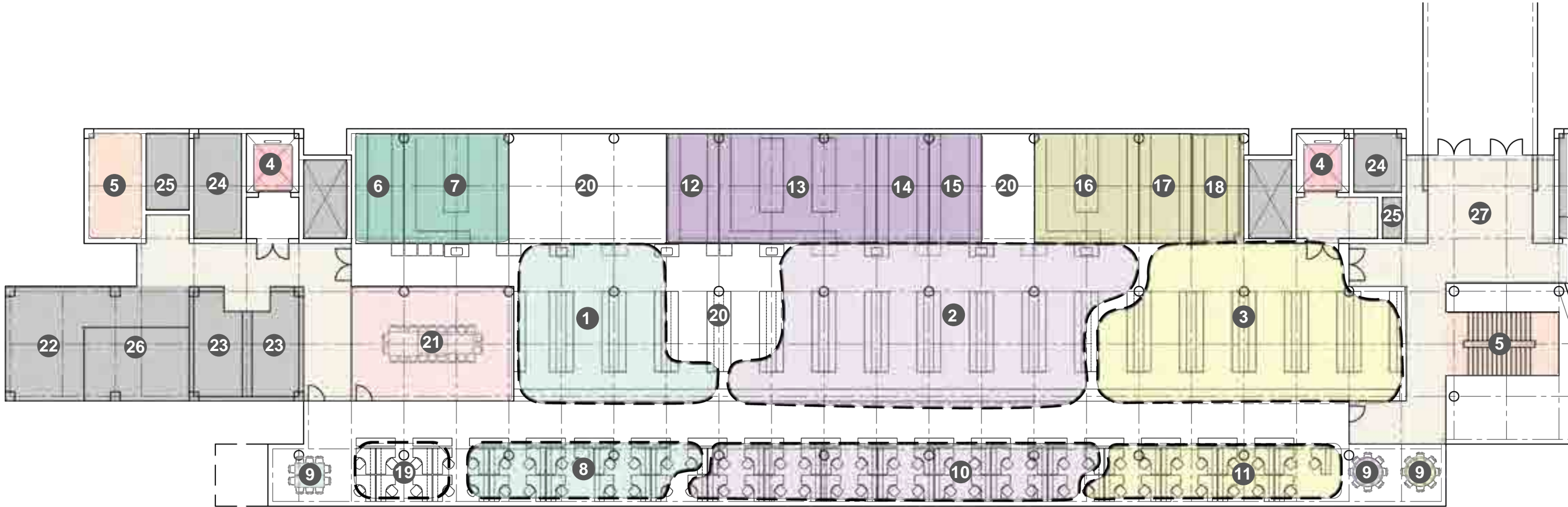
LEVEL 1 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|----------------|------------------|--------------------------------------|------------------------------|--------------------------------------|--|----------------------------------|
| pilot plant | research support | 1 pilot plant | 5 kitchen | 9 storage plastics | 13 preparation | 17 purification |
| stairs | elevator | 2 conference room | 6 cafeteria | 10 analysis work stations | 14 mass spec, structural analysis | 18 cold room |
| non lab spaces | circulation | 3 elevator / service elevator | 7 storage chemical | 11 purification work stations | 15 equipment | 19 vivarium work stations |
| | | 4 stair | 8 storage consumables | 12 stability | 16 room temperature storage | 20 mail room |
| | | 21 idf | 22 electrical | 23 receiving area | 24 rest room | 25 elevator mechanical |
| | | 26 cylinder holding | 26 dock office | 27 store room | 28 recycling | 29 chemical waste |
| | | 30 biowaste | 31 cardboard holding | | | |
| | | 32 flammable liquids | | | | |

OPTION 2 ROTATED BAR

LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|--|--|---|--|---|---|---|
| cell assay | cell assay support | 1 cell assay open lab | 5 stairs | 9 work table | 13 preparation | 17 purification |
| analysis | analysis support | 2 analysis open lab | 6 cell bank | 10 analysis work stations | 14 mass spec, structural analysis | 18 cold room |
| purification | purification support | 3 purification open lab | 7 tissue culture | 11 purification work stations | 15 equipment | 19 vivarium work stations |
| stairs | elevator | 4 elevator / service elevator | 8 cell assay work stations | 12 stability | 16 room temperature storage | 24 electrical |
| non lab spaces | meeting space | 20 expansion space | 21 conference room | 22 breakroom | 23 rest room | |
| | circulation | 25 idf | 26 electrical | | | |
| | | 26 storage | 27 lobby | | | |

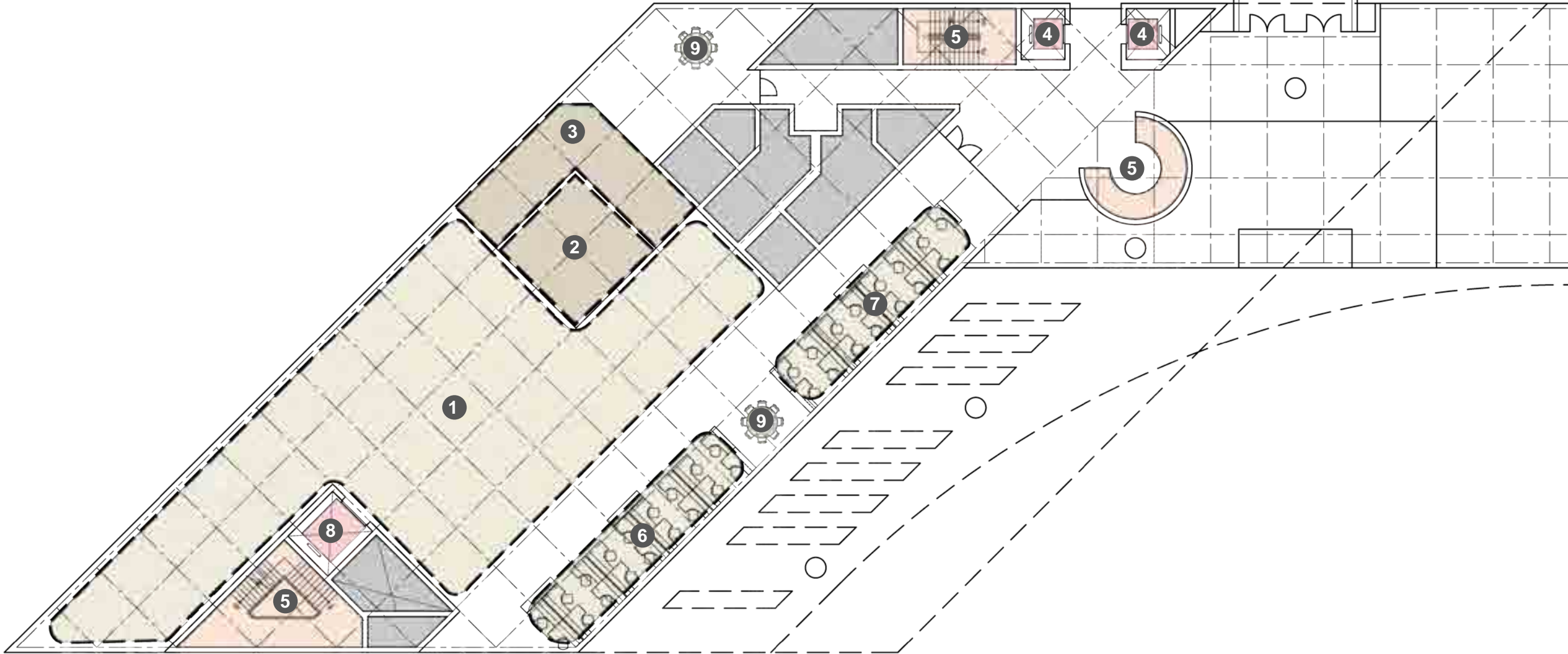


OPTION 2 ROTATED BAR
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|---|---|--------------------------------------|--|------------------------------------|-----------------------------------|--------------------------------------|
| cell line | cell line support | 1 cell line open lab | 5 stairs | 9 cold room | 13 flask/BSC | 17 PM/QA work stations |
| cell culture | cell culture support | 2 cell culture open lab | 6 cell bank | 10 room temperature storage | 14 media prep | 18 cell culture work stations |
| pilot plant | microbial | 3 microbial | 7 tissue culture / FACS / clone pix | 11 ups | 15 glass wash | 19 non lab work stations |
| stairs | elevator | 4 elevator / service elevator | 8 tissue culture | 12 chillers | 16 cell line work stations | |
| non lab spaces | meeting space | 20 expansion space | 21 conference room | 22 work table | 23 breakroom | 24 idf |
| | circulation | 25 electrical | 26 rest room | | | |

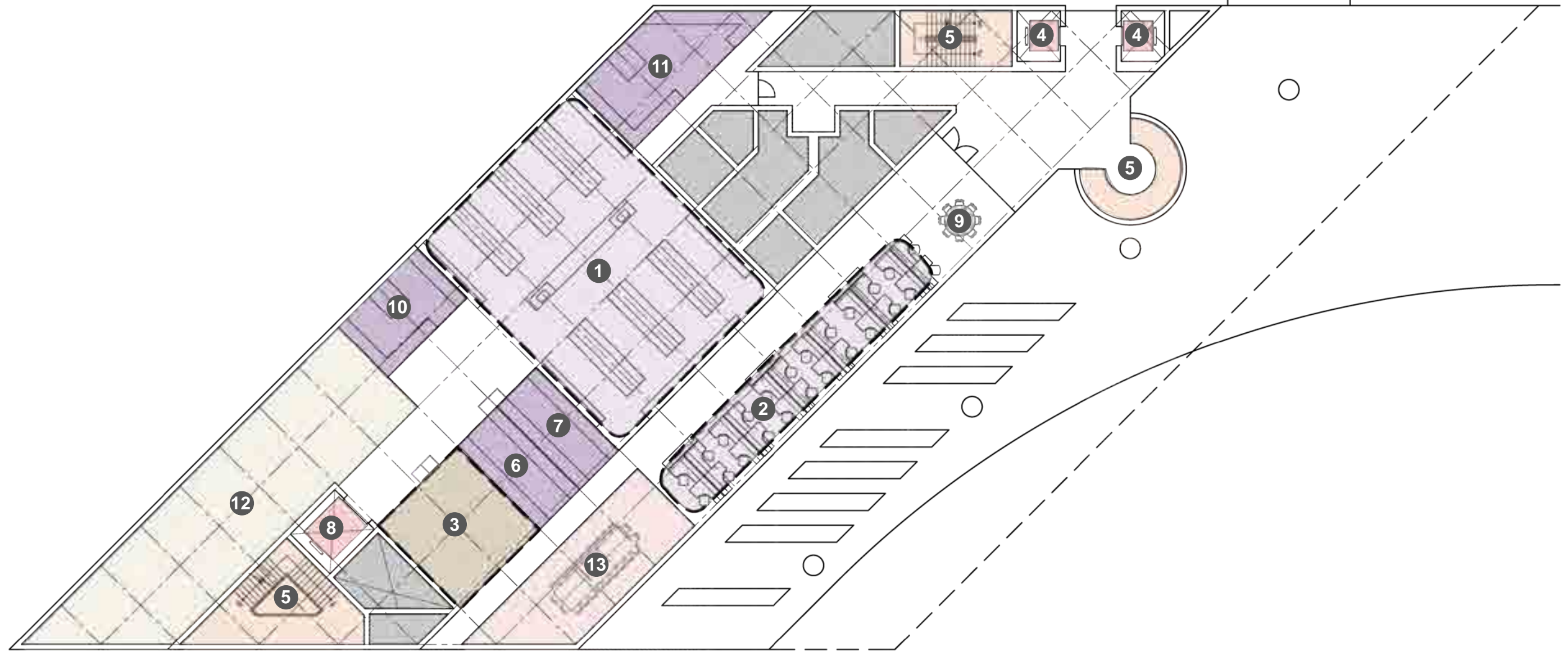
OPTION 3 BENT BAR
LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | |
|----------------|------------------|------------------------------|-------------------------------|---------------------|
| pilot plant | research support | 1 pilot plant | 5 stairs | 9 work table |
| stairs | elevator | 2 storage consumables | 6 PM/QA work stations | |
| non lab spaces | circulation | 3 storage chemicals | 7 non lab workstations | |
| | | 4 elevator | 8 service elevator | |



OPTION 3 BENT BAR
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | |
|------------------|------------------|---------------------------------|---|----------------------------|---------------------------|
| analysis | analysis support | 1 analysis open lab | 5 stairs | 9 work table | 13 conference room |
| research support | | 2 analysis work stations | 6 equipment | 10 stability | |
| stairs | elevator | 3 storage plastics | 7 mass spec, structural analysis | 11 preparation | |
| non lab spaces | meeting space | 4 elevator | 8 service elevator | 12 document holding | |
| | circulation | | | | |

OPTION 3 BENT BAR
LEVEL 4 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | |
|----------------|----------------------|-----------------------------------|-------------------------|--------------------------------------|----------------------------|
| cell assay | cell assay support | 1 cell assay open lab | 5 stairs | 9 purification | 13 work table |
| purification | purification support | 2 purification open lab | 6 cell bank | 10 vivarium work stations | 14 service elevator |
| stairs | elevator | 3 room temperature storage | 7 tissue culture | 11 cell assay work stations | |
| non lab spaces | conference | 4 elevator | 8 cold room | 12 purification work stations | |
| | circulation | | | | |

OPTION 3 BENT BAR
LEVEL 5 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|---|---|---|---|---|--|---|
| cell line | cell line support | 1 cell line open lab | 5 stairs | 9 cold room | 13 flask/BSC | 17 cell culture work stations |
| cell culture | cell culture support | 2 cell culture open lab | 6 cell bank | 10 room temperature storage | 14 media prep | 18 conference room |
| microbial | | 3 microbial | 7 tissue culture / FACS / clone pix | 11 ups | 15 glass wash | 19 work table |
| stairs | elevator | 4 elevator / service elevator | 8 tissue culture | 12 chillers | 16 cell line work stations | |
| non lab spaces | meeting space | 20 expansion space | 21 service elevator | | | |
| | circulation | | | | | |



OPTION 2

ROTATED BAR SCHEME

The strategic arrangement of identical parts in a provocative composition as in the game of jenga provides an excellent metaphor for the design strategy of the rotated bar scheme.

The block stacking game of Jenga is a creative and provocative interplay of strategy to keep a tower from falling over. Jenga is an excellent metaphor for the design strategy of the Rotated Bar scheme. The scheme is essentially a strategic arrangement of identical parts in a provocative composition while addressing specific site, solar and functional requirements.

The Rotated Bar scheme is like the previous scheme in that it is based on a rational module of 3.3M x 3.3M. The compositional stacking of program creates dynamic spaces where the constituent program elements are rotated, stacked, or removed. The process of rotating, stacking, and removing creates an emergent system to define interstitial voids throughout the composition. The voids function as an atrium space that is created by the rotation of administrative program elements in the offset southern bar. The offset southern bar is rotated for best alignment to mitigate solar control.

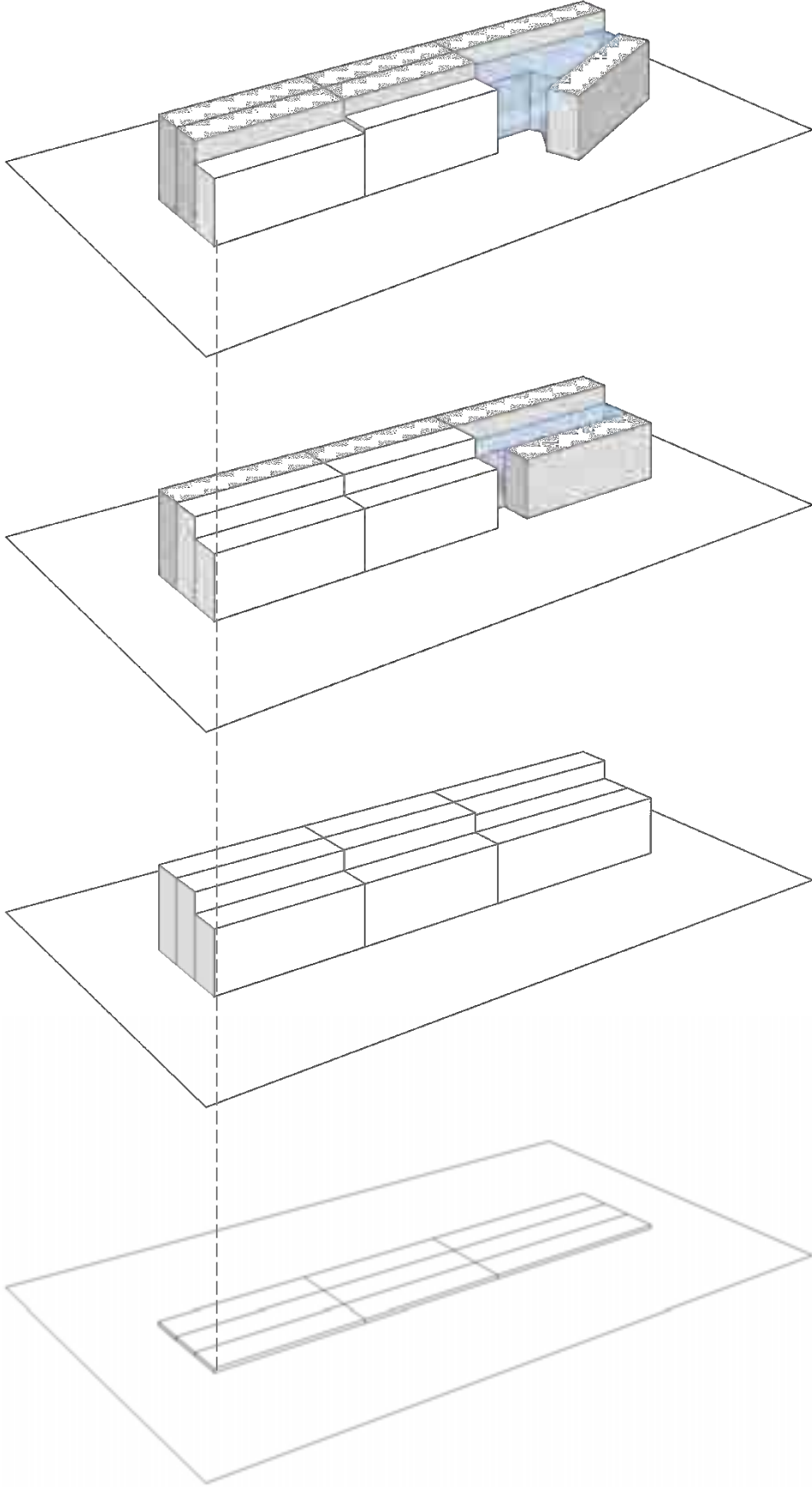
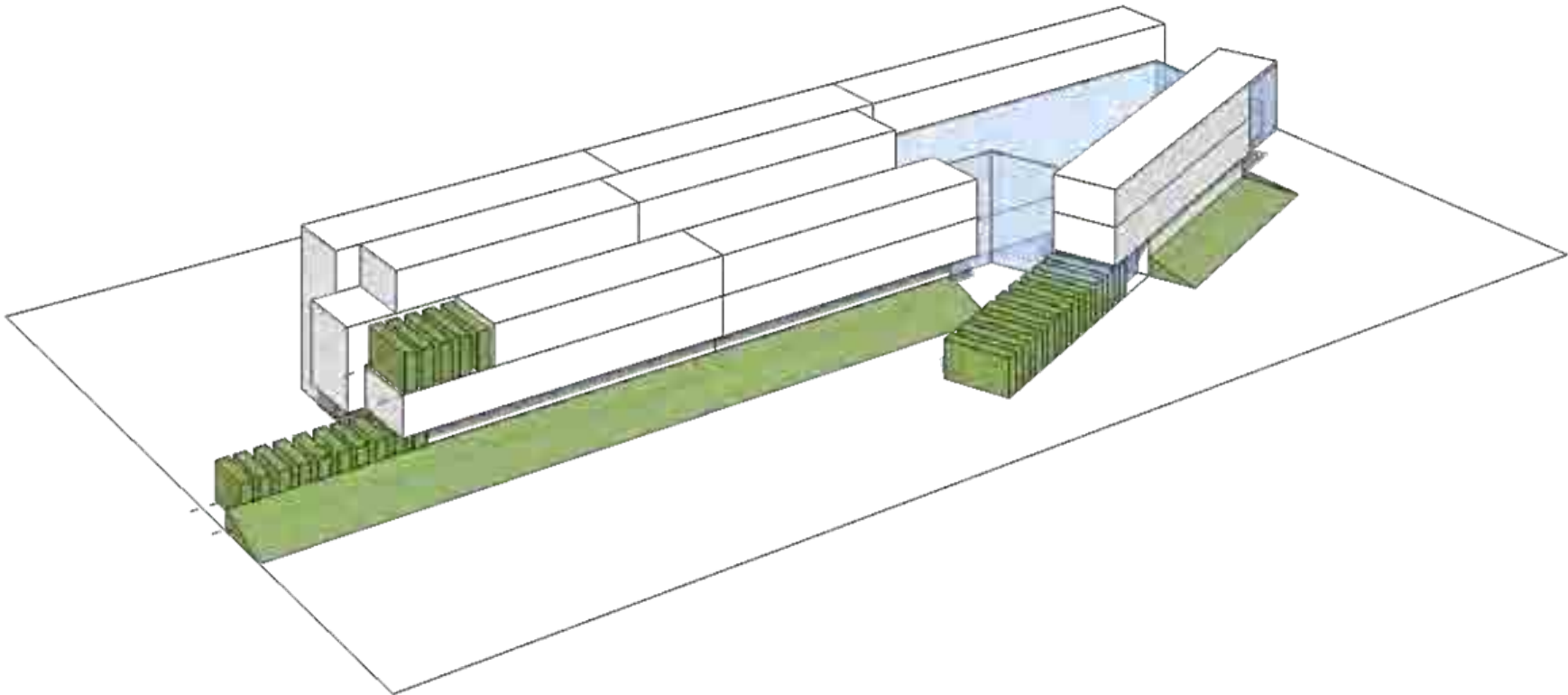
In an analogy to scientific discovery, chaos within rules, this shifting, cantilevering and lifting of the bars creates gardens and overhangs and an irregularity that is provocative and unexpected within a limited kit of parts. A pattern of vertical windows, metal panels and projecting mullions reinforce each floor level. Color is introduced into the exterior skin by metal and translucent glass panels, and projecting vertical fin

walls. Similar to the first scheme, the interior features can be accentuated by lighting and dramatic inner glow of program amenities at night.

The Rotated Bar scheme consists of three levels of building program. Laboratory spaces are at the west end of the plan and all amenities and administrative spaces located at the east end. Dramatic entry to the building is under the rotated bar and into an energetic and socially active multi-level atrium space.



OPTION 2 ROTATED BAR



OPTION 2 ROTATED BAR
PRECEDENTS



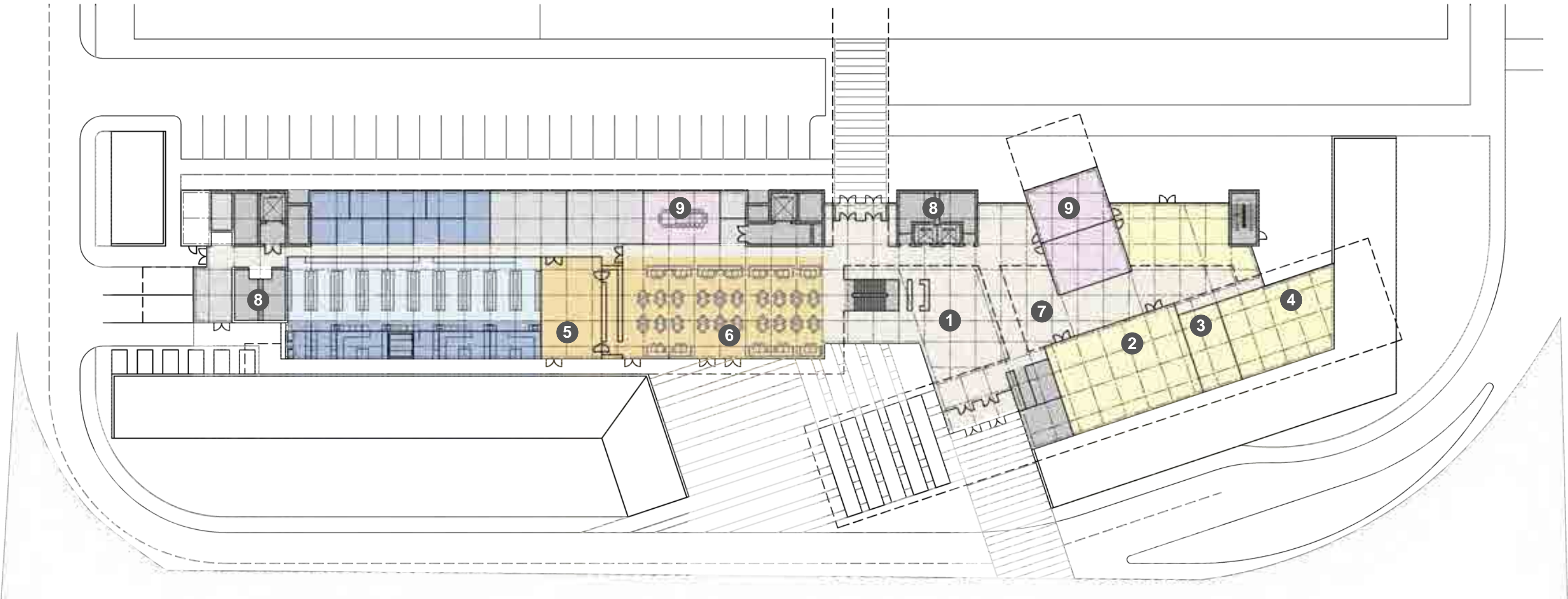
VANKE CENTER, STEVEN HOLL



OPTION 2 ROTATED BAR
PRECEDENTS



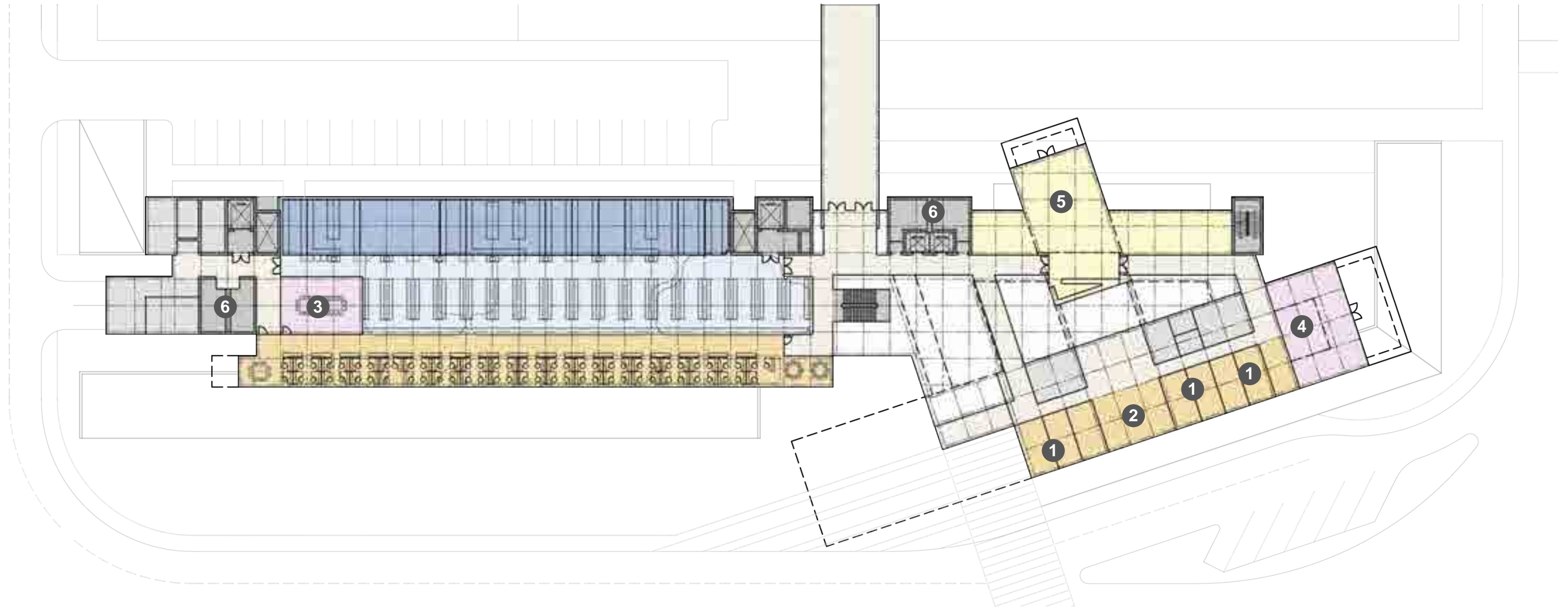
OPTION 2 ROTATED BAR
LEVEL 1 - GROUND



- | | | | | |
|-------------|-------------|--------------------------|--------------------|---------------------|
| lab | (varies) | 1 lobby/reception | 5 kitchen | 9 conference |
| lab support | (varies) | 2 lecture room | 6 cafeteria | |
| office | support | 3 broadcasting | 7 atrium | |
| core | circulation | 4 archive | 8 restrooms | |
| landscape | | | | |

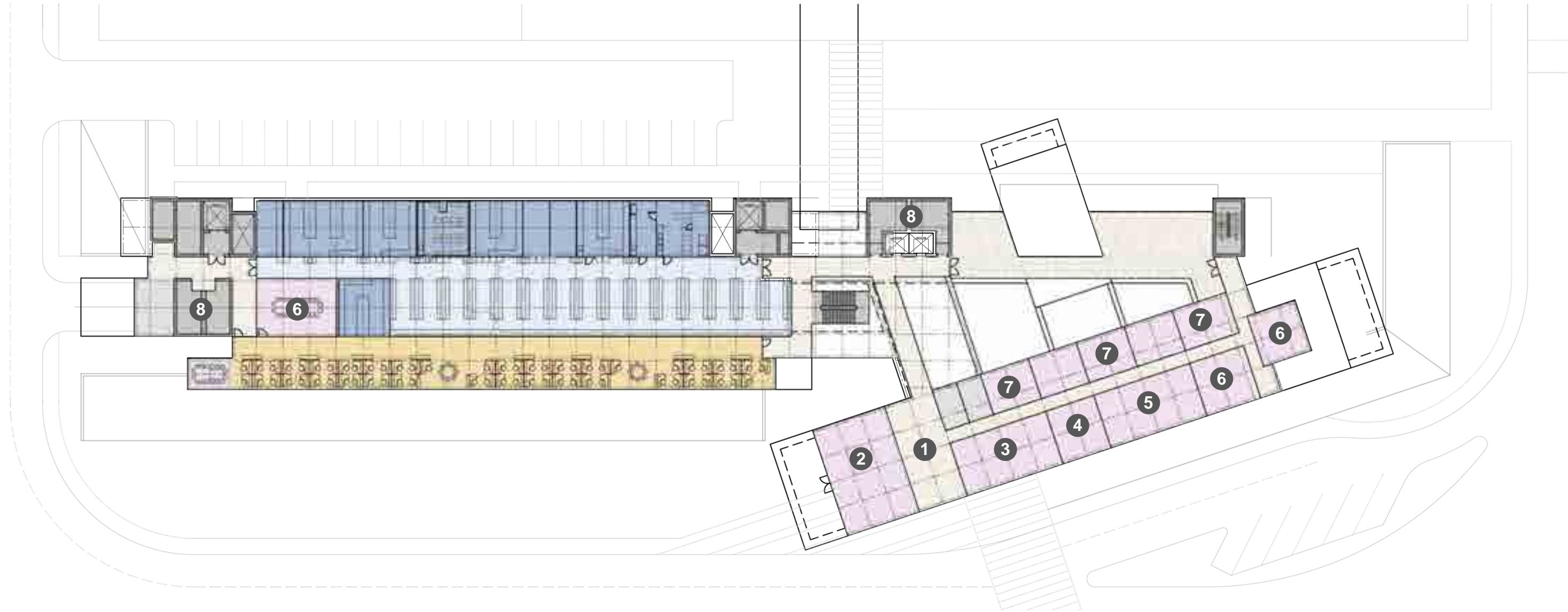


OPTION 2 ROTATED BAR LEVEL 2



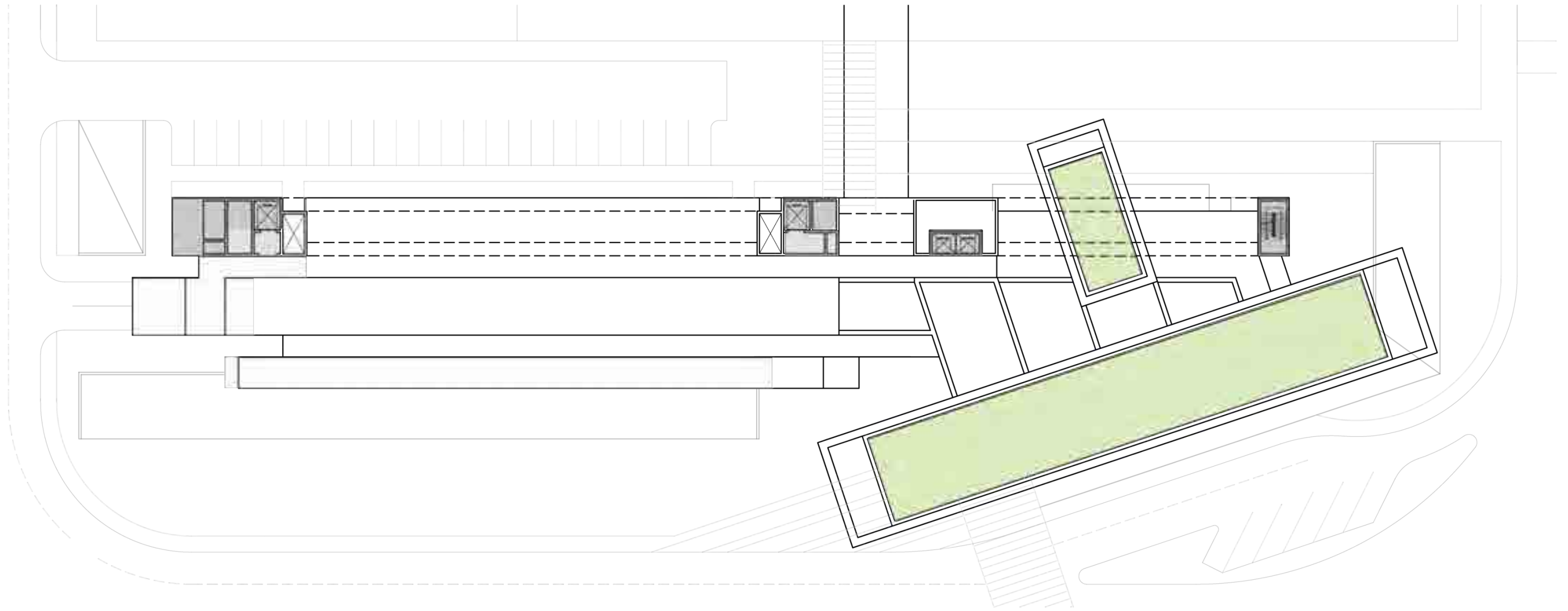
- | | | | |
|--|--|--|--|
| lab | (varies) | 1 director | 5 fitness |
| lab support | (varies) | 2 senior cubicles | 6 restrooms |
| office | support | 3 seminar | |
| core | circulation | 4 conference room | |
| landscape | | | |

OPTION 2 ROTATED BAR LEVEL 3



- | | | | |
|---|--|---|---|
| lab | (varies) | 1 reception | 5 CEO room |
| lab support | (varies) | 2 board room | 6 conference room |
| office | support | 3 VIP room | 7 seminar |
| core | circulation | 4 CEO conference room | 8 restrooms |
| landscape | | | |

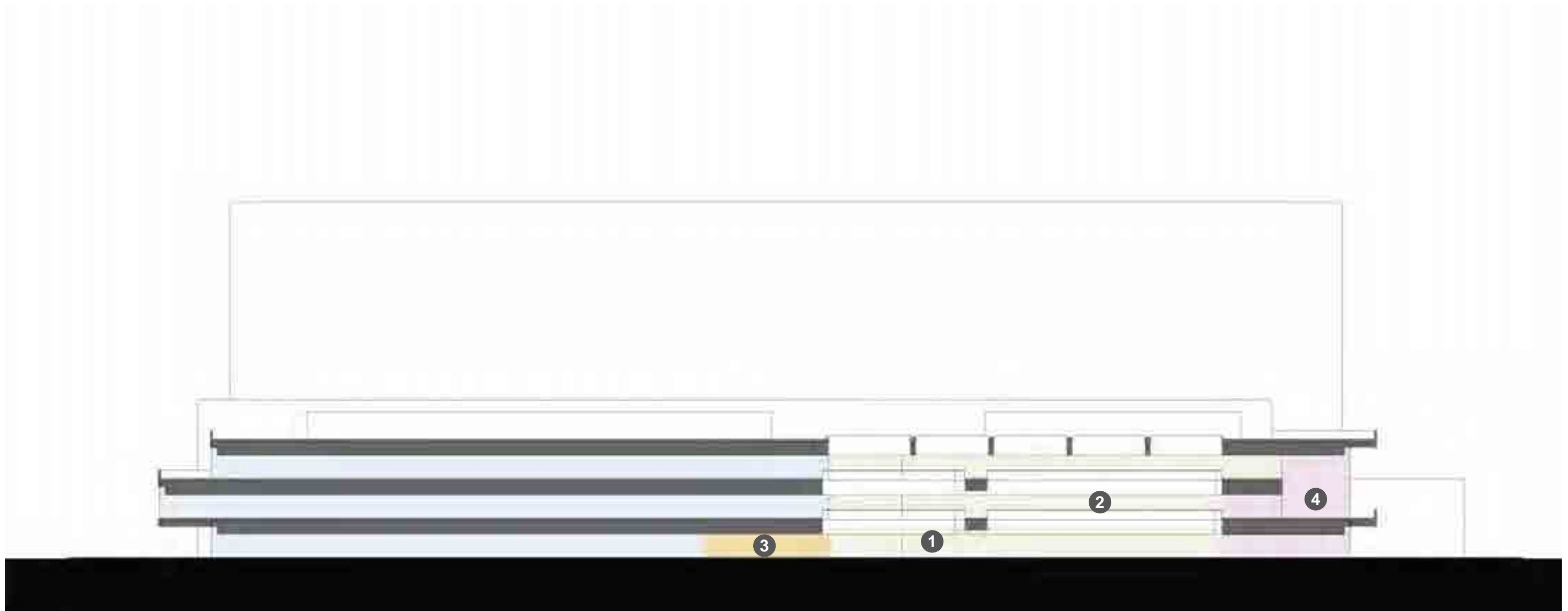
OPTION 2 ROTATED BAR
LEVEL 4



- lab
- lab support
- office
- core
- landscape
- (varies)
- (varies)
- support
- circulation

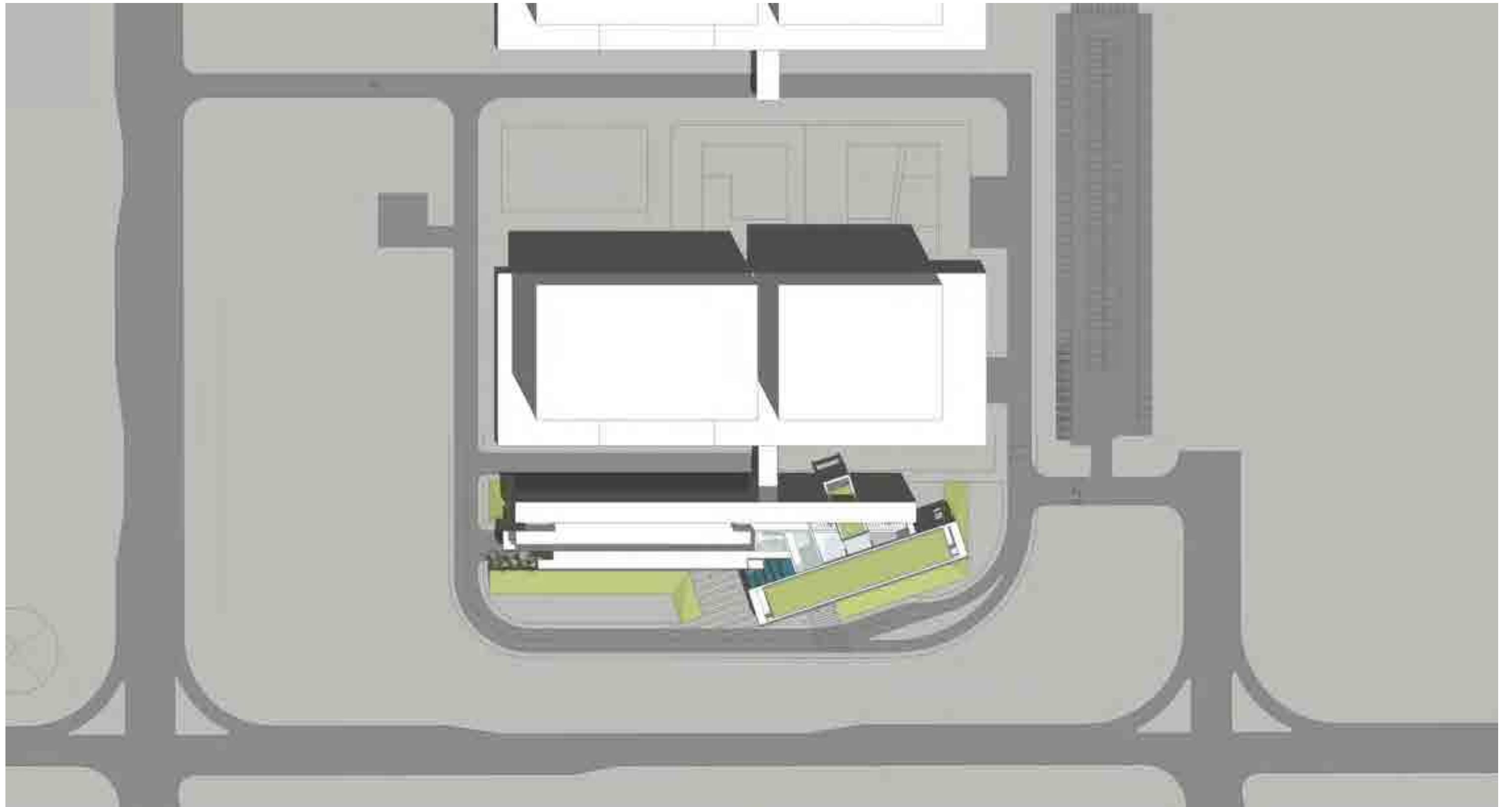


OPTION 2 ROTATED BAR SECTION



- | | | |
|--|--|--|
| lab | (varies) | ① lobby/reception |
| lab support | (varies) | ② atrium |
| office | support | ③ cafeteria |
| core | circulation | ④ conference |
| landscape | | |

OPTION 2 ROTATED BAR
SITE PLAN



OPTION 2 ROTATED BAR
SOUTH BIRDS EYE VIEW



OPTION 2 ROTATED BAR
SOUTH BIRDS EYE VIEW



OPTION 2 ROTATED BAR
SOUTH STREET VIEW



OPTION 2 ROTATED BAR
SOUTH CLOSE UP VIEW



OPTION 2 ROTATED BAR
SOUTH CLOSE UP VIEW



OPTION 2 ROTATED BAR
SOUTH STREET VIEW



LAB DEVELOPMENT ORGANIZATION

OPTION 2 (ROTATED BAR)

The lab tech cubical area is located on the south side of the lab bar and the open labs are located on the north side of the bar. The lab support spaces are in the middle. Access from the open office area to the open lab area is at several points through the lab support area.

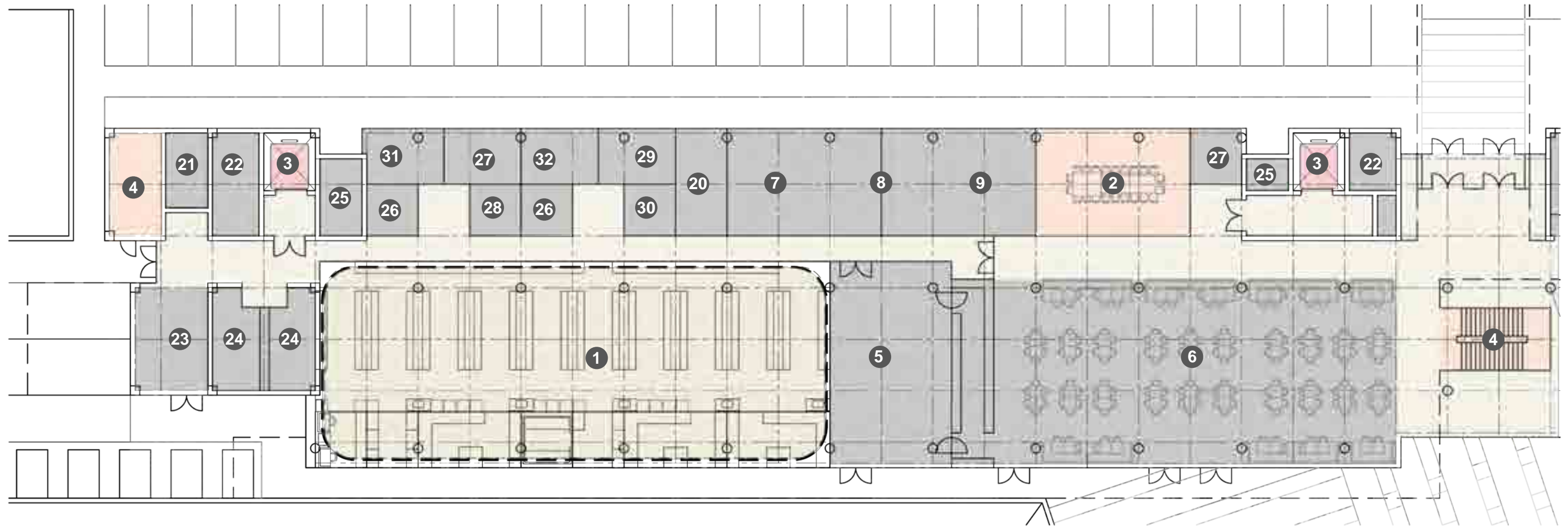
The flow of research begins in the microbial lab on the east end of the third floor. It proceeds to the cell line area and then to the cell culture area on the same floor. The flow then goes down the elevator at the west end of the lab block to the purification area on the second floor, and then to the analysis area and finally the cell assay area at the east end of the bar.

The diagram shows some unassigned expansion space.



OPTION 2 ROTATED BAR

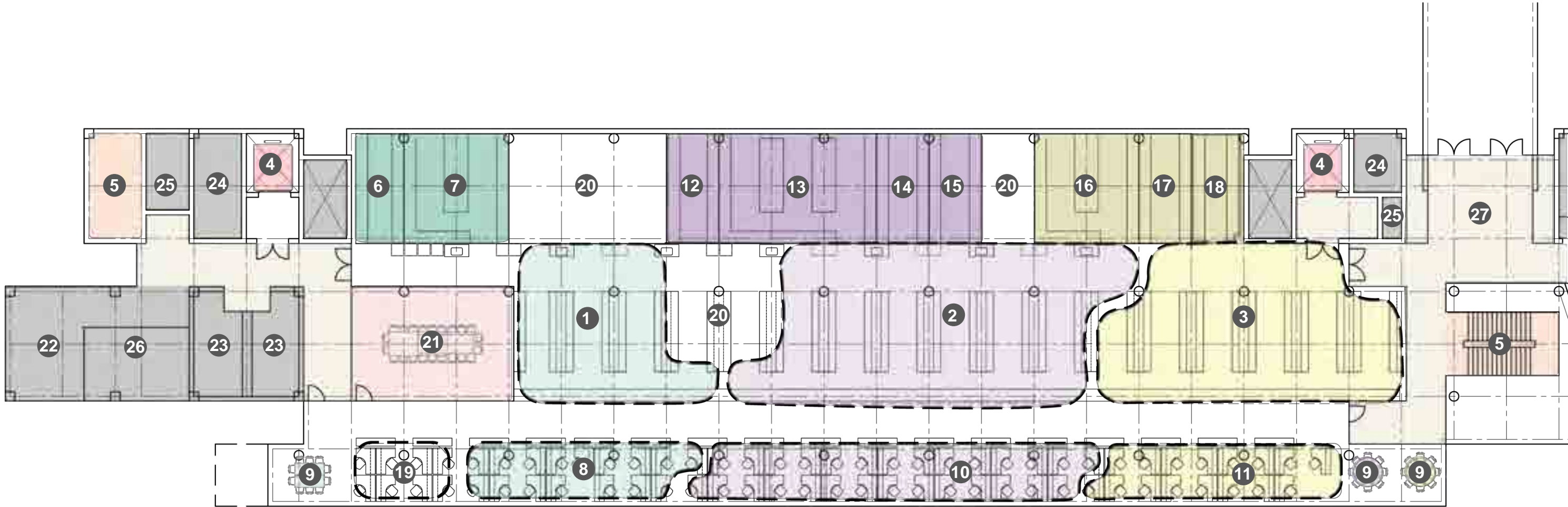
LEVEL 1 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|----------------|------------------|--------------------------------------|------------------------------|--------------------------------------|--|----------------------------------|
| pilot plant | research support | 1 pilot plant | 5 kitchen | 9 storage plastics | 13 preparation | 17 purification |
| stairs | elevator | 2 conference room | 6 cafeteria | 10 analysis work stations | 14 mass spec, structural analysis | 18 cold room |
| non lab spaces | circulation | 3 elevator / service elevator | 7 storage chemical | 11 purification work stations | 15 equipment | 19 vivarium work stations |
| | | 4 stair | 8 storage consumables | 12 stability | 16 room temperature storage | 20 mail room |
| | | 21 idf | 22 electrical | 23 receiving area | 24 rest room | 25 elevator mechanical |
| | | 26 cylinder holding | 26 dock office | 27 store room | 28 recycling | 29 chemical waste |
| | | 30 biowaste | 31 cardboard holding | | | |
| | | 32 flammable liquids | | | | |

OPTION 2 ROTATED BAR

LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|--|--|--|---|--|--|--|
| cell assay | cell assay support | 1 cell assay open lab | 5 stairs | 9 work table | 13 preparation | 17 purification |
| analysis | analysis support | 2 analysis open lab | 6 cell bank | 10 analysis work stations | 14 mass spec, structural analysis | 18 cold room |
| purification | purification support | 3 purification open lab | 7 tissue culture | 11 purification work stations | 15 equipment | 19 vivarium work stations |
| stairs | elevator | 4 elevator / service elevator | 8 cell assay work stations | 12 stability | 16 room temperature storage | 24 electrical |
| non lab spaces | meeting space | 20 expansion space | 21 conference room | 22 breakroom | 23 rest room | |
| | circulation | 25 idf | 26 electrical | | | |
| | | 26 storage | 27 lobby | | | |



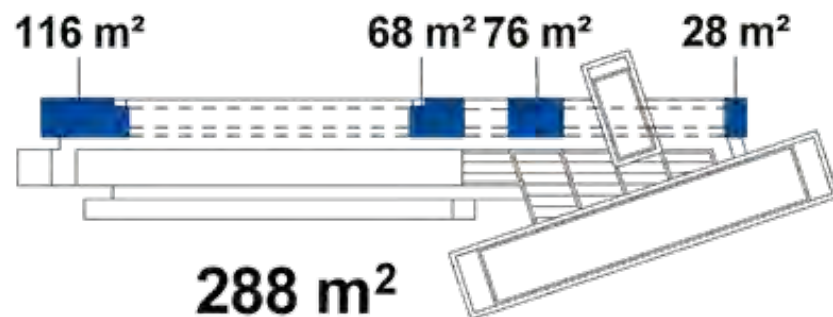
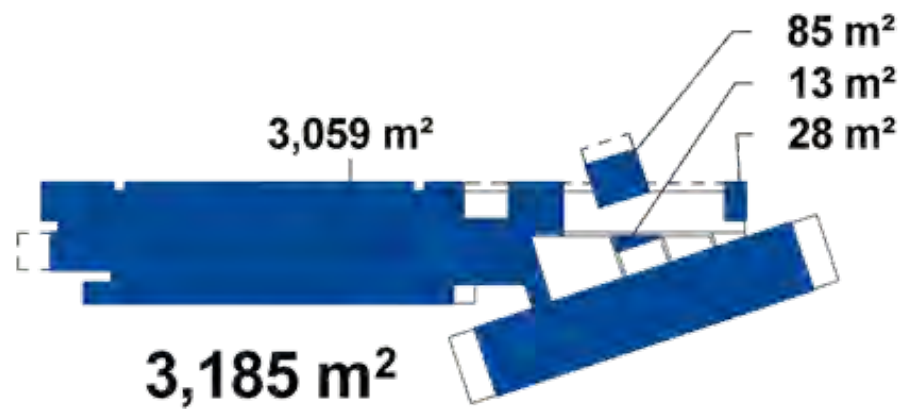
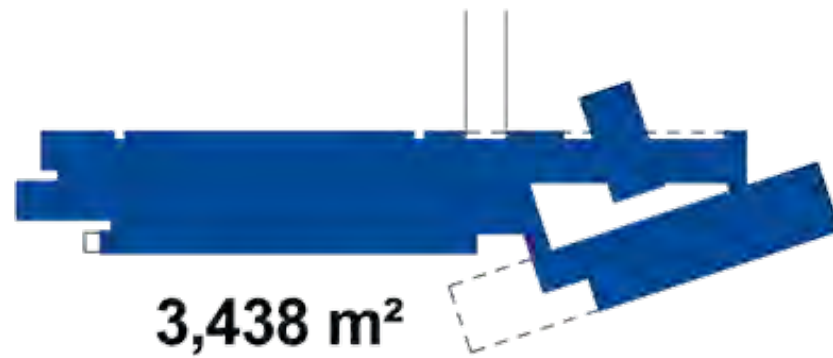
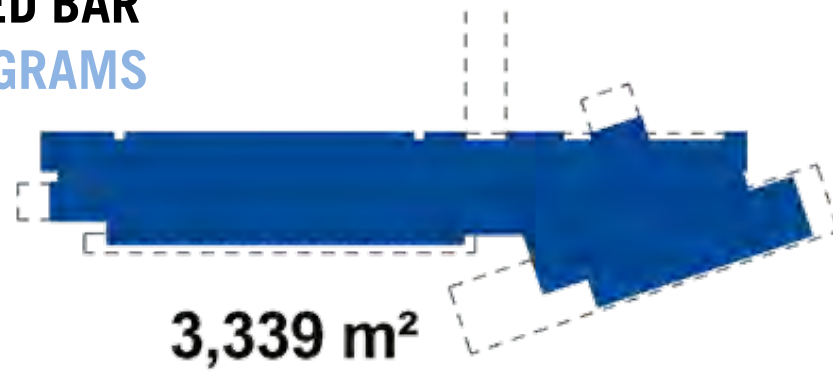
OPTION 2 ROTATED BAR
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|---|---|--------------------------------------|--|------------------------------------|-----------------------------------|--------------------------------------|
| cell line | cell line support | 1 cell line open lab | 5 stairs | 9 cold room | 13 flask/BSC | 17 PM/QA work stations |
| cell culture | cell culture support | 2 cell culture open lab | 6 cell bank | 10 room temperature storage | 14 media prep | 18 cell culture work stations |
| pilot plant | microbial | 3 microbial | 7 tissue culture / FACS / clone pix | 11 ups | 15 glass wash | 19 non lab work stations |
| stairs | elevator | 4 elevator / service elevator | 8 tissue culture | 12 chillers | 16 cell line work stations | |
| non lab spaces | meeting space | 20 expansion space | 21 conference room | 22 work table | 23 breakroom | 24 idf |
| | circulation | 25 electrical | 26 rest room | | | |



OPTION 2 ROTATED BAR
GROSS AREA DIAGRAMS



10,250 m²
Rotated Bar Scheme Total Gross Area

OPTION 1 BAR

BAR SCHEME

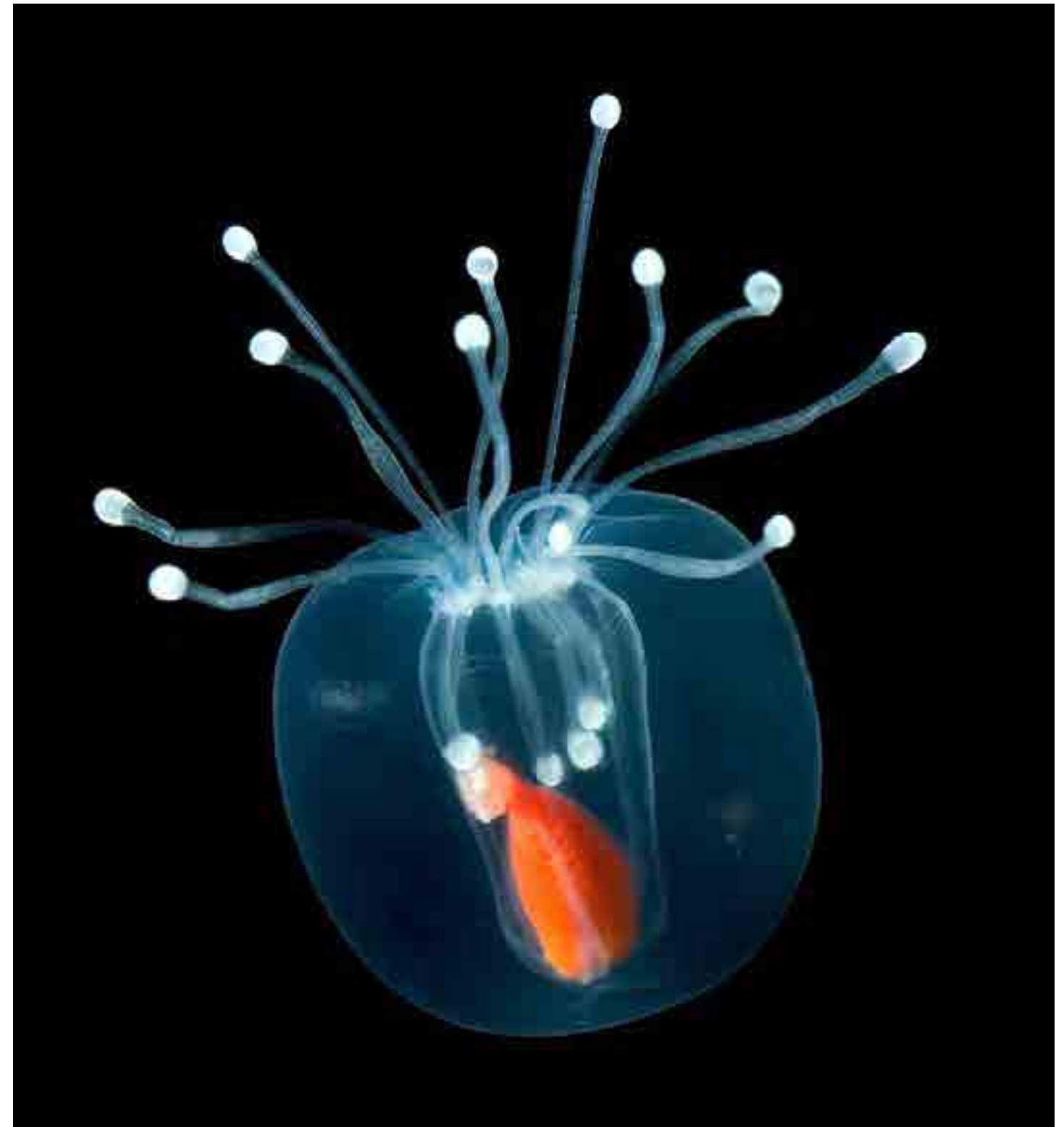
A layer surrounding a delicate organism is a metaphor for the design strategy of the bar scheme.

A layer surrounding a delicate organism is a metaphor for the design strategy of the Bar scheme. The interaction of human activity and Samsung's critical scientific research is located within this delicate layer where functions normally associated with an organism such as living and growing take place in an external and internal protective membrane. The external envelope or second skin mitigates and controls solar conditions with screens that protect the internal skin. This layer defines the boundary of the outdoor spaces. The inner skin is essentially a curtain wall system and weather barrier consisting of mostly glass to maximize daylight to the interior spaces and to provide views out to the exterior.

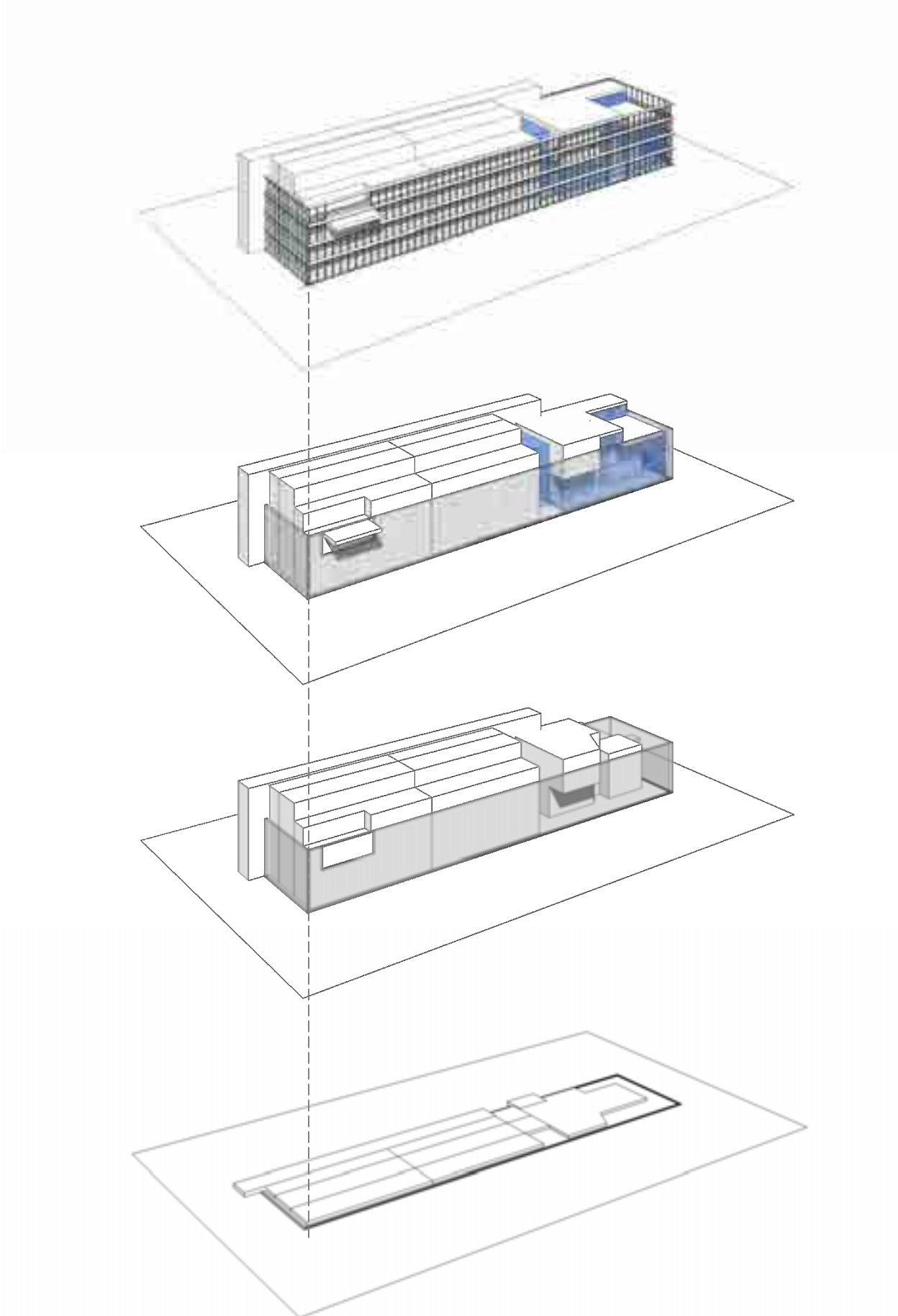
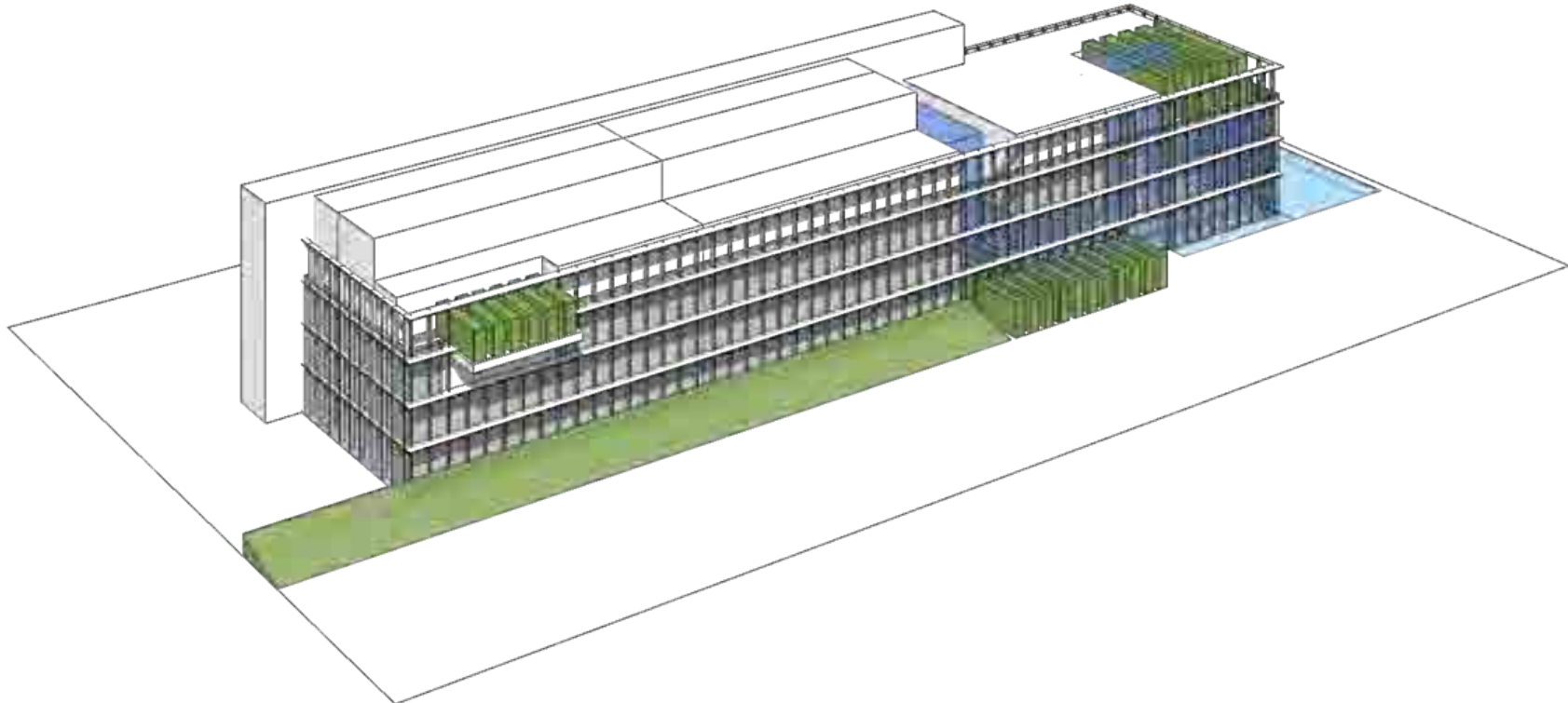
The Bar scheme is a four level building with the upper level dedicated to administrative functions. Upper level balconies project out through the outer skin to dramatically engage the campus. The

laboratory spaces located at the west end of the building are based on a rational and flexible module of 3.3M x 3.3M. Amenities such as auditorium, cafeteria, fitness center and featured lab spaces are expressed as unique volumes within the envelope connected by multi-story atrium spaces. These are dynamic spaces that provide and promote a place for energetic social interaction which can be accessed from multiple levels. Gardens at grade penetrate through the outer skin to bring the outside into the interior spaces.

The Bar scheme is a building that presents an iconic character derived through elegant yet simple façade details featuring an artful composition of layered color, transparency, and translucent glass, and sun shading elements. At night, the interior features accentuated lighting and dramatic inner glow of program amenities.



OPTION 1 BAR



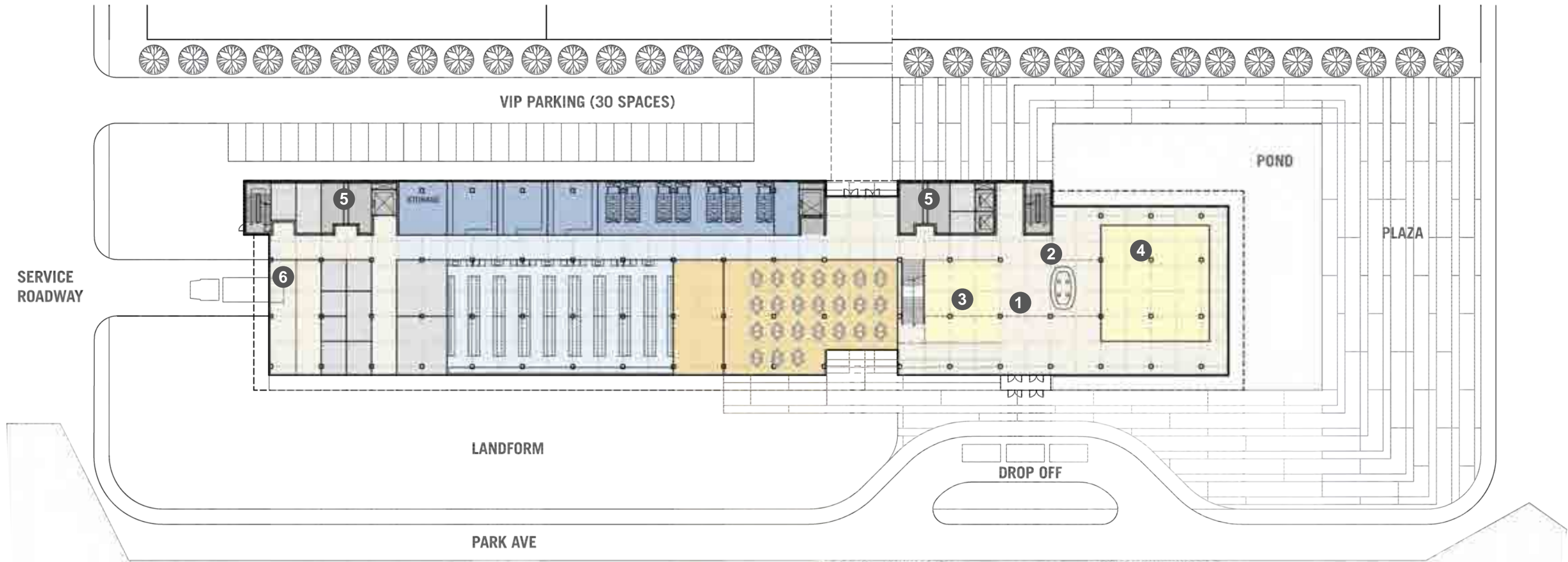
OPTION 1 BAR
PRECEDENTS



OPTION 1 BAR
PRECEDENTS



OPTION 1 BAR
LEVEL 1 - GROUND



- | | | | |
|-------------|-------------|--------------------------|-------------------------|
| lab | (varies) | 1 lobby | 5 restrooms |
| lab support | (varies) | 2 reception | 6 receiving area |
| office | support | 3 exhibition hall | |
| core | circulation | 4 lecture room | |
| landscape | | | |

OPTION 1 BAR
LEVEL 2



- | | | |
|--|--|--|
| lab | (varies) | 1 bioreactor showcase |
| lab support | (varies) | 2 fitness |
| office | support | 3 conference |
| core | circulation | 4 restrooms |
| landscape | | |

OPTION 1 BAR
LEVEL 3



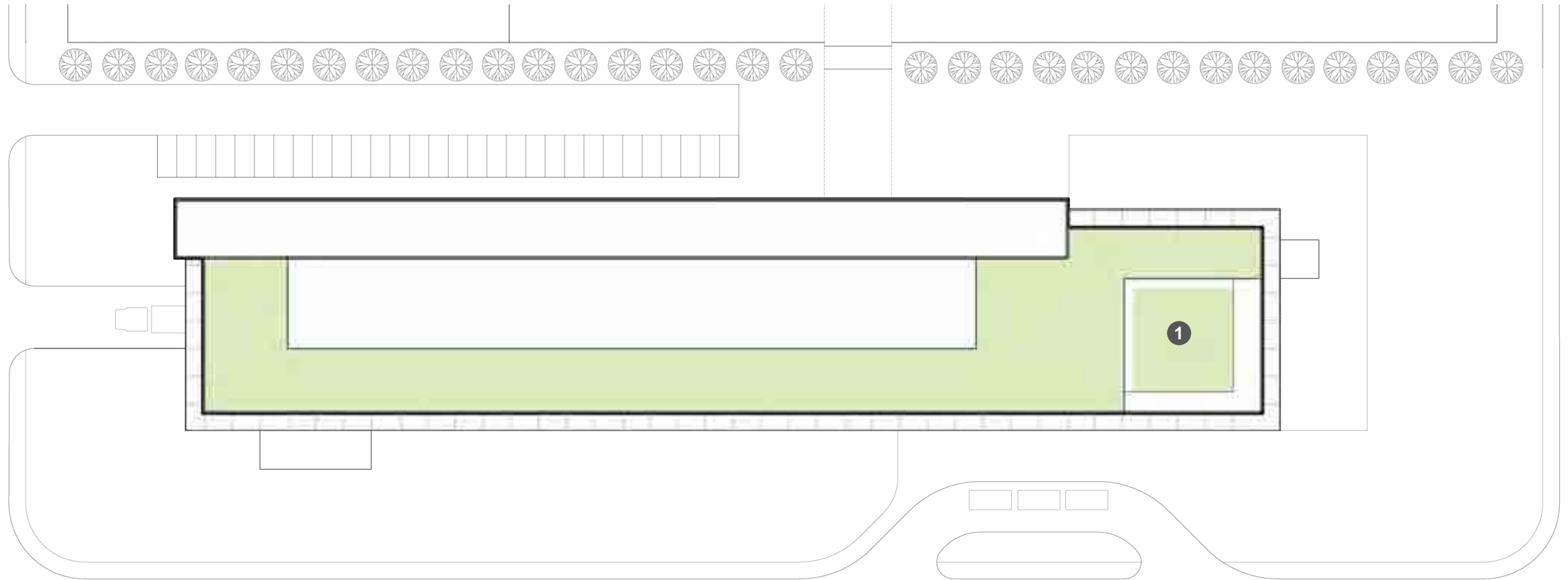
- | | | |
|--|--|--|
| lab | (varies) | 1 conference |
| lab support | (varies) | 2 open office |
| office | support | 3 archive |
| core | circulation | 4 restrooms |
| landscape | | |

OPTION 1 BAR
LEVEL 4



- | | | | | |
|-------------|-------------|------------------------------|-------------------------|-----------------------|
| lab | (varies) | 1 reception | 5 VIP room | 9 restrooms |
| lab support | (varies) | 2 conference room | 6 board room | 10 roof garden |
| office | support | 3 CEO conference room | 7 HQ open office | |
| core | circulation | 4 CEO room | 8 seminar | |
| landscape | | | | |














OPTION 1 BAR
LEVEL 5 – ROOF PLAN/ PENTHOUSE



- lab
- lab support
- office
- core
- landscape
- (varies)
- (varies)
- support
- circulation
- 1 roof garden

OPTION 1 BAR SECTION



- | | | |
|---|---|---|
|  lab |  (varies) |  lobby/reception |
|  lab support |  (varies) |  lecture room |
|  office |  support |  cafeteria |
|  core |  circulation |  conference |
|  landscape | | |

OPTION 1 BAR
SITE PLAN



OPTION 1 BAR
SOUTH BIRDS EYE VIEW



OPTION 1 BAR
SOUTH STREET VIEW



OPTION 1 BAR
SOUTH STREET VIEW



OPTION 1 BAR
EAST STREET VIEW



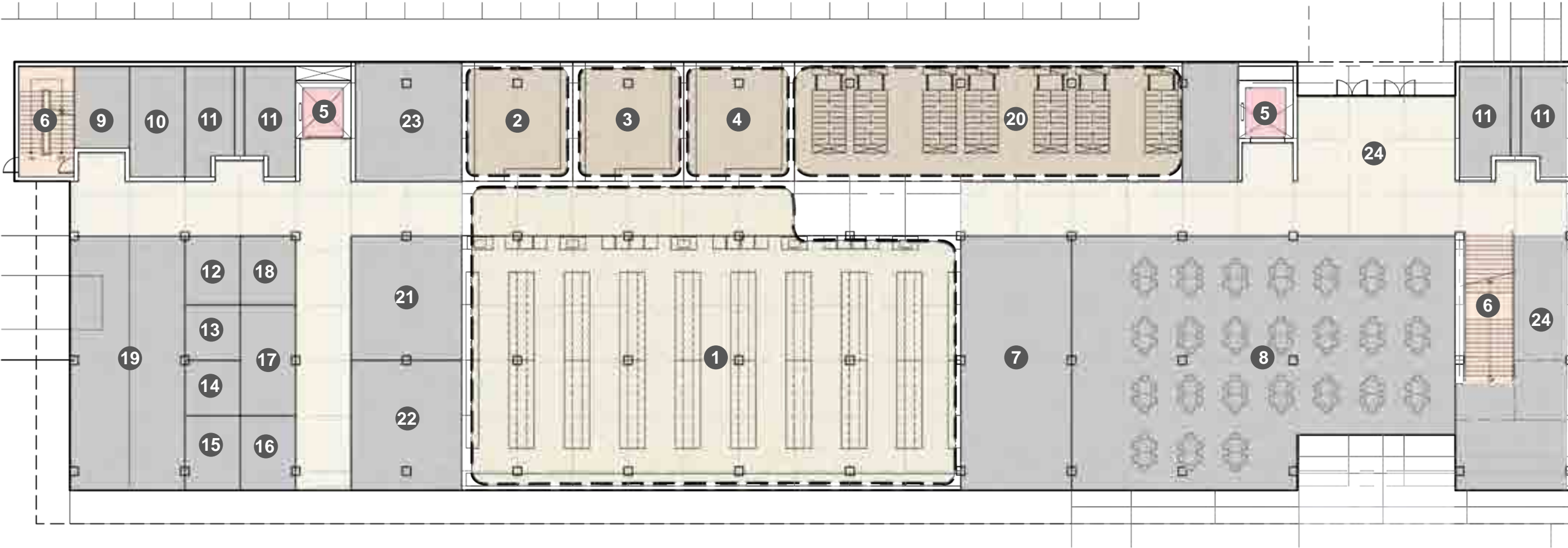
OPTION 1 BAR
SOUTH CLOSE UP VIEW



OPTION 1 BAR
SOUTH CLOSE UP VIEW



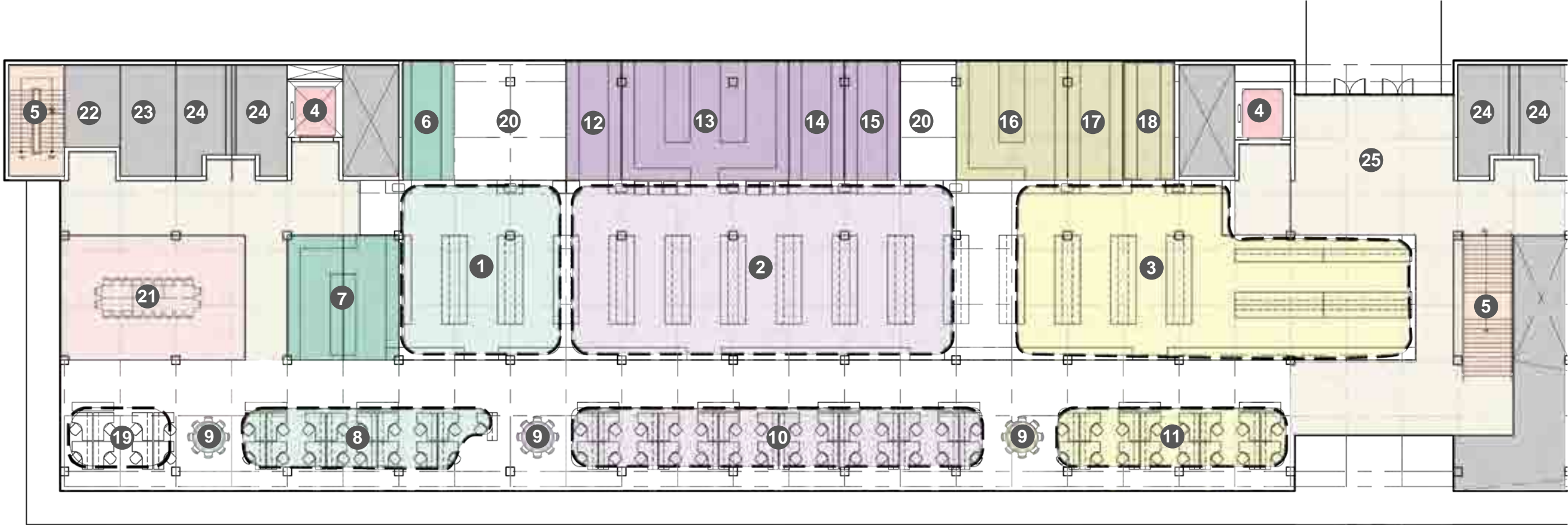
OPTION 1 BAR
LEVEL 1 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | | |
|-------------|------------------|------------------------------|--------------------------------------|-----------------------|-----------------------------|----------------------------|----------------------|
| pilot plant | research support | 1 pilot plant | 5 elevator / service elevator | 9 telecom | 13 cylinder holding | 17 mail room | 21 electrical |
| stairs | elevator | 2 storage consumables | 6 stairs | 10 idf | 14 bulk waste | 18 flammable liquid | 22 mechanical |
| core | circulation | 3 storage plastics | 7 kitchen | 11 restroom | 15 biowaste holding | 19 receiving stage | 23 storage |
| | | 4 storage chemicals | 8 cafeteria | 12 dock office | 16 recycling holding | 20 document holding | 24 lobby |



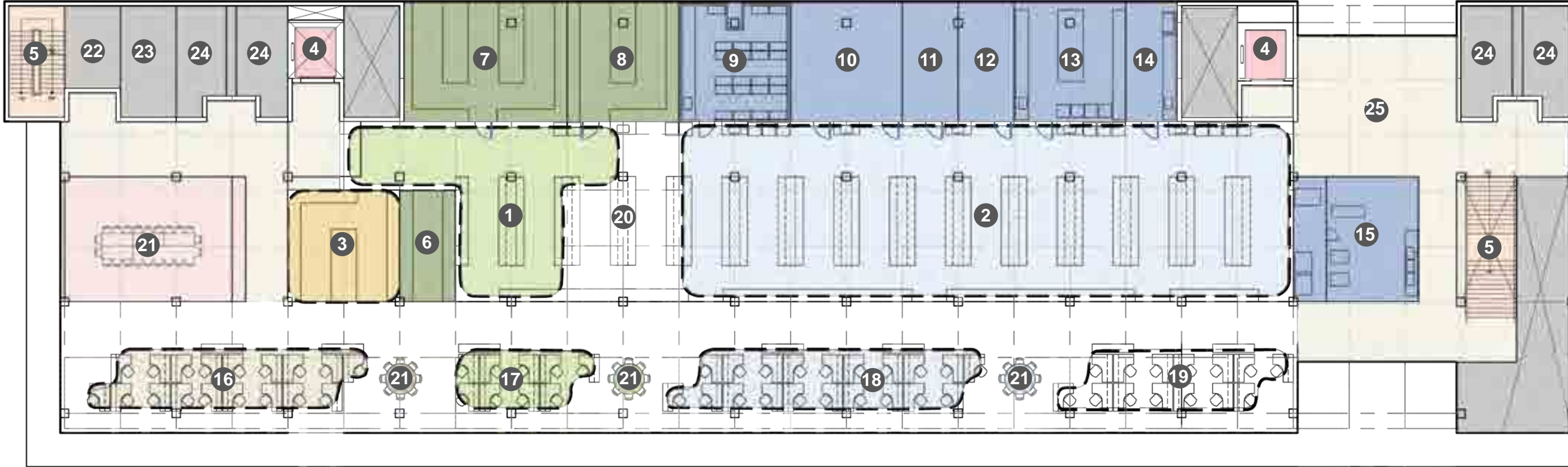
OPTION 1 BAR
LEVEL 2 - ENLARGED LABORATORY FLOOR PLAN



- | | | | | | | |
|---|---|--------------------------------------|-----------------------------------|--------------------------------------|--|----------------------------------|
| cell assay | cell assay support | 1 cell assay open lab | 5 stairs | 9 work table | 13 preparation | 17 purification |
| analysis | analysis support | 2 analysis open lab | 6 cell bank | 10 analysis work stations | 14 mass spec, structural analysis | 18 cold room |
| purification | purification support | 3 purification open lab | 7 tissue culture | 11 purification work stations | 15 equipment | 19 vivarium work stations |
| stairs | elevator | 4 elevator / service elevator | 8 cell assay work stations | 12 stability | 16 room temperature storage | 20 expansion space |
| core | meeting space | 21 conference room | 22 telecom | 23 idf | 24 restroom | 25 lobby |
| | circulation | | | | | |



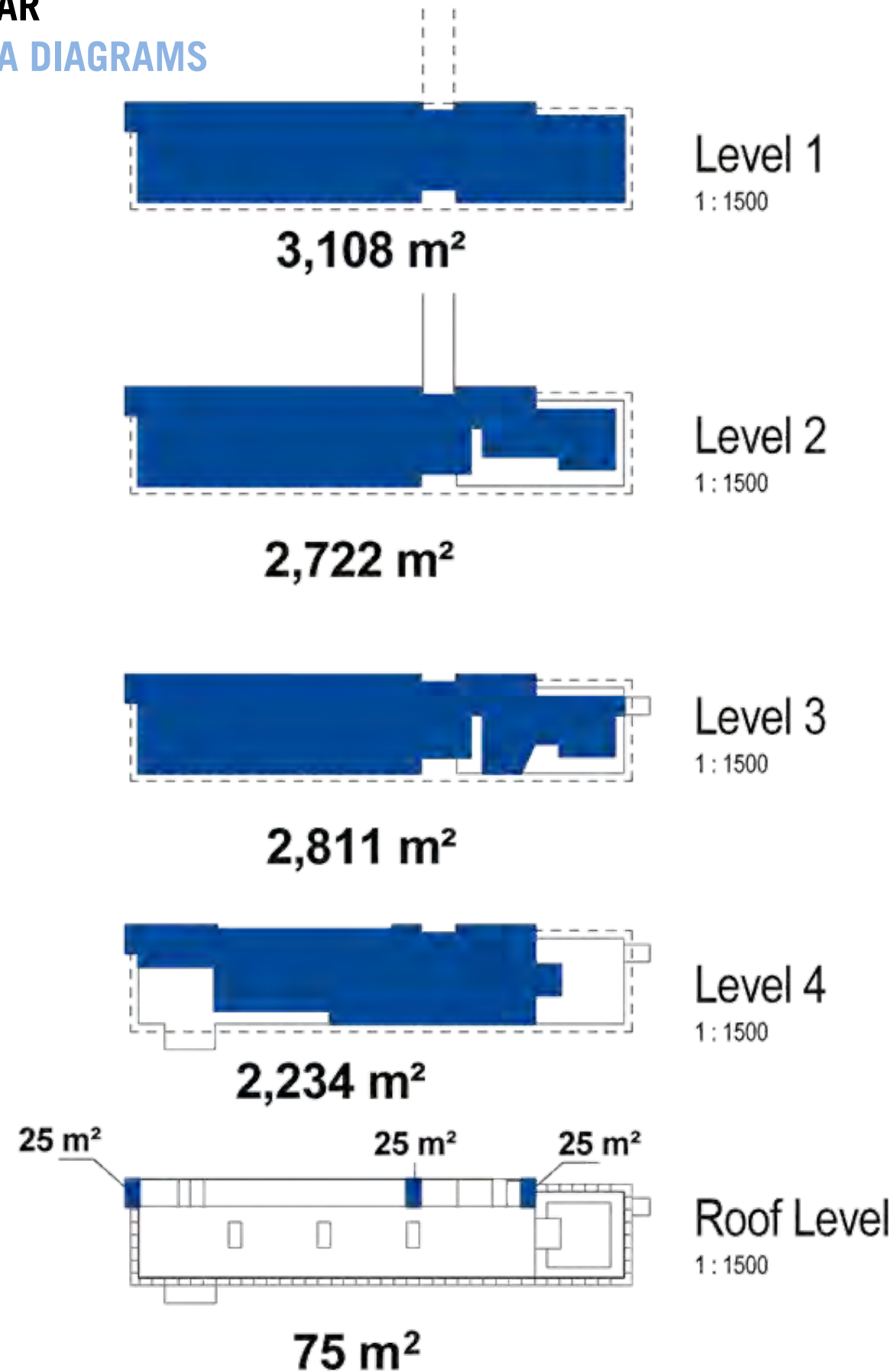
OPTION 1 BAR
LEVEL 3 - ENLARGED LABORATORY FLOOR PLAN



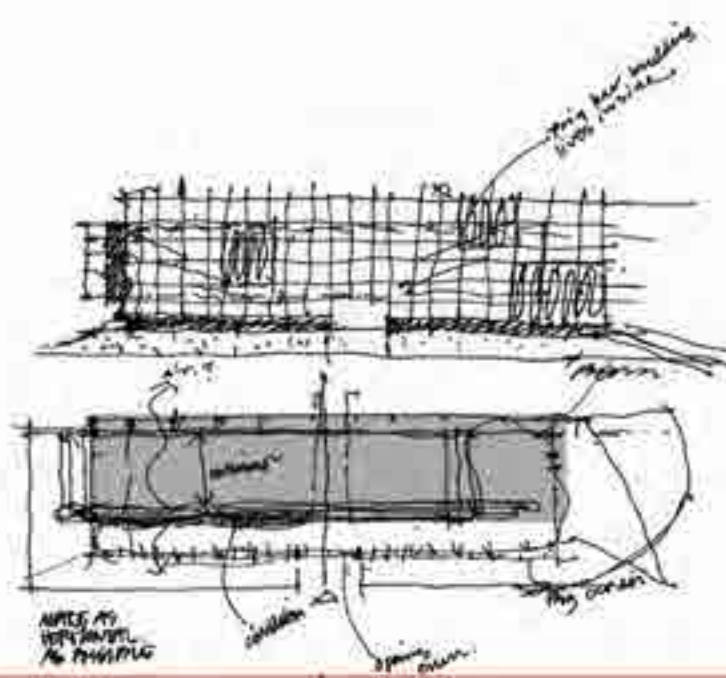
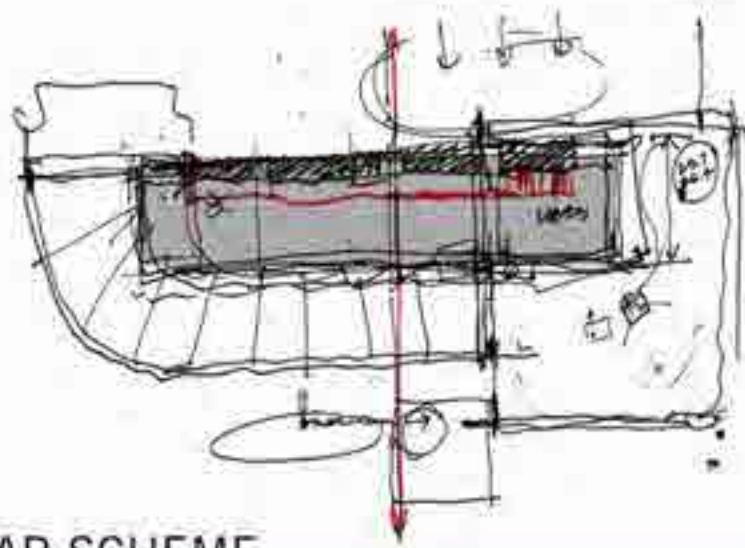
- | | | | | | | |
|---|---|--------------------------------------|--|------------------------------------|-------------------------------|--------------------------------------|
| cell line | cell line support | 1 cell line open lab | 5 stairs | 9 cold room | 13 flask/BSC | 17 cell line work stations |
| cell culture | cell culture support | 2 cell culture open lab | 6 cell bank | 10 room temperature storage | 14 media prep | 18 cell culture work stations |
| pilot plant | microbial | 3 microbial | 7 tissue culture / FACS / clone pix | 11 ups | 15 glass wash | 19 non lab work stations |
| stairs | elevator | 4 elevator / service elevator | 8 tissue culture | 12 chillers | 16 PM/QA work stations | 20 conference room |
| core | meeting space | 21 work table | 22 telecom | 23 idf | 24 restroom | 25 lobby |
| | circulation | | | | | |



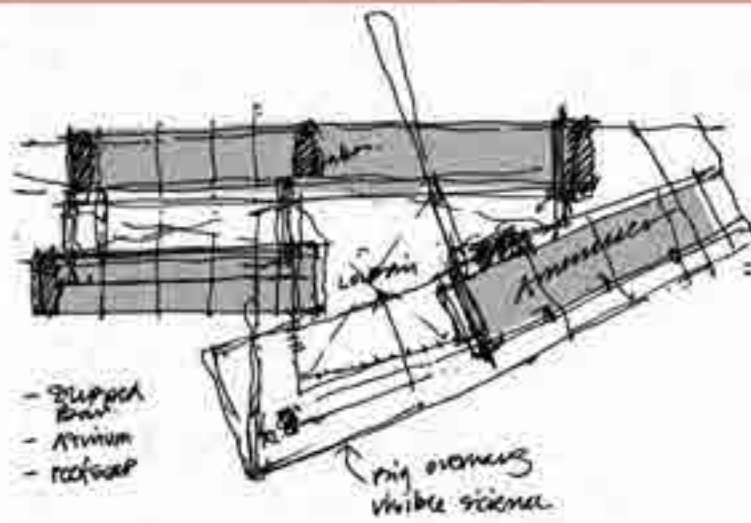
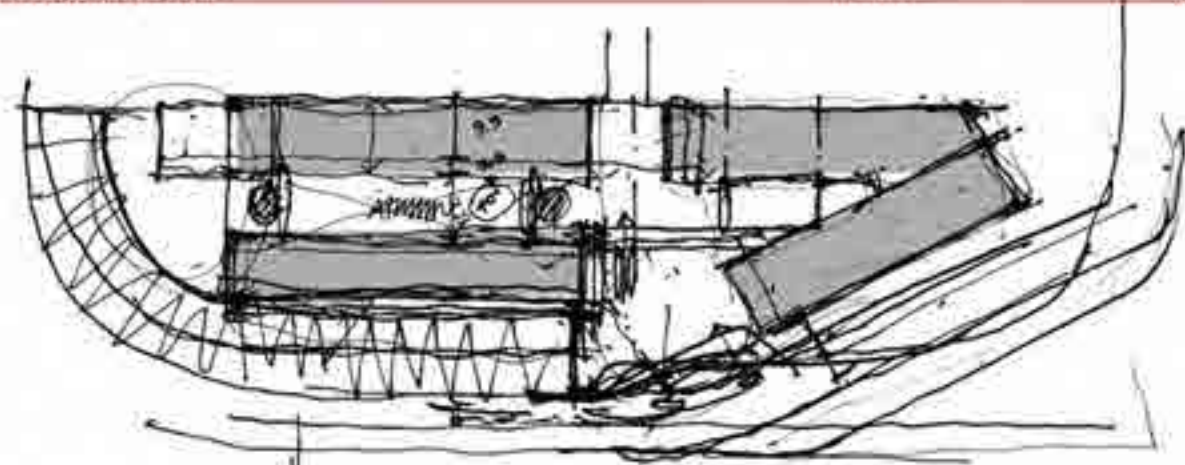
OPTION 1 BAR
GROSS AREA DIAGRAMS



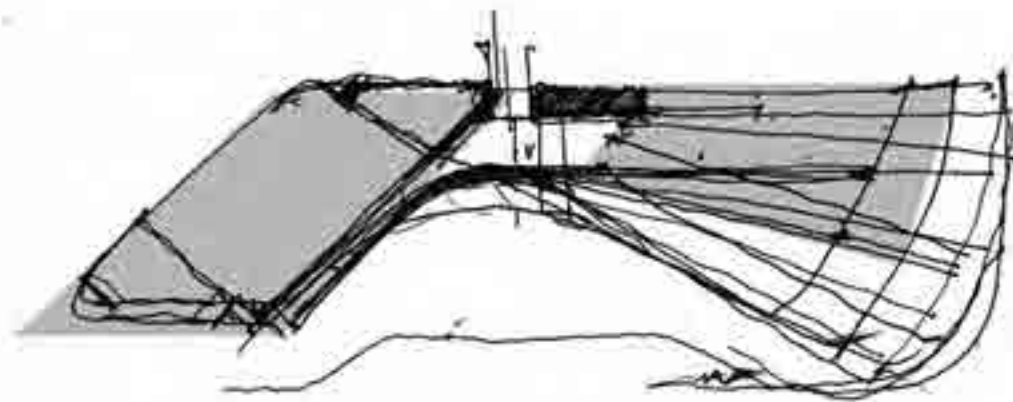
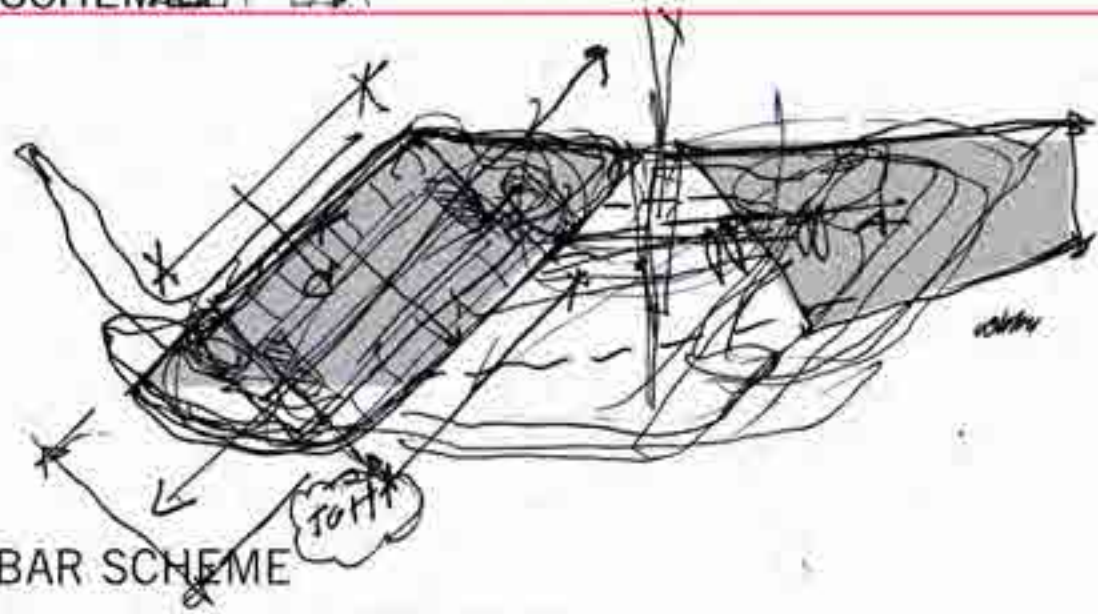
10,950 m²
Bar Scheme Total Gross Area



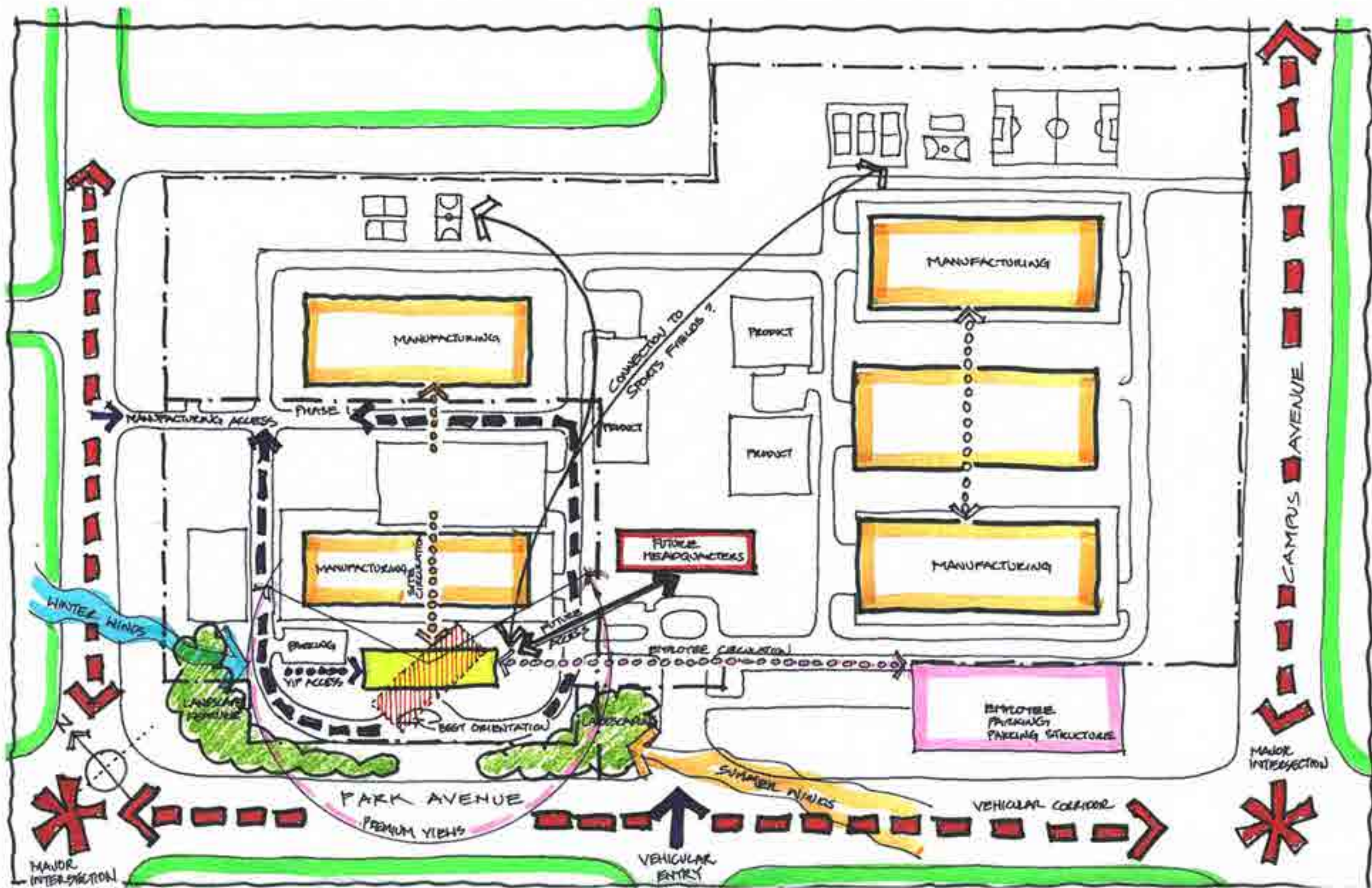
BAR SCHEME



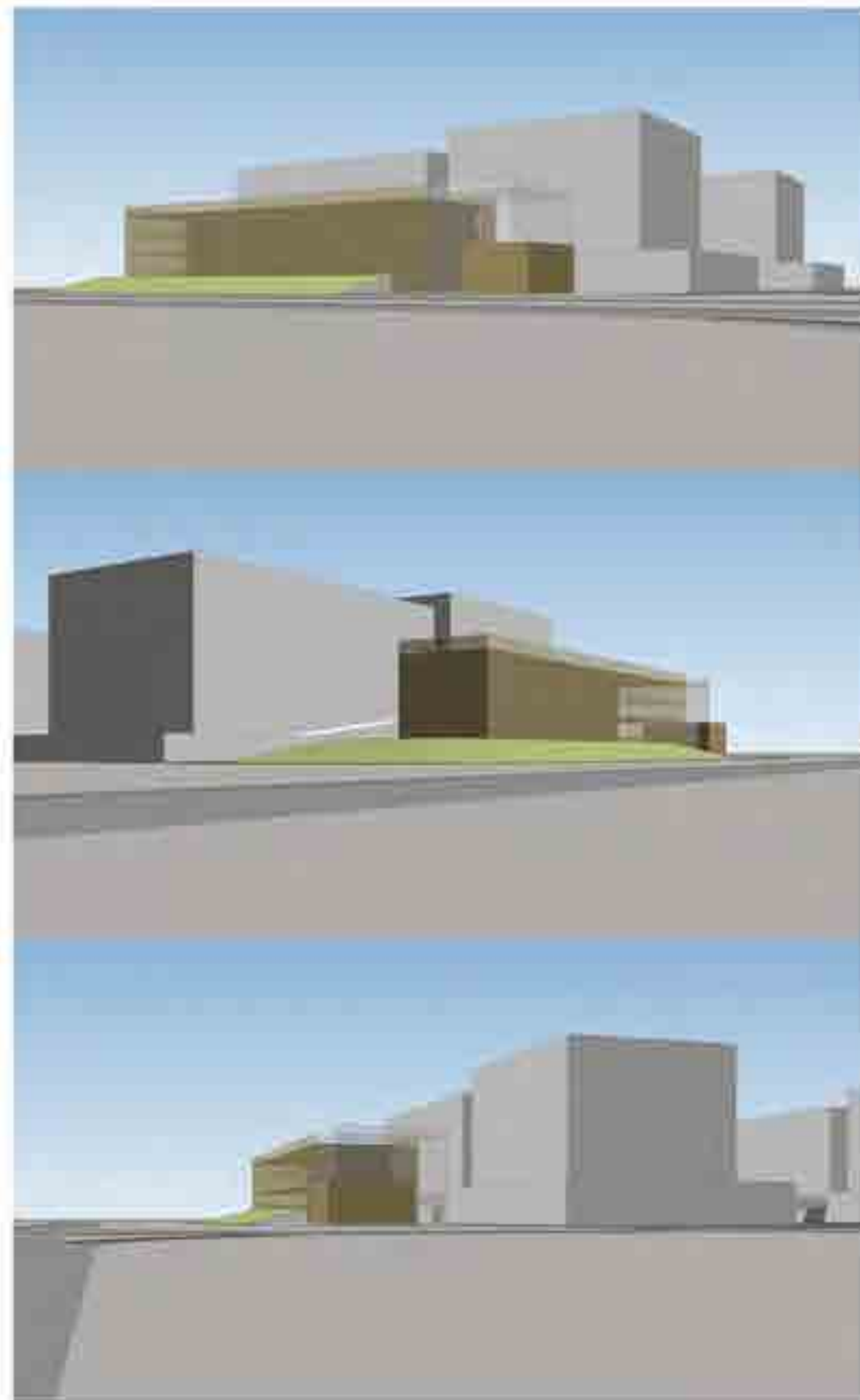
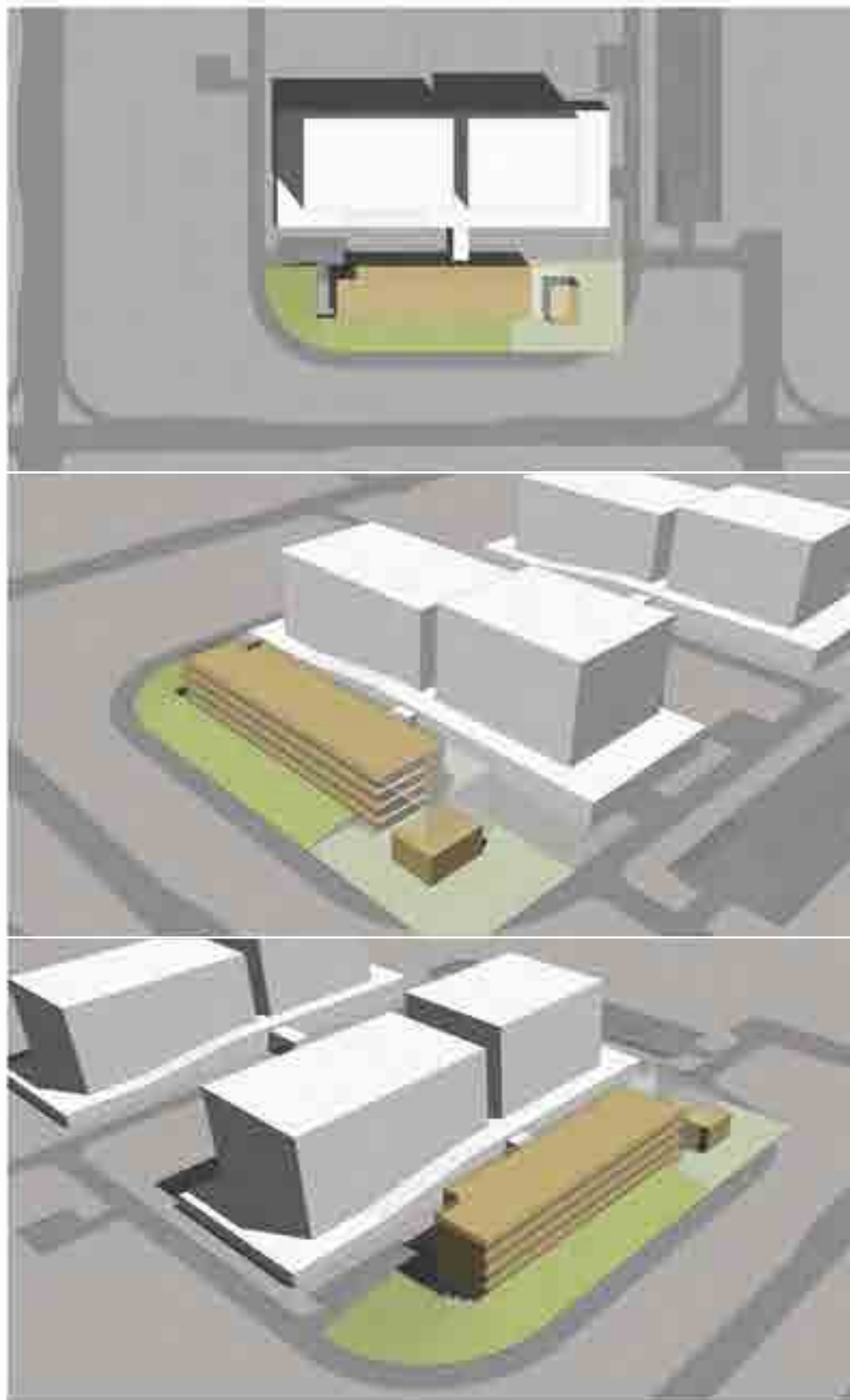
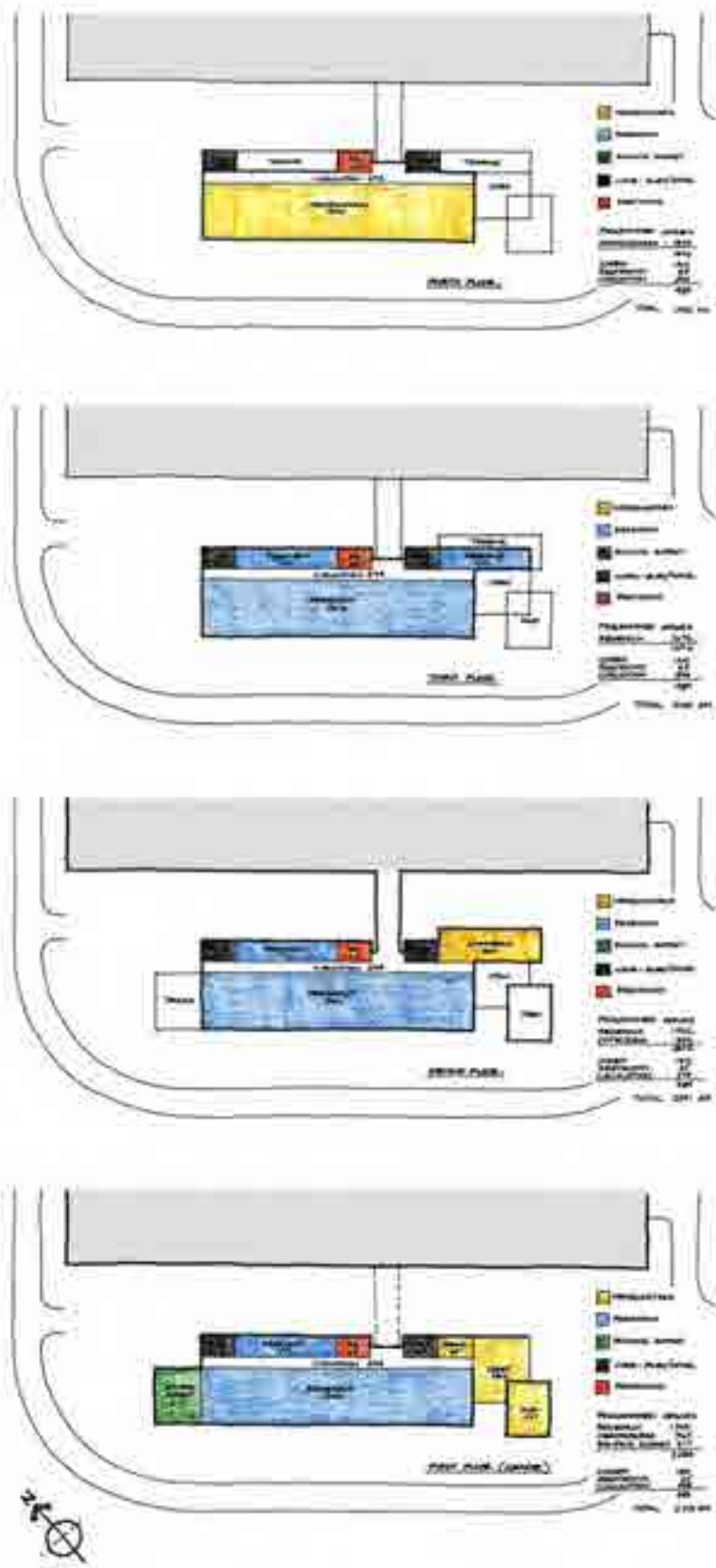
SPLIT SCHEME

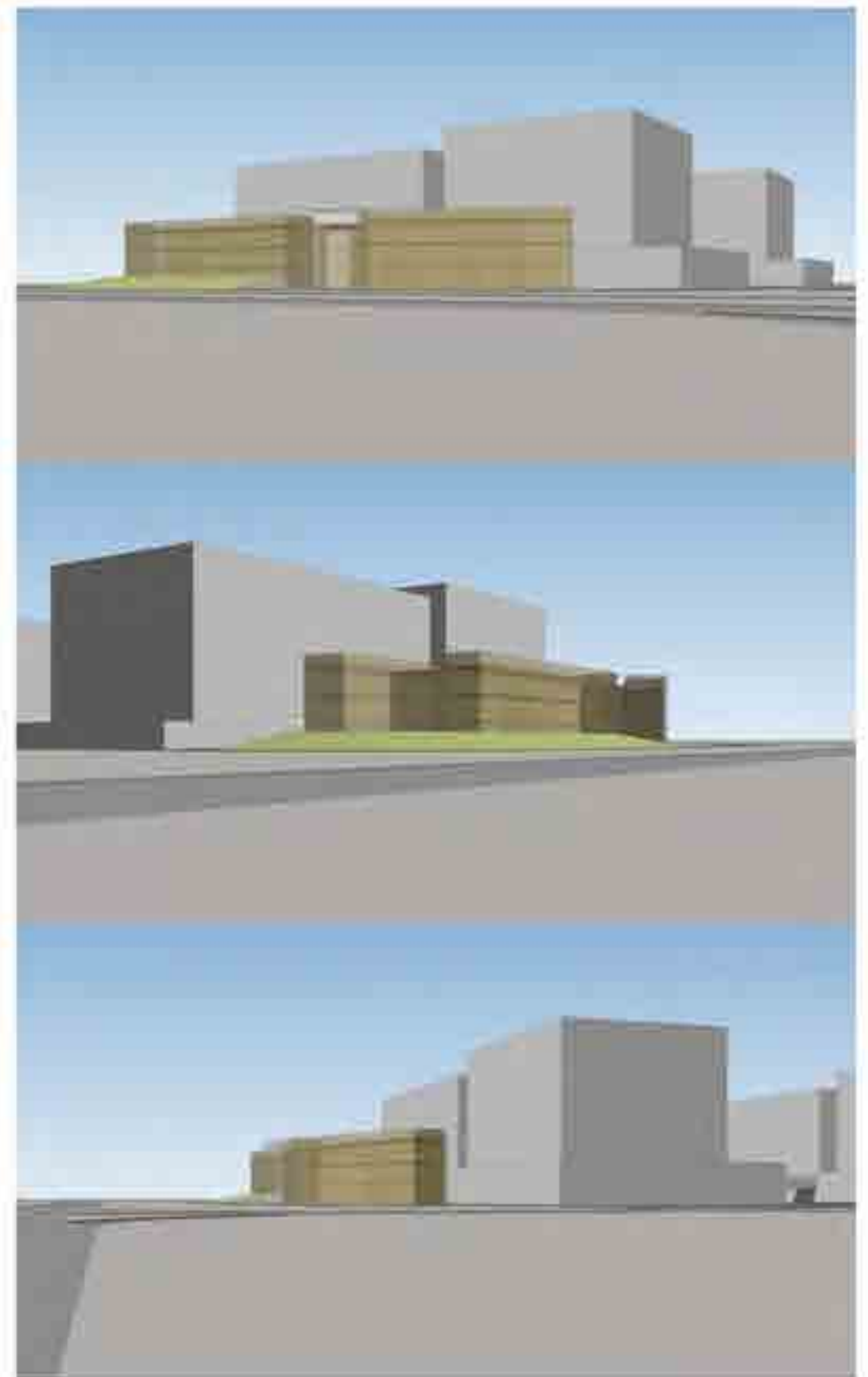
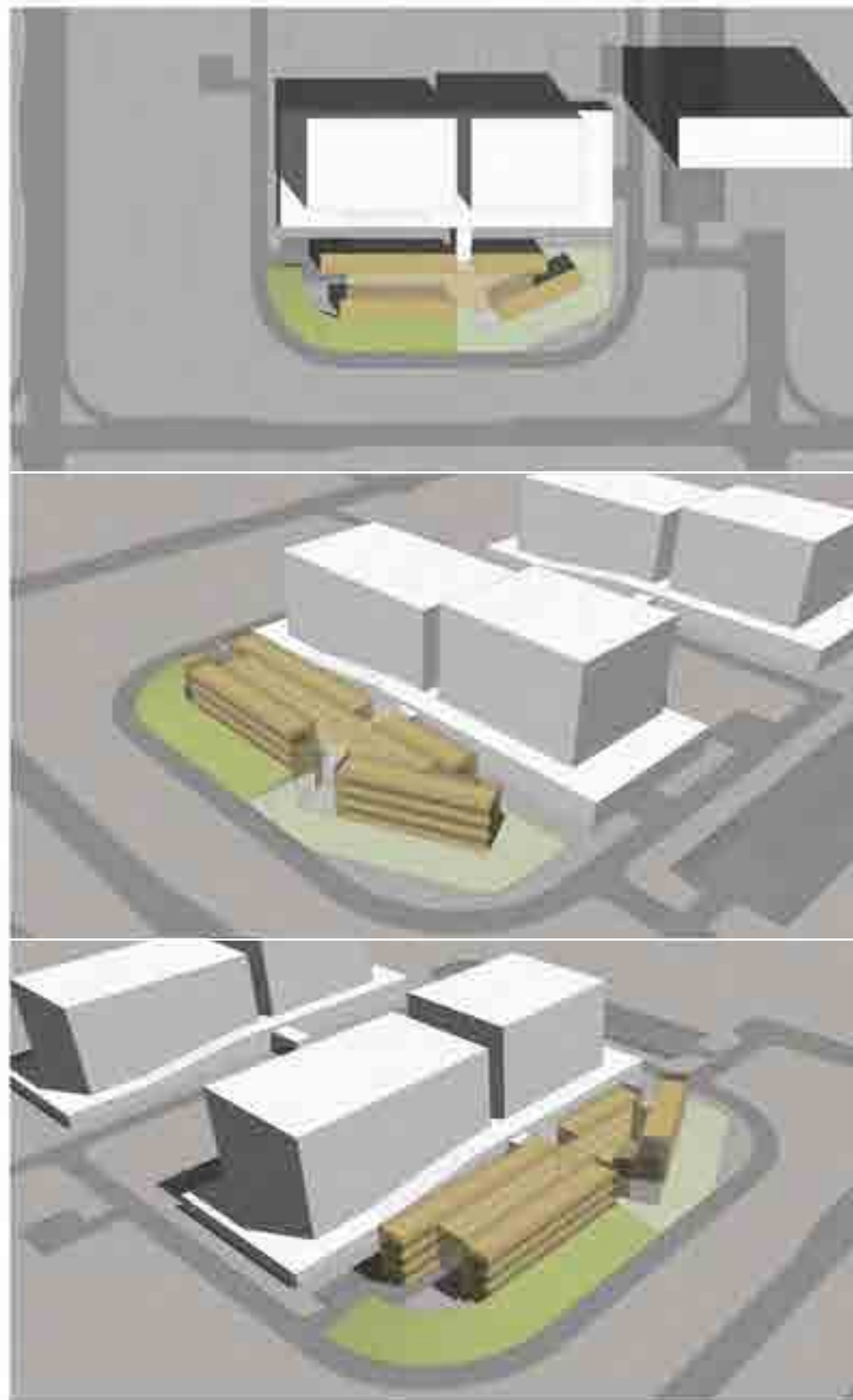
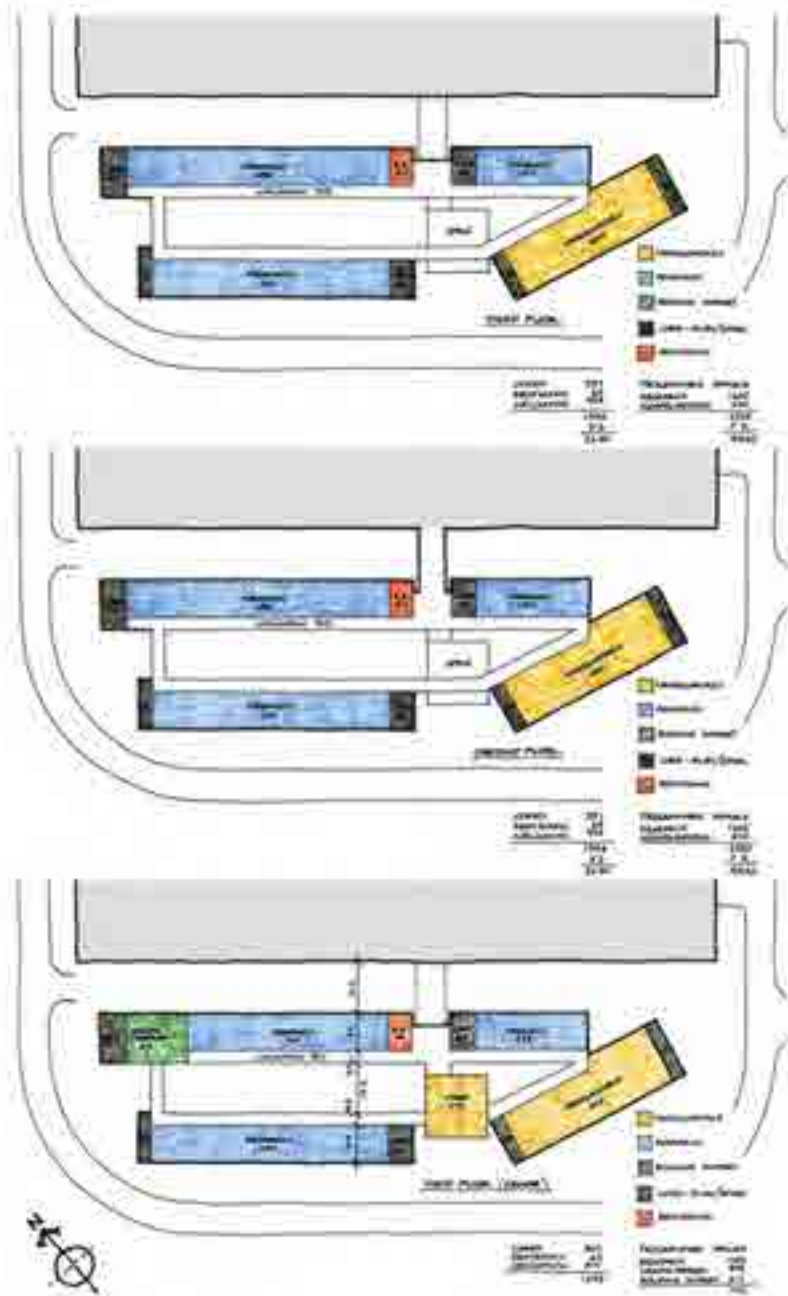


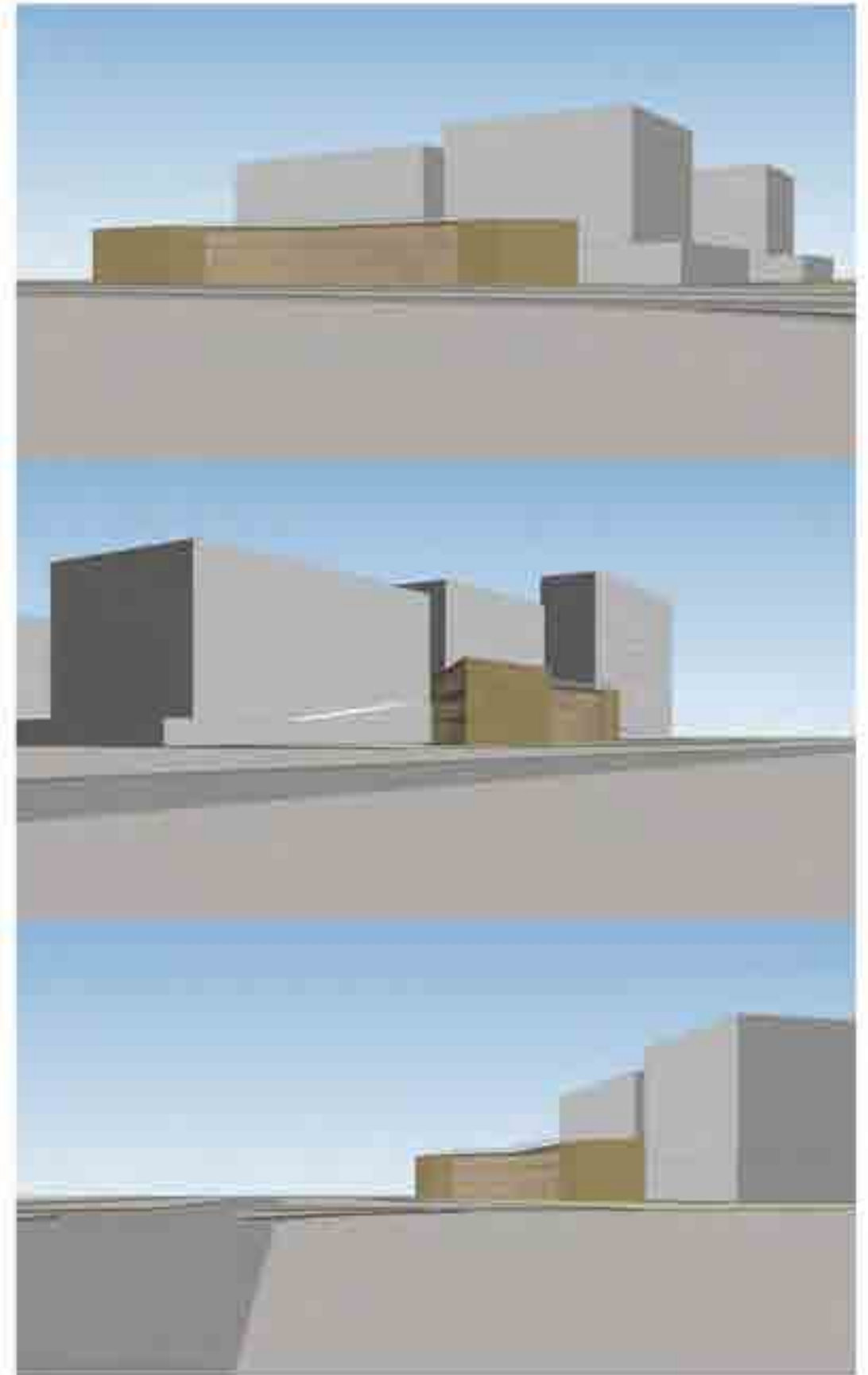
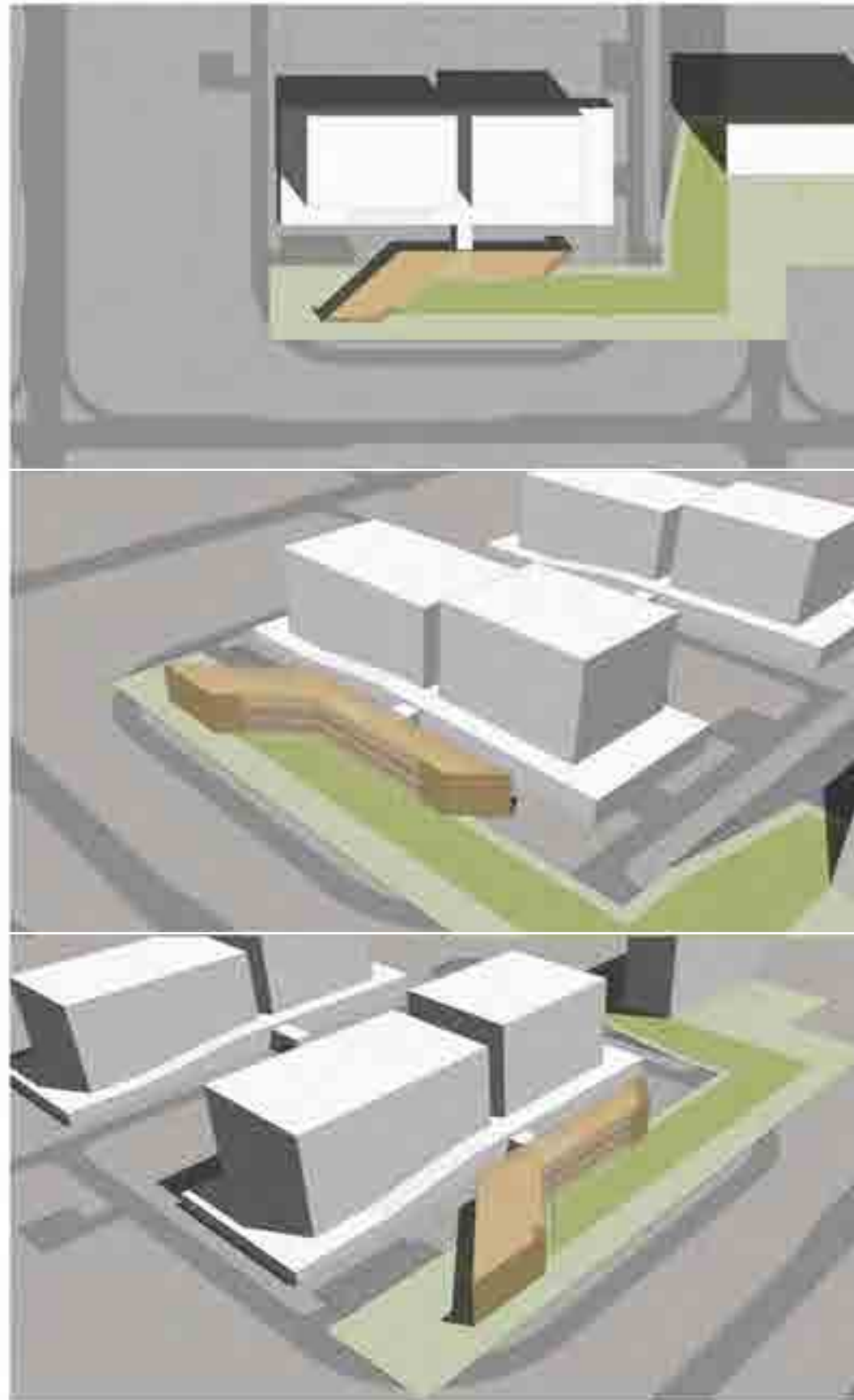
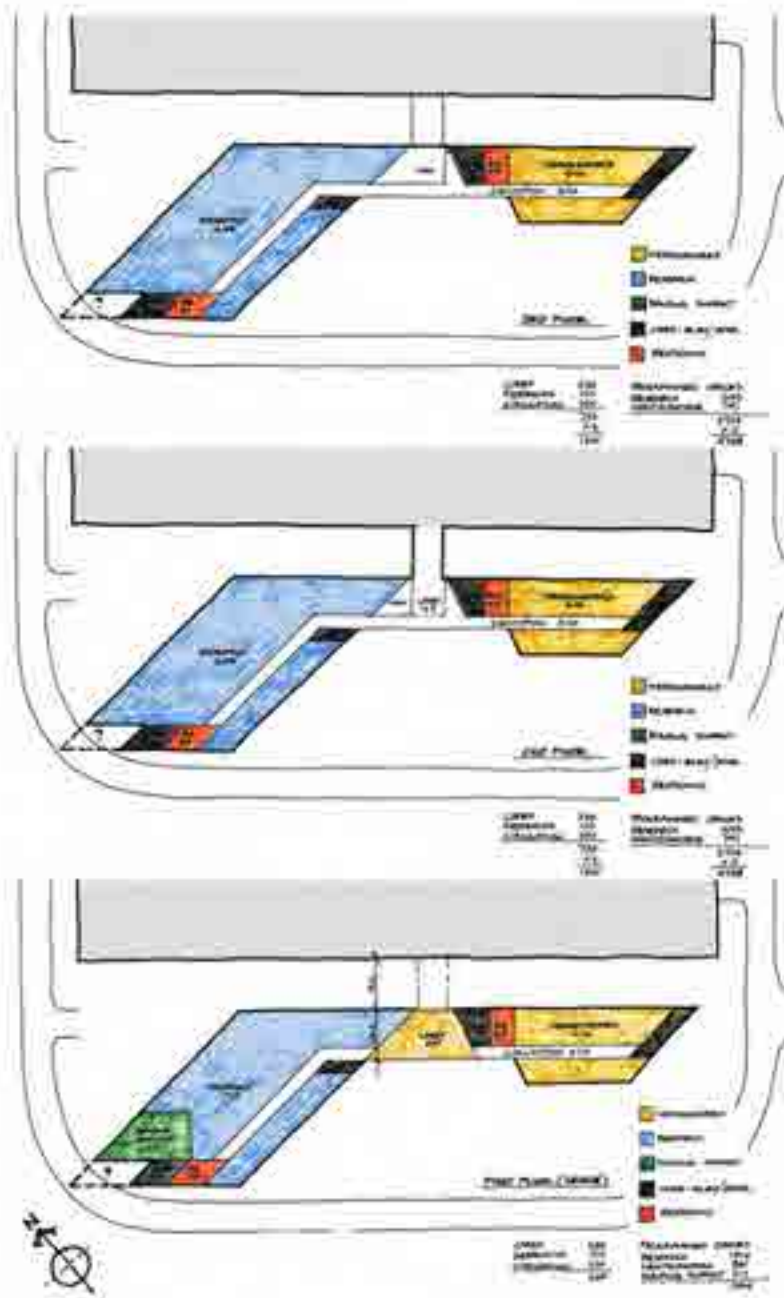
BENT BAR SCHEME

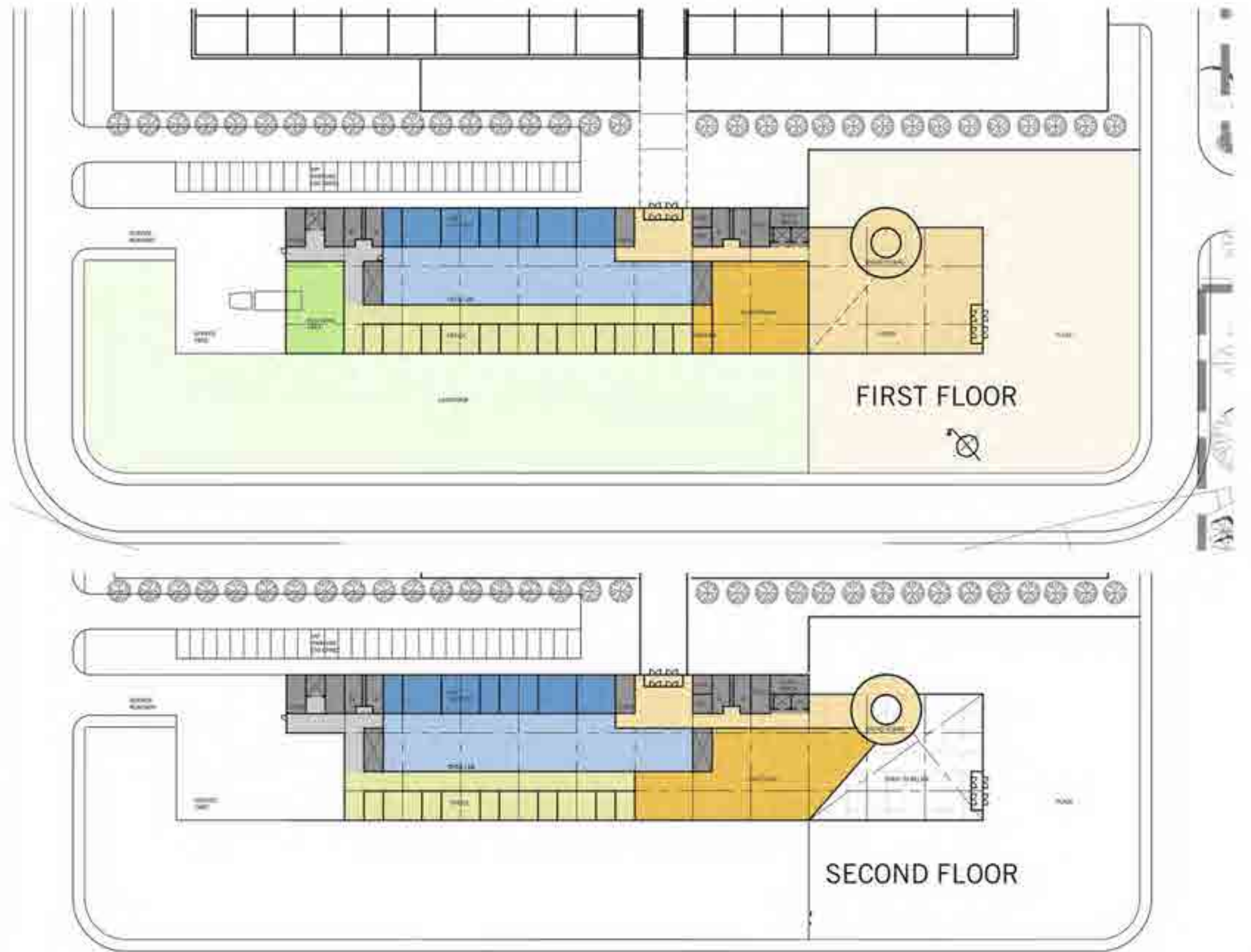
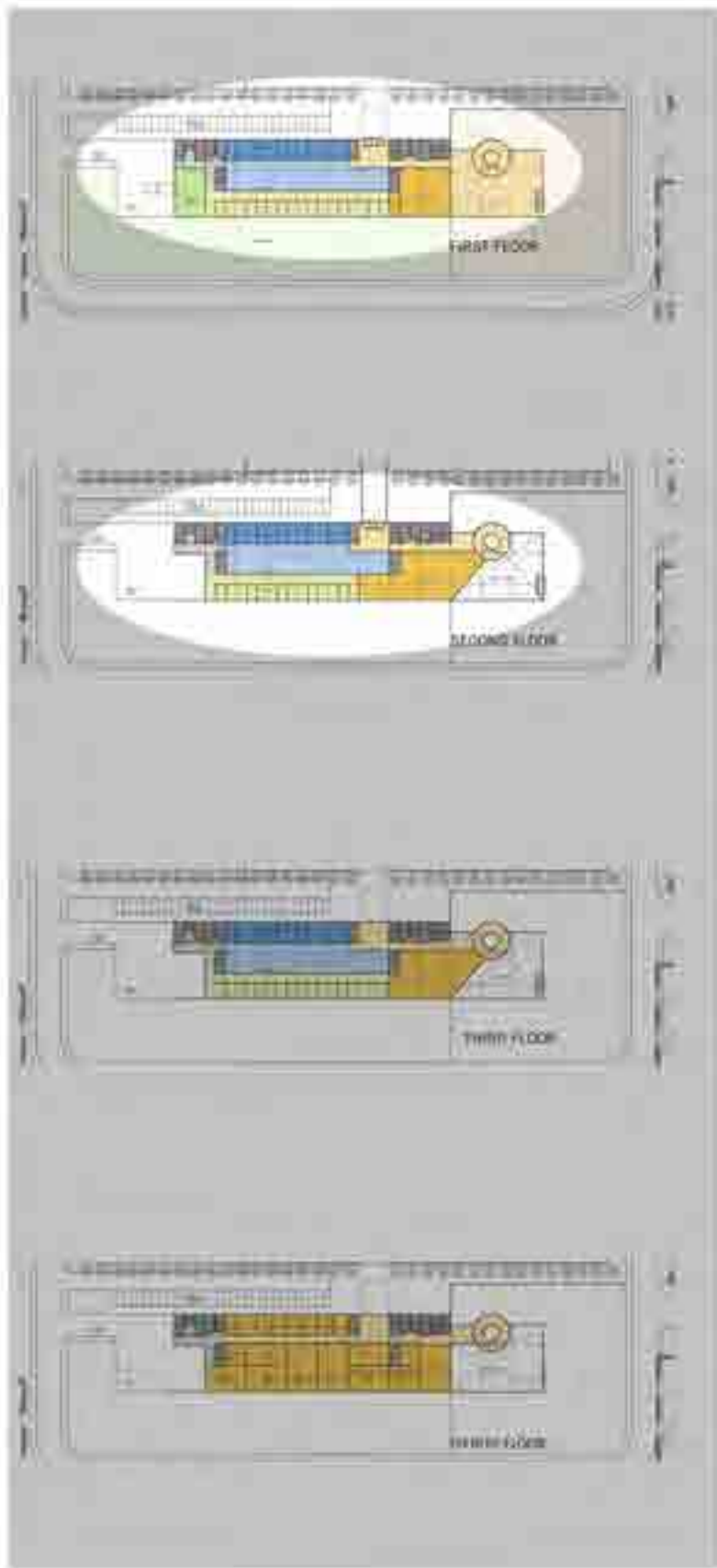


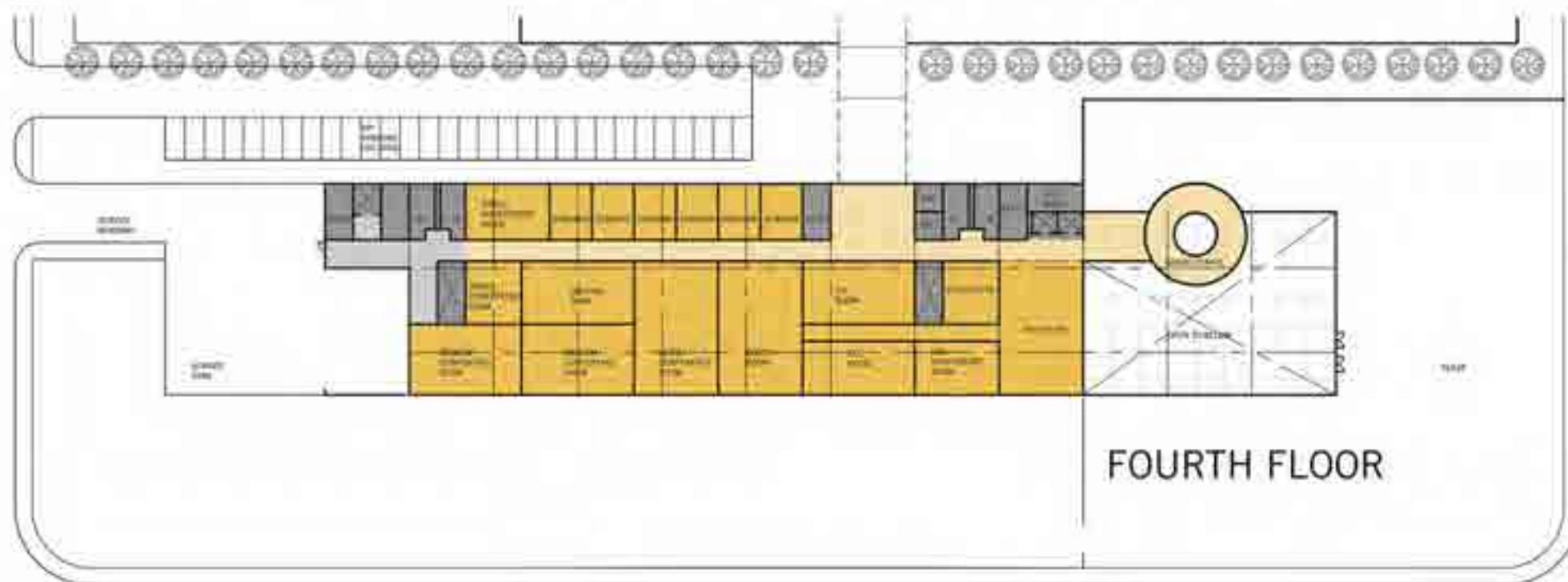
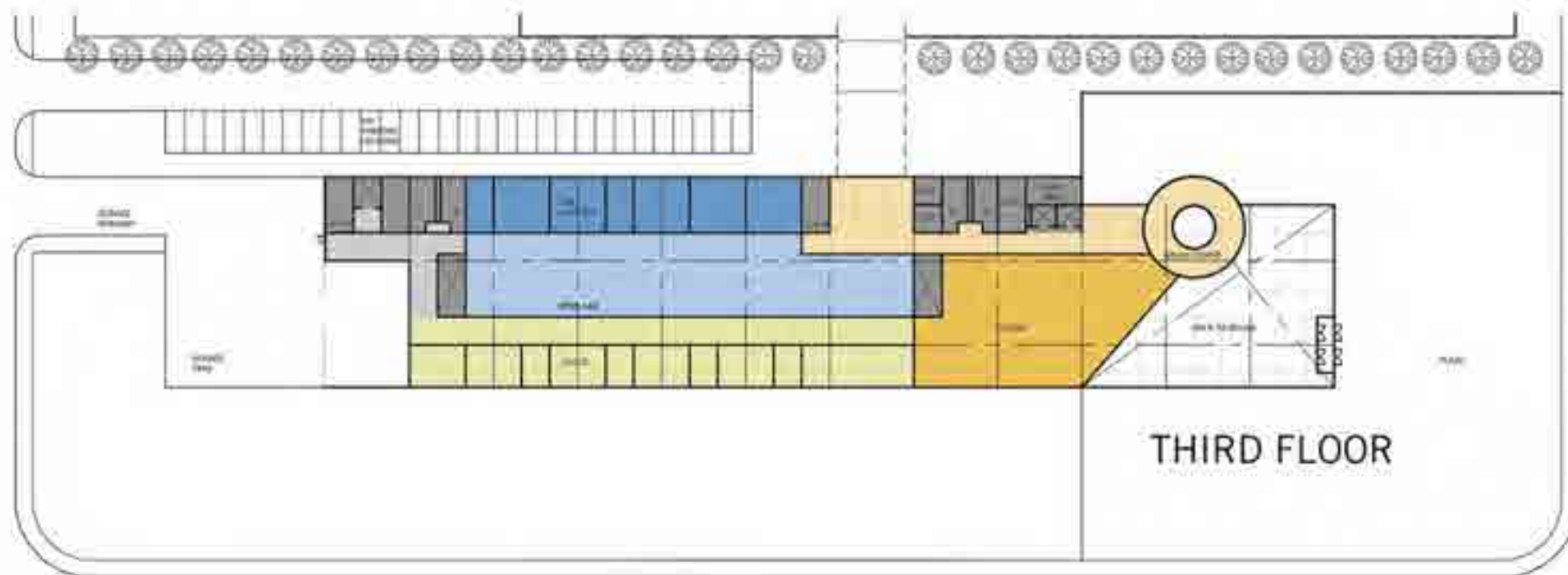
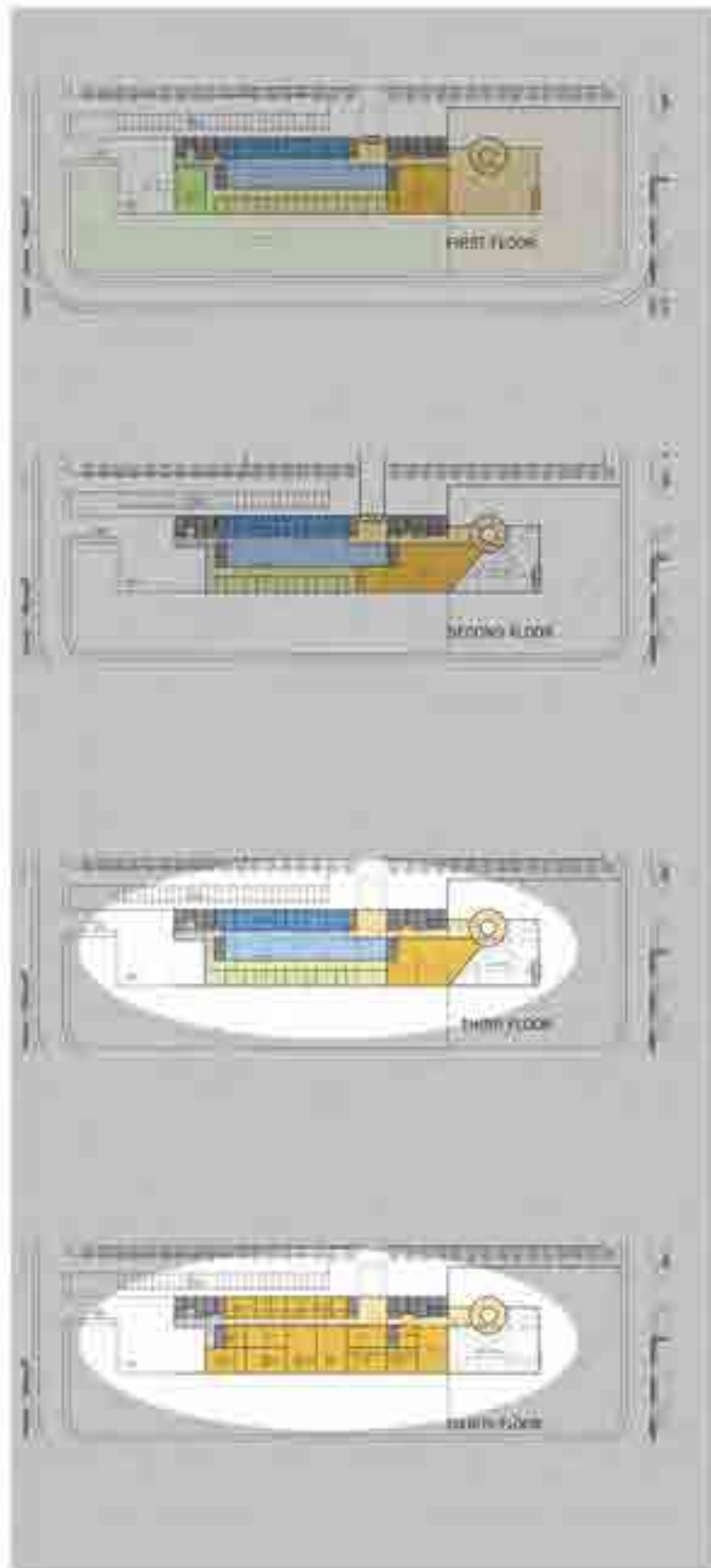
CONCEPTUAL SITE ANALYSIS

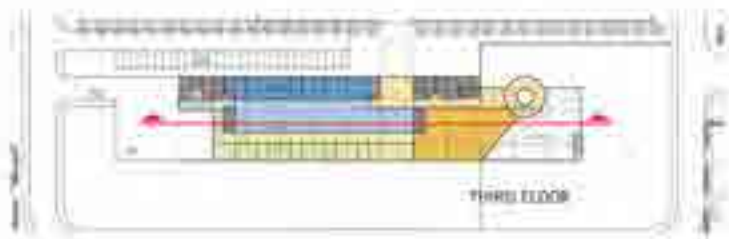
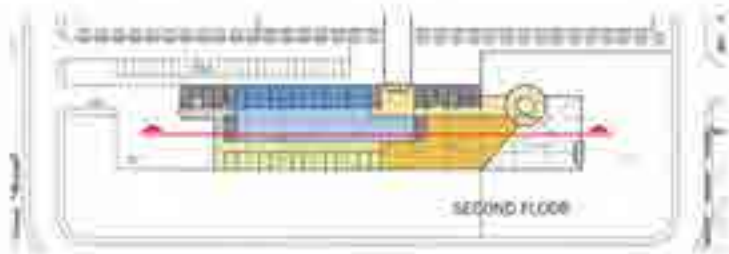




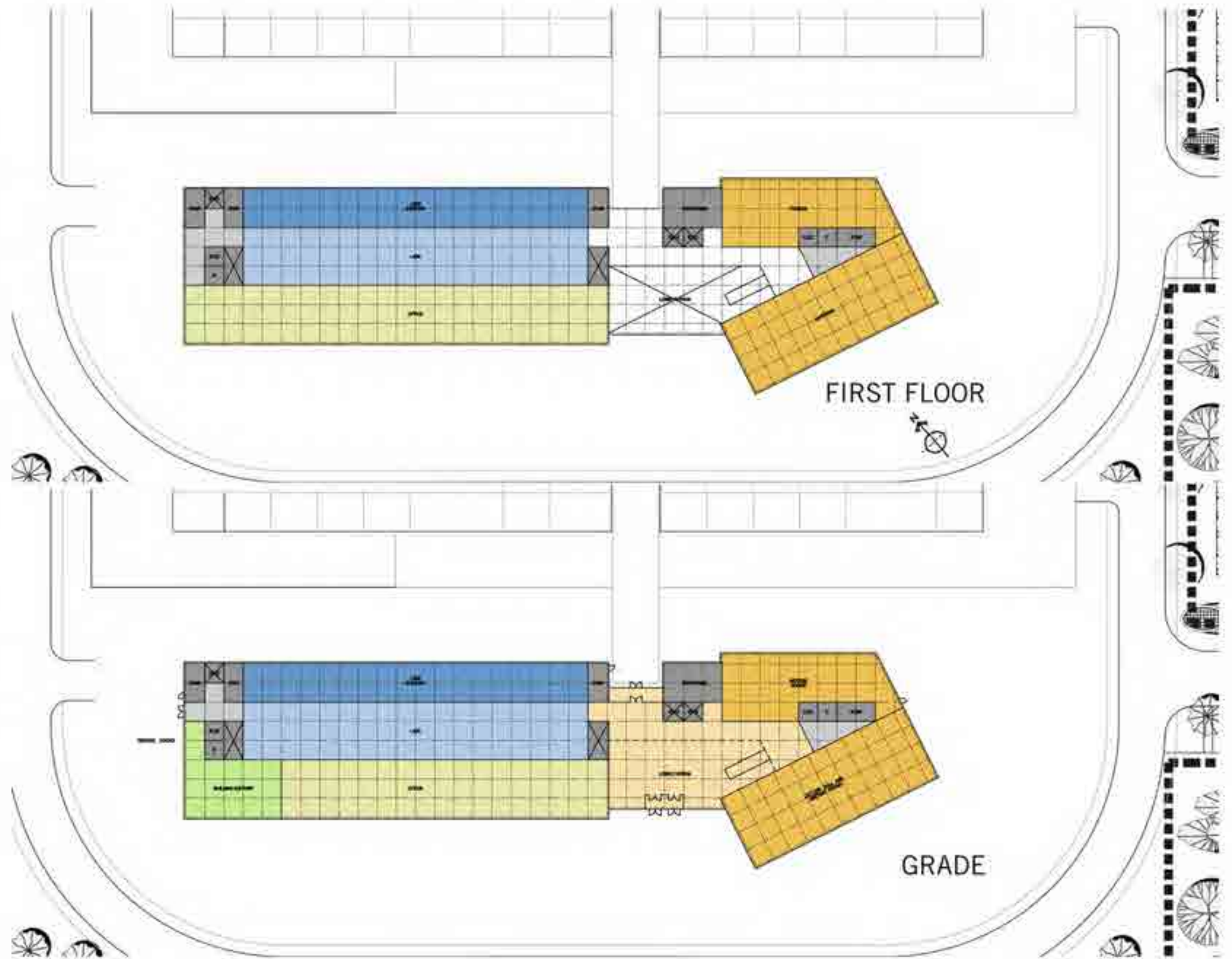
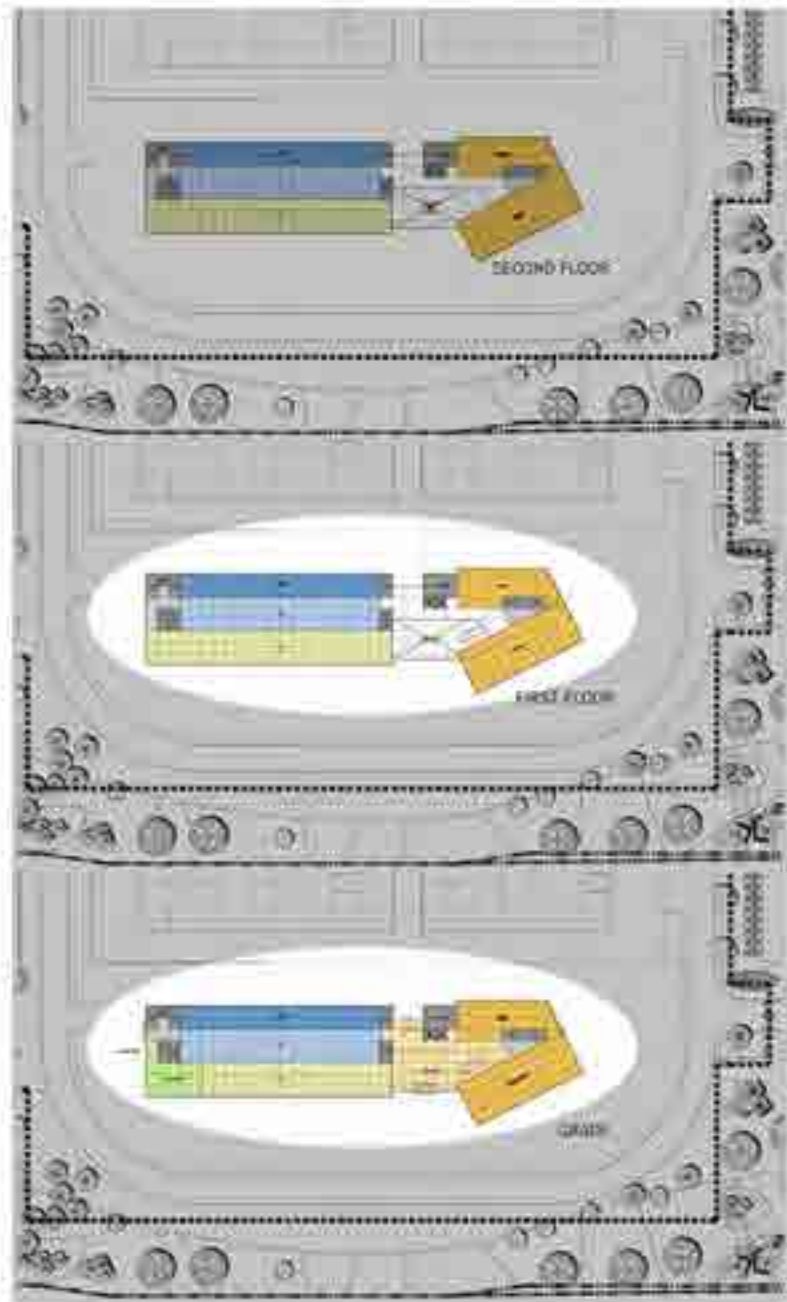


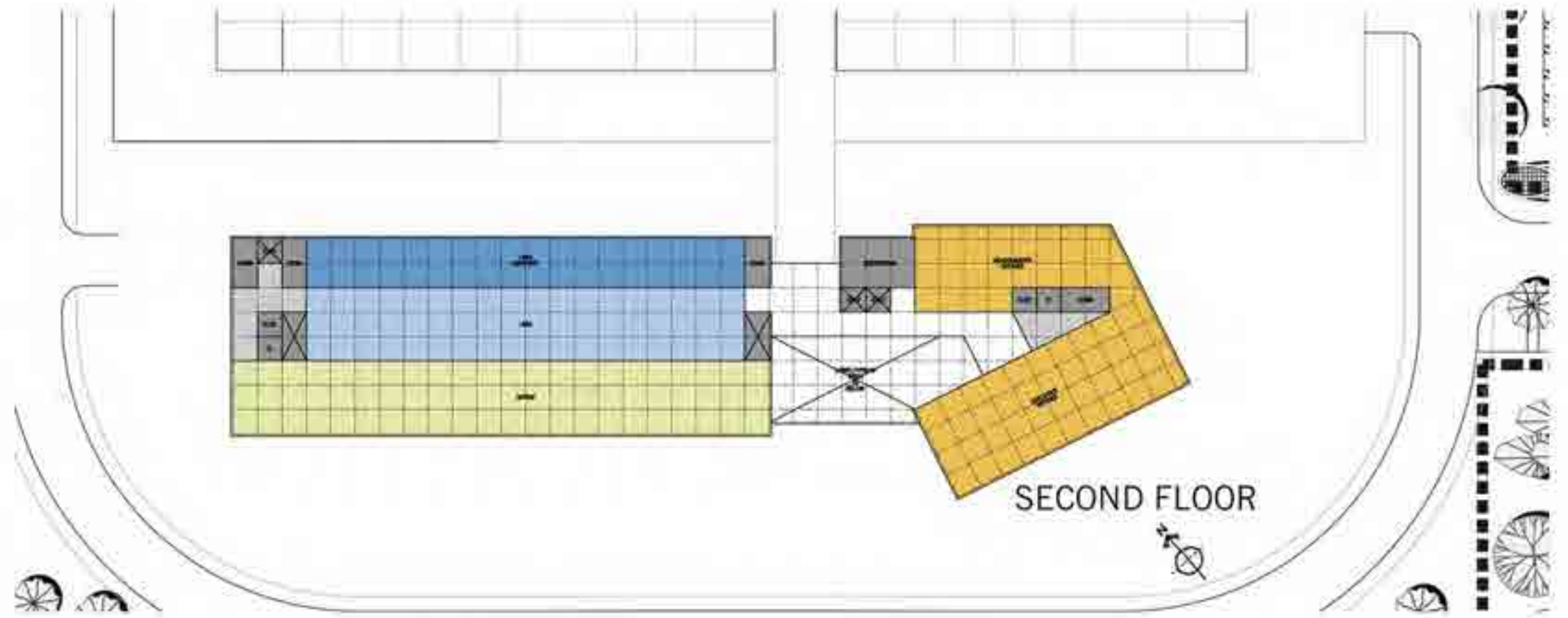
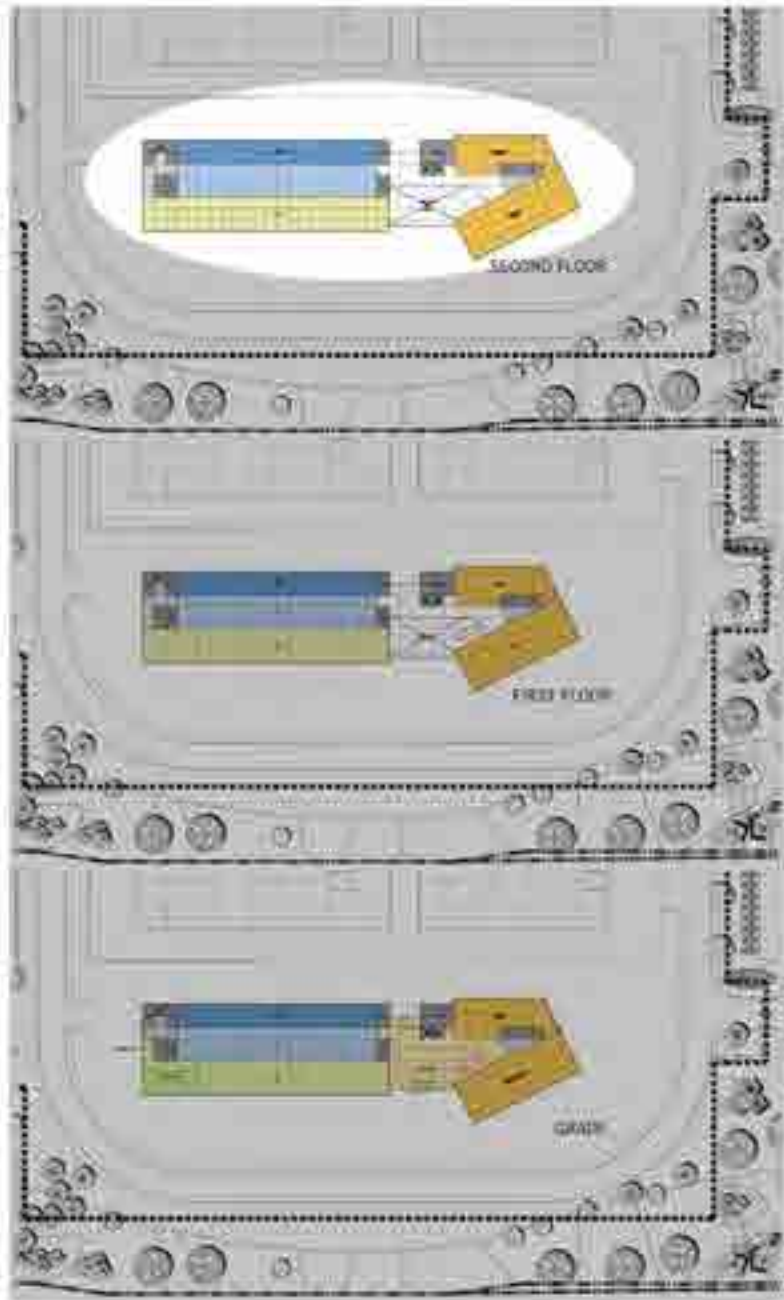


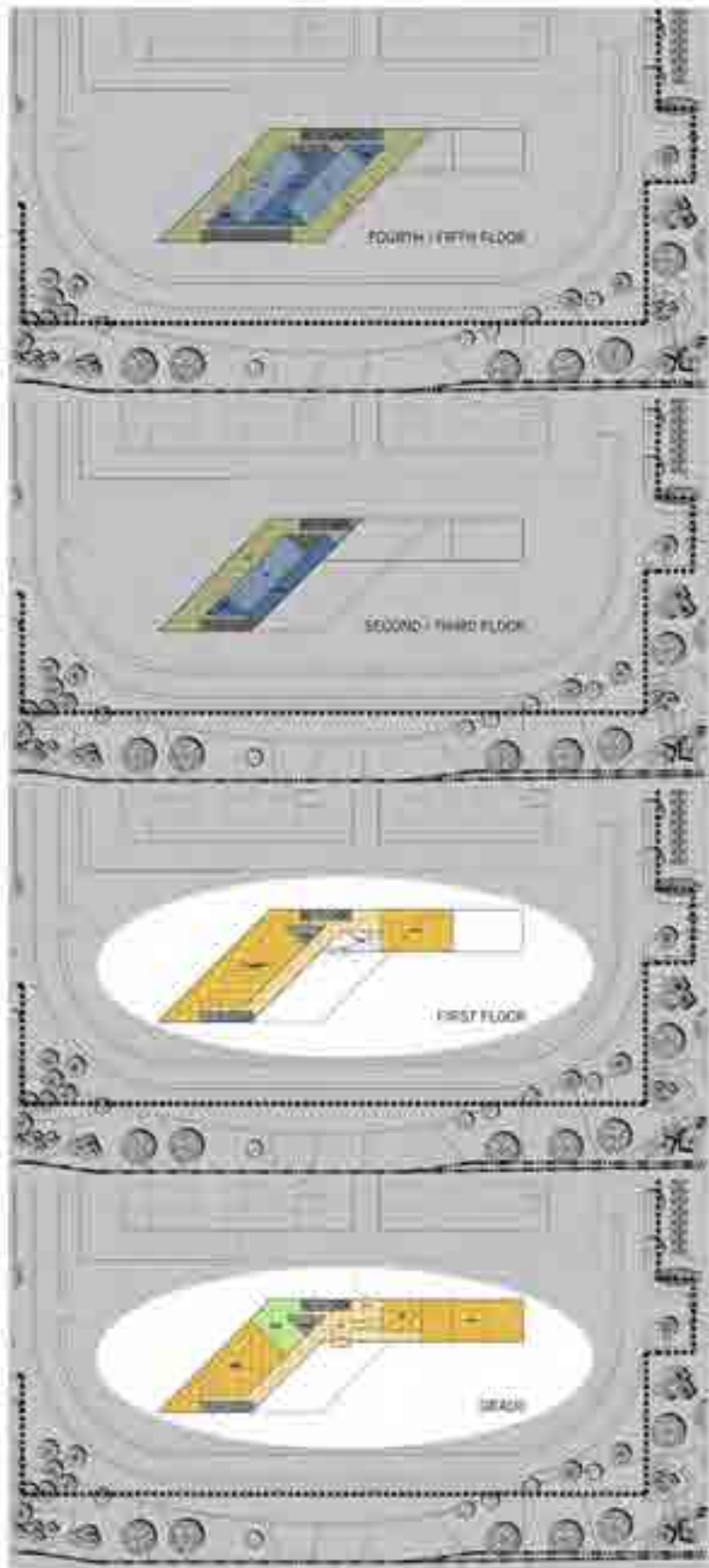


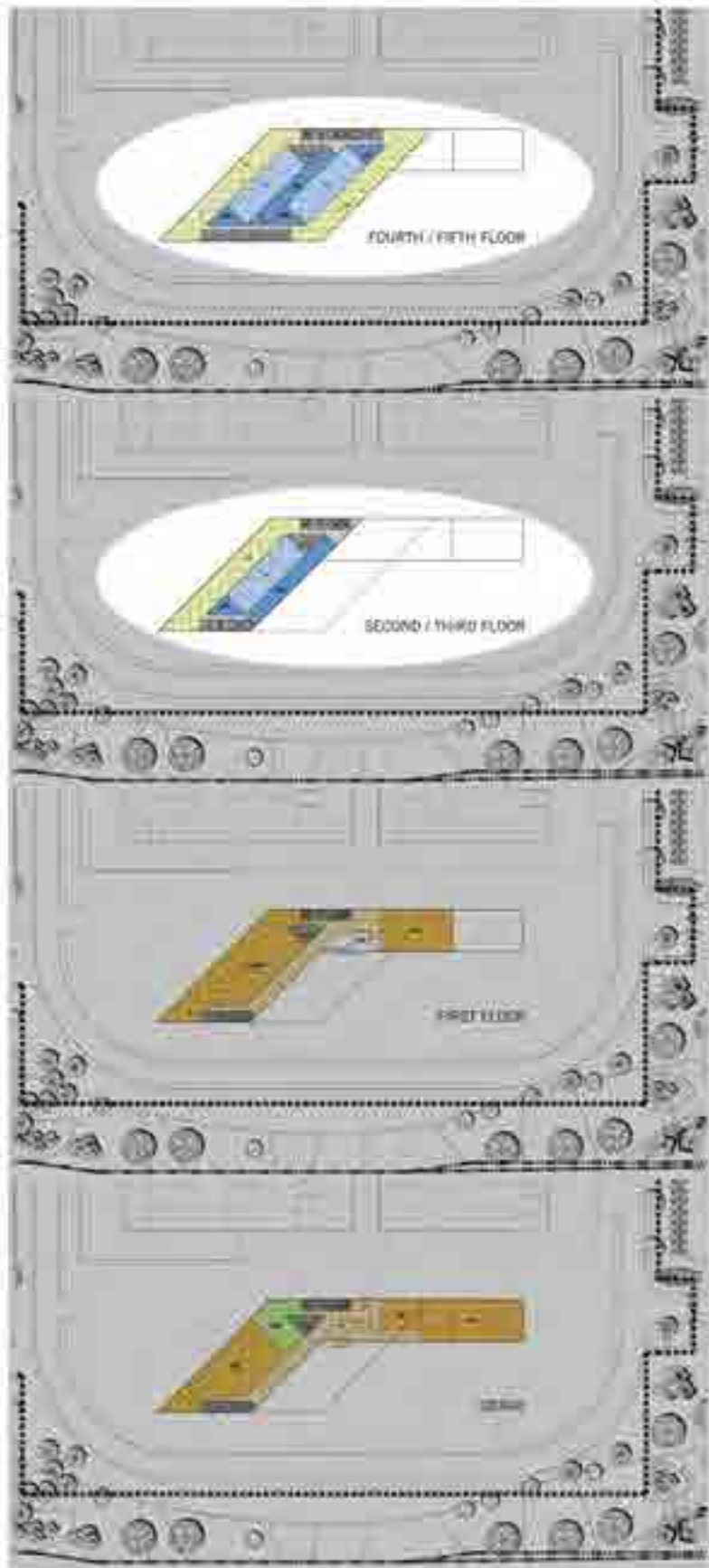


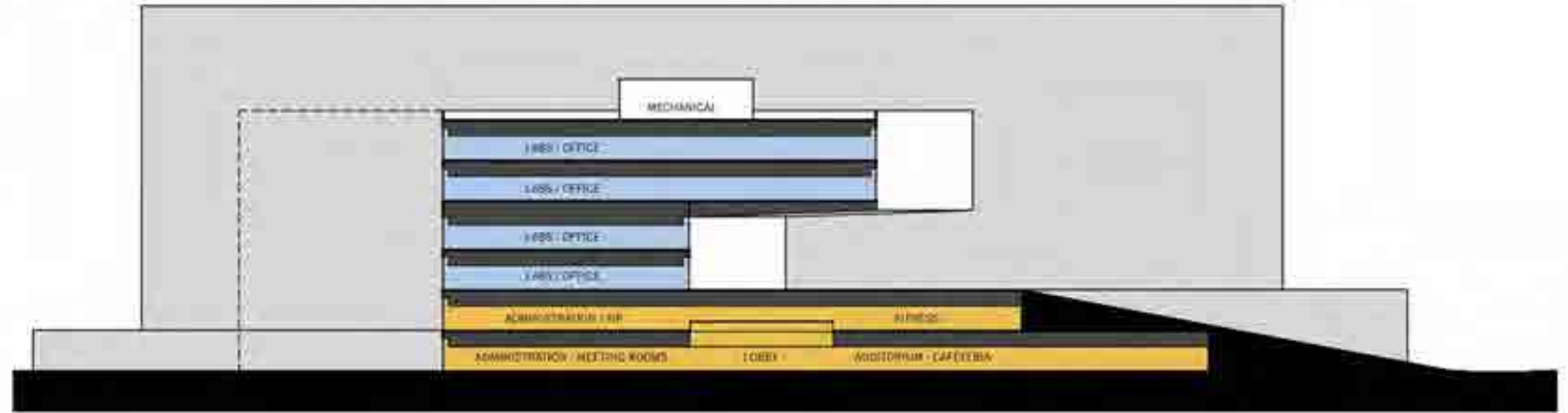
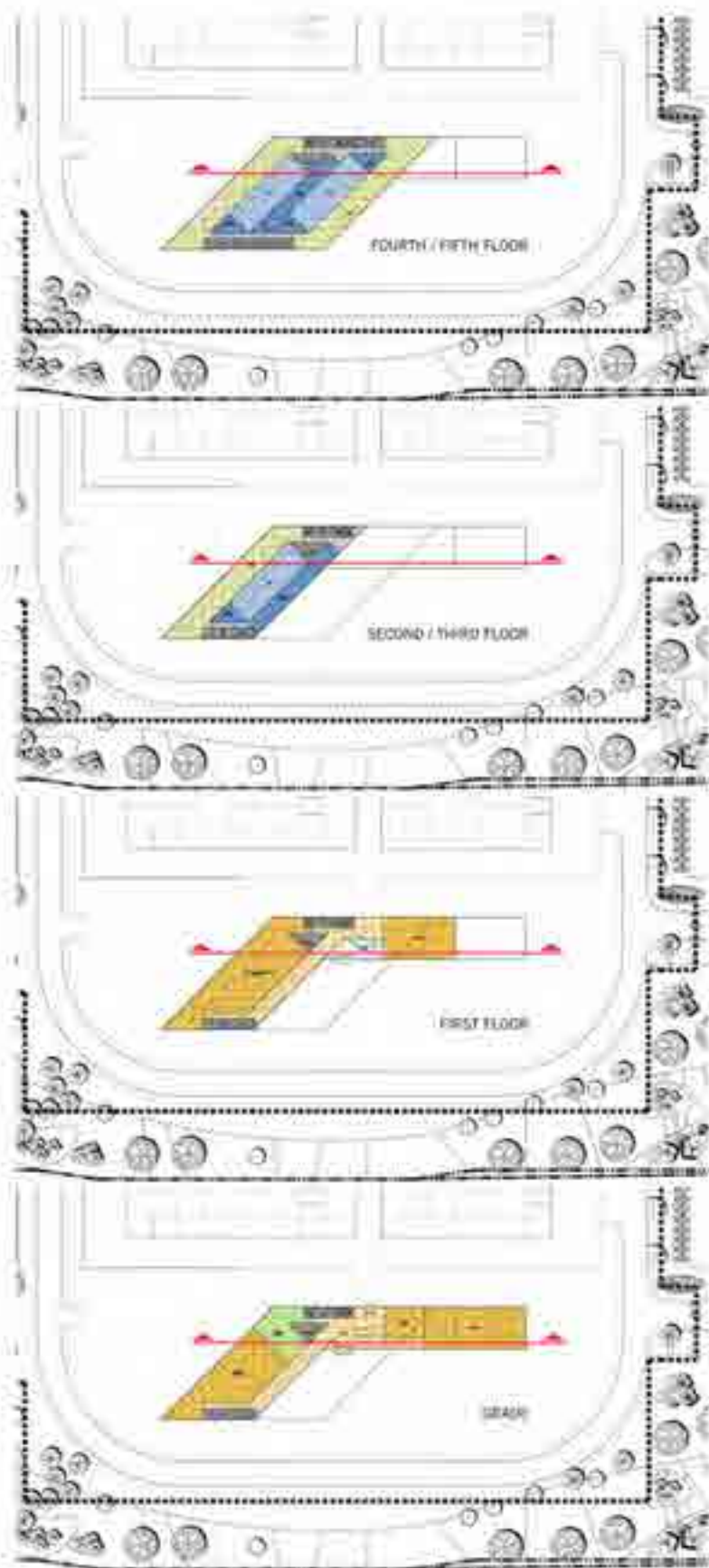
SECTION





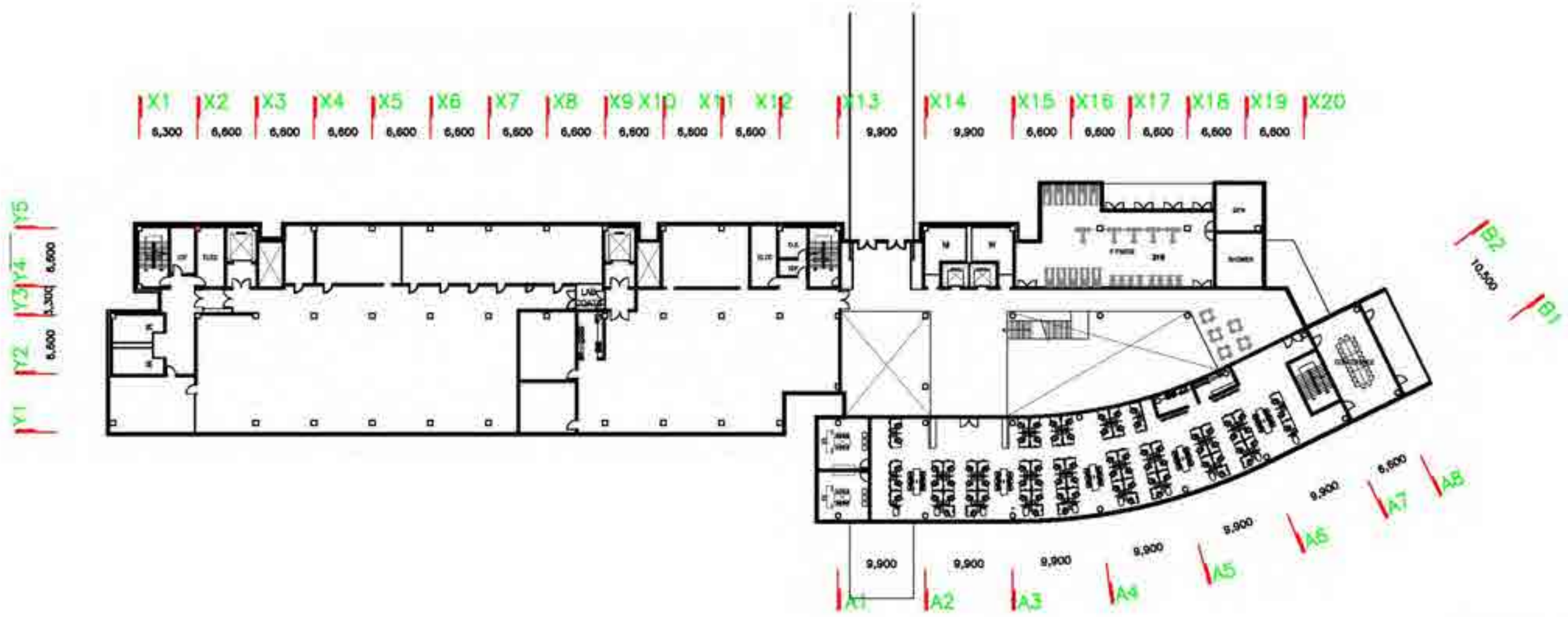






SECTION

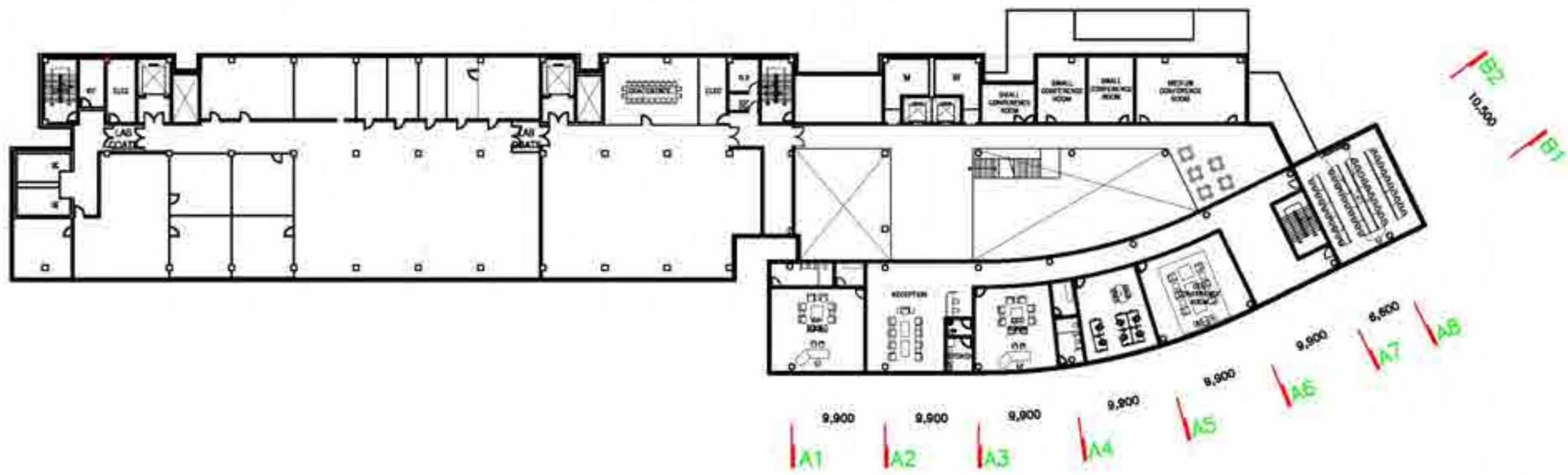




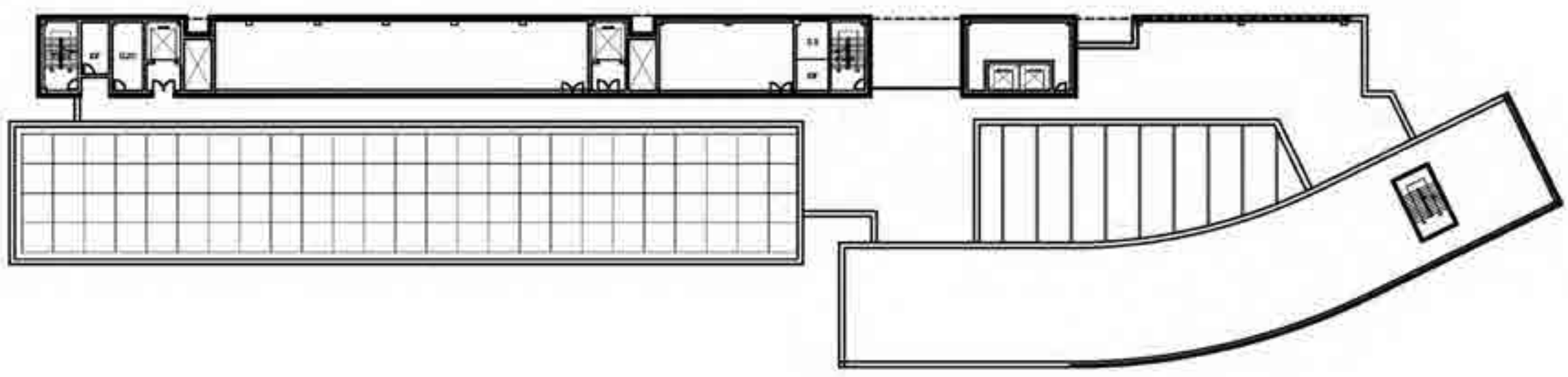
SECOND FLOOR PLAN

X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20
6,300	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	9,900	9,900	6,600	6,600	6,600	6,600	6,600	6,600

Y1	Y2	Y3	Y4	Y5
	6,600	3,300	6,600	6,600



THIRD FLOOR PLAN



ROOF PLAN

OPTION 4 CURVED BAR EQUIPMENT LIST

CELL LINE LEVEL 2

NUMBER	LOC	EQUIPMENT NAME	QTY
CL-01	BLS	INVERTED MICROSCOPE SYS.	1
CL-02	BLS	CO2 INCUBATOR (#3951)	2
CL-03	BLS	CO2 INCUBATOR (FORMA STERI CYCLES)	4
CL-04	BLS	CENTRIFUGE	1
CL-05	BLS	ORBITAL SHAKER UNIMAX 2010	6
CL-06	BLS	ORBITAL SHAKER UNIMAX 1010	5
CL-07	BLS	SHAKING INCUBATOR	3
CL-08	BLS	WATER BATH MODEL 285	1
CL-09	FLS	LN2 TANK	2
CL-10	B	FACS (BD)	1
CL-11	B	CLEAN BENCH FOR FACS	1
CL-12	B	CLONEPIX FL	1
CL-13	FLS	SHAKING INCUBATOR (SMX 1503)	6
CL-14	FLS	LN2 TANK	1
CL-15	FLS	LN2 TANK (LARGE)	2
CL-16	B	COUNTESS AUTOMATED CELL COUNTER	2
CL-17	F	BIOLOGICAL SAFETY CABINET	4
CL-18	F	REFRIGERATOR (DONG-A)	2
CL-19	BLS	CLONE SELECT IMAGER	1
CL-20	F	FREEZER	1

CELL CULTURE LEVEL 2

NUMBER	LOC	EQUIPMENT NAME	QTY
CC-01	B	BIOREACTOR (1L)	5
CC-02	F	CENTRIFUGE	1
CC-03	B	PERISTALTIC PUMP	1
CC-04	B	OSMOMETER	1
CC-05	B	BIOREACTOR (2L)	16
CC-06	B	BIOREACTOR (5L)	8
CC-07	B	BIOREACTOR (10L)	1
CC-08	F	AUTOClave	2
CC-09	B	WELDER	3
CC-10	B	METABOLITE ANALYZER	3
CC-11	F	BIOLOGICAL SAFETY CABINET	2
CC-12	B	CELL COUNTER	2
CC-13	B	PH METER/ COND.	2
CC-14	F	DEEFPREEZER	1
CC-15	F	SHAKING INCUBATOR (SMX 1503)	3
CC-16	F	FREEZER	1

PILOT PLANT – CELL CULTURE LEVEL 1

NUMBER	LOC	EQUIPMENT NAME	QTY
PCL-01	F	MEDIA HOLDING TANK	1
PCL-02	F	MEDIA PREPARATION TANK	1
PCL-03	F	MEDIA HOLDING TANK	1
PCL-04	F	MEDIA PREPARATION TANK	1
PCL-05	F	BIOREACTOR (200L)	2
PCL-06	F	BIOREACTOR (10L)	1
PCL-07	F	BIOREACTOR (10L)	1
PCL-08	F	BIOREACTOR (2L)	2
PCL-09	F	BIOREACTOR (50L)	2
PCL-10	B	WELDER	1
PCL-11	B	METABOLITE ANALYZER	1
PCL-12	B	OSMOMETER	1
PCL-13	B	PH METER/ COND.	1
PCL-14	F	BIOLOGICAL SAFETY CABINET	1
PCL-15	B	CELL COUNTER	1
PCL-16	F	SHAKING INCUBATOR (SMX 1503)	3
PCL-17	F	DEEFPREEZER	1
PCL-18	F	FREEZER	1
PCL-19	B	AUTOClave	1

Equipment Color Legend

GREY: EXISTING EQUIPMENT

BLUE: EQUIPMENT DOES NOT HAVE FUNDS TO INCLUDE IN PROJECT

RED: EQUIPMENT HAVE FUNDS TO INCLUDE IN PROJECT

Equipment Location (LOC) Legend

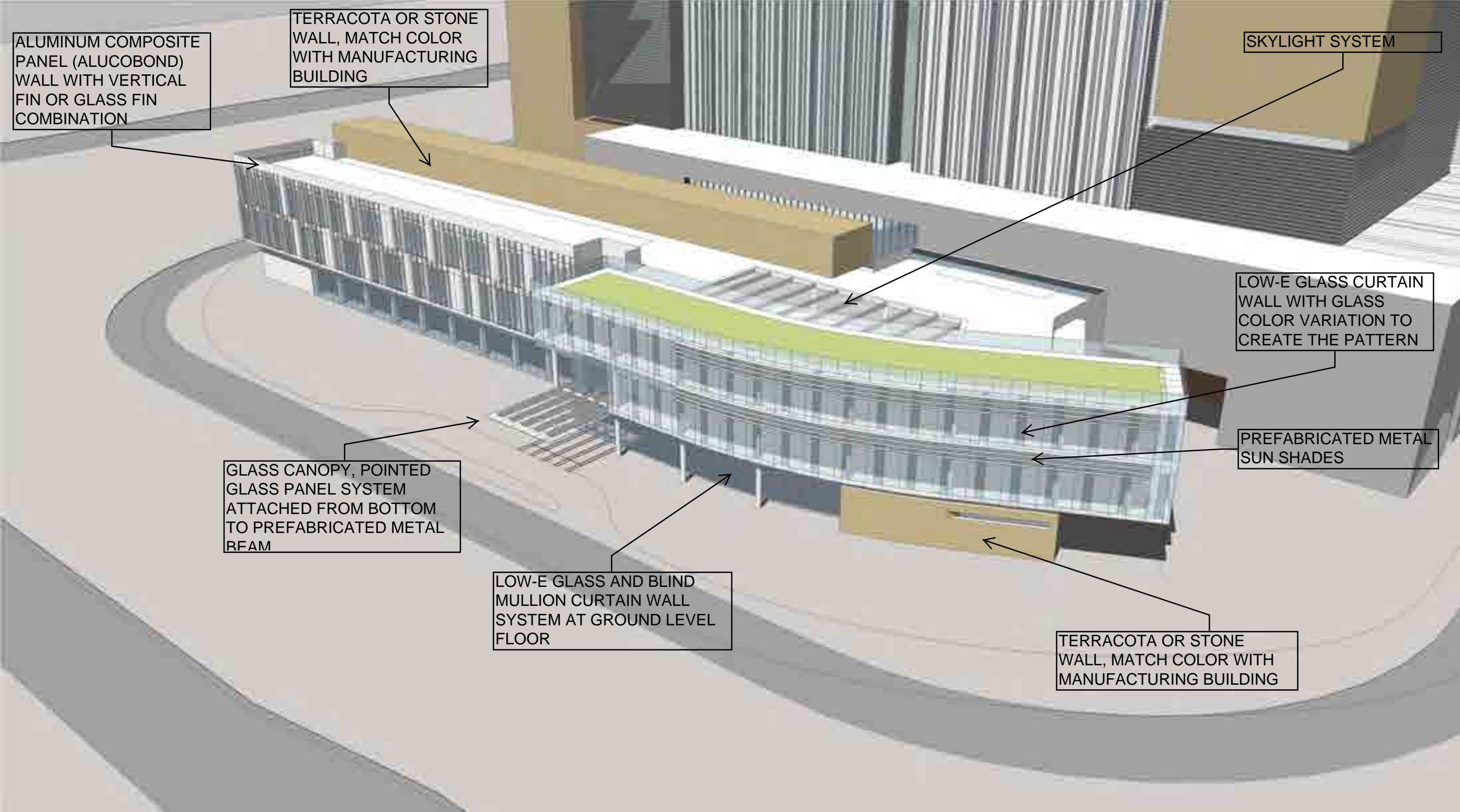
B: Open Lab Bench

BLS: Bench Lab Support

F: Open Lab Floor

FLS: Floor Lab Support

OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH STREET VIEW



OPTION 4 CURVED BAR
SOUTH STREET VIEW

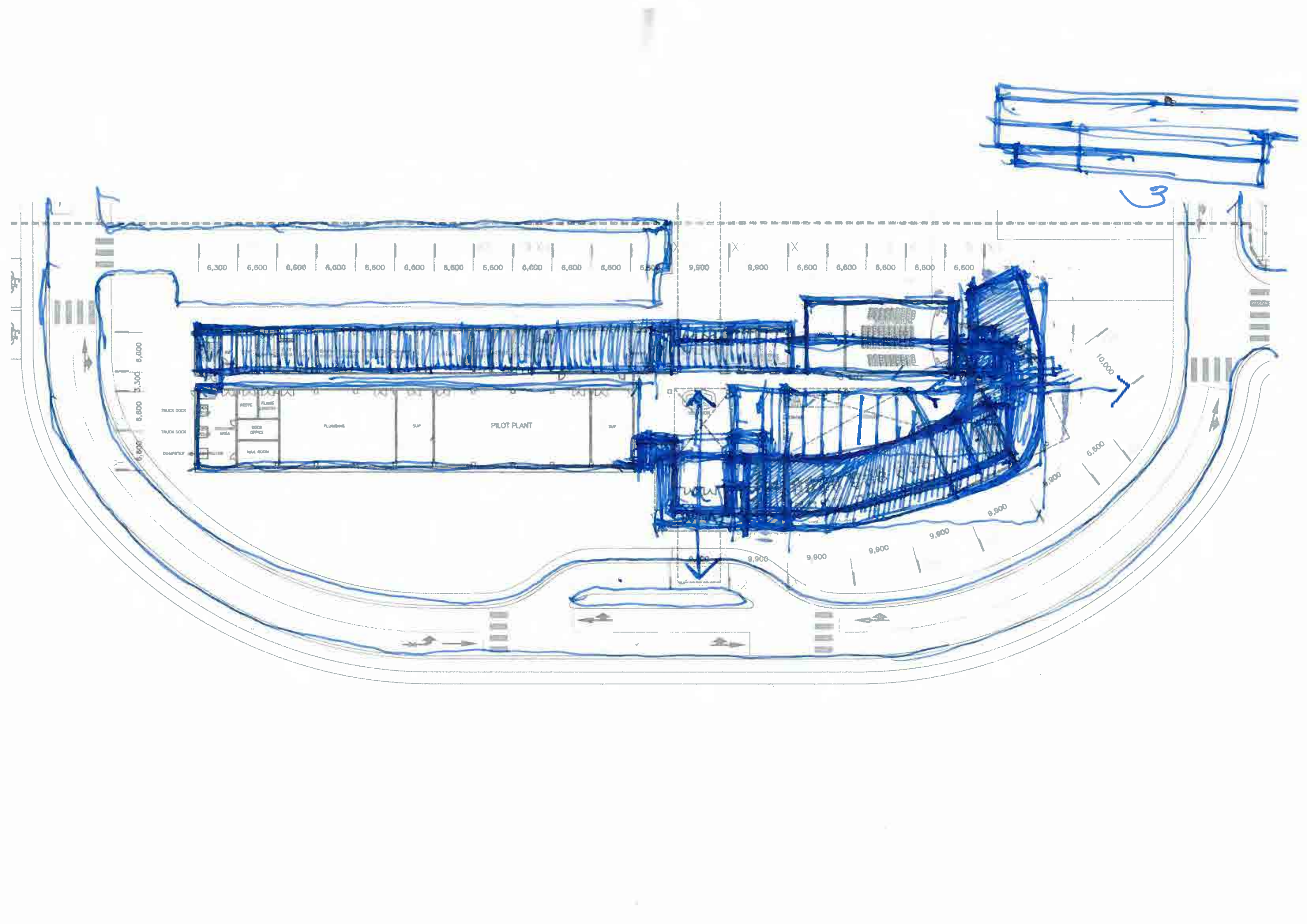


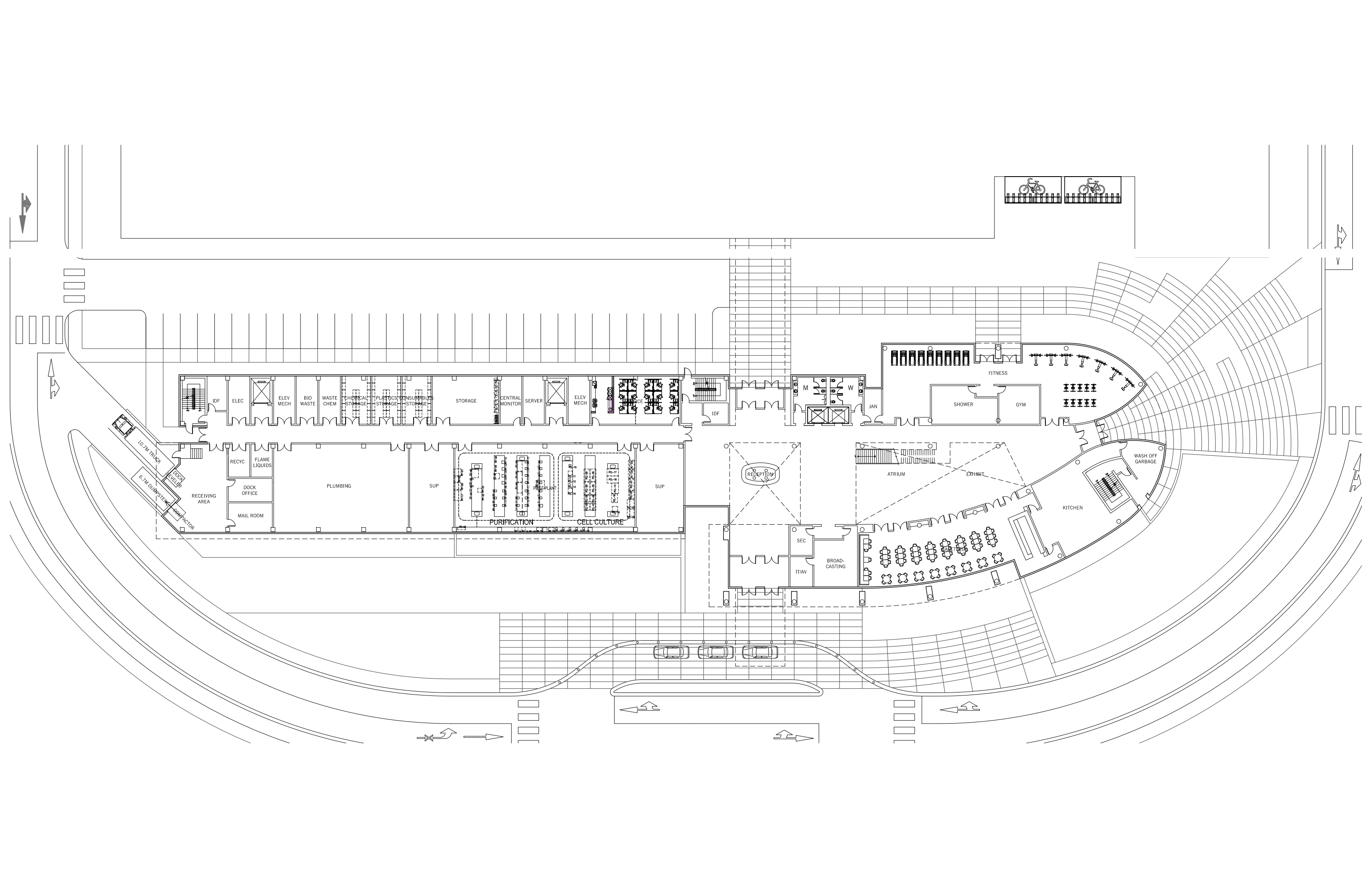
OPTION 4 CURVED BAR
SOUTH STREET VIEW

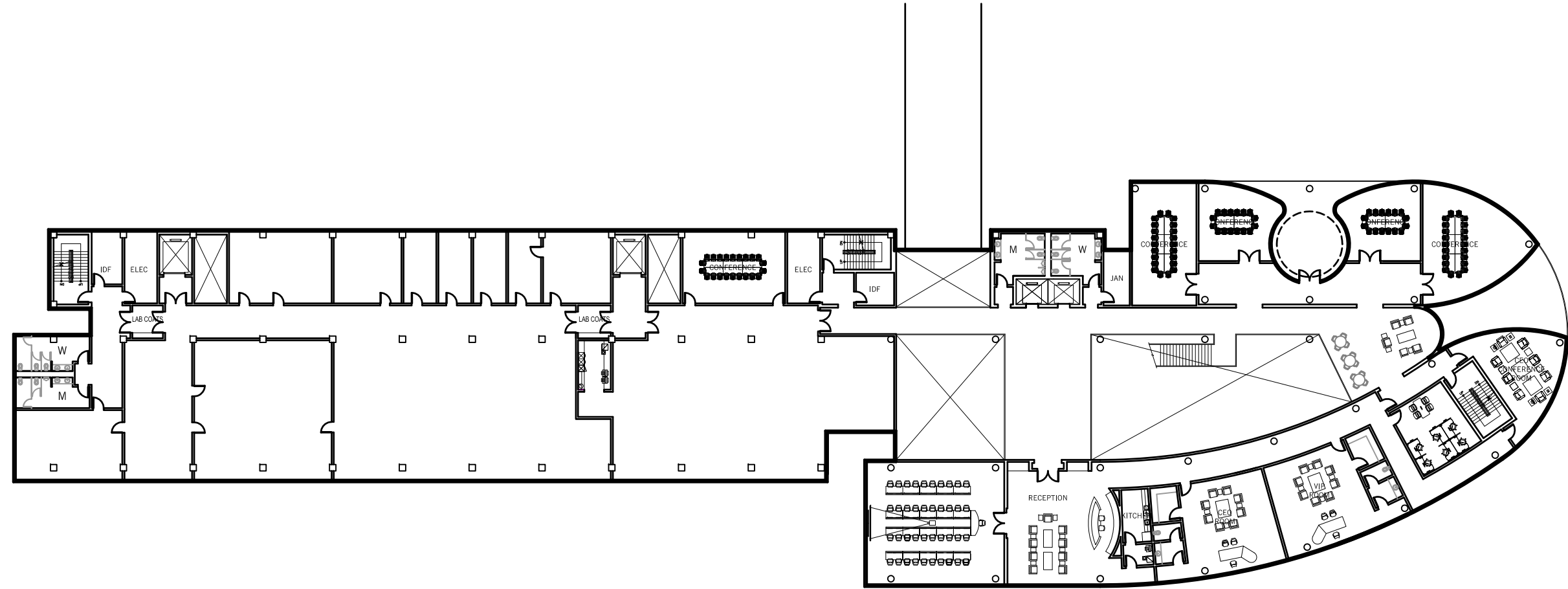


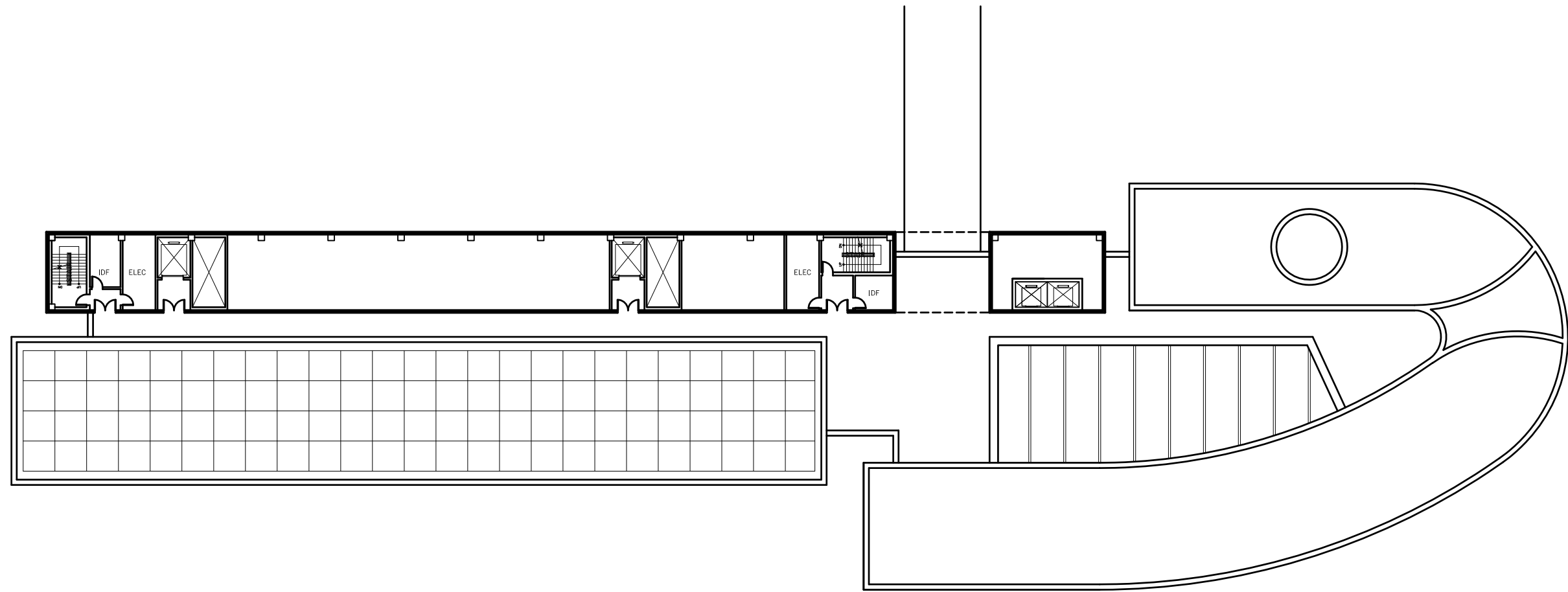
OPTION 4 CURVED BAR
SOUTH CLOSE UP VIEW











OPTION 1
SOUTH BIRDEYE VIEW



OPTION 1
EAST BIRDEYE VIEW



OPTION 1
EAST STREET VIEW



OPTION 1
SOUTH BIRDEYE VIEW



OPTION 1
EAST BIRDEYE VIEW



OPTION 1
EAST STREET VIEW



OPTION 2
SOUTH BIRDS EYE VIEW



OPTION 2
EAST BIRDS EYE VIEW



OPTION 2
EAST STREET VIEW



OPTION 2
SOUTH BIRDS EYE VIEW



OPTION 2
EAST BIRDS EYE VIEW



OPTION 2
EAST STREET VIEW



OPTION 3
SOUTH BIRDS EYE VIEW



OPTION 3
EAST BIRDS EYE VIEW



OPTION 3
EAST STREET VIEW



OPTION 3
SOUTH BIRDS EYE VIEW



OPTION 3
EAST BIRDS EYE VIEW



OPTION 3
EAST STREET VIEW

