

DATE: November 15, 2022

DEPARTMENT OF GENERAL SERVICES
BUREAU OF CAPITAL PROJECT DESIGN MANAGEMENT
1800 HERR STREETS
HARRISBURG, PENNSYLVANIA

ADDENDUM NO. 11

on

PROJECT NO. DGS C-0210-0004 PHASE 001

PROJECT TITLE - PA State Police Greensburg - DNA Laboratory Facility New Building

PROFESSIONAL:

DRS Architects, Inc.

One gateway Center

Pittsburgh, PA, 15222

If you submitted a bid prior to this Addendum being issued, your bid has been discarded and you must re-submit your bid(s) prior to the bid opening date and time.

See Attached Addendum 11 Document

November 14, 2022

DGS 0210-0004
PA State Police Greensburg
New DNA Laboratory Facility

ADDENDUM 11

Item	Description
Item 1	Attached are the responses to all of the bidding RFIs thus far. Also attached are revised or missing drawings and specifications noted in the RFI responses.
Item 2	Attached are revised electrical drawing sheets, answering some of the bidding questions but also revising other items. Attached is also a revision log for those sheets summarizing the revisions.
Item 3	Attached are structural drawings for the roof framing at Stair 2, in response to a bidding question.
Item 4	Attached are two missing specification sections for site plumbing systems, in response to a bidding question.
Item 5	We do not have an answer to .1 Contract RFI 47 yet, regarding the collective bargaining agreement, but will try to provide that shortly.

Thank you,



Jon Funari
DRS Architects

DGS 210-4 Phase 1 - New Pennsylvania State Police DNA Lab
Bid RFIs and Responses

Contract+RFI #	Date	Bidder	Question	Response	Response date
.1 Contract - RFI 01	10.12.2022 09:42 AM	Ron Smith, DiMarco Construction Co. Inc.	Drawing L503 is missing from the documents.	Sheet L503 is included with Addendum 8	11.01.2022
.1 Contract - RFI 02	10.12.2022 01:53 AM	Ron Smith, DiMarco Construction Co. Inc.	Addendums 4 and 5 have been uploaded. What about Addendums 1,2 and 3?	Previous addenda 1, 2, and 3 applied to the first bidding of this project in 2109 and are no longer relevant. All prior drawings, specifications, and bidding documents have been superceded.	11.01.2022
.1 Contract - RFI 03	10.21.2022 10: 58 AM	Ron Smith, DiMarco Construction Co. Inc.	Regarding the Storm Sewer: It appears the profiles for pipe are incomplete. Cannot get pipe sizes. Also, it appears they are running larger diameter pipe into smaller diameter pipe (18" to 15"). Is that correct?	Profiles 'EW-2 TO RD-1' and 'OS-3 TO EW-6 have been added to sheets C301 and C302 to cover the missing portions of the storm system. The pipes between structures I-4 and I-6 have been upsized to 18". Revised Sheets C301 and C302 are included with Addendum 8	11.01.2022
.1 Contract - RFI 04	10.21.2022 11: 40 AM	Ron Smith, DiMarco Construction Co. Inc.	Regarding Lab casework: 1) Multiple spec sections mention seismic requirements. Please confirm if any seismic requirements and stamped engineering drawings are required for this project. 2) Please confirm standard epoxy resin is acceptable for ILO Greenstone. Only one manufacturer makes Greenstone. 3) Please confirm a 3" caster is acceptable ILO 2.5" caster called out in plans for mobile cabinets. 3" caster is industry standard size. 4) 115300 Dishwasher model number is no longer available. Please confirm new model number for this product. 5) 115300 spec mentions autoclave is OFCI. Typical autoclave installation is completed by the autoclave manufacturer. Please confirm autoclave will be handled by the owner/autoclave manufacturer and not part of lab casework/equipment scope.	1) There are no seismic requirements for this project. 2) Standard epoxy resin is acceptable. 3) 3" caster is acceptable 4) New dishwasher model # is G 5006 SCU 5) The contractor will be responsible for installing the autoclave. If specialized knowledge from the autoclave manufacturer is required for installation, contractor should include the cost of that manufacturer's assistance in the bid.	11.01.2022
.1 Contract - RFI 05	10.24.2022 04: 26 PM	Alice Mento, J. C. Orr & Son, Inc	Some of the structures do not have elevations and/or pipe sizes. They are as follows: EW-2, EW-6, I-10 & OS-3	All structures listed are included in the new profiles described in the response to RFI 03 above.	11.01.2022
.1 Contract - RFI 06	10.26.2022 08:34 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Spec 088853, 3.6, A, refers to Entrance Lobby 144, Vestibule 143, Open Office Area 142, and Door 146 and GL-3. These rooms/door do not correspond to the floor plans. Glass type GL-3 is not designated on A501, A502, or A503.	In Specification Section 088853, Lobby 144 should read Lobby 126. Vestibule 143 should read Vestibule 125. Ballistic Glazing (Type GL-3) is required at the locations designated per the specification, using the corrected room numbers above.	11.01.2022
.1 Contract - RFI 07	10.27.2022 10:23 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Specification section 101420-1.3.G.1. states that signs shall be provided at all room entrances. Please provide a drawing showing signage locations, or provide a bid quantity.	For bidding purposes, assume one sign for every door in the building.	11.01.2022
.1 Contract - RFI 08	10.27.2022 10:24 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Specification section 11 53 00 contains the following product which is not shown on the drawings: MSDS Cabinet (MSD): Hazard Information Center Cabinet with swing down shelf. Please provide locations and quantities for the MSDS cabinets.	Provide one MSDS Cabinet. Cabinet Location to be determined by owner.	11.01.2022
.1 Contract - RFI 09	10.27.2022 10:25 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Specification Section 11 53 00 references the following product: Stainless Steel Floor Mounted Shelving [Equipment Number SHxxyy]. The quantity is stated to be where shown on lab plan drawings to maximize linear feet of shelves. There are no SHxxyy shelves shown on the lab plan drawings. Please provide locations and quantities for SHxxyy Shelving.	All stainless steel shelving was removed from the project, please disregard this part of the specification.	11.01.2022

.1 Contract - RFI 10	10.27.2022 01:04 PM	Ron Smith, DiMarco Construction Co. Inc.	Earthwork: Do you know if this material can be lost on-site or will it need to be hauled away?	The site is balanced, therefore material will not need to be hauled away. Assuming 6" of topsoil, the earthwork of the site has been calculated as 12,900 CY of cut and fill.	11.01.2022
.1 Contract - RFI 11	10.27.2022 03:44 PM	Ron Smith, DiMarco Construction Co. Inc.	Sitework: 1. Need size of pipe AND grades for No. 10 and No. 11 Inlets. 2. REF: Undercut footer; need to know how far does footer excavation go out on each side of the footer.	1. These structures are included in the new profile on sheet C301. 2. Per Drawing S001, Foundation Subgrade Preparation Requirements, Note #2: "For bidding purposes assume 3 foot undercut under footings and slabs at entire building area plus 5 feet beyond." The entire building area is to be assumed to be undercut.	11.01.2022
.1 Contract - RFI 12	10.28.2022 01:02 PM	Ron Smith, DiMarco Construction Co. Inc.	Cost Submittal Form: Will there be a new Appendix C Cost Submittal Form sent out?	There have been no changes that would result in the need for a revised Appendix C Cost Submittal form.	11.14.2022
.1 Contract - RFI 13	10.28.2022 02:48 PM	Ron Smith, DiMarco Construction Co. Inc.	323119 DECORATIVE METAL FENCES AND GATES: I could not find the decorative metal fence and gates on the plans.	That section should be ignored - there are no decorative fences or gates on the project.	11.14.2022
.1 Contract - RFI 14	10.31.2022 09:54 AM	Ron Smith, DiMarco Construction Co. Inc.	102239 – "Folding Glass Partition": On page 5 of spec section 102239 – "Folding Glass Partition" under "Accessories", it mentions pocket doors and describes them. The drawings do not show pocket doors. Shall they be included in my bid?	Pocket doors should be included in the bid	11.14.2022
.1 Contract - RFI 15	10.31.2022 10:32 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	In Specification Section 074130 - INSULATED METAL PANELS, on page 7, item 2.5.B.2.a lists three different facing thicknesses. Please clarify which of the three is the correct thickness requirement	.022 inches is correct.	11.14.2022
.1 Contract - RFI 16	10.31.2022 11:34 AM	Ron Smith, DiMarco Construction Co. Inc.	Earthwork: Are there CADD Files available?	CAD files can be made available to the selected contractors	11.14.2022
.1 Contract - RFI 17	11.01.2022 08:29 AM	Ron Smith, DiMarco Construction Co. Inc.	Section 010400: What size job trailer do you want for the DGS Coordination Office?	Refer to Spec Section 010400, 1.22 B.	11.14.2022
.1 Contract - RFI 18	11.01.2022 02:59 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	The footing at Column Lines C-7 on drawing S102 is marked F13. F13 is not listed on the footing schedule on drawing S504. Please provide the required footing information for an F13 footing.	Footing size F13 is 13'-0"x13'-0"x30" with 11 - #8 reinforcing, bottom, each way.	11.14.2022
.1 Contract - RFI 19	11.01.2022 03:16 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	115313 1.5 C.2: Seismic Restraints – are Seismic restraints needed for the fume hoods on this project?	Seismic restraints are not necessary.	11.14.2022
.1 Contract - RFI 20	11.01.2022 03:16 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 1.5 C: are Seismic anchors required on laboratory casework?	Seismic anchors are not necessary.	11.14.2022
.1 Contract - RFI 21	11.01.2022 03:17 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 1.5.F.1: If approved, will the mockup become part of the project?	Yes, the mock-up can become part of the project	11.14.2022
.1 Contract - RFI 22	11.01.2022 03:17 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 2.2.A.5.A: Will roller catches be an acceptable? Positive catches are often faulty.	No, roller catches are not acceptable	11.14.2022
.1 Contract - RFI 23	11.01.2022 03:17 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	115353 Cannot find 2.2.H MSD, or para 2.2.G, SCB, please advise.	SCB located in Loading/Receiving 100. Provide (1) MSD, mounting location to be provided by the owner.	11.14.2022

.1 Contract - RFI 24	11.01.2022 03:18 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	115353 2.2.N - Autoclave FB5, who is responsible for the removal and storage of the Autoclave? Who is responsible for moving the autoclave from storage to room 230?	The autoclave will be furnished, stored, and moved by the using agency.	11.14.2022
.1 Contract - RFI 25	11.01.2022 03:18 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 2.12D The emergency shower and eyewash fixtures are covered under both the plumbing (224500) and lab casework spec sections. Please advise who is to provide these fixtures.	EWS - As located on Lab plans. These fixtures are to be provided by Div. 12 and turned over to Div. 22 for installation.	11.14.2022
.1 Contract - RFI 26	11.01.2022 03:18 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 Epoxy Resin Color-the finish legend on A901, calls out the resin color as Putty, paragraph 2.9 calls out for Greenstone Gray. Please advise the correct color, as it will impact pricing.	The correct color is Putty.	11.14.2022
.1 Contract - RFI 27	11.01.2022 03:19 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	123553 2.5 epoxy resin shelving. Can we substitute phenolic resin in lieu of the epoxy resin shelving as the resin shelving is quite heavy, and it doesn't come finished on the underside of the shelf. Phenolic resin will give you same chemical resistant, is lighter in weight and is available with finish on the underside. Please advise.	Phenolic shelves are not acceptable. Provide Epoxy resin shelving as shown.	11.14.2022
.1 Contract - RFI 28	11.01.2022 03:19 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Drawing L202 Room 139 shows two (2) OHCR-1 above the tables in the middle of the room. Who is to supply these? Please provide a spec and mounting detail.	The .4 contractor will supply them. Basis of design is "Chemetron" 12' electrical cord reel, 9 amps. Mounting methods will be per the manufacturer's instructions.	11.14.2022
.1 Contract - RFI 29	11.02.2022 07:28 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	115313 2.1.D.8.h Battery packs for the airflow alarm. The airflow alarms are by div. 23, is the battery pack by div 23 as well?	Yes.	11.14.2022
.1 Contract - RFI 30	11.02.2022 07:29 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	In specification 074213.23 Metal Composite Panels, Part 2.1 B1 lists panel thickness as 6mm. Please confirm if this is design intent. Most ACM vendors carry a maximum thickness of 4mm.	There are no longer any metal composite panels on the project. This spec section should be deleted.	11.14.2022
.1 Contract - RFI 31	11.02.2022 07:30 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	In specification 074160 Sheet Metal Wall Cladding, Part 2.1 A does not list if product to be galvanized or aluminum. Please advise.	Wall cladding material is galvanized steel.	11.14.2022
.1 Contract - RFI 32	11.02.2022 07:30 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	In specification 074130 Insulated Metal Panels Part 2.1 A, panels are listed to have a three coat fluoropolymer finish, due to the fact that these panels will be behind other panels it is recommended that these panels should the manufacturer's standard finish and color. Please advise if standard finish and color can be used.	Standard finishes are acceptable.	11.14.2022
.1 Contract - RFI 33	11.02.2022 10:42 AM	Ron Smith, DiMarco Construction Co. Inc.	Drywall: 1) Finish List (A901) lists Acoustic Wall Panels (AWP-1). I cannot find these on the drawings. Are there any Acoustic Wall Panels on the project? If so, where? 2) There are a few discrepancies between the Finish schedule and the RCP's regarding ceilings. Please clarify the following: Room #116- Gypsum board or Exposed Stair S103- Gypsum board or Exposed Stair S203- Gypsum board or Exposed Room #302- ACT-1 or Exposed	There are no acoustical wall panels on the project. Room 116 will have an exposed ceiling. S103 will have a gypsum board ceiling. S203 will have a gypsum board ceiling. Room 302 will have a gypsum board ceiling.	11.14.2022
.1 Contract - RFI 34	11.02.2022 10:58 AM	Ron Smith, DiMarco Construction Co. Inc.	Toilet Compartments: What the Doors and Intermediate Panel Sizes are for the Toilet Compartments? Also the Urinal Screen Sizes? And Lastly, the Ceiling Height in those rooms. I am concerned the drawings may not be to scale.	Compartment panels will be standard heights, 55" high, mounted 14" off the floor. Urinal screens will match compartment panels. Ceiling heights are shown on the reflected ceiling plans.	11.14.2022

.1 Contract - RFI 35	11.02.2022 12:04 PM	JR Bittner, Rycon Construction, Inc.	Acoustic Wall Panels: AWP-1 on the finish legend indicates to be installed at the training room and per elevations. This material is not shown on the finish plans or elevations. We assume none is required. Is this correct?	There are no acoustical wall panels on the project.	11.14.2022
.1 Contract - RFI 36	11.02.2022 12:07 PM	JR Bittner, Rycon Construction, Inc.	Ceiling Finish Rm 116: The finish schedule call for ACT-1 in this room and the RCP shows no ceiling. We assume the RCP shall govern. Is this correct?	The RCP is correct in this instance.	11.14.2022
.1 Contract - RFI 37	11.02.2022 01:41 PM	JR Bittner, Rycon Construction, Inc.	Terrazzo Dividers: We assume the lines shown on the plans at the terrazzo locations are the divider strips. Is this correct? We assume the terrazzo base is to be 4" high. Is this correct?	The lines shown on Sheet A932 are preliminary divider stip locations. Final divider locations, including in Vestibule, will be determined during shop drawing review.	11.14.2022
.1 Contract - RFI 38	11.02.2022 03:33 PM	JR Bittner, Rycon Construction, Inc.	Corridor 216: The finish schedule calls for CPT-1, The floor finish plan calls for VCT 1 and VCT 2. We assume the finish plan should be followed. Is this correct?	The finish plan is correct in this instance.	11.14.2022
.1 Contract - RFI 39	11.03.2022 07:30 AM	Ron Smith, DiMarco Construction Co. Inc.	Acoustical Ceilings: 1) Finish List A901 calls for Ultima 2x4 ceiling tile for ACT-2. RCP Legend calls for 2x8 ceiling tile for ACT-2. Ultima tile is not made in lengths longer than 6'. Please clarify what ACT-2 should be. (A product # would be helpful.)	ACT 2 can be Ultima 2' x 4' panels	11.14.2022
.1 Contract - RFI 40	11.03.2022 08:14 AM	JR Bittner, Rycon Construction, Inc.	ACT2 - Ultima 2x4: The finish list A901 calls for Ultima 2x4 tile for ACT-2. The RCP legend calls for this tile to be 2x8 (This tile is not available in 2x8). We assume that the 2x4 tile should be included. Is this correct?	ACT 2 can be Ultima 2' x 4' panels	11.14.2022
.1 Contract - RFI 41	11.03.2022 10:34 AM	JR Bittner, Rycon Construction, Inc.	Ceiling Details: Open Office 200/Corridor 216—There are no details indicated on how to transition from ACT1, ACT2 and ACT3A Data Base Open Office 218 does not have Gyp Board Ceiling Heights or a detail showing the transition from Gyp Bd to ACT 2. It appears there are 6" pieces of ACT 2 as well. These ceilings are very complex and we need more details.	Details for the transition are on Sheet A831, but were mistakenly not referenced on the ceiling plan. The applicable detail between ACT 1 and ACT 2 is 1/A831. The applicable detail between both ACT 1 and ACT 2, and ACT 3A, is also 1/A831.	11.14.2022
.1 Contract - RFI 42	11.03.2022 11:54 AM	Ron Smith, DiMarco Construction Co. Inc	Earthwork: For the metal arch culvert, we are not seeing a detail for that. Does one exist?	A standard detail and design guide for the 73" x 55" CMP pipe arch will be attached to this addendum.	11.14.2022
.1 Contract - RFI 43	11.03.2022 04:01 PM	Joseph Matsko, Massaro Corporation	Flooring: A901 calls for VCT – Armstrong “BBT/Striations” but this product is discontinued. Please alert the architect so they can reselect a product. I will also need to know the height that the sheet vinyl should be covered up the wall, 4 inches or 6 inches?	A similar VCT product will be selected if the Armstrong product is no longer available. The sheet vinyl floor will have a 4" high cove.	11.14.2022
.1 Contract - RFI 44	11.04.2022 11:05 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	There are varying dimensions shown for the plastic toilet compartments and urinal screens on sheets A402 and A403. Please clarify dimensions for all urinal screens and all toilet partitions.	Compartment panels will be standard heights, 55" high, mounted 14" off the floor. Urinal screens will match compartment panels.	11.14.2022
.1 Contract - RFI 45	11.08.2022 08:05 AM	Ron Smith, DiMarco Construction Co. Inc	Drywall: 1) Gypsum spec 092900 Paragraph 3.6C1 says that Aluminum Reveal trim is to be used wherever gypsum board abuts any other material. Does this include exterior window and door openings? Do we need to figure aluminum reveal trim at all the window jambs, heads, and sills?	Aluminum trim is not required at wall-to-door or wall-to-window transitions.	11.14.2022
.1 Contract - RFI 46	11.08.2022 08:27 AM	Angel Farabaugh, Leonard S. Fiore, Inc	The Pre-Proposal Conference sign-in sheet has not been issued as part of an addendum or posted to dgs.pa.gov. Please provide the Pre-Proposal Conference sign-in sheet.	The sign in sheet will be attached to this addendum	11.14.2022
.1 Contract - RFI 47	11.08.2022 08:28 AM	Angel Farabaugh, Leonard S. Fiore, Inc	Project Labor Agreement: The Appendix P Project Labor Agreement (PLA) issued as Addendum #7 references an “Appendix Documents B-Local Union Collective Bargaining Agreements”. However, Appendix B is left blank within the PLA. Please provide the referenced Appendix B-Local Union Collective Bargaining Agreements.		

.1 Contract - RFI 48	11.08.2022 08:28 AM	Angel Farabaugh, Leonard S. Fiore, Inc	Project Labor Agreement: Several qualified subcontractors have indicated they will not be bidding this project do to the inclusion of the Project Labor Agreement. Can the Appendix P Project Labor Agreement be eliminated from this RFP?	The Project Labor Agreement (PLA) will remain in the Project. Please refer to the RFP and Addenda for information regarding the PLA.	11.14.2022
.1 Contract - RFI 49	11.08.2022 09: 48 AM	Joseph Matsko, Massaro Corporation	Gypsum spec 092900 Paragraph 3.6C1 says that Aluminum Reveal trim is to be used wherever gypsum board abuts any other material. Does this include exterior window and door openings? Do we need to figure aluminum reveal trim at all the window jambs, heads, and sills?	Aluminum trim is not required at wall-to-door or wall-to-window transitions.	11.14.2022
.1 Contract - RFI 50	11.08.2022 09:52 AM	Ron Smith, DiMarco Construction Co. Inc	Standing Seam Wall Panels: Are these panels to be standing seam roof panels with staggered joints or we to fabricate a flat stock panel system with the same .040 material? It is not clear what they want. Shop fabrication is good, but if the architect wants a factory fabricated panel, neither Centria or Fabral make a flat seam panel. Atas has a matching standing seam roof panel and fabricates a flat seam panel, would Atas be accepted?	If the specified system doesn't allow for flat horizontal seams, an alternate system will be considered once the project has been awarded.	11.14.2022
.1 Contract - RFI 50	11.08.2022 01:26 PM	JR Bittner, Rycon Construction, Inc.	Room 241 Elevation: Sheet A124, room 241 has the same elevation call out from the floor below. We assume this is in error and no casework is required in room 241. Is this correct?	It is a drafting error. No casework is required in Room 241.	11.14.2022
.1 Contract - RFI 51	11.08.2022 01:29 PM	JR Bittner, Rycon Construction, Inc.	Window Type 'B' – B/A501 shows a section view (4/A504) which calls for a Plastic Laminate Window Sill. The same elevation shows a lower section detail (1/A505) calling for Epoxy Resin Window Sill. What sill should be included for the Window Type 'B' units? If Plastic laminate what is the finish for this window sill section?	All windows in the labs will have epoxy sills.	11.14.2022
.1 Contract - RFI 52	11.08.2022 01:29 PM	JR Bittner, Rycon Construction, Inc.	Window Type 'T' – Does not have a section view. Does this window type need a window sill? If so what kind of sill will be required?	Window T will have a sill similar to Deatil 5/A503.	11.14.2022
.1 Contract - RFI 53	11.08.2022 01:29 PM	JR Bittner, Rycon Construction, Inc.	Window Type 'F' – F/A501 shows a section view (4/A505) which calls for solid surface material. What is the solid surface finish for the window type 'T' window sills?	Plastic laminate can be used for Window F stools.	11.14.2022
.1 Contract - RFI 54	11.08.2022 01:54 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Please provide a structural framing plan for Stair #2.	A plan and details are attached to this addendum.	11.14.2022
.1 Contract - RFI 55	11.09.2022 07:22 AM	Ron Smith, DiMarco Construction Co. Inc	Metal Stud Framing: 1) Section detail 1/A311 shows a cut through the North Loading Dock Canopy. It calls out 3 5/8" Metal Stud Framing with an arrow pointing towards the soffit area of this canopy. Details on Drawing A324 seem to indicate that the Structural steel of this same canopy is all exposed and painted, and there is no additional framing added. Please clarify the intent regarding the soffit of the Loading Dock Canopy.	That is a drafting error. There will be no metal stud framing at the canopies - the structural steel and bottom of deck will be exposed.	11.14.2022
.1 Contract - RFI 56	11.09.2022 07:51 AM	Joseph Matsko, Massaro Corporation	Canopy: Section detail 1/A311 shows a cut through the North Loading Dock Canopy. It calls out 3 5/8" Metal Stud Framing with an arrow pointing towards the soffit area of this canopy. Details on Drawing A324 seem to indicate that the Structural steel of this same canopy is all exposed and painted, and there is no additional framing added. Please clarify the intent regarding the soffit of the Loading Dock Canopy.	That is a drafting error. There will be no metal stud framing at the canopies - the structural steel and bottom of deck will be exposed.	11.14.2022
.1 Contract - RFI 57	11.09.2022 08:31 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	Technical Submittal, T-1A, asks for "proposer's experience with integration work with laboratory casework". Please expand on this request. What defines "integration work"?	Experience with and ability to coordinate the various trades and prime contractors involved with the installation of laboratory casework and the associated utilities, plumbing, and so forth.	11.14.2022

.1 Contract - RFI 58	11.14.2022 10:34 AM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	The summary of specification section 074213.23 (1.2-A) states that metal composite panels are to be used at soffits of canopies and roof projections. The drawings do not depict any metal composite panels at the canopies. There is one note on section 1 on sheet A311 that calls out composite panels, however it isn't pointing to anything, and there doesn't appear to be any metal panels drawn on the underside of this canopy. Please confirm there are no metal composite panels at the canopies. Please clarify if there are any metal composite panels on the project and note where they are to be used.	There are no metal composite panels in the project. You can disregard this specification section.	11.14.2022
.1 Contract - RFI 59	11.14.2022 02:45 PM	Ron Smith, DiMarco Construction Co. Inc	Roofing: The architectural roof plan, A126, lists a column line B.5 that does not appear on the structural drawings. The Penthouse roof structural plan, S107, shows the roof sloping from column line D down to column line B. In order to move the water from the low point on column line B back to B.5 tapered insulation would need to be installed at twice the structural slope to counter it and provide net positive slope back to the drains at B.5. This can be avoided if the drains are installed up against the parapet wall on column line B. Please review and advise.	The columns on B.5 are on the structural drawings, although the column line is not noted. Your suggestion for roof drainage is noted and will be reviewed once the project has been awarded.	11.14.2022
.1 Contract - RFI 60	11.11.2022 04:40 PM	Sherri Hoe	Spec section 115313 Laboratory Fume Hoods: Bedcolab is listed as an approved manufacturer for laboratory casework under spec section 123553. Would Bedcolab fume hoods be acceptable for inclusion under spec section 115313?	DGS policy does not allow product substitutions during bidding.	11.14.2022
.1 Contract - RFI 61	11.14.2022 10:38 AM	Ron Smith, DiMarco Construction Co. Inc	Earthwork: Addendum #8 Answers to questions presented to architect indicate the job is a balanced site. Our takeoff shows a considerable amount of haul off. Can the architect explain how the site is balanced.	Our understanding is that site is balanced, but we are willing to take another look at our calculations once the project has been awarded.	11.14.2022
.1 Contract - RFI 62	11.14.2022 01:39 PM	Ron Smith, DiMarco Construction Co. Inc	Site Utilities: It looks like the following specifications, which are listed in the table of contents, have not been included in the Project Manual. Please advise, thank you. 221113 – Facility Water distribution (civil) 221313 – Facility Sanitary Sewer (civil)	They are included in the attached addendum	11.14.2022
.1 Contract - RFI 63	11.14.2022 01:53 PM	Jeffrey Mascaro, Mascaro Construction Company, L. P.	The following specifications, which are listed in the table of contents, have not been included in the Project Manual: 221113 – Facility Water distribution (civil) 221313 – Facility Sanitary Sewer (civil)	They are included in the attached addendum	11.14.2022
.2 Contract - RFI 01	10.12.2022 06:16 AM	Lyn Noah, Renick Brothers Construction Co	Please clarify BB #1 work vs. BB #2 work for the .2 contract. Is BB#1 to be all work on the H drawings, with the exception of the final connection to fume hoods? Are all hood valves and associated duct still to be included in base bid #1? Are hood/sash controls to still be included in BB #1?	Per Addendum 4, there will only be a single base bid for the project.	11.01.2022
.2 Contract - RFI 02	10.12.2022 06:17 AM	Lyn Noah, Renick Brothers Construction Co	Please confirm the hood for the reagent preparation lab (accurex/greenheck xd2 or equal) Is provided by the .2 contract, and this is the only hood the .2 contract is to provide.	This is correct.	11.01.2022
.2 Contract - RFI 03	10.12.2022 06:18 AM	Lyn Noah, Renick Brothers Construction Co	Please clarify intent regarding delegated hanger design 230529.1.7.B. Is this required for every hanger in the building for the piping for the .2 contract? Is this still required if we use manufactured MSS standard hangers?	Hangers for piping with individual / dedicated hangers meeting the referenced MSS standards are permitted to be omitted from the delegated design.	11.01.2022

.2 Contract - RFI 04	10.12.2022 01:30 PM	Lyn Noah, Renick Brothers Construction Co	Are addendum #1 dated 12-23-2019, #2 dated 12-23-2019, and #3 dated 02-08-2020 still part of this bid / contract? Or are all previous drawings/specifications/addenda superseded by the 09/30/2022 issued drawings and specifications? If they are superseded - should we reference addendum #4 and beyond only on our bid form (and omit #1,#2,#3)?	Previous addenda 1, 2, and 3 applied to the first bidding of this project in 2109 and are no longer relevant. All prior drawings, specifications, and bidding documents have been superceded.	11.01.2022
.2 Contract - RFI 05	10.12.2022 04:20 PM	Lyn Noah, Renick Brothers Construction Co	Are Grooved Fittings and Couplings as manufactured by Anvil/ASC for pressure piping ("Gruvlok" brand) acceptable for grooved mechanical joint fittings and couplings? Reference 232113.2.1.A.1.a.	Product substitutions are not being entertained during bidding.	11.01.2022
.2 Contract - RFI 06	10.14.2022 10:34 AM	Lyn Noah, Renick Brothers Construction Co	Schematic shows manual shut-off valves on main branch connections (HHW) and valves leaving/entering mechanical rooms/penthouses (CHW) on H701/H702 to be high performance butterfly valve type. Are the manual shut-off valves for the boilers (HHW), pumps, air separators, and remote evaporators (CHW) to be high performance butterfly type? Or can these be standard resilient seated butterfly valves?	Per 232523-3.9.C.2.a, high performance valves are only required where indicated on the Drawings.	11.01.2022
.2 Contract - RFI 07	10.17.2022 08:26 AM	Lyn Noah, Renick Brothers Construction Co	H113P, H117, H118 show 2" HHWS/R down to feed 2nd floor offices. H701 shows 2-1/2" with high performance butterfly valves. Which is correct? if 2" is correct - can we provide standard ball valves in lieu of high performance butterfly valves?	2" is the correct size. Ball valves may be provided at this size in lieu of a HP butterfly valve.	11.01.2022
.2 Contract - RFI 08	10.17.2022 08:27 AM	Lyn Noah, Renick Brothers Construction Co	H116 calls for 4" piping around HCP-1A and HCP-1B (off the runout to the lab AHU). H601 calls for 4" piping to lab AHU. H115 & H117 calls for 3" piping to the lab AHU. Which is correct?	3" is the correct size.	11.01.2022
.2 Contract - RFI 09	10.17.2022 02:14 PM	Lyn Noah, Renick Brothers Construction Co	H401 upper level plan calls for 4" CHW going to remote evaporators. H401 lower level plan calls for 5" CHW going to the remote evaporators. H702 calls for 4". Which is correct, 4" or 5"?	4" is the correct size.	11.01.2022
.2 Contract - RFI 10	10.18.2022 03:27 PM	Lyn Noah, Renick Brothers Construction Co	Please clarify condensate drain requirements and which contract provides. It appears that for SSAHUs and FCUs, the drains are by the PC complete as they show on the plumbing drawings. Please confirm these drains are by the PC complete, and other condensate drains for the HVAC Equipment (Lab AHU, Office AHU, Boilers, Plenum, LEF, etc) are provided by the HC complete to a funnel drain provided by the PC.	For SSAHUS and FCUs, other than those in Mechanical Closet 113, condensate traps and any specified / required condensate pumps shall be provided under the 0.2 Contract, and the remainder of the condensate piping shall be by the 0.3 Contractor. For the units in Mechanical Closet 113, all of the work shall be by the 0.2 Contractor, other than the floor or funnel drains. Drains for equipment in the Penthouse are entirely by the 0.2 Contractor, other than the floor or funnel drains.	11.01.2022
.2 Contract - RFI 11	10.19.2022 03: 40 PM	Lyn Noah, Renick Brothers Construction Co	Please confirm all painting of HVAC piping, if required, is provided by the .1 GC contract. If this is to be by the .2 contract, can the scope of painting required be clarified – is it only piping exposed in mechanical rooms? Are there any duct or equipment painting requirements?	There is no painting required of the 0.2 Contract other than touch up of factory finishes on HVAC work as noted in various Division 23 Sections, and where galvanizing is damaged on galvanized HVAC work as per 230500-3.14.F.	11.01.2022
.2 Contract - RFI 12	10.20.2022 09: 23 AM	Lyn Noah, Renick Brothers Construction Co	If a hydronic piping system is at a size where grooved end piping/fittings/couplings are permitted, are resilient seated grooved end valves (such as a nibco GD-4765) acceptable in that system? Or must all valves be lug type, if a vic-300 is not utilized?	Grooved end valves are only permitted where grooved ends are specified for a particular valve. Note that butterfly valves other than the Vic-300 valve are specified in Section 230523 to have lug wafer bodies.	11.01.2022

.2 Contract - RFI 13	10.26.2022 05:09 PM	Lyn Noah, Renick Brothers Construction Co	Balancing Subcontractor-Northstar Environmental: Is Northstar Environmental, LTD an acceptable balancing subcontractor for this project? They bid the 2020 version of this project as a critical subcontractor.	Substitutions are not being entertained during bidding. Per 230593-1.4.B, the .2 Contractor may submit to use another firm other than those listed in 1.4.A, however this shall be after contact award. The .2 bidding Contractors are advised to base their bid on one of the pre-approved TAB Agents listed, as Northstar, or any other proposed substitution, may or may not be accepted.	11.01.2022
.2 Contract - RFI 14	10.28.2022 08:53 AM	Lyn Noah, Renick Brothers Construction Co	Spec 230713.3.6E: Please confirm that the intent is that the return / exhaust duct associated with the lab AHU is to receive wrap insulation where concealed in the building / in duct shafts, per 230713.3.6.E	Lab AHU exhaust ducts that are not located in the Penthouse may be uninsulated.	11.14.2022
.2 Contract - RFI 15	10.28.2022 08:54 AM	Lyn Noah, Renick Brothers Construction Co	Relief Air: Please clarify if the relief air associated with the office air handler in the penthouse is to receive board insulation? Is the intent of the spec that all ducts in the penthouse are to receive board insulation where exposed in the penthouse?	Relief duct associated with the Office AHU requires board insulation. Comply with material and thickness indicated in 230713-3.6.F.	11.14.2022
.2 Contract - RFI 16	10.28.2022 09:08 AM	Lyn Noah, Renick Brothers Construction Co	Vertical Duct: Is it the intent that the vertical duct drops in the penthouse space (the ducts that continue to the floor below) are to be concealed / chased in a shaft and therefore the ducts receive wrap insulation? Or are they to be exposed to the floor penetration into the floor below and therefore are required to be board insulation? It appears from the drawings that there is some sort of drywall / shaft wall around the ducts, but it is not clear if this chase is chased the entirety of the penthouse, or if it is just the opening going to the floor below / shaft to the 1st floor.	The shafts terminate with a 'cap' near the penthouse floor, so nearly all ductwork in the penthouse is exposed, and therefore requires board insulation per 230713-3.6.F.	11.14.2022
.2 Contract - RFI 17	10.31.2022 09:07 AM	Lyn Noah, Renick Brothers Construction Co	Temporary Heat: Are self-contained exterior vented / outdoor self-vented and temporary ducted natural-gas fired heaters acceptable for temporary heat, once the building is enclosed? If they are acceptable, please confirm that the lead contractor still owns fuel for this system.	See Specification Section 015000, Part 1.4.	11.14.2022
.2 Contract - RFI 18	11.01.2022 08:34 AM	Lyn Noah, Renick Brothers Construction Co	Duct Insulation: Is the intent for the duct insulation for round downstream of VAV, SAV to be 1 1/2" blanket insulation and if so may we also choose to insulated the rectangular that way as well?	Duct liner is required on such ducts as per 233113-2.3.B, and 233113-2.3.C.5. Lined supply ducts do not require external blanket in addition to the liner.	11.14.2022
.2 Contract - RFI 19	11.02.2022 01: 24 PM	Justin Clark, Scalise Industries (EMCOR Services)	Wall Penetration Coordination: How are all wall penetrations being handled on this job? does .2 HVAC Contractor layout for the .1 General contractor to perform?	Refer to 230500, Article 3.1.	11.14.2022
.2 Contract - RFI 20	11.02.2022 01: 25 PM	Justin Clark, Scalise Industries (EMCOR Services)	Bid Submission: The new addendum refers to the bid being submitted online on E-Builder, however that system is locked at the moment. Please confirm this bid will be submitted online as stated in the addendum, and the form will be unlocked to do so.	Proposals must be submitted per the instructions in the RFP	11.14.2022
.2 Contract - RFI 21	11.02.2022 02:38 PM	Lyn Noah, Renick Brothers Construction Co	TAB Subcontractors: None of the pre-approved TAB subcontractors (Flood & Sterling, TABworks, WAE, Kahoe) are interested in bidding this project (we have verified this with all named bidders). Please advise how we are to handle the TAB work for this project?	Any TAB Agent which meets the requirements of Article 1.9 of 230593 will be acceptable.	11.14.2022

.2 Contract - RFI 22	11.02.2022 02:46 PM	Lyn Noah, Renick Brothers Construction Co	Drawing H111D notes 15 and 16: Please clarify if notes #15 and #16 on H111D are required? we cannot find any of these return vav boxes RTD-1B, RTD-2A, RTD-2B and associated controls. We can only find RTD #1A (note #13 and #14) on the drawings.	Not all keynotes are used on a given sheet as per the general note on H111D (look just above the HFL logo near the titleblock info). Keynote 15 is applied on H112D near rooms 127 and 128. Also on H112D, keynote 16 is applied near Room 138. RTD-1B consists of a damper and airflow station and is located above Room 127 (see dwg. H112D). RTD-2A is a motorized damper and is located near column lines 5 and B in the penthouse (see dwg. H115). RTD-2B is a motorized damper and is located near column lines 7.5 and B in the penthouse (see dwg. H115).	11.14.2022
.2 Contract - RFI 23	11.14.2022 02:05 PM	Justin Clark, Scalise Industries (EMCOR Services)	Controls: Electrical drawings E-113P and E-114P Lab area's A and B do not show any 120v power designated for the Lab Control Air Valves, Fume Hood Air Valves, and Room Pressure monitors. On drawing E-602 showing Lab breaker Panels A through F there are spare circuits. Will/Can the DIV.26 contractor provide the 120v wiring to a junction box close or near to the bulk of the Lab Air Control Valves for the DDC contractor to install a 24v transformer for power to the Lab DDC Control System devices?	There are several junction boxes (tagged "VAV") indicated to be installed throughout the lab areas designated for HVAC control power. Refer to enlarged power plans for these areas on sheets E401P and E402P.	11.14.2022
.3 Contract - RFI 01	10.12.2022 01:30 PM	Lyn Noah, Renick Brothers Construction Co	Are addendum #1 dated 12-23-2019, #2 dated 12-23-2019, and #3 dated 02-08-2020 still part of this bid / contract? Or are all previous drawings/specifications/addenda superseded by the 09/30/2022 issued drawings and specifications? If they are superseded - should we reference addendum #4 and beyond only on our bid form (and omit #1,#2,#3)?	Previous addenda 1, 2, and 3 applied to the first bidding of this project in 2109 and are no longer relevant. All prior drawings, specificfations, and bidding documents have been superceeded.	11.01.2022
.3 Contract - RFI 02	11.01.2022 01:49 PM	Lyn Noah, Renick Brothers Construction Co	Specification section 220529 paragraph 1.5-B-1: Does delegated design apply to this project for pipes 2" and above running parallel within the same structural bay even if the pipes are supported by their own hangers and not a trapeze type hanger?	Hangers for piping with individual / dedicated hangers meeting the referenced MSS standards are permitted to be omitted from the delegated design.	11.14.2022
.3 Contract - RFI 03	11.01.2022 01:49 PM	Lyn Noah, Renick Brothers Construction Co	Specification section 220516 paragraph 1.3: Does this section apply to this project?	Yes - Furnish and install pipe anchors, guides and expansion loops in domestic hot water supply and return piping for thermal expansion of the piping systems. Refer to pipe anchor and guide detail 5/ P010.	11.14.2022
.3 Contract - RFI 04	11.02.2022 11:30 AM	Rusty Stoner, Negleys Water	Bidders List: I am looking for a list of prospective bidders. My company can provide water treatment related products, installation and services. I am trying to see who is bidding on the plumbing sections and who may be interested in my company providing quotes or proposals to them for water treatment and water purification items. We are a small business and we are registered with Pennsylvania.	DRS Architects does not have access to the bidders list, but we believe you can see who is bidding by registering in eBuilder as a bidder yourself.	11.14.2022
.4 Contract - RFI 01	10.25.2022 01:09 PM	Jim Clark, TSB Inc. d/b/a Schultheis Electric	Floor Boxes: Can you provide a manufacture and catalog number for the floor boxes shown on drawing E111P, E114P, E111S, and E112S?	See revised sheet E605, attached to this addendum	11.14.2022

.4 Contract - RFI 02	10.25.2022 01:10 PM	Jim Clark, TSB Inc. d/b/a Schultheis Electric	Lab Table Top boxes: Can you provide a manufacture and catalog number for the power and data lab table top boxes per drawing E401P, E401S, E402P and E402S?	See revised sheet E605, attached to this addendum	11.14.2022
.4 Contract - RFI 03	10.25.2022 01:12 PM	Jim Clark, TSB Inc. d/b/a Schultheis Electric	Furniture Feeds: Can you provide a manufacture and catalog number for the furniture feed devices as shown on drawings E112P and E113P?	See revised sheet E605, attached to this addendum	11.14.2022
.4 Contract - RFI 04	11.01.2022 10:35 AM	Jim Clark, TSB Inc. d/b/a Schultheis Electric	Type L4, L6, & L8 Light Fixtures: On drawing E113L and E114L, there are Type L4, L6, & L8 Light Fixtures shown. All other Type L4, L6 & L8 have an 'H' or a 'D' beside them. Which of these light fixtures are to be 'H' and which fixtures are to be 'D'?	Refer to the remarks column in the light fixture schedule.	11.14.2022
.4 Contract - RFI 05	11.01.2022 10:37 AM	Jim Clark, TSB Inc. d/b/a Schultheis Electric	Elevator Light Fixtures: On drawing E112L and E114L, the light fixtures in the elevators are noted as 'S' however, they have a different symbol than the other Type S fixtures. Are the elevator lights the same as the other Type S fixtures or do they have a different manufacture and catalog number?	For the purposes of bidding, assume they are the same.	11.14.2022

DNA Lab - MEP Revision #1 (11/15/2022)

- E001 - Remove duplicate of "Combination Power / Telecommunication Poke-Thru" symbol
- E001 - Updated description for "Combination Power / Telecommunication Floor Box" symbol
- E001 - Updated description for "Power/Data Furniture Connection - Poke Thru".
- E001 - Updated description for "Tombstone Pedestal Power / Data Box".
- E001 - Removed "Retractable Cord Reel" symbol (unused), added "TV Power Outlet" symbol.
- E001 - Updated description for Low Voltage "TV Outlet" symbol.
- E001 - Added "Wireless Access Point" symbol.
- E001 - Added "Audiovisual Telecommunication Outlet" symbol
- E001 - Added "Telecommunication Outlet" symbol.
- E001 - Added "Above Counter Telecommunication Outlet" symbol.
- E001 - Added "Speaker Outlet" symbol
- E001 - Removed "Ceiling Twist Lock Receptacle" (unused), added "Audiovisual Power Outlet" symbol.
- E001 - Updated description for "Double Compartment Surface Metal Raceway".
- E101 - Added (2) 4" conduit to ductbank for a total of (4) 4" conduits routed to Telecom Room.
- E111P - Added identification tag for Floor box in rooms 133 and 134.
- E111S - Added identification tag for Floor box in rooms 133 and 134.
- E111P/E112P - Updated tag for ceiling mounted receptacles in room 139.
- E111P/E112P - Revised Telecom Room 115 layout per client agency comments.
- E111S/E112S - Revised Telecom Room 115 layout per client agency comments.
- E111P - Relocated panel "1C" from Electrical Room 107 to Telecom Room 115.
- E112P - Added receptacles for (2) security monitors in Room 139, added to circuit '1B-56'.
- E112P - Added power for TV monitor above door in room 124, added to circuit '1B-31'.
- E112P - Added power for future TV monitor (above ceiling) in room 124, added to circuit '1B-31'.
- E112P - Added AV receptacle for speaker system in room 122, added to circuit '1B-40'.
- E112P - Updated furniture feeds for room 139 - Wall-fed, 3-circuit furniture.
- E112P - Reassigned devices previously on Circuit "1B-55" to "1B-56" for room 139
- E112P - Reassigned devices previously on Circuit "1B-59" to "1B-76" for room 139
- E112S - Updated furniture feeds for room 139 - Wall-fed, 8 data per furniture feed.

E112S - Added data for (2) security monitors in Room 139.

E112S - Added data for TV monitor above door in room 124.

E112S - Added data for future monitor (above ceiling) in room 124.

E112S - Added (1) AV box for speaker system and pathways for (4) ceiling speakers to AV box, room 122.

E112S - Added (2) Floor boxes in room 122.

E112P - Added (2) Floor boxes in room 122, assigned to circuit "1B-37"

E112P - Reassigned all (3)TVs in room 122 to Circuit "1B-35", previously "1B-37" and "1B-39"

E113P - Updated symbol and added identification tag for Furniture feeds in room 200.

E113P - Updated symbol and added identification tag for wall-fed furniture feed in room 200.

E113P - Updated symbol and added identification tag for wall-fed furniture feed in room 200.

E113S - Added furniture feed with 6 data drops in room 200.

E113L/E114L - Updated tag for L4, L6, & L8 light fixtures to indicate ceiling type.

E112L/E114L - Replaced 'S' type fixture for 'S1' fixture type in elevator shaft.

E114P - Added identification tag for Floor box in room 207.

E114P - Added power for (4) printers in room 218, assigned to panel "2B" circuits 14, 16,18, 20.

E113P/E114P - Added (6) receptacles, assigned previous receptacles "above counter" in corridor 216. Assigned to panel "2A" circuits 48, 50, 52.

E114P - Revised Telecom Room 212 layout per client agency comments.

E114S - Revised Telecom Room 212 layout per client agency comments.

E114S - Added identification tag for Floor box in room 207.

E114S - Added (24) data outlets in room 218.

E113S/E114S - Added (12) data outlets, assigned previous outlets "above counter" in corridor 216.

E401S/E402S - Transferred data outlets in corridor 216 to E113S & E114S for consistency with "P" plans.

E402P - Deleted (4) Table Top Pedestal Box receptacles in room 230.

E401S - Added identification tag for Tombstone pedestal boxes.

E402P - Added raceway to room 233. Adjusted raceway lengths in open lab area.

E402P - Added timer switch in room 230.

E402S - Removed raceway in room 230. Adjusted raceway lengths in room 230, 233, and 236.

E402S - Adjusted raceway lengths and deleted raceways in open lab area.

E402S - Added identification tag for Tombstone pedestal boxes.

E402S - Deleted (8) Table Top Pedestal Box data drops in room 230.

E403 - Added new sheet for enlarged Telecom Rooms with revised layouts per client agency comments.

E601 - Updated panel schedule for "1B" and "1C" to reflect circuiting revisions.

E602 - Reassigned "Lab D" Circuits 57, 58, 60, 61 to spare.

E602 - Updated panel schedule for "Lab E" circuits 23 and 26 for revisions to raceway lengths.

E603 - Updated panel schedule for "2A" and "2B" to reflect circuiting revisions.

E605 - Added "Floor and Pedestal Table Box Schedule".

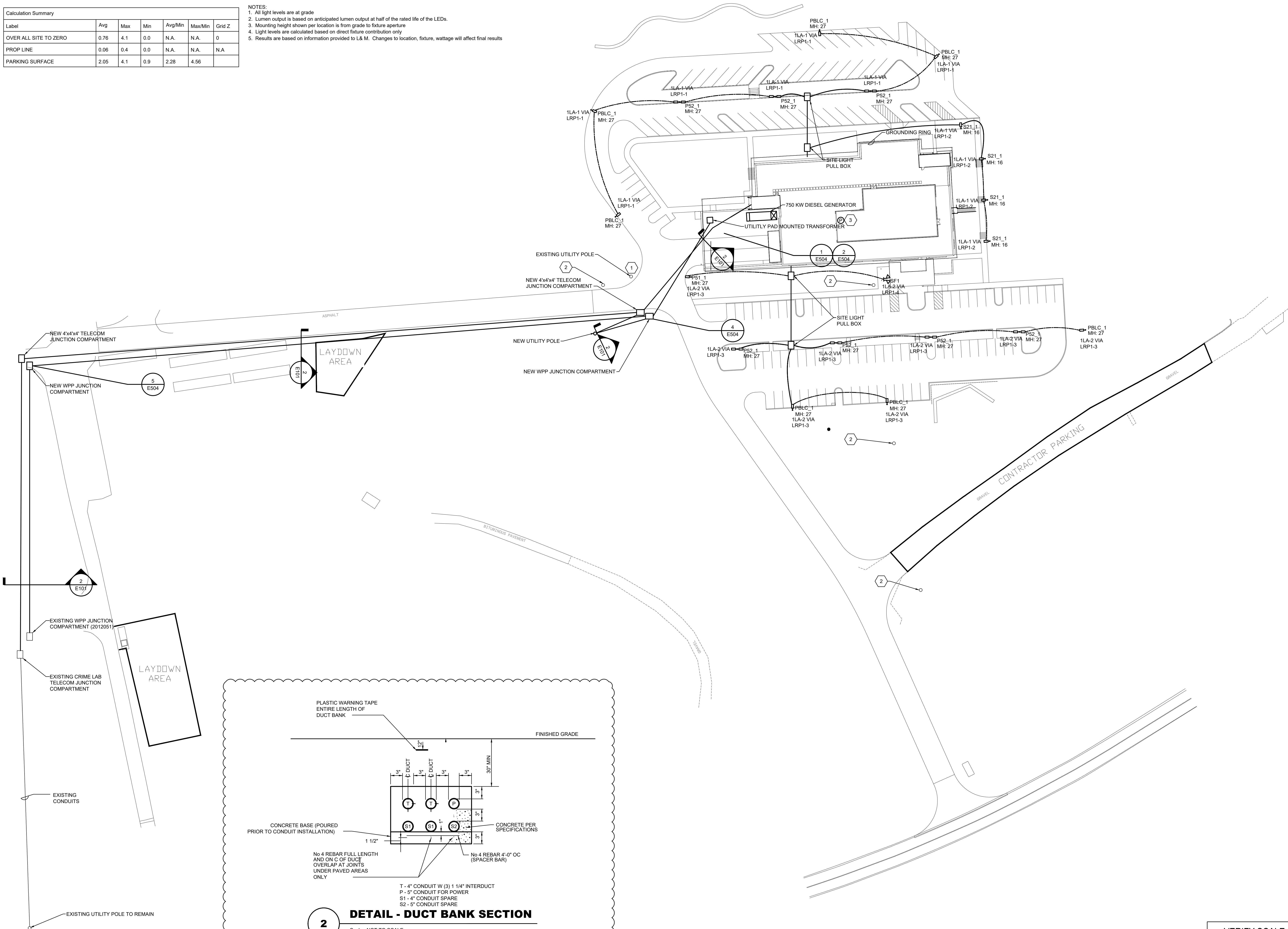
E605 - Added light fixture 'S1' to schedule.

E702 - Updated Telecom Riser and Grounding Riser per client agency comments.

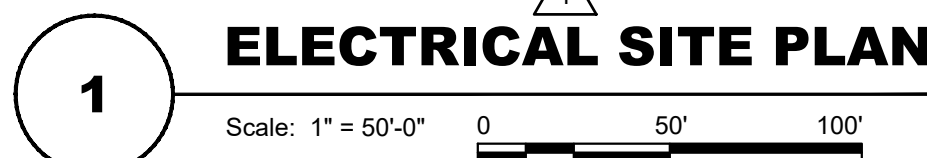
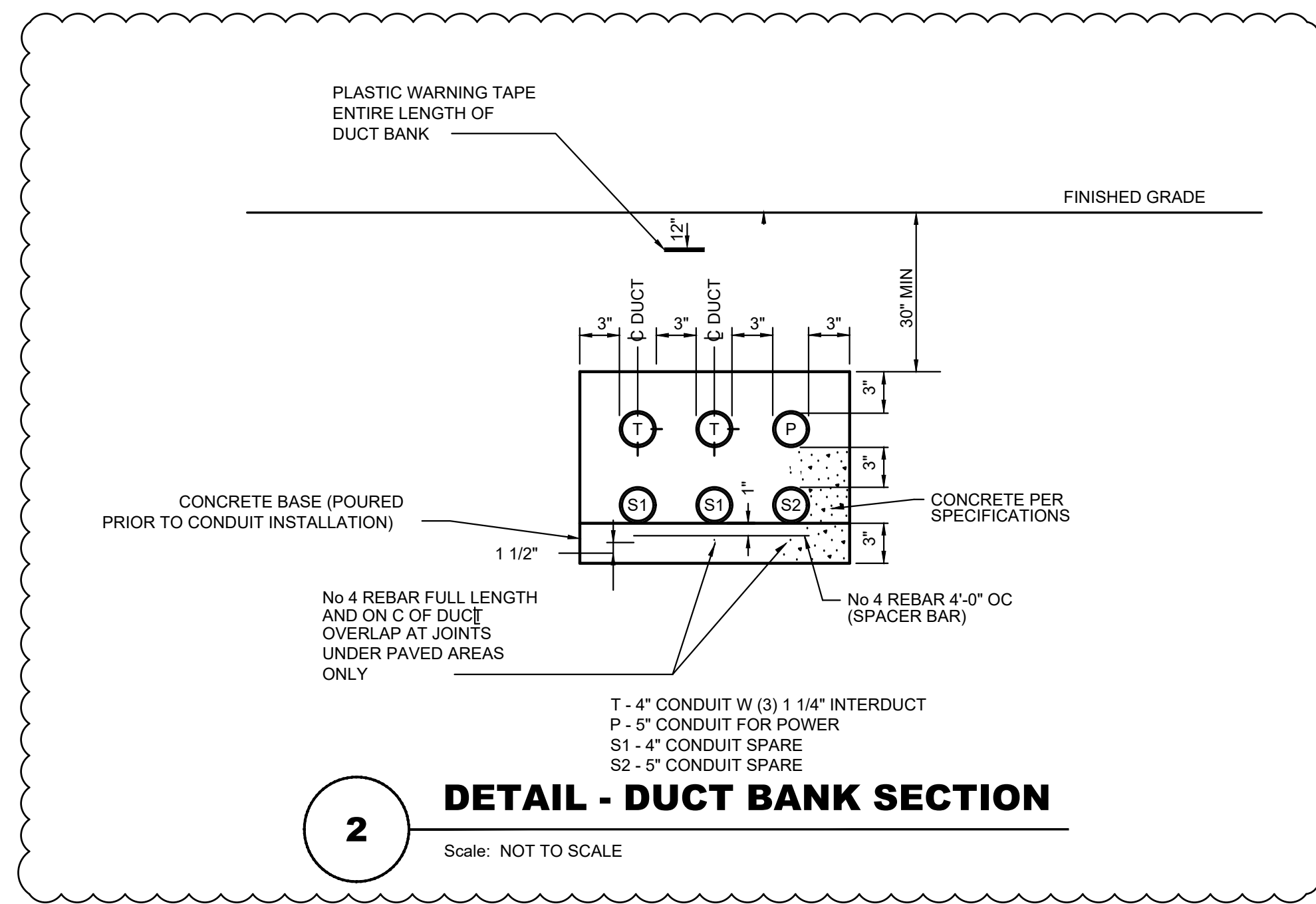
Label	Symbol	Arrangement	Qty	LLF	[MANUFAC]	Description	Arr. Watts
PS2_1		BACK-BACK	7	0.850	Lithonia Lighting	DSX1 LED P5 40K T5W MVOLT	276
P51_1		SINGLE	1	0.850	Lithonia Lighting	DSX1 LED P5 40K T5W MVOLT	138
S21_1		SINGLE	4	0.850	Lithonia Lighting	DSX0 LED P1 40K T2M MVOLT	38
PBLC_1		SINGLE	7	0.850	Lithonia Lighting	DSX1 LED P5 40K BLC MVOLT	138

Label	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
OVER ALL SITE TO ZERO	0.76	4.1	0.0	N.A.	N.A.	0
PROP LINE	0.06	0.4	0.0	N.A.	N.A.	N.A.
PARKING SURFACE	2.05	4.1	0.9	2.28	4.56	

- NOTES:
 1. All light levels are at grade
 2. Lumen output is based on anticipated lumen output at half of the rated life of the LEDs.
 3. Mounting height shown per location is from grade to fixture aperture
 4. Light levels are calculated based on direct fixture contribution only
 5. Results are based on information provided to L & M. Changes to location, fixture, wattage will affect final results



- GENERAL NOTES:
 1. EXISTING ELECTRICAL UTILITY POLES, SERVICE, AND ASSOCIATED WIRE TO BE REMOVED UNLESS NOTED OTHERWISE. SEE CIVIL PLANS FOR EXISTING POLE LOCATIONS. POLES TO REMAIN ARE SHOWN.
 2. NEW UNDERGROUND ELECTRICAL FEED MUST BE IN PLACE PRIOR TO REMOVAL OF EXISTING ELECTRICAL UTILITY POLES TO MAINTAIN SERVICE TO TO ADJOINING PROPERTY.
- KEYNOTES:
 1 EXISTING ELECTRICAL UTILITY POLE SHALL BE REPLACED AND RELOCATED TO ACCOMMODATE TRANSITION FEED FROM UNDERGROUND TO OVER HEAD LINE.
 2 EXISTING ELECTRICAL UTILITY LIGHT POLES, SERVICE, AND ASSOCIATED WIRING TO BE REMOVED BY 0.4 CONTRACTOR.
 3 PHOTOCELL TO CONTROL ALL EXTERIOR LIGHTS



H.F. LENZ COMPANY
 Engineers • Planners • Surveyors • Energy Consultants

MEP REVISION #1 - 11/15/2022

RECORD REVISIONS

Signature	Date	Signature	Date
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DRS architects One Gateway Center
 Designing a Sustainable Future. Seventeenth Floor
 Pittsburgh, PA 15222
 Phone: 412.391.4850

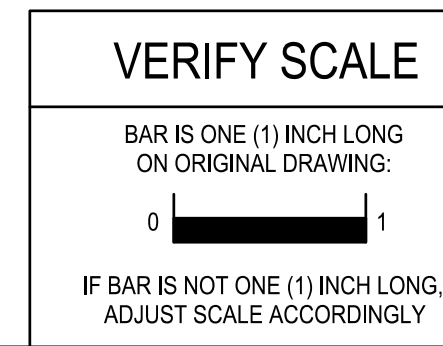
COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

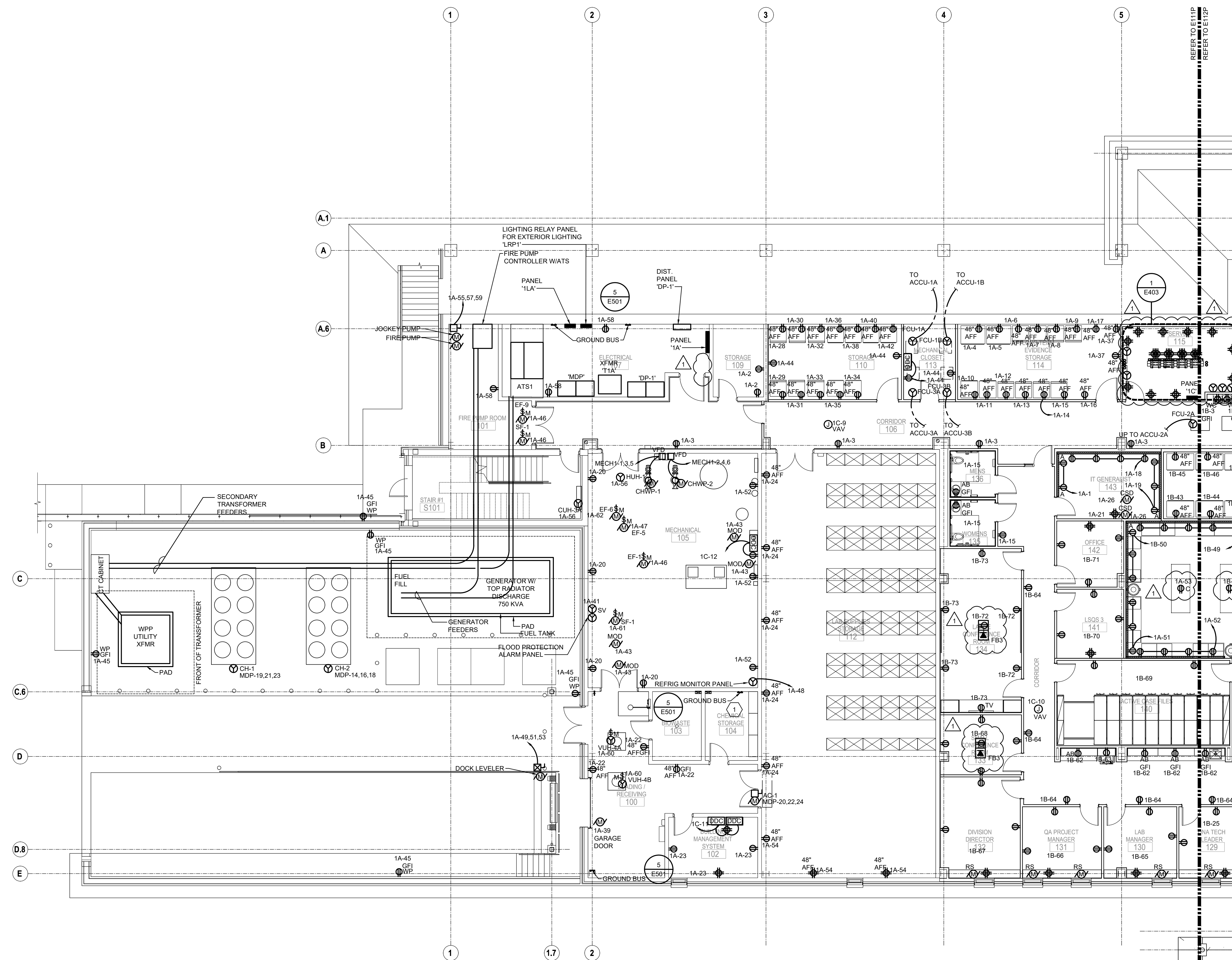
Construction of New DNA Facility
 Pennsylvania State Police
 Willow Crossing Road
 Greensburg, Pennsylvania

ELECTRICAL SITE PLAN

DRAWN BY: E HOOVER DATE: 05/24/2022 DRAWING NO.: **E101**
 CHECKED BY: S MULHOLLEN SCALE: 1" = 40'-0" (VOLUME 1 OF 1)

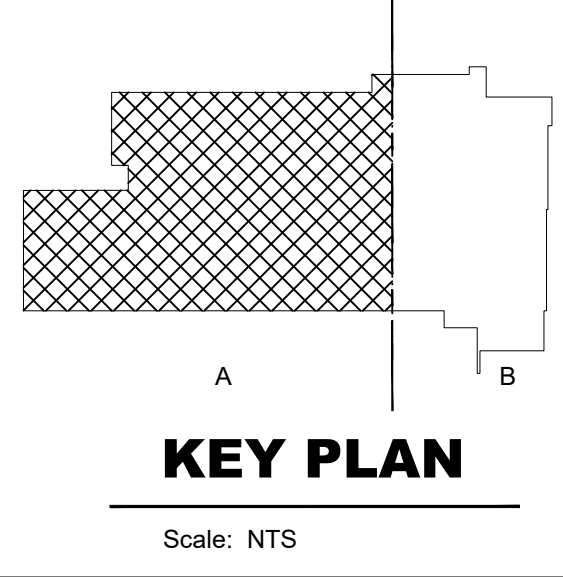
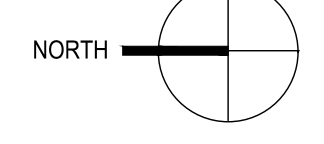


WEST PENN POWER DR NOTIFICATION #334016773



KEYNOTES:
 1 4 CONTRACTOR TO GROUND CABINETS

1 FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'A' POWER
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



VERIFY SCALE
 BAR IS ONE (1) INCH LONG ON ORIGINAL DRAWING.
 IF BAR IS NOT ONE (1) INCH LONG, ADJUST SCALE ACCORDINGLY.

H.F. LENZ COMPANY
 Engineers • Planners • Surveyors • Energy Consultants

1 MEP REVISION #1 - 11/15/2022

RECORD REVISIONS

Signature _____ Date _____ Signature _____ Date _____

DRS architects One Gateway Center
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 Phone: 412.391.4850

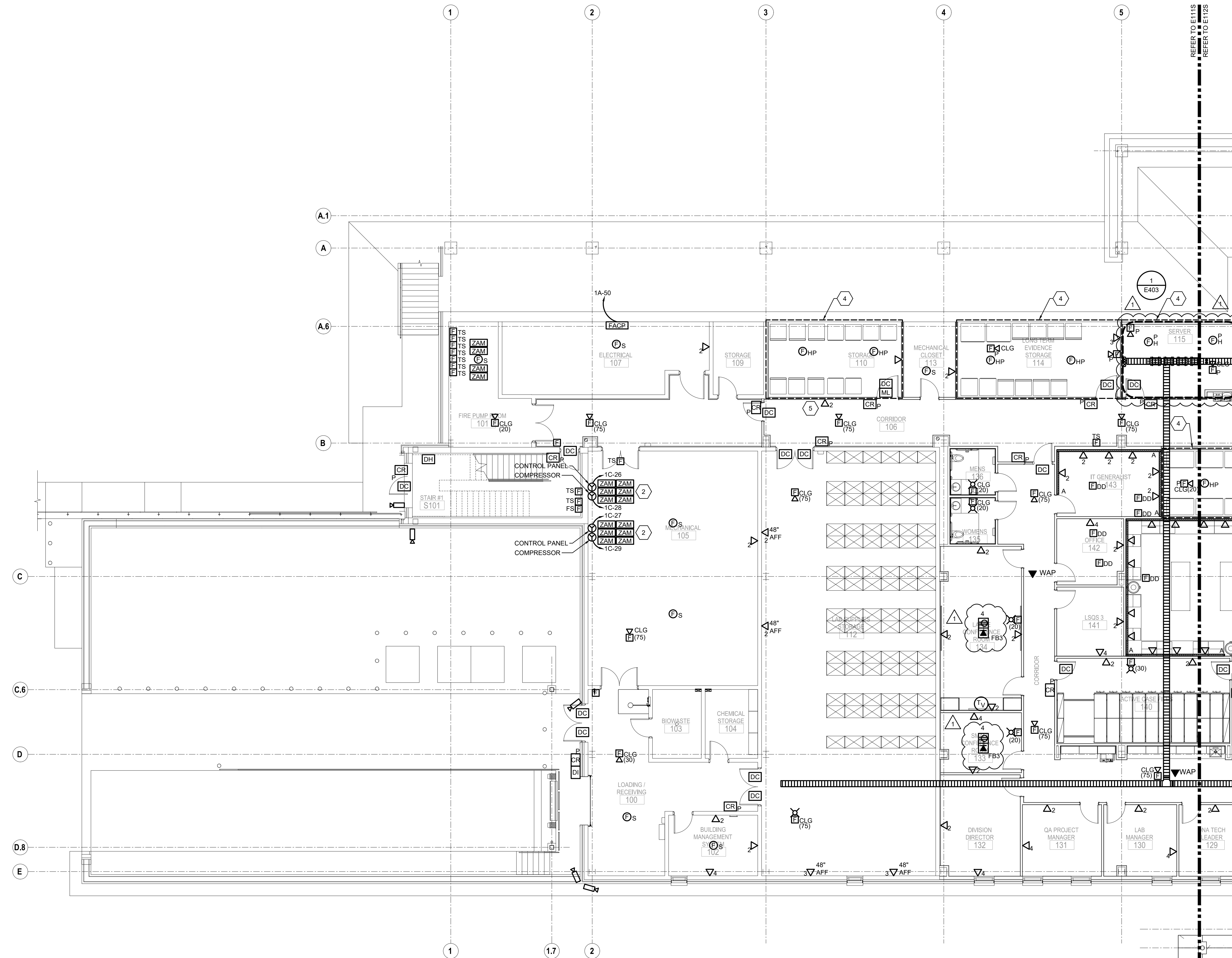
COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
 Pennsylvania State Police
 Willow Crossing Road
 Greensburg, Pennsylvania

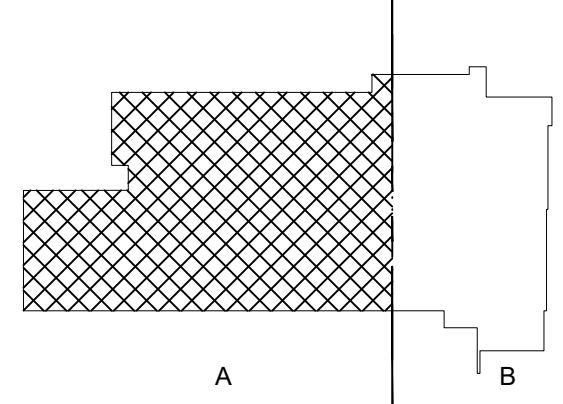
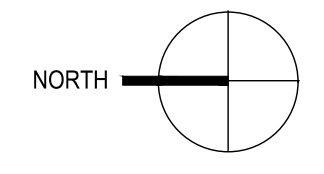
FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'A' POWER

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E111P
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	(VOLUME 1 OF 1)



- KEYNOTES:**
- 1 NOT USED
 - 2 PRE-ACTION SYSTEM CONTROL PANEL, FURNISHED BY FIRE PROTECTION CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR (4 CONTRACTOR), 6 ZONE ADDRESSABLE MODULES
 - 1. WATER FLOW
 - 2. LOW AIR PRESSURE SPRINKLER SYSTEM
 - 3. LOW AIR PRESSURE PILOT LIGHT
 - 4. MAIN VALVE
 - 5. NZBLAST LOW AIR PRESSURE SUPERVISORY
 - 6. SHUT-OFF VALVE
 - 3 NOT USED
 - 4 ROOM IS PROTECTED BY PRE-ACTION FIRE ALARM SPRINKLER SYSTEM
 - 5 COORDINATE MOUNTING WITH .1 CONTRACTOR

1 FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'A' SYSTEMS
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



VERIFY SCALE
 BAR IS ONE (1) INCH LONG ON ORIGINAL DRAWING.
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 HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1
Construction of New DNA Facility
 Pennsylvania State Police
 Willow Crossing Road
 Greensburg, Pennsylvania

FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'A' SYSTEMS

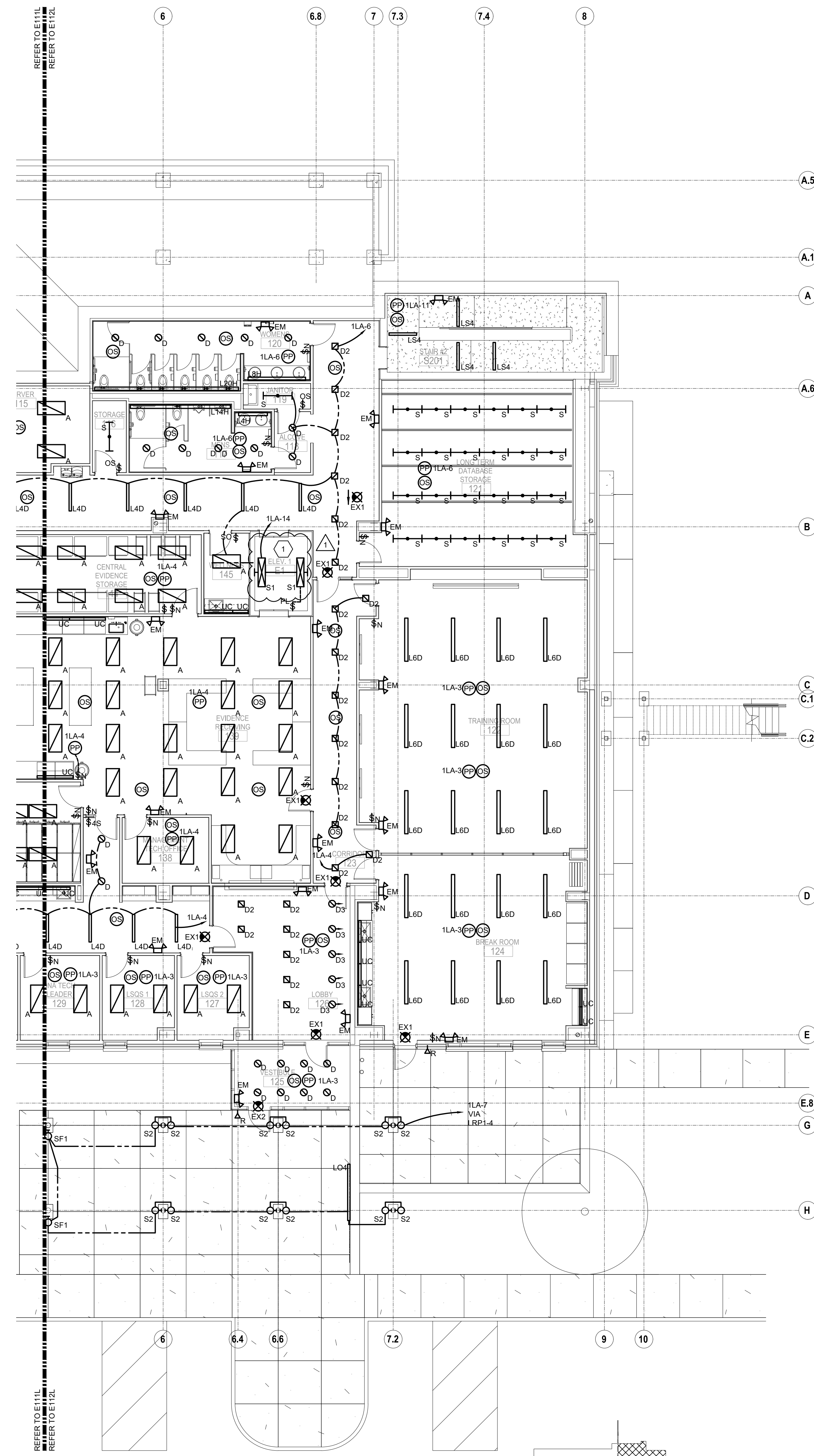
DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E111S
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	(VOLUME 1 OF 1)

GENERAL NOTES:

- CONNECT BATTERY OPERATED EMERGENCY LIGHTING UNITS TYPE 'EM' AND ALL BATTERY OPERATED EXIST SIGNS TYPE 'EX1' TO LIGHTING CIRCUIT SERVING THE AREA. THIS CONNECTION SHALL BE AHEAD OF THE SWITCH LEG AND SHALL NOT BE SWITCHED IN ANY MANNER.
- LIGHTING FIXTURES IN ROOMS WITHOUT CEILINGS SHALL BE MOUNTED 12'-0" AFF UNLESS OTHERWISE NOTED.
- CORRIDOR LIGHT FIXTURES SHALL BE CONTROLLED VIA A TIMECLOCK.

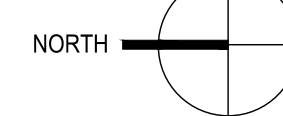
KEYNOTES:

- ELEVATOR SHAFT LIGHTING PROVIDED WITH WATER-TIGHT COVER.



FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' LIGHTING

Scale: 1/8" = 1'-0"
 0 4' 8' 16'



KEY PLAN

Scale: NTS

VERIFY SCALE

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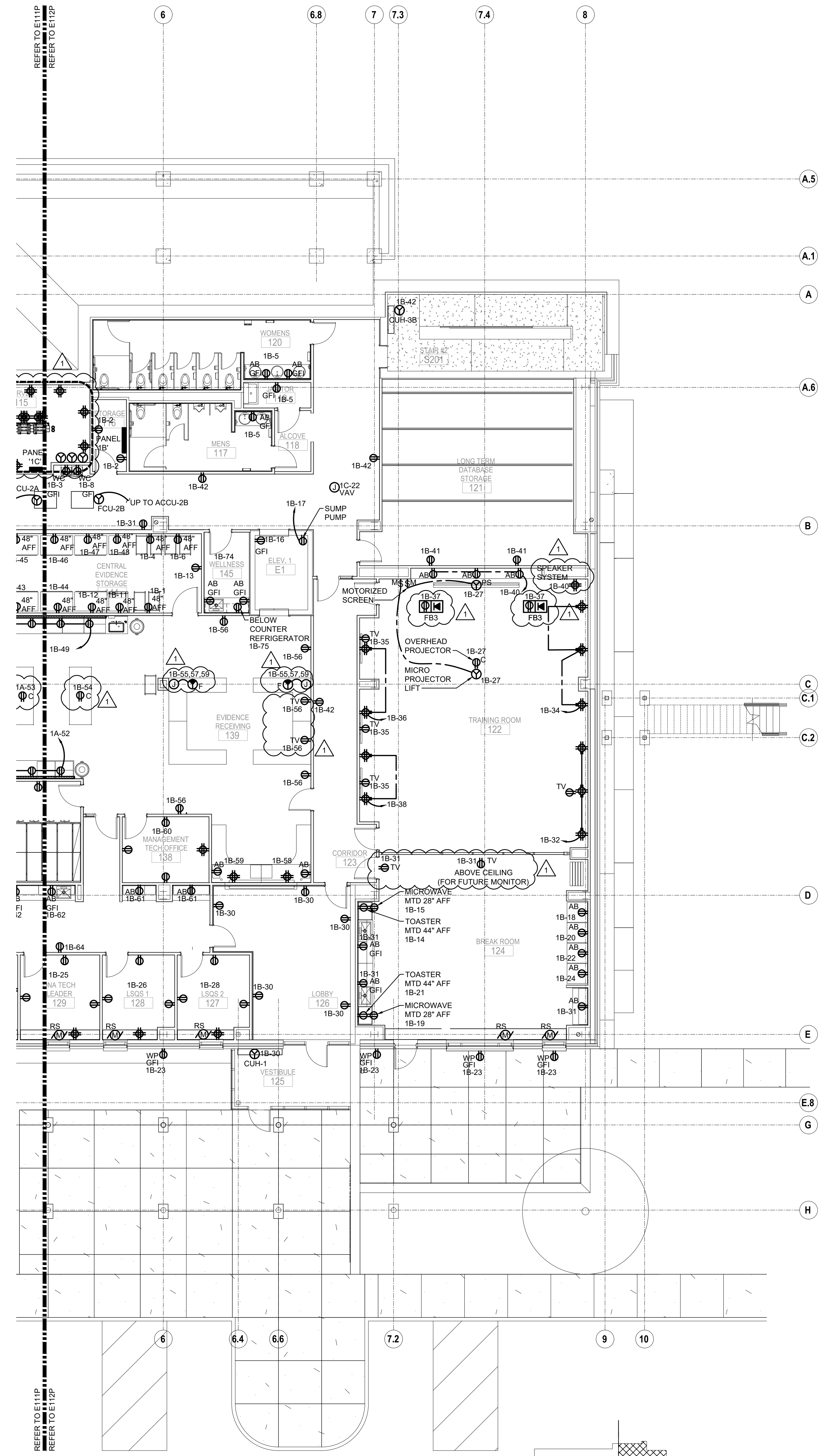
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 Pennsylvania State Police
 Willow Crossing Road
 Greensburg, Pennsylvania

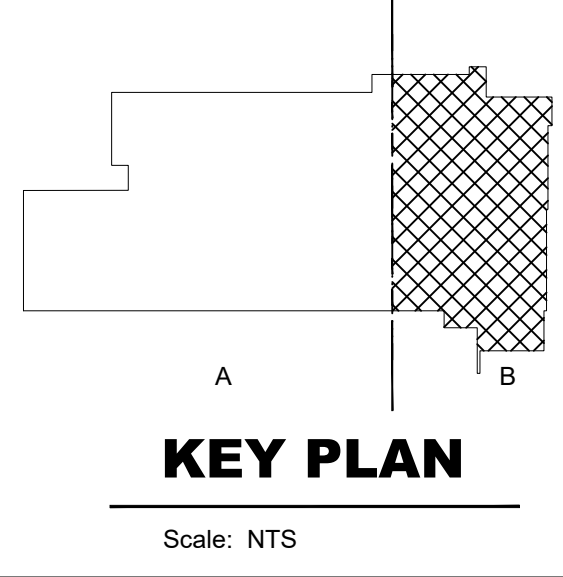
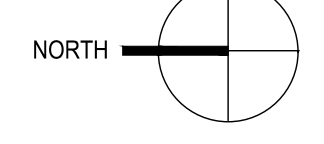
FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' LIGHTING

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E112L (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' POWER

Scale: 1/8" = 1'-0" 0 4' 8' 16'



KEY PLAN

Scale: NTS

VERIFY SCALE

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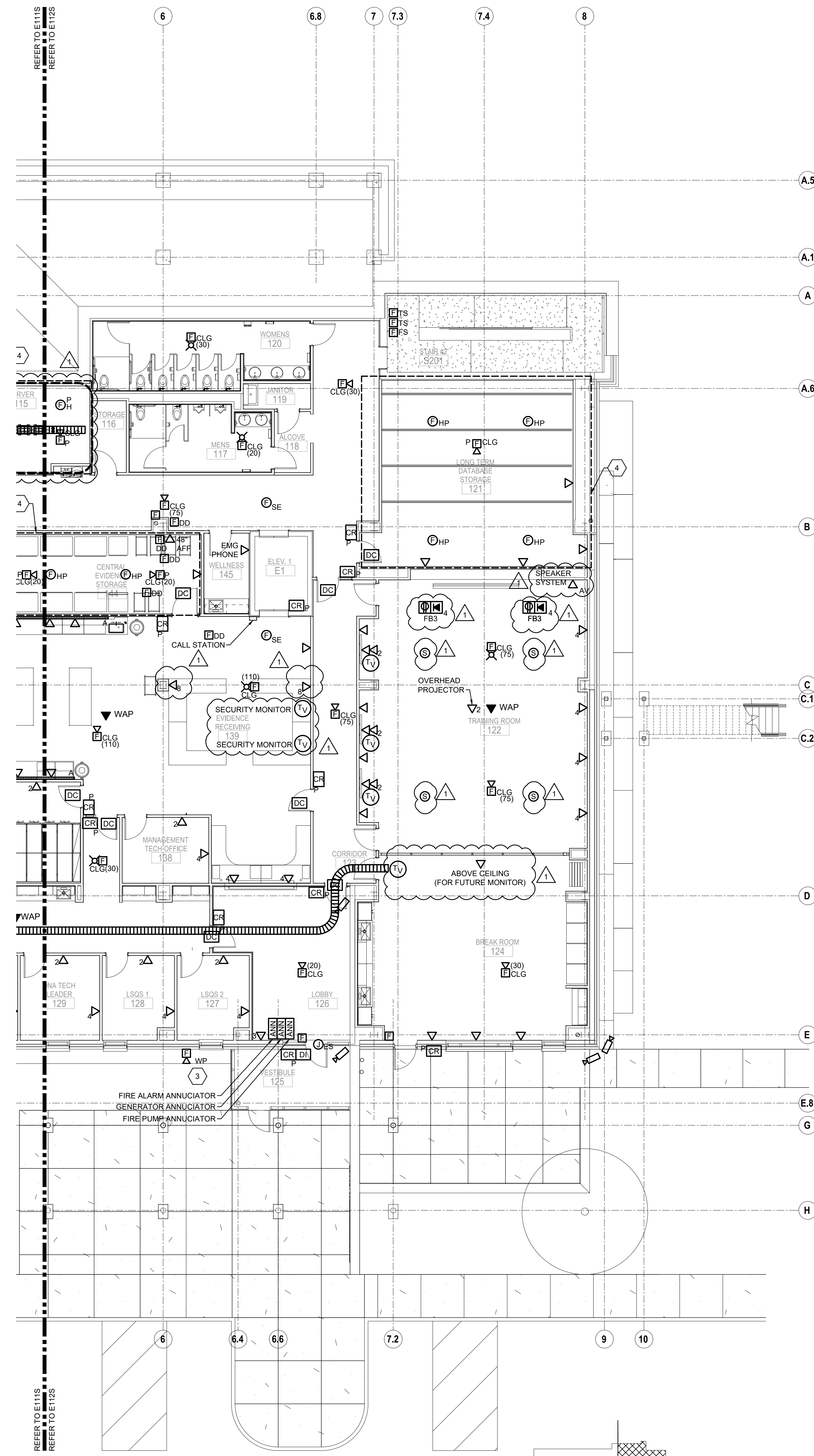
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D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
Pennsylvania State Police
Willow Crossing Road
Greensburg, Pennsylvania

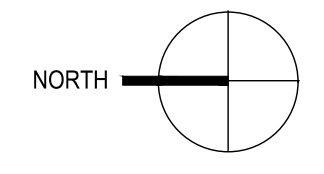
FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' POWER

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E112P (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



- KEYNOTES:**
- 1 NOT USED
 - 2 NOT USED
 - 3 PROVIDE WEATHERPROOF HORNSTROBE AT FIRE DEPARTMENT CONNECTION (FOC) VERIFY LOCATION. HORNSTROBE SHALL BE INSTALLED ON A DEDICATED, PROGRAMMABLE NAC. PROGRAM TO OPERATE ON SPRINKLER WATER FLOW ONLY.
 - 4 ROOM IS PROTECTED BY PRE-ACTION FIRE ALARM SPRINKLER SYSTEM

FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' SYSTEMS
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



KEY PLAN
 Scale: NTS

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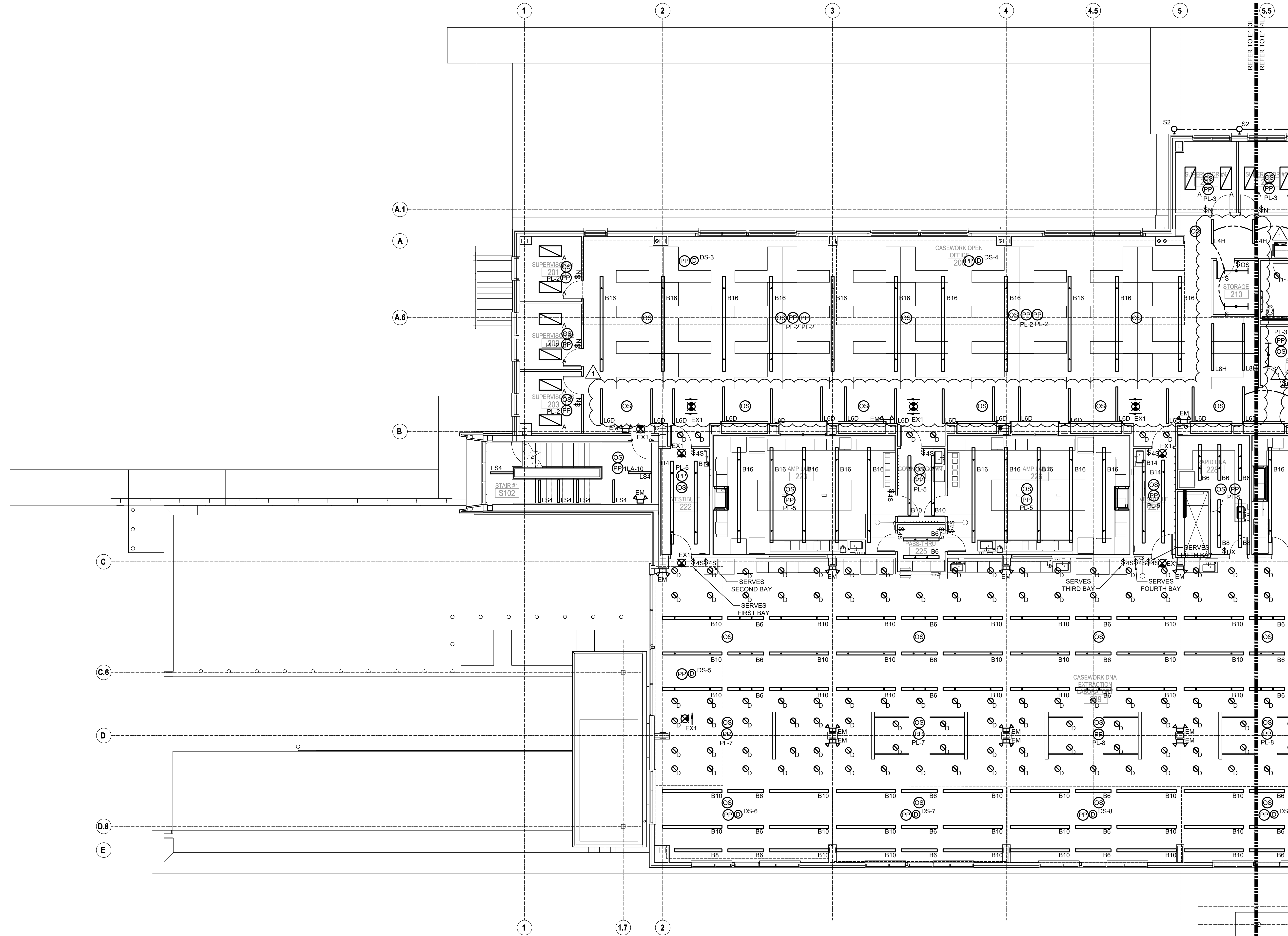
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 Willow Crossing Road
 Greensburg, Pennsylvania

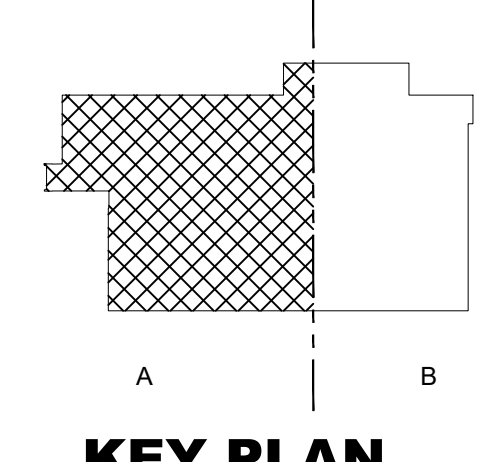
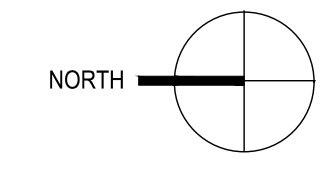
DRAWN BY		DATE		DRAWING NO.	
E HOOVER		05/24/2022		E112S	
CHECKED BY		SCALE		(VOLUME 1 OF 1)	
S MULHOLLEN		1/8" = 1'-0"			

GENERAL NOTES:

- CONNECT BATTERY OPERATED EMERGENCY LIGHTING UNITS TYPE 'EM' AND ALL BATTERY OPERATED EXIST SIGNS TYPE 'EX1' TO LIGHTING CIRCUIT SERVING THE AREA. THIS CONNECTION SHALL BE AHEAD OF THE SWITCH LEG AND SHALL NOT BE SWITCHED IN ANY MANNER.
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1 FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' LIGHTING
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



VERIFY SCALE
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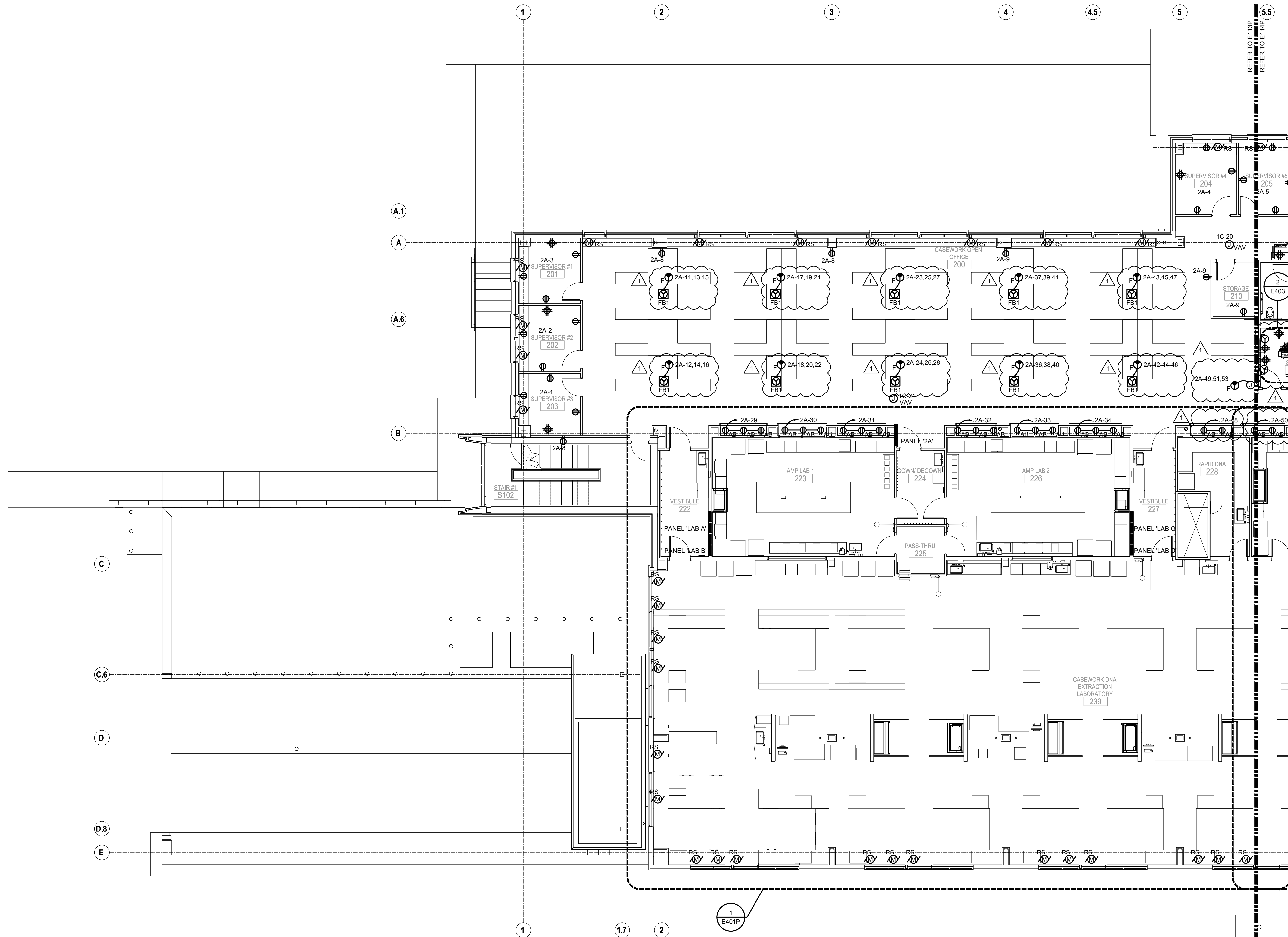
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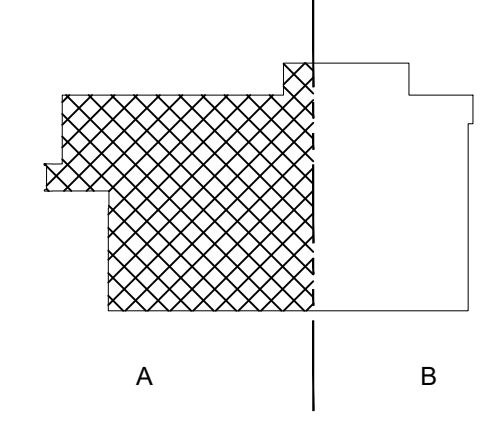
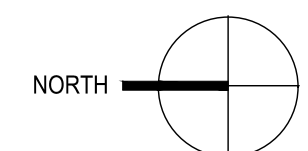
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FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' LIGHTING

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E113L (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



1 FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' POWER
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



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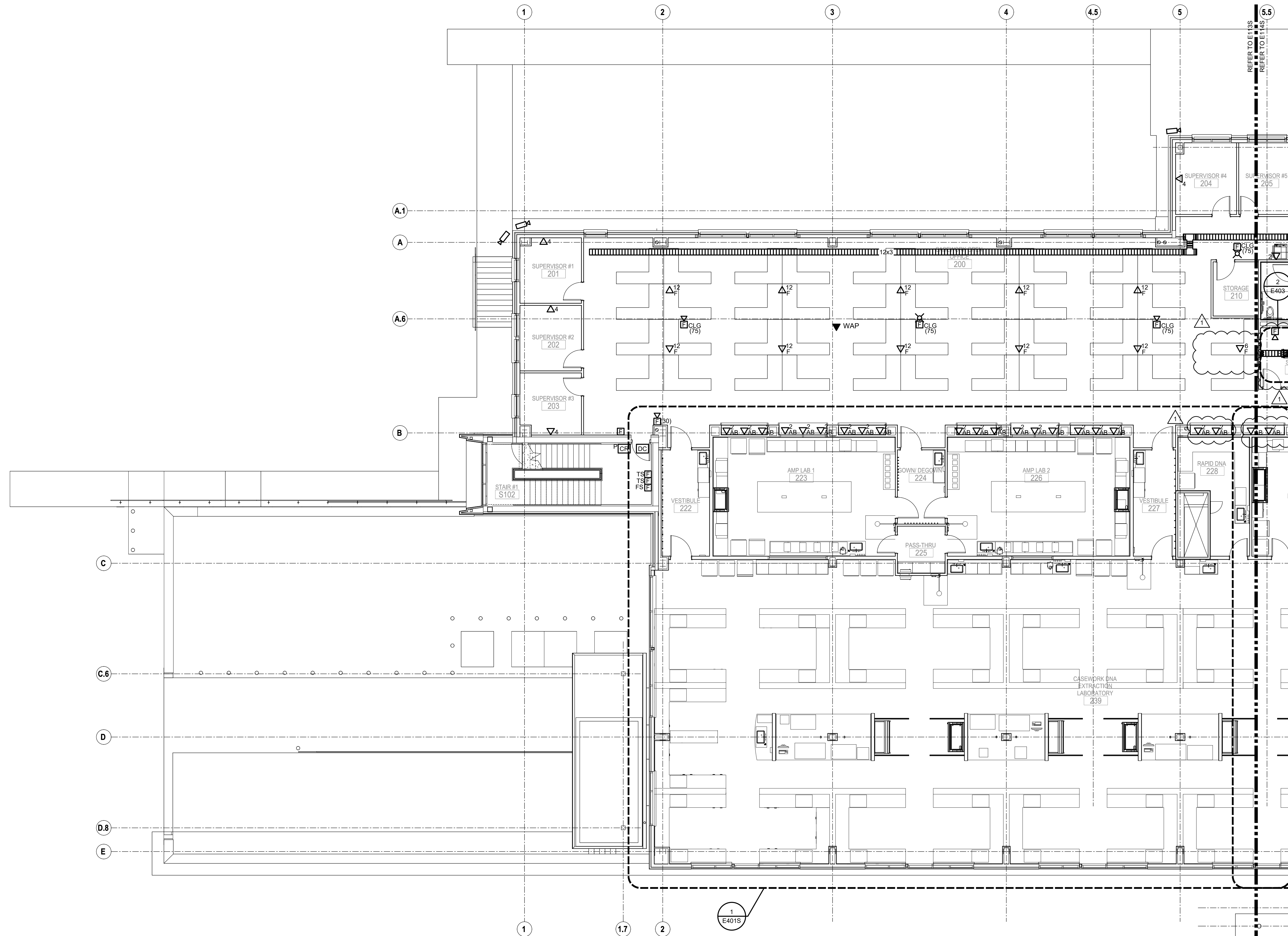
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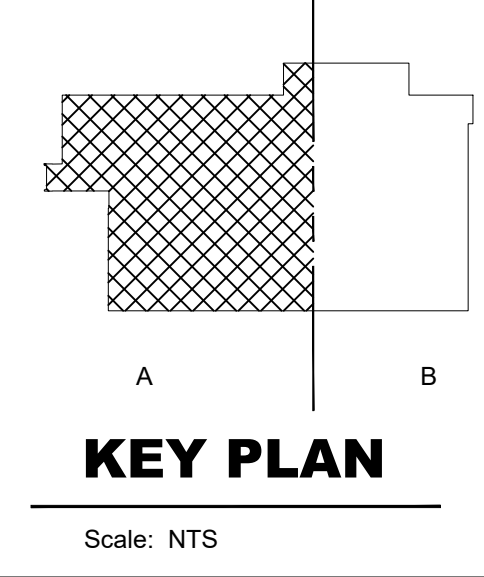
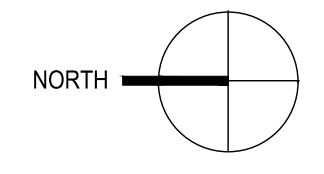
Construction of New DNA Facility
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FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' POWER

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E113P (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



1 FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' SYSTEMS
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



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Construction of New DNA Facility
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 Willow Crossing Road
 Greensburg, Pennsylvania

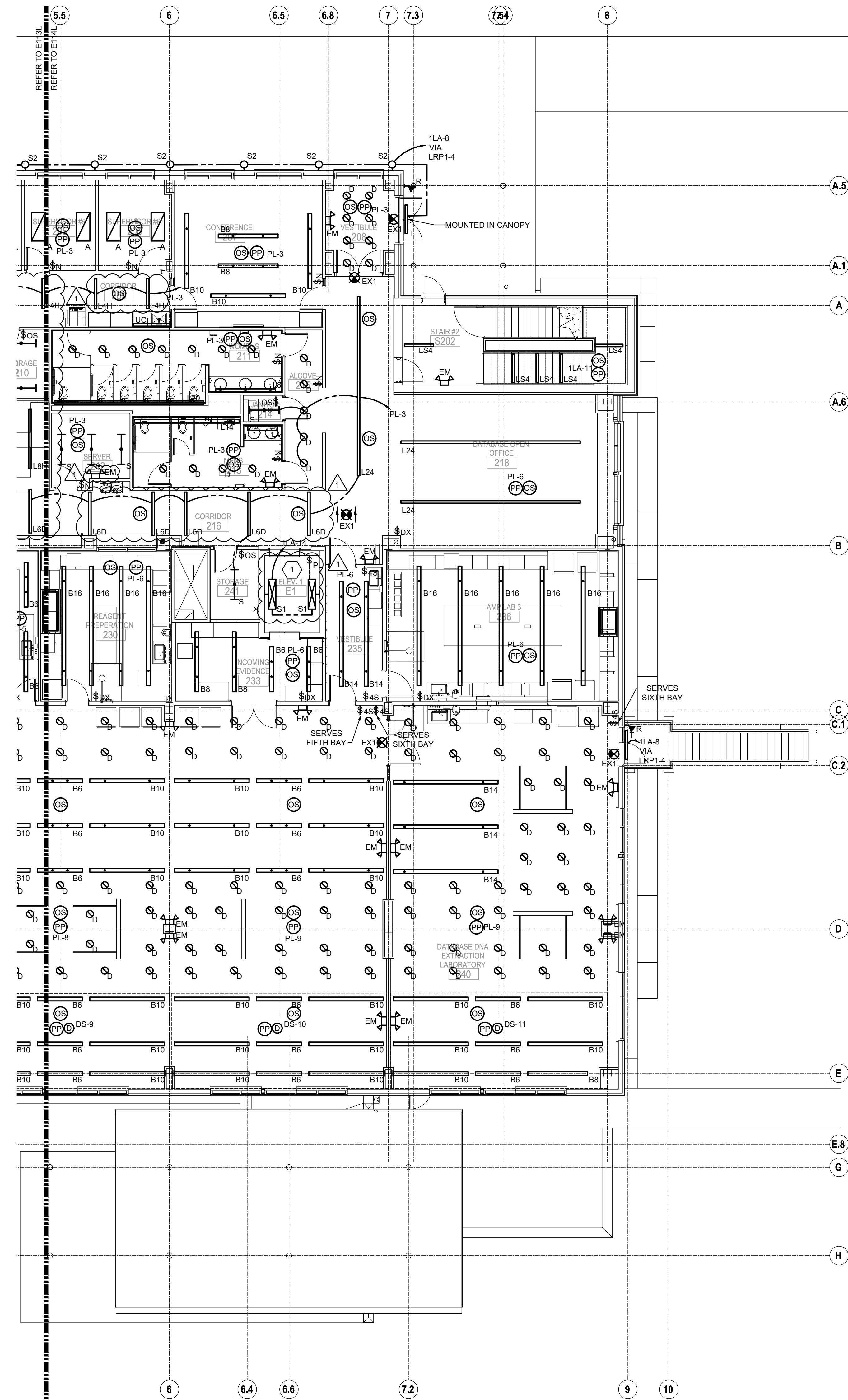
FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'A' SYSTEMS	
DRAWN BY E HOOVER	DATE 05/24/2022
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"
E113S (VOLUME 1 OF 1)	

GENERAL NOTES:

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KEYNOTES:

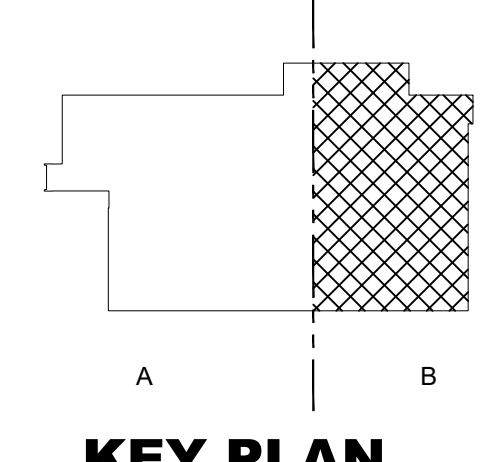
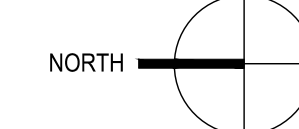
- 1 ELEVATOR SHAFT LIGHTING PROVIDED WITH WATER-TIGHT COVER.



FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'B' LIGHTING

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

1



KEY PLAN
Scale: NTS

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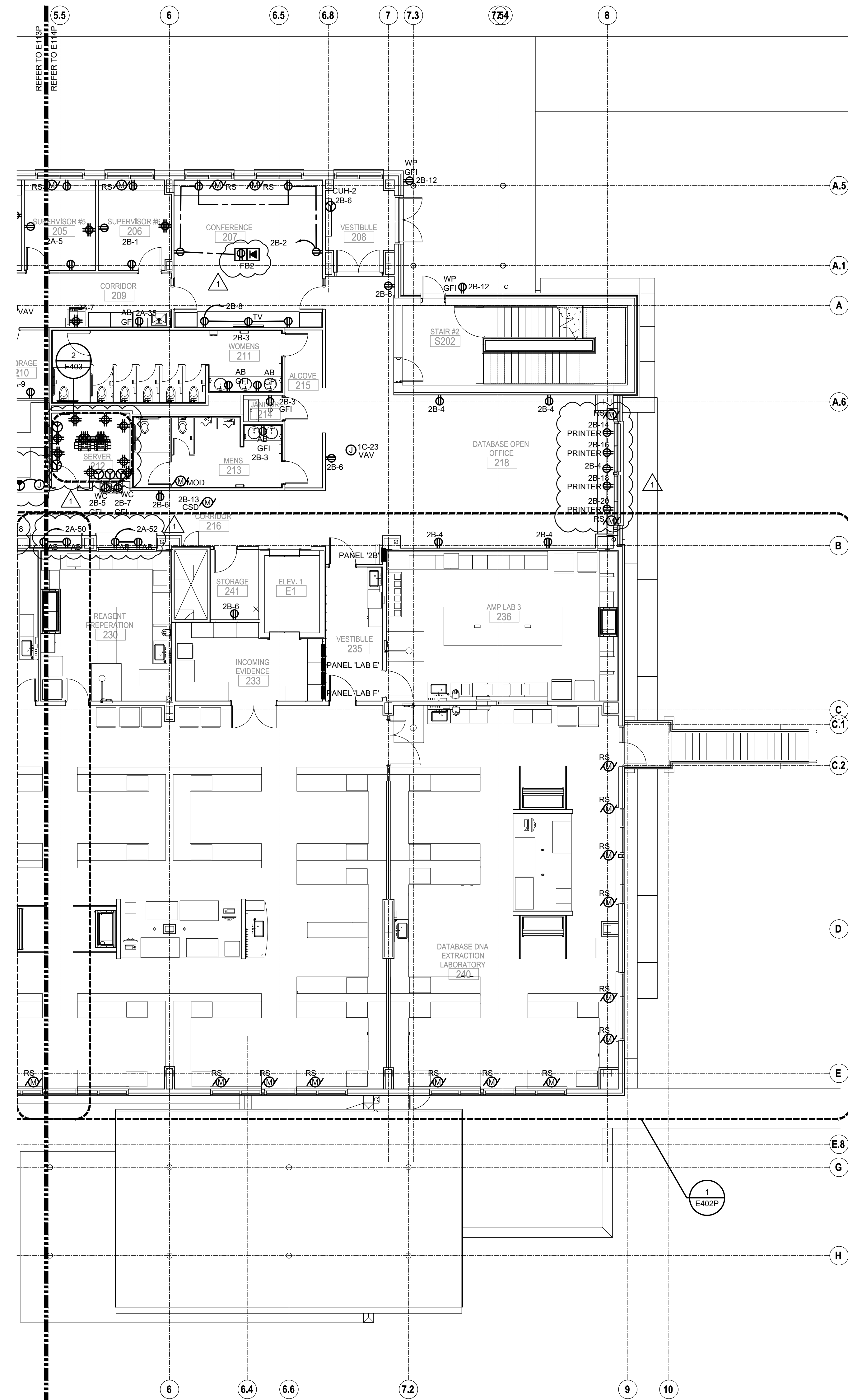
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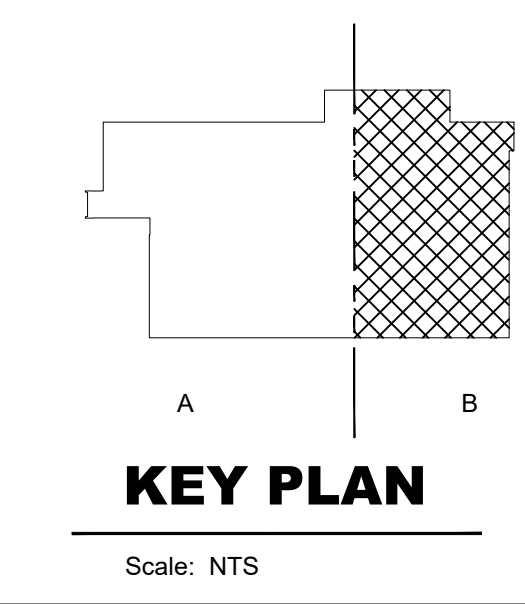
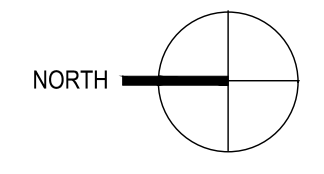
Construction of New DNA Facility
Pennsylvania State Police
Willow Crossing Road
Greensburg, Pennsylvania

FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'B' LIGHTING

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E114L (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'B' POWER
 Scale: 1/8" = 1'-0" 0 4' 8' 16'



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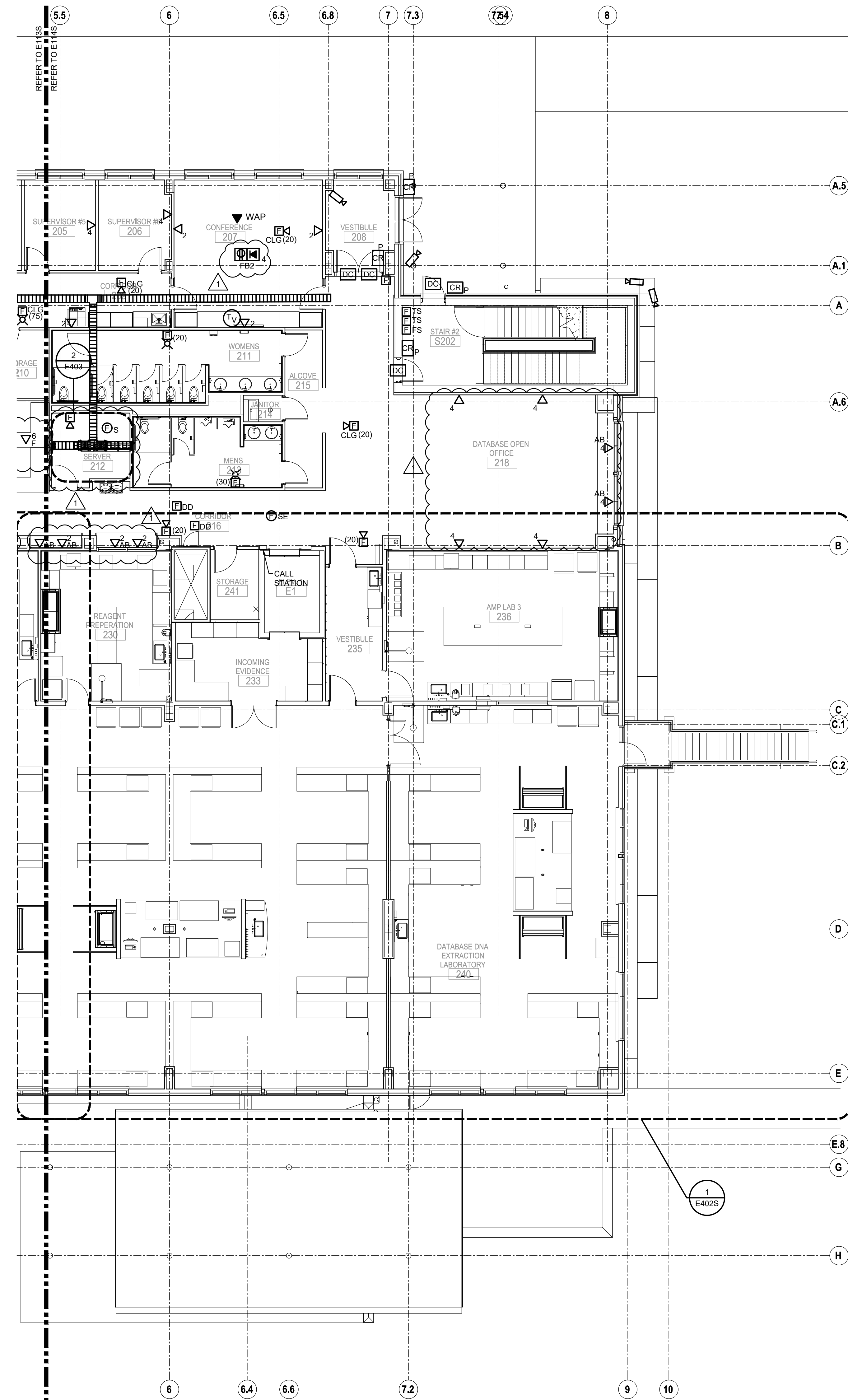
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D.G.S. PROJECT No. 210-4 Phase 1

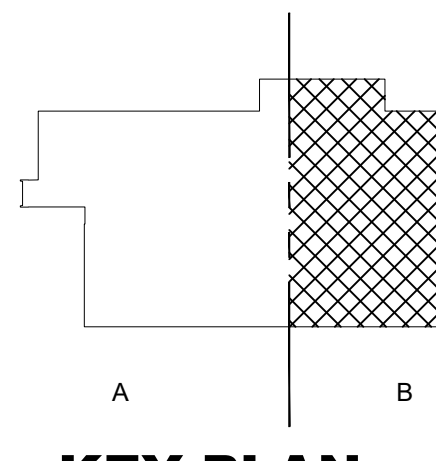
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FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'B' POWER

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E114P (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



1 FLOOR PLAN - UPPER LEVEL - PARTIAL PLAN 'B' SYSTEMS
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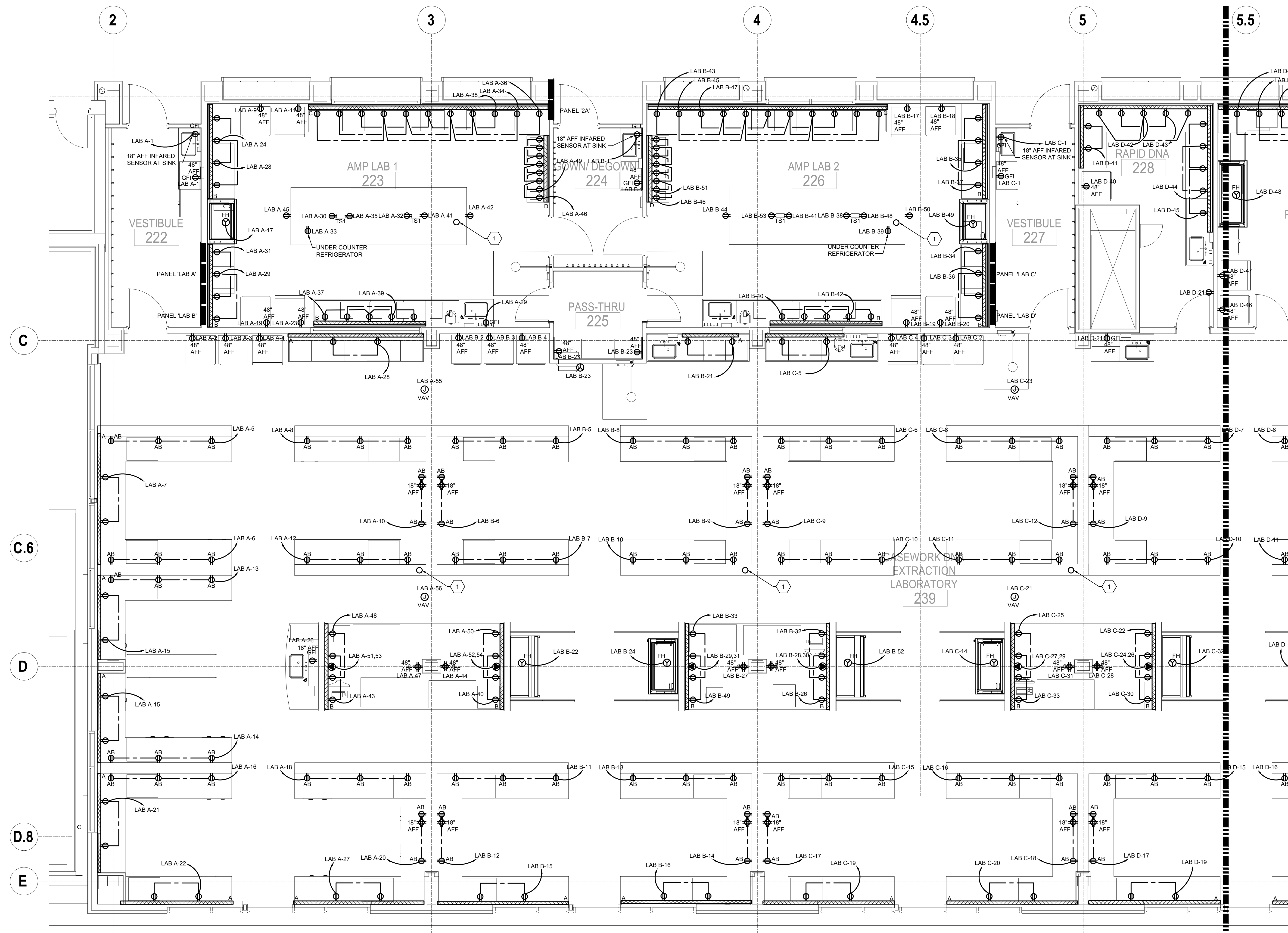
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Construction of New DNA Facility
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FLOOR PLAN - UPPER LEVEL PARTIAL PLAN 'B' SYSTEMS

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E114S (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	



KEYNOTES:
 1 4 CONTRACTOR TO CORE DRILL LOCATIONS FOR POWER & TELECOM TO CENTER ISLANDS

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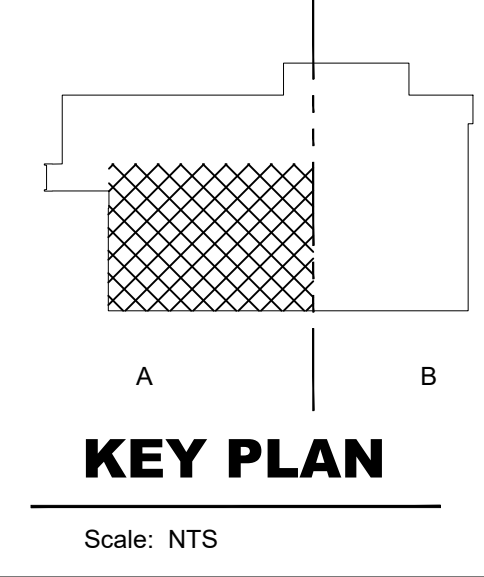
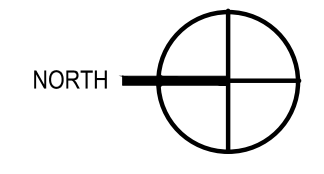
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Construction of New DNA Facility
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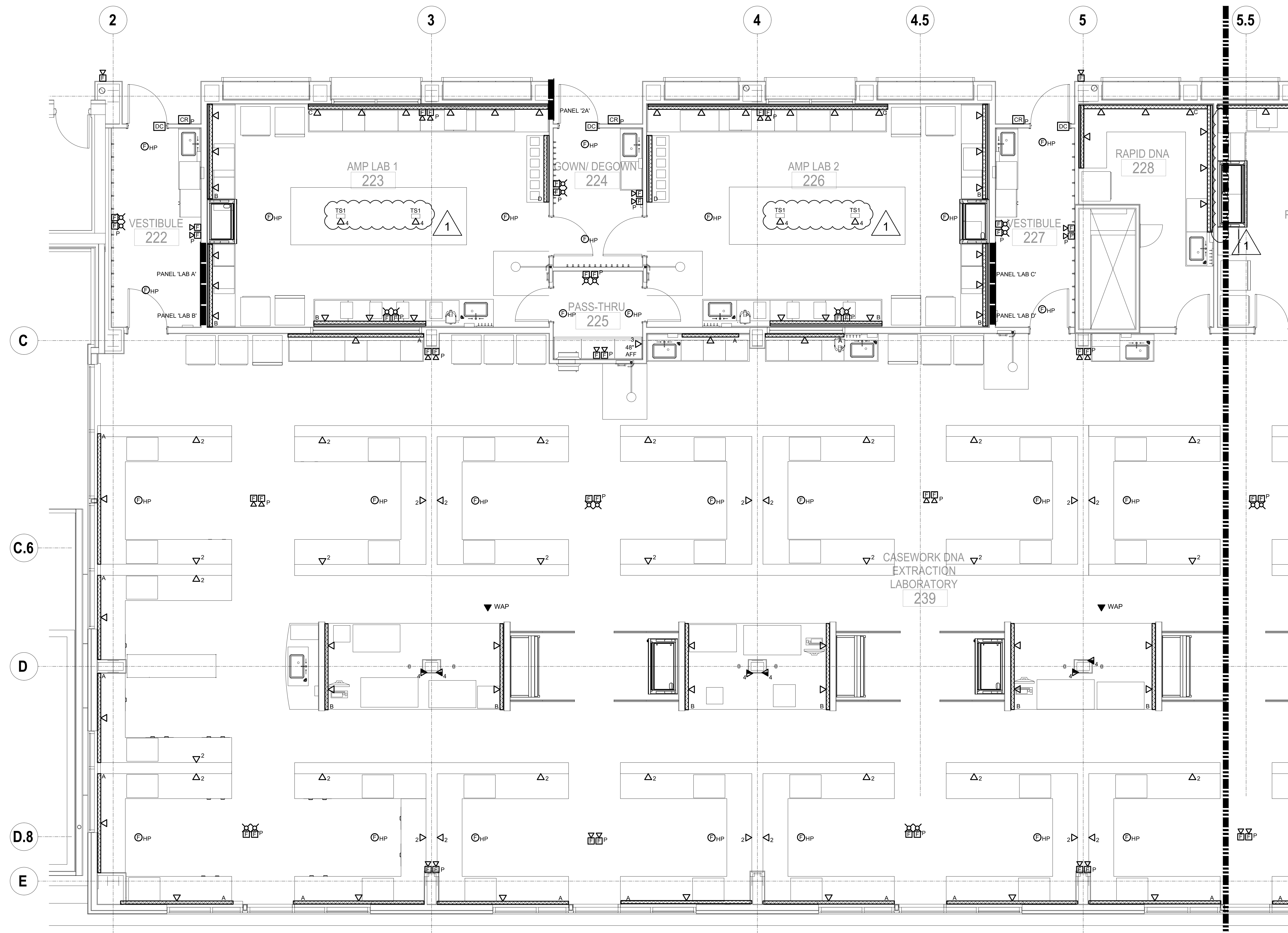
FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'A' POWER

1 FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'A' POWER
 Scale: 1/4" = 1'-0" 0 2 4 8



VERIFY SCALE
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DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E401P (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/4" = 1'-0"	



KEYNOTES:
 1 4 CONTRACTOR TO CORE DRILL LOCATIONS FOR POWER & TELECOM TO CENTER ISLANDS

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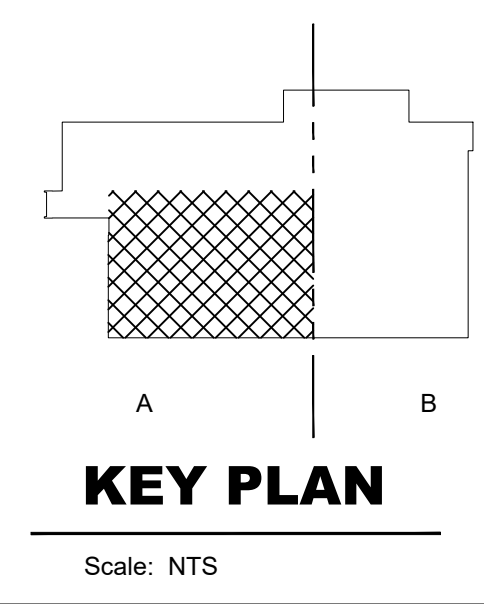
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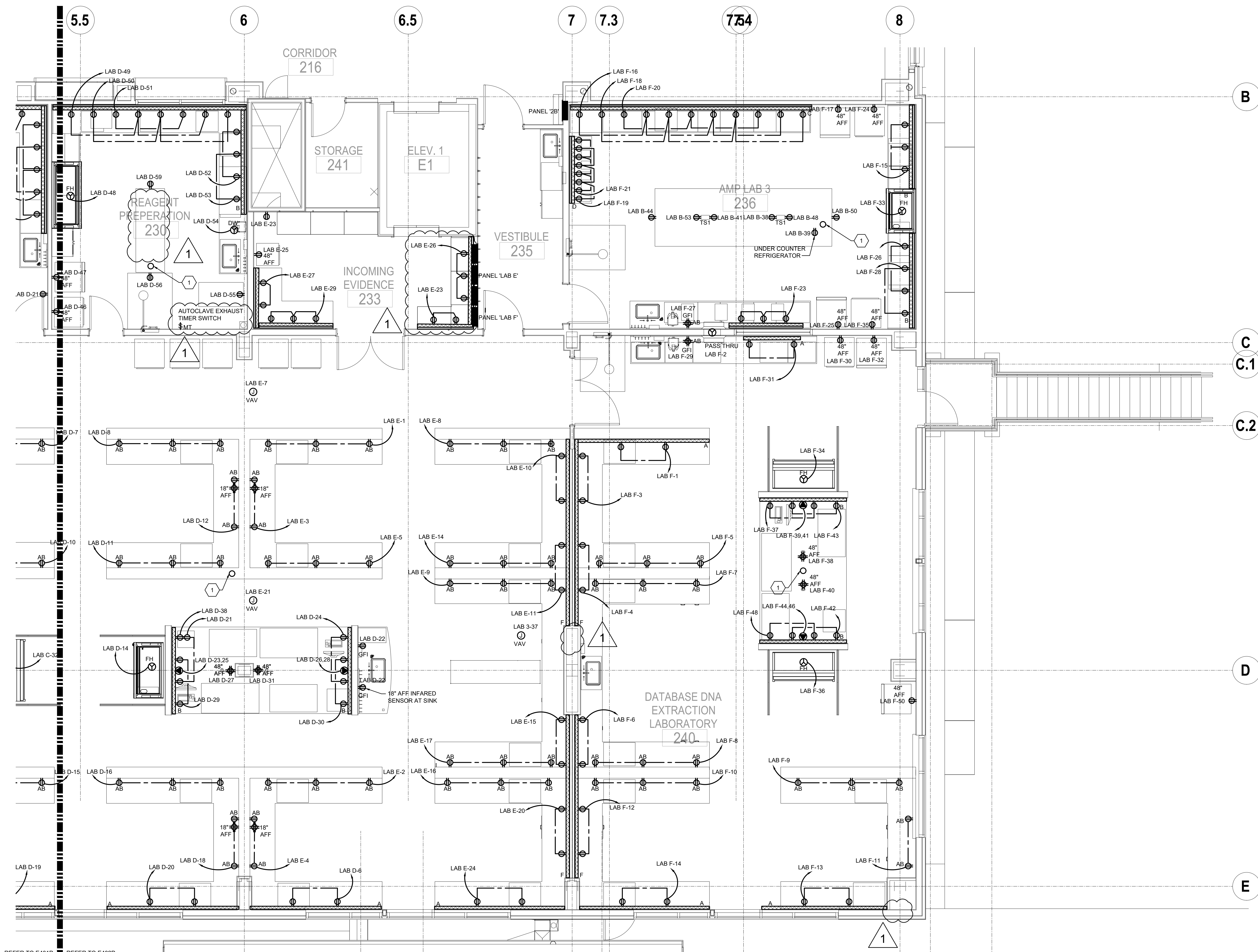
FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'A' SIGNAL

1 FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'A' SIGNAL
 Scale: 1/4" = 1'-0" 0 2' 4' 8'



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DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E401S (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/4" = 1'-0"	



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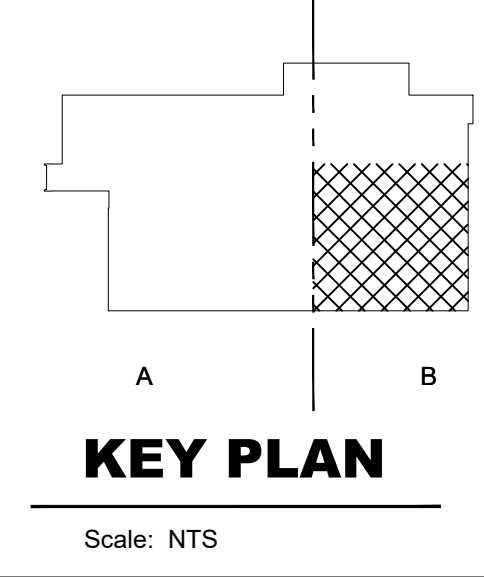
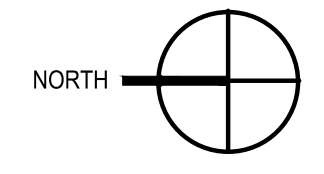
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Construction of New DNA Facility
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FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'B' POWER

1 FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'B' POWER

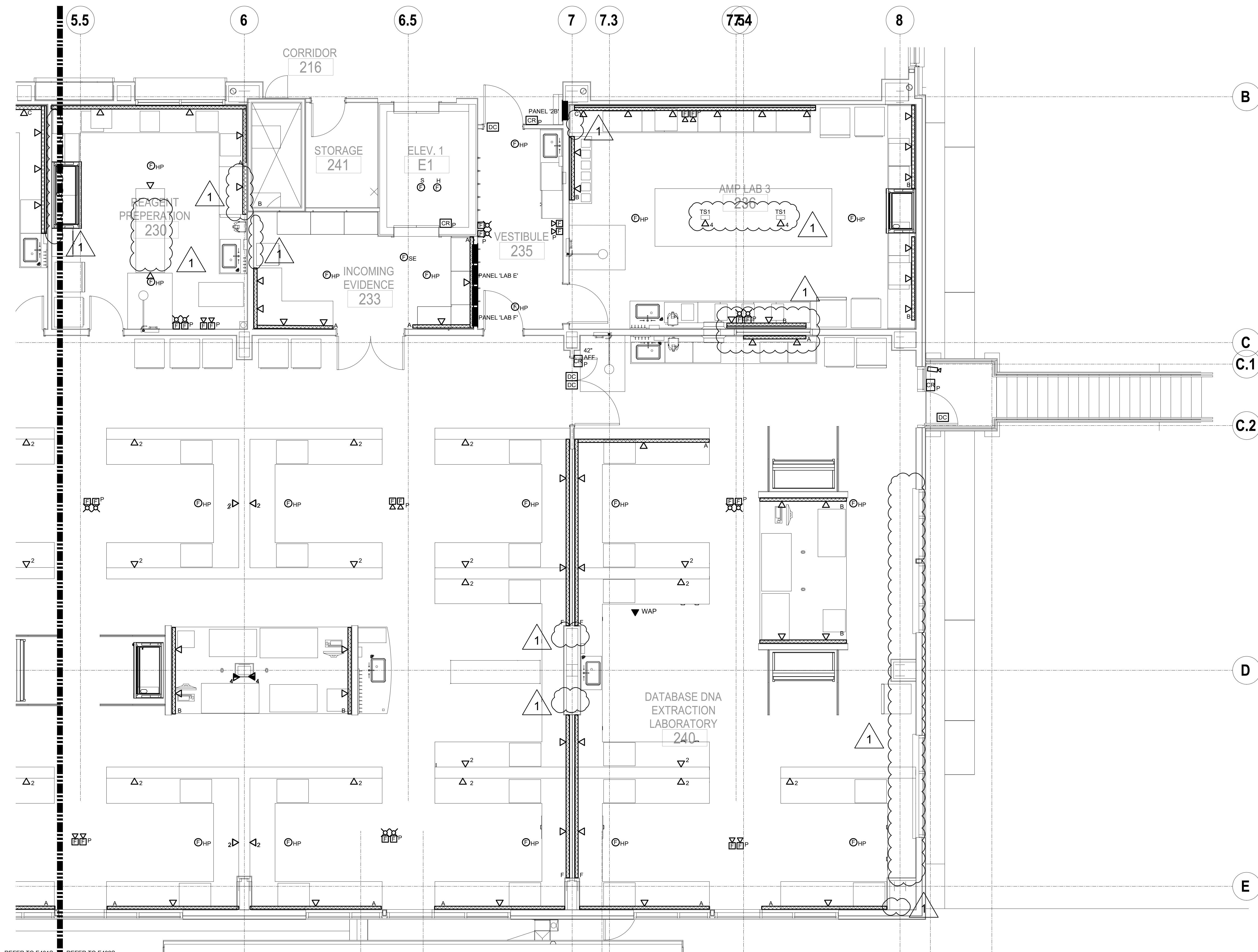
Scale: 1/4" = 1'-0" 0 2' 4' 8'



VERIFY SCALE

BAR IS ONE (1) INCH LONG ON ORIGINAL DRAWING.
 IF BAR IS NOT ONE (1) INCH LONG, ADJUST SCALE ACCORDINGLY.

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E402P (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/4" = 1'-0"	



REFER TO E401S REFER TO E402S

KEYNOTES:
 1 4 CONTRACTOR TO CORE DRILL LOCATIONS FOR POWER & TELECOM TO CENTER ISLANDS

H.F. LENZ COMPANY
 Engineers • Planners • Surveyors • Energy Consultants

1	MEP REVISION #1 - 11/15/2022
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RECORD REVISIONS	
Signature	Date

DRS architects
 Designing a Sustainable Future.
 One Gateway Center
 Seventeenth Floor
 Pittsburgh, PA 15222
 Phone: 412.391.4850

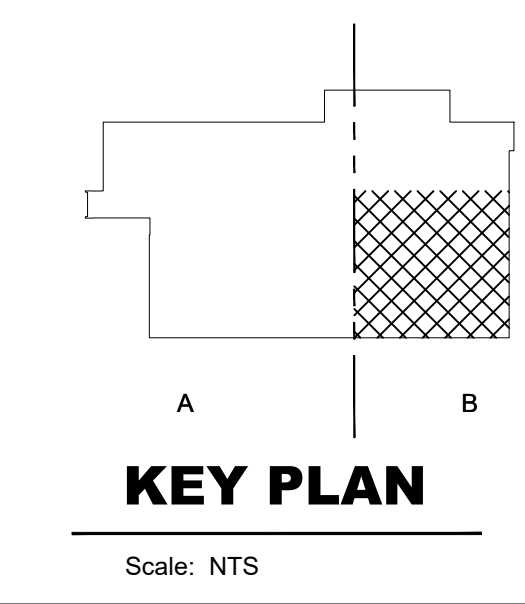
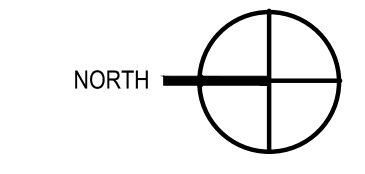
COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
 Pennsylvania State Police
 Willow Crossing Road
 Greensburg, Pennsylvania

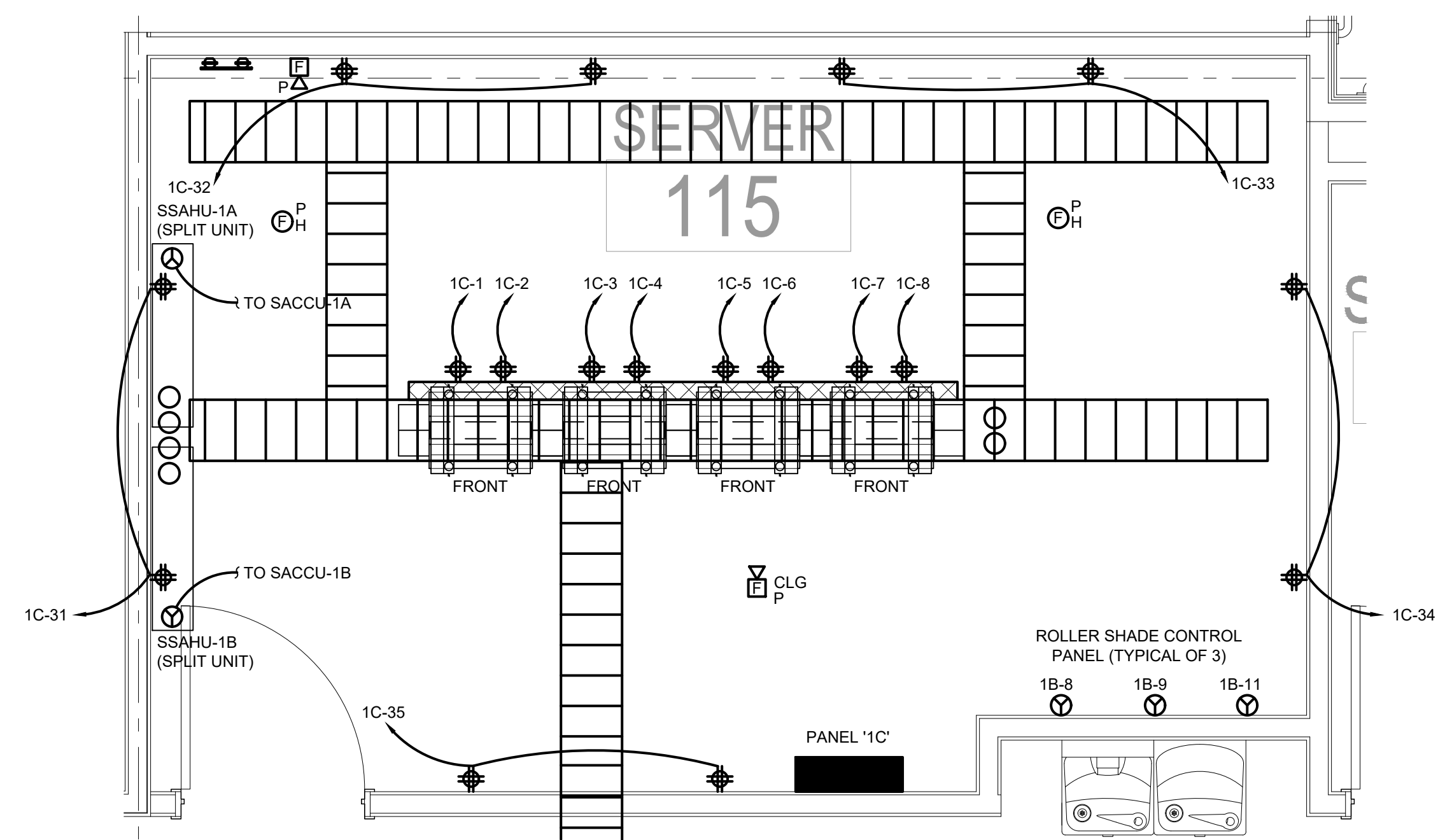
FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'B' SIGNAL

1 FLOOR PLAN - ENLARGED LAB PARTIAL PLAN 'B' SIGNAL
 Scale: 1/4" = 1'-0" 0 2' 4' 8'



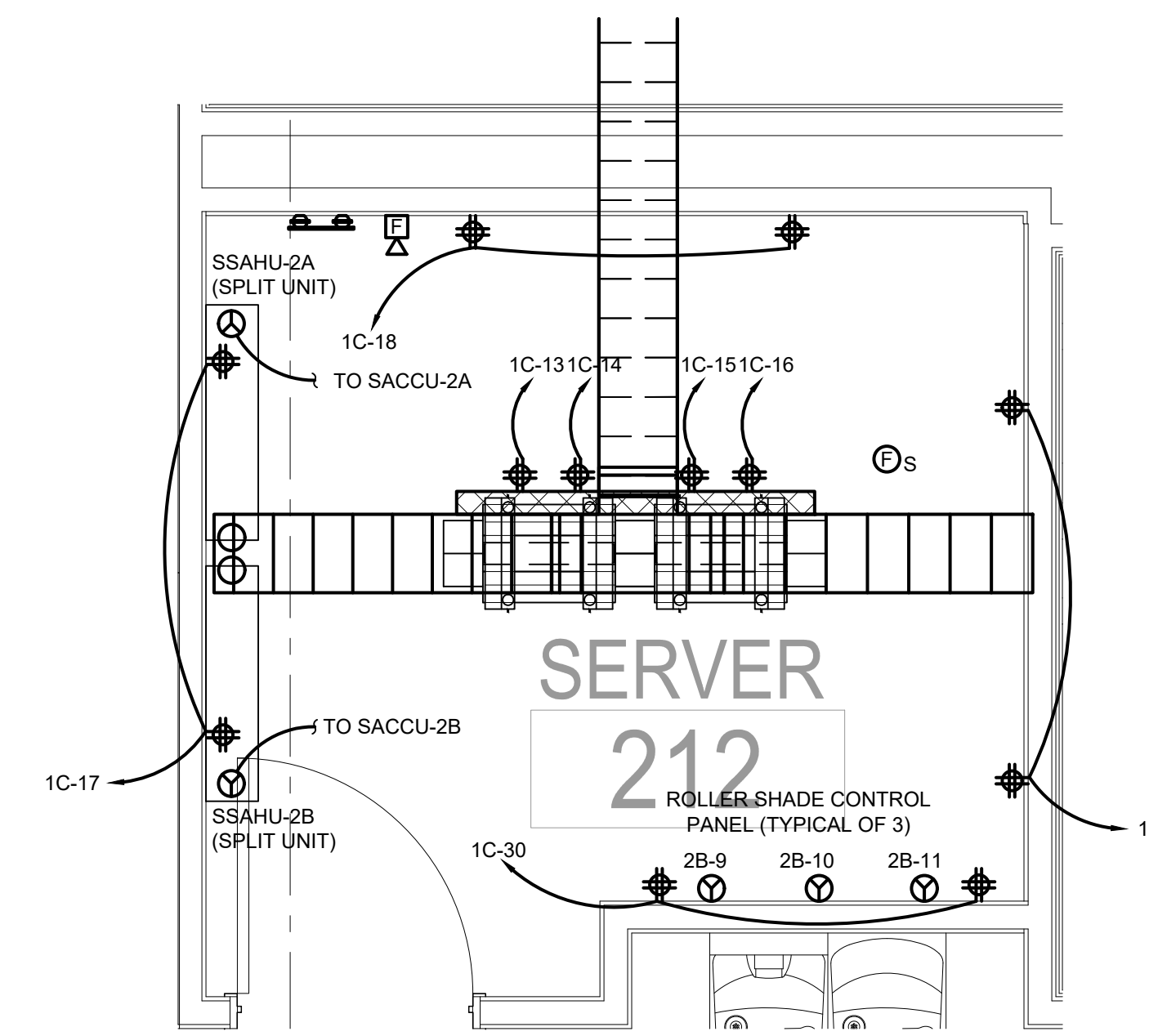
VERIFY SCALE
 BAR IS ONE (1) INCH LONG ON ORIGINAL DRAWING.
 0 1
 IF BAR IS NOT ONE (1) INCH LONG, ADJUST SCALE ACCORDINGLY.

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E402S (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/4" = 1'-0"	



GENERAL NOTES:

- 1.) PROVIDE 4"W X 8"H X .75"D A-C GRADE FIRE RETARDANT TREATED PLYWOOD BACKBOARD. BACKBOARD SHALL BE PAINTED WITH TWO COATS OF BLACK FIRE RETARDANT PAINT PRIOR TO INSTALLATION (ON 3 WALLS WITHOUT DOOR)
- 2.) PROVIDE 2-POST (42U) TELECOMMUNICATION EQUIPMENT RACK WITH SIDED-MOUNTED 6" VERTICAL WIRE MANAGER (TYPICAL OF 4)
- 3.) ISOLATED GROUND NEEDED ON ALL RACKS.



GENERAL NOTES:

- 1.) PROVIDE 4"W X 8"H X .75"D A-C GRADE FIRE RETARDANT TREATED PLYWOOD BACKBOARD. BACKBOARD SHALL BE PAINTED WITH TWO COATS OF BLACK FIRE RETARDANT PAINT PRIOR TO INSTALLATION (ON 3 WALLS WITHOUT DOOR)
- 2.) PROVIDE 2-POST (42U) TELECOMMUNICATION EQUIPMENT RACK WITH SIDE-MOUNTED 6" VERTICAL CABLE MANAGER (TYPICAL OF 2)
- 3.) ISOLATED GROUND NEEDED ON ALL RACKS.



1 MEP REVISION #1 - 11/15/2022

RECORD REVISIONS

Signature _____ Date _____ Signature _____ Date _____



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
Pennsylvania State Police
Willow Crossing Road
Greensburg, Pennsylvania

FLOOR PLAN - LOWER LEVEL - PARTIAL PLAN 'A' SYSTEMS

VERIFY SCALE		
BAR IS ONE (1) INCH LONG ON ORIGINAL DRAWING.		
IF BAR IS NOT ONE (1) INCH LONG, ADJUST SCALE ACCORDINGLY.		
DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E403 (VOLUME 1 OF 1)
CHECKED BY S MULHOLLEN	SCALE 1/8" = 1'-0"	

PANEL MDP (SWITCHBOARD)										BUS AMP 1200										AMPS MAIN BREAKER 1200A MCB									
MOUNTING SURFACE		PHASE 3		WIRE 4		LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107											
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND	COND	GRD	SIZE	NO	C	B	A	P	AMP	DESCRIPTION	CKT											
1																													
3	CHWP-1	60	7.5	7.5	**	**	**	**	**	5.65	3	100	PANEL 11A					4											
5										6.75									6										
7				147.9						1	20	SPARE							8										
9	SWBD DP-1 VIA XFMR T1A	800	3	156.08	**	**	**	**	**	1	20	SPARE							10										
11				147.8						1	20	SPARE							12										
13			0.00							65.00									14										
15	CHWP-2	60	3	0.00	**	**	**	**	**	65.00	3	250	CH-2						16										
17				0.00						65.00									18										
19				65.00						0.44									20										
21	CH-1	250	3	65.00	**	**	**	**	**	0.44	3	20	AG-1						22										
23				65.00						0.44									24										
25				11.22						64.06									26										
27	PANEL PL	100	3	5.29	**	**	**	**	**	64.06	3	400	PANEL MECH P1						28										
29				4.92						64.06									30										
31																			32										
33	SPARE	100	3																34										
35																			36										
37																			38										
39	SPARE	100	3																40										
41																			42										
43																			44										
45																			46										
47																			48										
49																			50										
51	SPARE	60	3																52										
53																			54										
55																			56										
57	SPARE	60	3																58										
59																			60										
61																			62										
63																			64										
65																			66										
67																			68										
69																			70										
71																			72										
73																			74										
75																			76										
77																			78										
79																			80										
81	SPARE	20	1																82										
83	SPARE	20	1																84										

NOTES:
 * REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
 ** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

PHASE A: 147.2 KW
 PHASE B: 154.6 KW
 PHASE C: 147.8 KW
 TOTAL: 449.7 KW
 TOTAL: 1318 AMPS

PANEL DP-1 (SWITCHBOARD)										BUS AMP 1600										AMPS MAIN BREAKER 1600 MCB									
MOUNTING SURFACE		PHASE 3		WIRE 4		LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107											
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND	COND	GRD	SIZE	NO	C	B	A	P	AMP	DESCRIPTION	CKT											
1																													
3	PANEL 1A	225	3	17.62	**	**	**	**	**	17.40	225	3	100	PANEL 1B					4										
5										17.88									6										
7				10.56						10.56									8										
9	PANEL LAB A	100	3	15.74	**	**	**	**	**	13.22	3	100	PANEL LAB B						10										
11										13.64									12										
13				7.54						7.54									14										
15	PANEL LAB C	100	3	8.82	**	**	**	**	**	10.44	3	100	PANEL LAB D						16										
17										9.46									18										
19				4.72						4.72									20										
21	PANEL LAB E	100	3	4.10	**	**	**	**	**	11.04	3	100	PANEL LAB F						22										
23										3.06									24										
25				19.26						19.26									26										
27	PANEL 2A	225	3	18.96	**	**	**	**	**	3.12	3	225	PANEL 2B						28										
29										19.44									30										
31				22.99						22.99									32										
33	PANEL P1	225	3	23.60	**	**	**	**	**	4.58	3	100	PANEL 1C						34										
35										22.98									36										
37				6						6									38										
39	PANEL GEN	60	3	6	**	**	**	**	**		3	100	SPARE						40										
41																			42										
43																			44										
45	SPARE	60	3																46										
47																			48										
49																			50										
51	SPARE	60	3																52										
53																			54										
55																			56										
57	SPARE	60	3																58										
59																			60										
61																			62										
63																			64										
65																			66										
67																			68										
69																			70										
71																			72										
73																			74										
75																			76										
77																			78										
79																			80										
81	SPARE	20	1																82										
83	SPARE	20	1																84										

NOTES:
 * REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
 ** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

PHASE A: 147.2 KW
 PHASE B: 154.6 KW
 PHASE C: 147.8 KW
 TOTAL: 449.7 KW
 TOTAL: 1245 AMPS

PANEL 1A										BUS AMP 225										AMPS MAIN BREAKER MLO									
MOUNTING SURFACE		PHASE 3		WIRE 4		LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107				LOCATION ELECTRICAL 107											
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND	COND	GRD	SIZE	NO	C	B	A	P	AMP	DESCRIPTION	CKT											
1	RECEPTACLE	20	1	0.36	2	12	3/4"	3/4"	12	2	2	1.20	1	20	RECEPTACLE				2										
3	RECEPTACLE	20	1	0.72	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				4										
5	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				6										
7	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				8										
9	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				10										
11	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				12										
13	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				14										
15	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	0.00	1	20	FUTURE FREEZER				16										
17	FUTURE FREEZER	20	1	0.00	2	12	3/4"	3/4"	12	2	2	0.72	1	20	RECEPTACLE				18										
19	RECEPTACLE	20	1	0.54	2	12	3/4"	3/4"	12	2	2	0.72	1	20	RECEPTACLE				20										
21	RECEPTACLE	20	1	0.36	2	12	3/4"	3/4"	12	2	2	0.54	1	20	RECEPTACLE				22										
23	RECEPTACLE	20	1	0.72	2	12	3/4"	3/4"	12	2	2	0.90	1	20	RECEPTACLE				24										
25	RECEPTACLE	20	1	0.54	2	12	3/4"	3/4"	12	2	2	0.30	1	20	COMBINATION SMOKE DAMPER				26										
27	SPARE	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				28										
29	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				30										
31	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	FREEZER				32										
33	FREEZER	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	REFRIGERATOR				34										
35	REFRIGERATOR	20	1	1.20	2	12	3/4"	3/4"	12	2	2	1.20	1	20	REFRIGERATOR				36										
37	RECEPTACLE	20	1	0.36	2	12	3/4"	3/4"	12	2	2	1.20	1	20	REFRIGERATOR														

PANEL LAB A		BUS AMP 100		AMPS MAIN BREAKER MLO		VOLTAGE 208/120V		LOCATION VESTIBULE 222		
MOUNTING RECESSED		PHASE 3		WIRE 4		BREAKER		LOAD (KW)		
S.C.R. 10.000		AIC		WIRE		BREAKER		LOAD (KW)		
CKT	DESCRIPTION	AMP	P	A	B	C	NO	SIZE	GRD	COND
1	INFRA-RED SENSOR AT SINK	20	1	0.86			2	12	12	3/4"
3	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
5	RECEPTACLES	20	1	0.54			2	12	12	3/4"
7	RACEWAY	20	1	0.36			2	12	12	3/4"
9	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
11	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
13	RECEPTACLES	20	1	0.54			2	12	12	3/4"
15	RACEWAY	20	1	0.72			2	12	12	3/4"
17	FUME HOOD	20	1	1.20			2	12	12	3/4"
19	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
21	RACEWAY	20	1	0.36			2	12	12	3/4"
23	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
25	SPARE	20	1				1	20		
27	RACEWAY	20	1	0.36			2	12	12	3/4"
29	RACEWAY	20	1	0.36			2	12	12	3/4"
31	RACEWAY	20	1	0.36			2	12	12	3/4"
33	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
35	RECEPTACLES	20	1	0.18			2	12	12	3/4"
37	RECEPTACLES	20	1	0.54			2	12	12	3/4"
39	RACEWAY	20	1	0.36			2	12	12	3/4"
41	RECEPTACLES	20	1	0.18			2	12	12	3/4"
43	RACEWAY	20	1	0.36			2	12	12	3/4"
45	RECEPTACLES	20	1	0.18			2	12	12	3/4"
47	RECEPTACLES	20	1	0.36			2	12	12	3/4"
49	RACEWAY	20	1	0.72			2	12	12	3/4"
51	RECEPTACLES	30	2	2.50			2	10	10	3/4"
53	RECEPTACLES	20	1	2.50			2	10	10	3/4"
55	VAV	20	1	0.50			2	12	12	3/4"
57	SPARE	20	1				1	20		
59	SPARE	20	1				1	20		
61	SPARE	20	1				1	20		
63	SPARE	20	1				1	20		
65	SPARE	20	1				1	20		
67	SPARE	20	1				1	20		
69	SPARE	20	1				1	20		
71	SPARE	20	1				1	20		

NOTES:
 * REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
 ** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

PANEL LAB B		BUS AMP 100		AMPS MAIN BREAKER MLO		VOLTAGE 208/120V		LOCATION VESTIBULE 222		
MOUNTING RECESSED		PHASE 3		WIRE 4		BREAKER		LOAD (KW)		
S.C.R. 10.000		AIC		WIRE		BREAKER		LOAD (KW)		
CKT	DESCRIPTION	AMP	P	A	B	C	NO	SIZE	GRD	COND
1	INFRA-RED SENSOR AT SINK	20	1	0.86			2	12	12	3/4"
3	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
5	RECEPTACLES	20	1	0.54			2	12	12	3/4"
7	RECEPTACLES	20	1	0.54			2	12	12	3/4"
9	RECEPTACLES	20	1	0.72			2	12	12	3/4"
11	RECEPTACLES	20	1	0.54			2	12	12	3/4"
13	RECEPTACLES	20	1	0.54			2	12	12	3/4"
15	RACEWAY	20	1	0.36			2	12	12	3/4"
17	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
19	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
21	RACEWAY	20	1	0.36			2	12	12	3/4"
23	PASS THROUGH & RECEPTACLE	20	1	0.86			2	12	12	3/4"
25	RACEWAY	20	1	0.36			2	12	12	3/4"
27	RECEPTACLES	20	1	0.36			2	12	12	3/4"
29	RECEPTACLES	30	2	2.50			2	10	10	3/4"
31	RECEPTACLES	30	2	2.50			2	10	10	3/4"
33	RACEWAY	20	1	0.36			2	12	12	3/4"
35	RACEWAY	20	1	0.36			2	12	12	3/4"
37	RACEWAY	20	1	0.36			2	12	12	3/4"
39	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
41	RECEPTACLES	20	1	0.18			2	12	12	3/4"
43	RACEWAY	20	1	0.72			2	12	12	3/4"
45	RACEWAY	20	1	0.72			2	12	12	3/4"
47	RACEWAY	20	1	0.54			2	12	12	3/4"
49	FUMEHOOD	20	1	0.50			2	12	12	3/4"
51	SPARE	20	1	0.72			2	12	12	3/4"
53	RECEPTACLES	20	1	0.18			2	12	12	3/4"
55	SPARE	20	1				1	20		
57	SPARE	20	1				1	20		
59	SPARE	20	1				1	20		
61	SPARE	20	1				1	20		
63	SPARE	20	1				1	20		
65	SPARE	20	1				1	20		
67	SPARE	20	1				1	20		
69	SPARE	20	1				1	20		
71	SPARE	20	1				1	20		

NOTES:
 * REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
 ** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

PANEL LAB C		BUS AMP 100		AMPS MAIN BREAKER MLO		VOLTAGE 208/120V		LOCATION VESTIBULE 222		
MOUNTING RECESSED		PHASE 3		WIRE 4		BREAKER		LOAD (KW)		
S.C.R. 10.000		AIC		WIRE		BREAKER		LOAD (KW)		
CKT	DESCRIPTION	AMP	P	A	B	C	NO	SIZE	GRD	COND
1	INFRA-RED SENSOR AT SINK	20	1	0.86			2	12	12	3/4"
3	REFRIGERATOR	20	1	1.20			2	12	12	3/4"
5	RACEWAY	20	1			0.36	2	12	12	3/4"
7	SPARE	20	1				1	20		
9	RECEPTACLES	20	1	0.72			2	12	12	3/4"
11	RECEPTACLES	20	1	0.54			2	12	12	3/4"
13	RECEPTACLES	20	1	0.18			2	12	12	3/4"
15	RECEPTACLES	20	1	0.54			2	12	12	3/4"
17	RECEPTACLES	20	1	0.72			2	12	12	3/4"
19	RACEWAY	20	1	0.36			2	12	12	3/4"
21	VAV	20	1	0.50			2	12	12	3/4"
23	VAV	20	1	0.50			2	12	12	3/4"
25	SPARE	20	1	0.36			2	12	12	3/4"
27	RECEPTACLES	30	2	2.50			2	10	10	3/4"
29	RECEPTACLES	30	2	2.50			2	10	10	3/4"
31	RECEPTACLES	20	1	0.36			2	12	12	3/4"
33	RACEWAY	20	1	0.36			2	12	12	3/4"
35	SPARE	20	1				1	20		
37	SPARE	20	1				1	20		
39	SPARE	20	1				1	20		
41	SPARE	20	1				1	20		
43	SPARE	20	1				1	20		
45	SPARE	20	1				1	20		
47	SPARE	20	1				1	20		
49	SPARE	20	1				1	20		
51	SPARE	20	1				1	20		
53	SPARE	20	1				1	20		
55	SPARE	20	1				1	20		
57	SPARE	20	1				1	20		
59	SPARE	20	1				1	20		
61	SPARE	20	1				1	20		
63	SPARE	20	1				1	20		
65	SPARE	20	1				1	20		
67	SPARE	20	1				1	20		
69	SPARE	20	1				1	20		
71	SPARE	20	1				1	20		

NOTES:
 * REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
 ** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

PANEL LAB D		BUS AMP 100		AMPS MAIN BREAKER MLO		VOLTAGE 208/120V		LOCATION VESTIBULE 222		
MOUNTING RECESSED		PHASE 3		WIRE 4		BREAKER		LOAD (KW)		
S.C.R. 10.000		AIC		WIRE		BREAKER		LOAD (KW)		
CKT	DESCRIPTION	AMP	P	A	B	C	NO	SIZE	GRD	COND
1	SPARE	20	1				1	20		
3	SPARE	20	1				1	20		
5	SPARE	20	1				1	20		
7	RECEPTACLES	20	1	0.54			2	12	12	3/4"
9	RECEPTACLES	20	1	0.72			2	12	12	3/4"
11	RECEPTACLES	20	1	0.54			2	12	12	3/4"
13	RECEPTACLES	20	1	0.18			2	12	12	3/4"
15	RECEPTACLES	20	1	0.54			2	12	12	3/4"
17	RECEPTACLES	20	1	0.72			2	12	12	3/4"
19	RACEWAY	20	1	0.36			2	12	12	3/4"
21	RACEWAY	20	1	0.54			2	12	12	3/4"
23	RECEPTACLES	30	2	2.50			2	10	10	3/4"
25	RECEPTACLES	20	1	2.50			2	10	10	3/4"
27	RACEWAY	20	1	0.36			2	12	12	3/4"
29	RACEWAY	20	1	0.36			2	12	12	3/4"
31	RECEPTACLES	20	1							

PANEL 1A		BUS AMP		AMPS MAIN BREAKER		MLO	
MOUNTING SURFACE		PHASE 3		WIRE 4		VOLTAGE 480/277V	
S.C.R.	18.000	A/C		LOCATION ELECTRICAL 107			
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND
1	SITE LIGHTING	20	1.50	2	12	12	3/4"
3	LOWER LEVEL LIGHTING	20	2.32	2	12	12	3/4"
5	LOWER LEVEL LIGHTING	20	2.64	2	12	12	3/4"
7	EXTERIOR LIGHTING	20	0.35	2	12	12	3/4"
9	EXTERIOR LIGHTING	20	0.15	2	12	12	3/4"
11	STAIR LIGHTING	20	0.45	2	12	12	3/4"
13	SPARE	20	1				
15	SPARE	20	1				
17	SPARE	20	1				
19	SPARE	20	1				
21	SPARE	20	1				
23	SPARE	20	1				
25	SPARE	20	1				
27	SPARE	20	1				
29	SPARE	20	1				
31	SPARE	20	1				
33	SPARE	20	1				
35	SPARE	20	1				
37	SPARE	20	1				
39	SPARE	20	1				
41	SPARE	20	1				

NOTES:
* REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

SUBTOTALS= 1.85 | 2.47 | 3.09 | 3.66 | 3.18 | 2.00 -SUBTOTALS

TOTALS PHASE A 3.85
PHASE B 5.65
PHASE C 6.75
TOTAL 16.25 KW
TOTAL 19.65 AMPS

PANEL 1L		BUS AMP		AMPS MAIN BREAKER		MLO	
MOUNTING SURFACE		PHASE 3		WIRE 4		VOLTAGE 480/277	
S.C.R.	18.000	A/C		LOCATION BENTHOUSE			
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND
1	PENTHOUSE LIGHTING	20	1.23	2	12	12	3/4"
3	UPPER LEVEL LIGHTING	20	2.42	2	12	12	3/4"
5	UPPER LEVEL LIGHTING	20	2.54	2	12	12	3/4"
7	UPPER LEVEL LIGHTING	20	3.40	2	12	12	3/4"
9	UPPER LEVEL LIGHTING	20	2.87	2	12	12	3/4"
11	SPARE	20	1				
13	SPARE	20	1				
15	SPARE	20	1				
17	SPARE	20	1				
19	SPARE	20	1				
21	SPARE	20	1				
23	SPARE	20	1				
25	SPARE	20	1				
27	SPARE	20	1				
29	SPARE	20	1				
31	SPARE	20	1				
33	SPARE	20	1				
35	SPARE	20	1				
37	SPARE	20	1				
39	SPARE	20	1				
41	SPARE	20	1				

NOTES:
* REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

SUBTOTALS= 4.69 | 5.29 | 2.54 | 2.38 | 0.00 | 6.53 -SUBTOTALS

TOTALS PHASE A 11.22
PHASE B 5.29
PHASE C 4.92
TOTAL 21.44 KW
TOTAL 25.79 AMPS

PANEL 2A		BUS AMP		AMPS MAIN BREAKER		MLO		
MOUNTING RECESSED		PHASE 3		WIRE 4		VOLTAGE 208/120V		
S.C.R.	10.000	A/C		LOCATION VESTIBULE 222				
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND	
1	RECEPTACLES	20	0.90	2	12	12	3/4"	
3	RECEPTACLES	20	0.90	2	12	12	3/4"	
5	RECEPTACLES	20	0.90	2	12	12	3/4"	
7	COPPER	20	0.50	2	12	12	3/4"	
9	RECEPTACLES	20	0.72	2	12	12	3/4"	
11	-	-	1.92	-	-	-	-	
13	FURNITURE FEED	20	3	1.92	3	12	12	3/4"
15	-	-	1.92	-	-	-	-	
17	-	-	1.92	-	-	-	-	
19	FURNITURE FEED	20	3	1.92	3	12	12	3/4"
21	-	-	1.92	-	-	-	-	
23	-	-	1.92	-	-	-	-	
25	FURNITURE FEED	20	3	1.92	3	12	12	3/4"
27	-	-	1.92	-	-	-	-	
29	RECEPTACLES	20	1	0.54	2	12	12	3/4"
31	RECEPTACLES	20	1	0.54	2	12	12	3/4"
33	RECEPTACLES	20	1	0.54	2	12	12	3/4"
35	RECEPTACLES	20	1	0.18	2	12	12	3/4"
37	-	-	1.92	-	-	-	-	
39	FURNITURE FEED	20	1	1.92	2	12	12	3/4"
41	-	-	1.92	-	-	-	-	
43	-	-	1.92	-	-	-	-	
45	FURNITURE FEED	20	1	1.92	2	12	12	3/4"
47	-	-	1.92	-	-	-	-	
49	-	-	1.92	-	-	-	-	
51	FURNITURE FEED	20	1	1.92	2	12	12	3/4"
53	-	-	1.92	-	-	-	-	
55	SPARE	20	1					
57	SPARE	20	1					
59	SPARE	20	1					
61	SPARE	20	1					
63	SPARE	20	1					
65	SPARE	20	1					
67	SPARE	20	1					
69	SPARE	20	1					
71	SPARE	20	1					

NOTES:
* REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

SUBTOTALS= 1.50 | 1.47 | 1.25 | 2.46 | 2.85 | 3.84 -SUBTOTALS

TOTALS PHASE A 5.34
PHASE B 4.32
PHASE C 3.71
TOTAL 13.37 KW
TOTAL 37.1 AMPS

PANEL 2B		BUS AMP		AMPS MAIN BREAKER		MLO		
MOUNTING RECESSED		PHASE 3		WIRE 4		VOLTAGE 208/120V		
S.C.R.	10.000	A/C		LOCATION STORAGE 241				
CKT	DESCRIPTION	BREAKER	LOAD (KW)	NO	SIZE	GRD	COND	
1	RECEPTACLES	20	1	0.90	2	12	12	3/4"
3	RECEPTACLES	20	1	0.72	2	12	12	3/4"
5	WATER FOUNTAIN	20	1	0.50	2	12	12	3/4"
7	WATER FOUNTAIN	20	1	0.50	2	12	12	3/4"
9	ROLLER SHADE CONTROL PNL	20	1	0.75	2	12	12	3/4"
11	ROLLER SHADE CONTROL PNL	20	1	0.75	2	12	12	3/4"
13	COMBINATION SMOKE DAMPER	20	1	0.10	2	12	12	3/4"
15	SPARE	20	1					
17	SPARE	20	1					
19	SPARE	20	1					
21	SPARE	20	1					
23	SPARE	20	1					
25	SPARE	20	1					
27	SPARE	20	1					
29	SPARE	20	1					
31	SPARE	20	1					
33	SPARE	20	1					
35	SPARE	20	1					
37	SPARE	20	1					
39	SPARE	20	1					
41	SPARE	20	1					

NOTES:
* REFER TO MECHANICAL/PLUMBING/EQUIPMENT CONNECTION SCHEDULE FOR LOADS, WIRE & CONDUIT SIZES
** REFER TO ELECTRICAL RISER DIAGRAM FOR WIRE AND CONDUIT SIZES

SUBTOTALS= 1.50 | 1.47 | 1.25 | 2.46 | 2.85 | 3.84 -SUBTOTALS

TOTALS PHASE A 5.34
PHASE B 4.32
PHASE C 3.71
TOTAL 13.37 KW
TOTAL 37.1 AMPS

RECORD REVISIONS

Signature _____ Date _____ Signature _____ Date _____

DRS architects One Gateway Center
Seventeenth Floor
Pittsburgh, PA 15222
Phone: 412.391.4850
Designing a Sustainable Future.


COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
Pennsylvania State Police
Willow Crossing Road
Greensburg, Pennsylvania

ELECTRICAL SCHEDULES

VERIFY SCALE

BAR IS ONE (1) INCH LONG
ON ORIGINAL DRAWING.

IF BAR IS NOT ONE (1) INCH LONG,
ADJUST SCALE ACCORDINGLY

DRAWN BY: E HOOVER DATE: 05/24/2022 DRAWING NO.: E603 (VOLUME 1 OF 1)
CHECKED BY: S MULHOLLEN SCALE: NOT TO SCALE

Table with columns: DESIGNATION, DESCRIPTION, LAMPS, FIXTURE WATTAGE, VOLTAGE/DRIVER, MOUNTING, MANUFACTURERS, CATALOG NUMBERS, REMARKS. Contains lighting fixture schedule details for various types of lights (troffer, pendant, recessed, etc.) with specifications and manufacturer info.

NOTE 1. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL LIGHT FIXTURE COMPONENTS TO INSURE ALL NECESSARY PARTS ARE PROVIDED FOR A COMPLETE INSTALLATION.
NOTE 2. THE ABBREVIATION MH DESIGNATES THE MOUNTING HEIGHT OF THE LIGHT FIXTURE. SEE DRAWING E101. FIXTURES SHALL BE MOUNTED TO STEEL POLES PAINTED BLACK.

Table with columns: EQUIPMENT #, LOAD, MCA / MOP, VOLTAGE/PHASE, WIRE SIZE, CONDUIT, VFD, ENCL. ENCLOSURE, BY-PASS, SAFETY SWITCH, ENCLOSURE, SIZE, STARTER, NEMA/HP SIZE, ENCLOSURE, NOTES. Contains mechanical/plumbing/etc. equipment connection schedule details.

NOTES: 1. DISCONNECT PROVIDED WITH UNIT. 2. SNAHU IS POWERED FROM OUTDOOR UNIT. 3. LAB AHU IS EQUIPPED WITH (6) 7.5HP ECM MOTORS. 4. FCU IS POWERED FROM OUTDOOR UNIT. 5. PROVIDE LOCKABLE DISCONNECT.

Table with columns: TYPE, DESCRIPTION, MOUNTING LOCATION, CATALOG NUMBER (BASIS OF DESIGN), ADDITIONAL NOTES. Contains floor and pedestal table box schedule details.

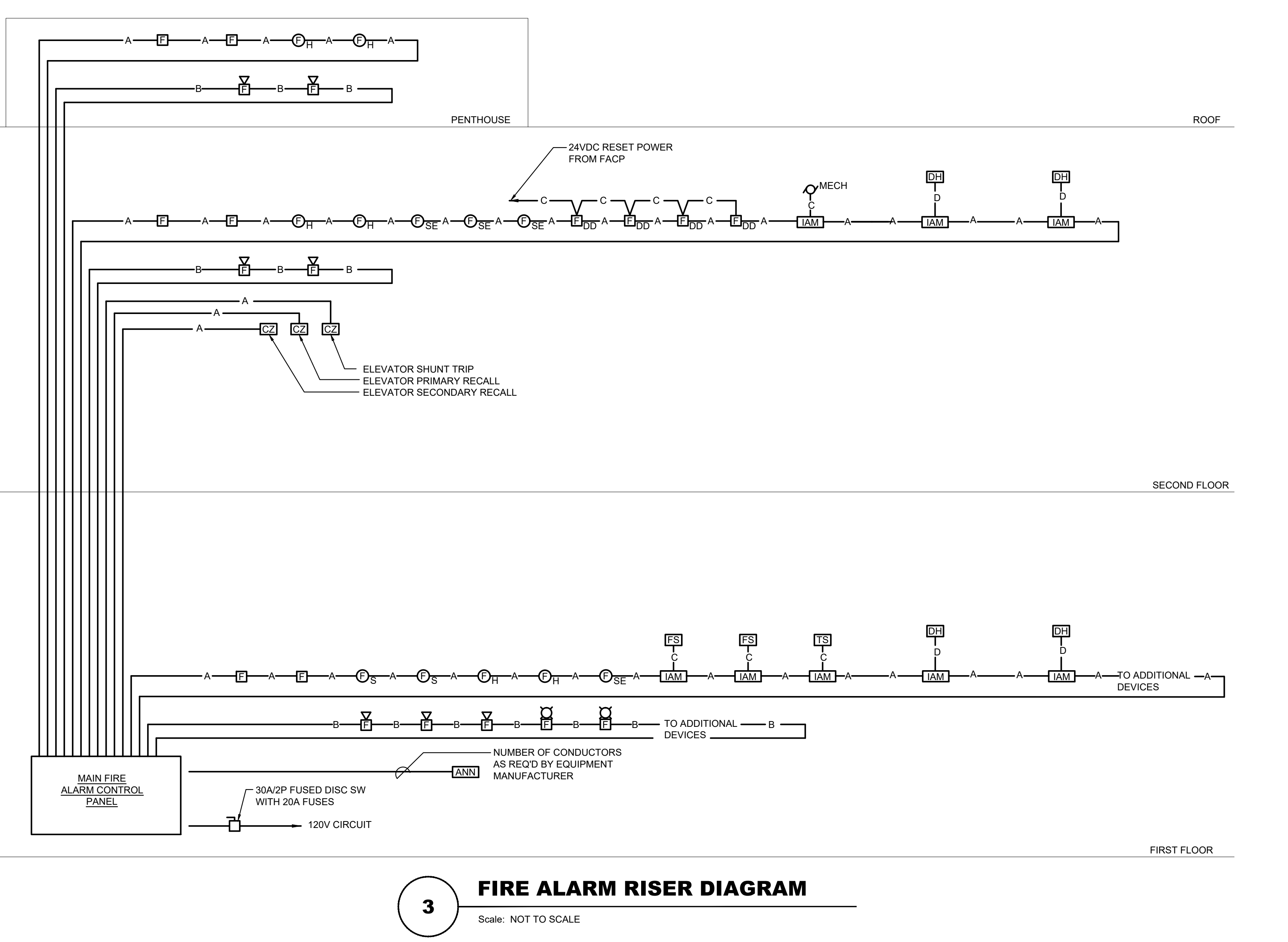
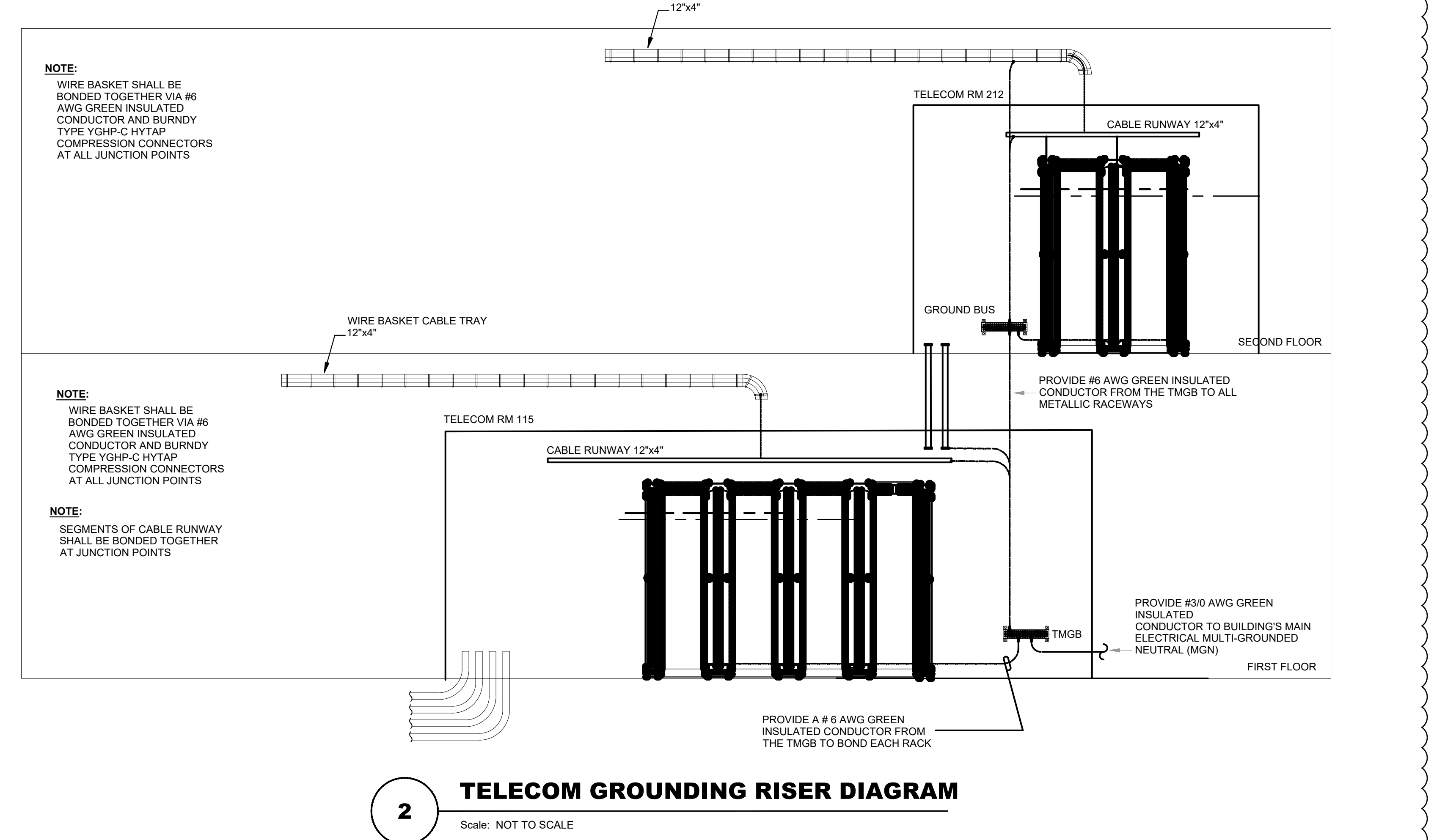
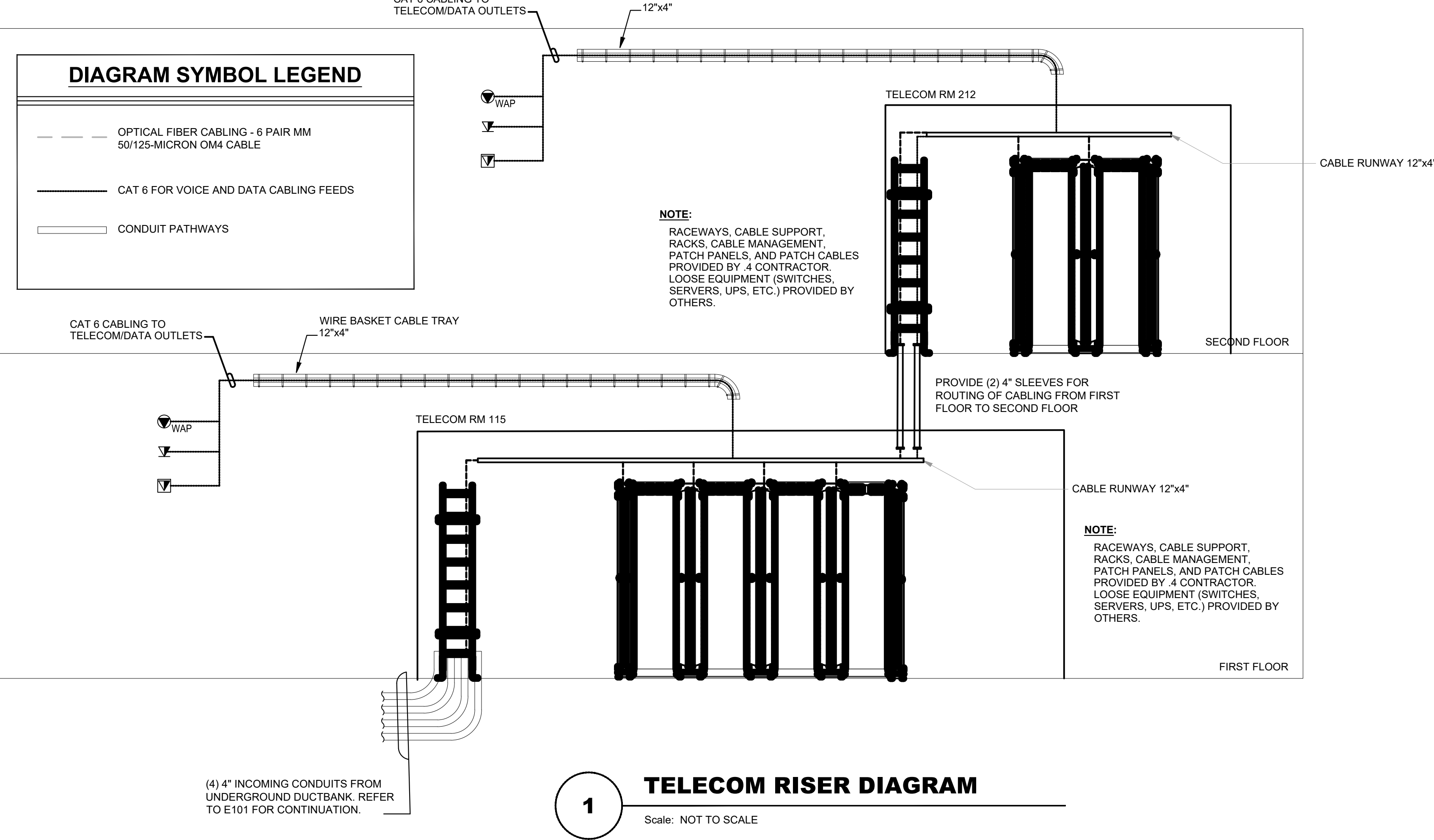


Table with columns: Signature, Date, Signature, Date. Contains signature lines for project approval.

Table with columns: Signature, Date, Signature, Date. Contains signature lines for project approval.

DRS architects logo and contact information: One Gateway Center, Seventeenth Floor, Pittsburgh, PA 15222, Phone: 412.391.4850. Includes project name: Construction of New DNA Facility, Pennsylvania State Police, Willow Crossing Road, Greensburg, Pennsylvania. Also includes project ID: 210-4 Phase 1 and drawing ID: E605 (VOLUME 1 OF 1).

VERIFY SCALE section with a scale bar (1 inch = 1 foot) and a note: 'IF BAR IS NOT ONE (1) INCH LONG, ADJUST SCALE ACCORDINGLY'. Also includes a table with columns: DRAWN BY (E HOOVER), DATE (05/24/2022), DRAWING NO. (E605), CHECKED BY (S MULHOLLEN), SCALE (NOT TO SCALE), (VOLUME 1 OF 1).



PENNSYLVANIA STATE POLICE DNA LAB

SYSTEM INPUTS	FLOOR PLAN SYMBOL	SYSTEM OUTPUTS																														
		CONTROL UNIT ANNUNCIATOR										NOTIFICATION				REQUIRED FIRE SAFETY CONTROL								SUPPLEMENTARY								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
1	MANUAL FIRE ALARM BOXES		[F]																													
2	SMOKE DETECTOR (ELEVATOR LOBBY PRIMARY RECALL FLOOR)		(P)SE																													
3	SMOKE DETECTOR (ELEVATOR LOBBY SECONDARY RECALL)		(P)SE																													
4	SMOKE DETECTOR (ELEVATOR MACHINE ROOM)		(P)SE																													
5	SMOKE DETECTOR (ELEVATOR SHAFT)		(P)SE																													
6	SMOKE DETECTORS		(P)S																													
7	HEAT DETECTORS		(P)H																													
8	FIRE PROTECTION FLOW SWITCHES		(P)FIS																													
9	FIRE PROTECTION TAMPER SWITCHES		(P)FIS																													
10	IN-DUCT SMOKE DETECTORS		(P)IDD																													
11	FIRE PUMP RUNNING		(P)R																													
12	FIRE PUMP POWER FAILURE/PHASE REVERSAL		(P)R																													
13	JOCKEY PUMP RUNNING		(P)R																													
14	JOCKEY PUMP POWER FAILURE/PHASE REVERSAL		(P)R																													
15	FIRE ALARM AC POWER FAILURE		(P)SE																													
16	FIRE ALARM SYSTEM LOW BATTERY		(P)SE																													
17	FIRE ALARM SYSTEM OPEN CIRCUIT		(P)SE																													
18	FIRE ALARM SYSTEM GROUND FAULT		(P)SE																													
19	NOTIFICATION APPLIANCE CIRCUIT SHORT		(P)SE																													
20	GENERATOR RUNNING		(P)SE																													
21	GENERATOR FAILURE		(P)SE																													
22	HEAT DETECTOR (ELEVATOR SHUNT TRIP)		(P)SE																													

NOTES

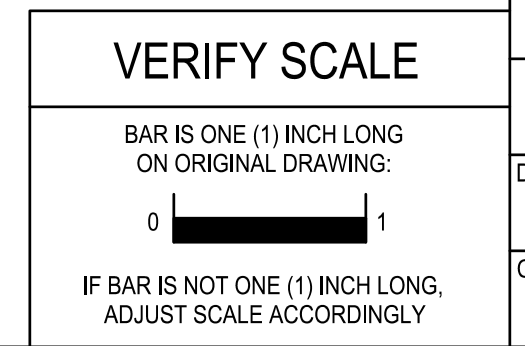
- IN EVENT SAIL SWITCH DOES NOT CLOSE, SEND TROUBLE SIGNAL TO SUPERVISOR STATION INDICATING STAIR PRESSURIZATION FAN IS NOT RUNNING.

WIRING LEGEND

- A — 1 #18 TWISTED SHIELDED PAIR
- B — 2 #12 FOR STROBE CIRCUIT
- C — 2 #12 FOR SPEAKER CIRCUIT
- D — 1 PAIR #14 FOR 24VDC POWER

GENERAL NOTES

- THIS RISER DIAGRAM INDICATES THE GENERAL CONFIGURATION OF THE FIRE ALARM SYSTEM LOOPS. REFER TO FLOOR PLANS FOR ACTUAL DEVICE QUANTITIES.
- MINIMUM SIZE CONDUIT/CABLE SHALL BE 1/2" C. CONDUITS AND MC CABLES SHALL BE RED IN COLOR.



H.F. LENZ COMPANY
Engineers • Planners • Surveyors • Energy Consultants

DRS architects One Gateway Center
Seventeenth Floor
Pittsburgh, PA 15222
Phone: 412.391.4850

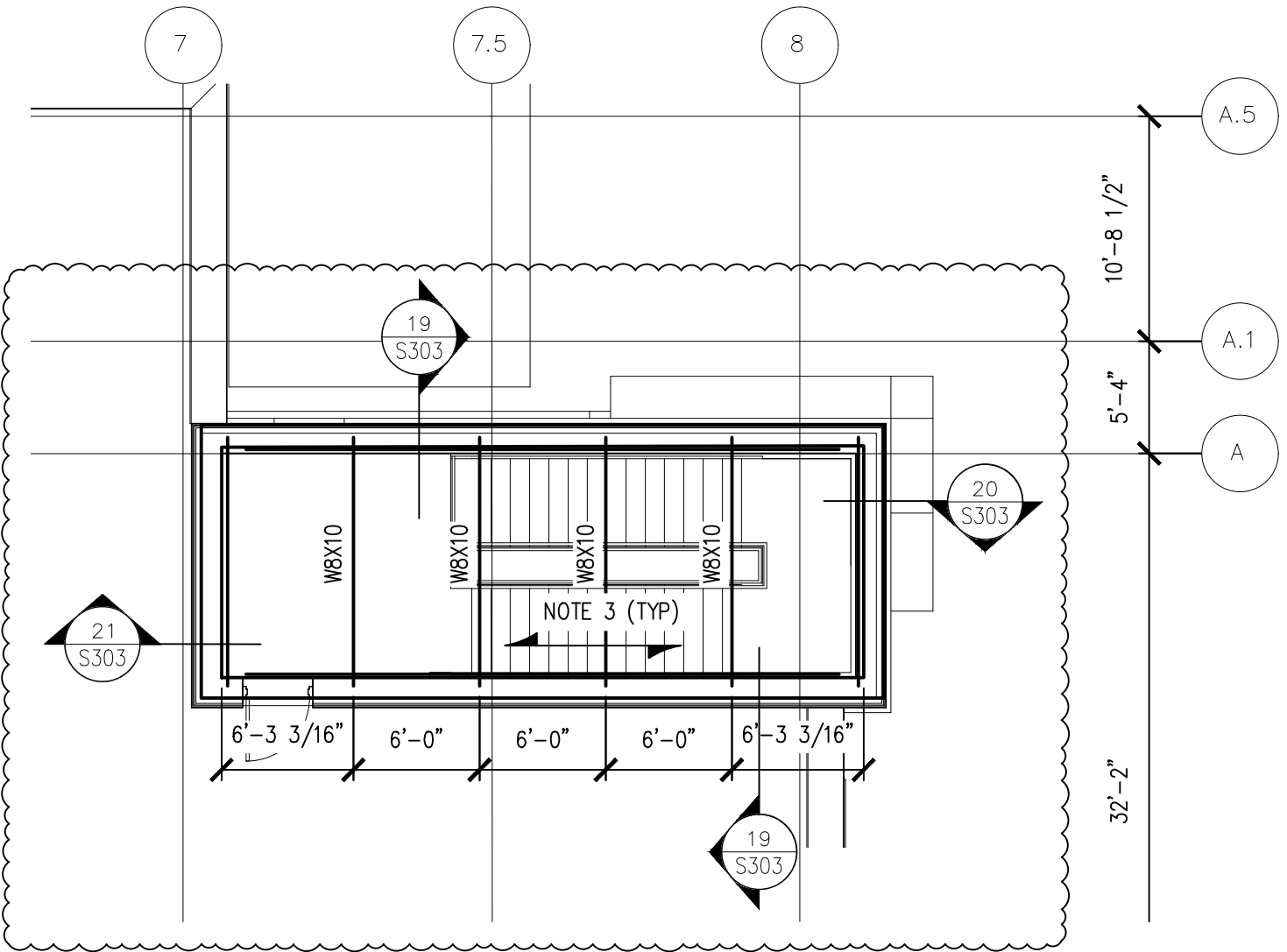
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

D.G.S. PROJECT No. 210-4 Phase 1

Construction of New DNA Facility
Pennsylvania State Police
Willow Crossing Road
Greensburg, Pennsylvania

RISER DIAGRAMS

DRAWN BY E HOOVER	DATE 05/24/2022	DRAWING NO. E702
CHECKED BY S MULHOLLEN	SCALE NOT TO SCALE	(VOLUME 1 OF 1)



PENTHOUSE, STAIR & EAST ENTRANCE ROOF FRAMING PLAN

1

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

NAVARRO & WRIGHT
CONSULTING ENGINEERS, INC.

PROJECT DESCRIPTION
CONSTRUCTION OF NEW DNA FACILITY – PENNSYLVANIA STATE POLICE
WILLOW CROSSING ROAD, GREENSBURG
WESTMORELAND, PA
DGS 210-4 PHASE 1

SHEET TITLE / REFERENCE DRAWING: PENTHOUSE ROOF FRAMING PLAN/S107

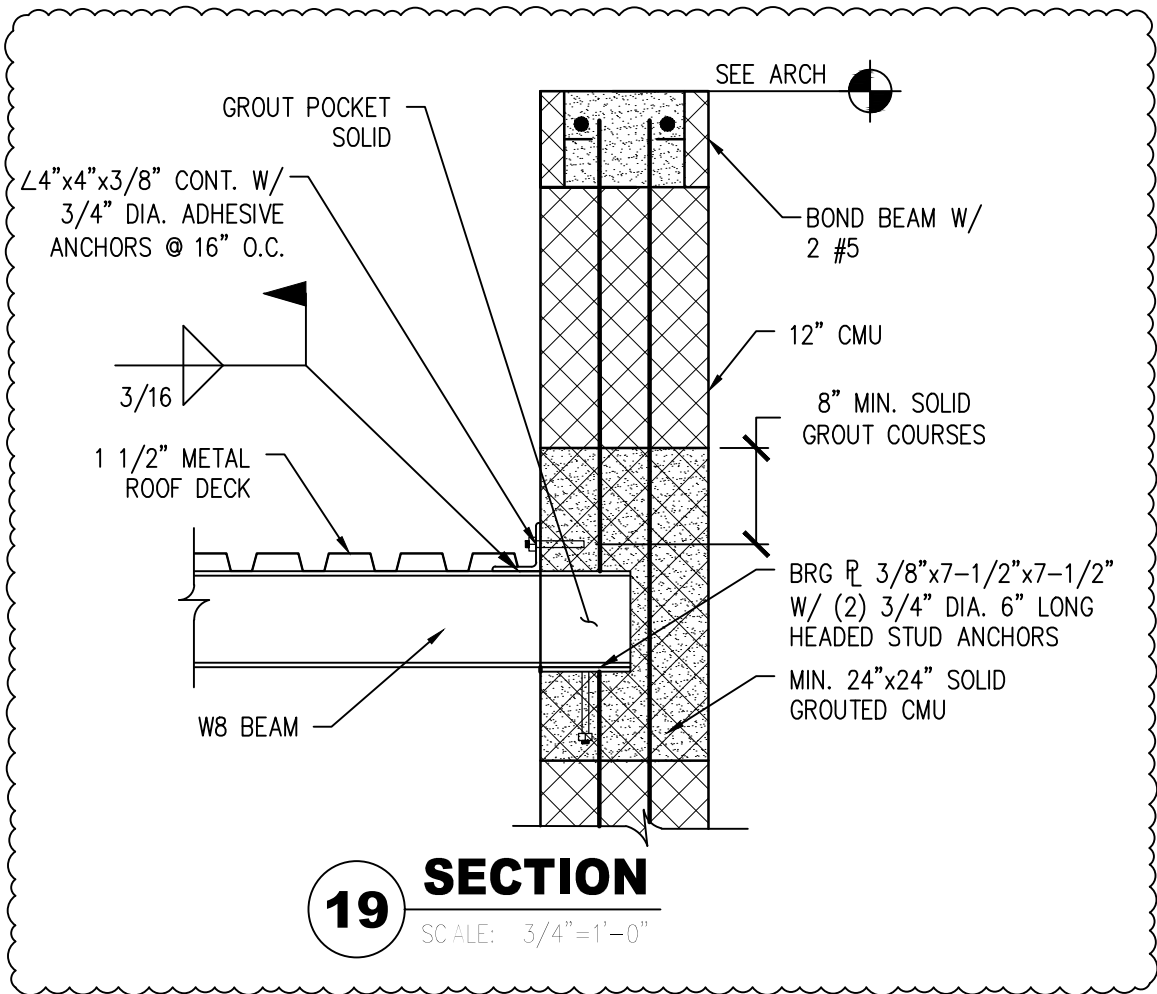
ISSUE DATE: 11/14/2022

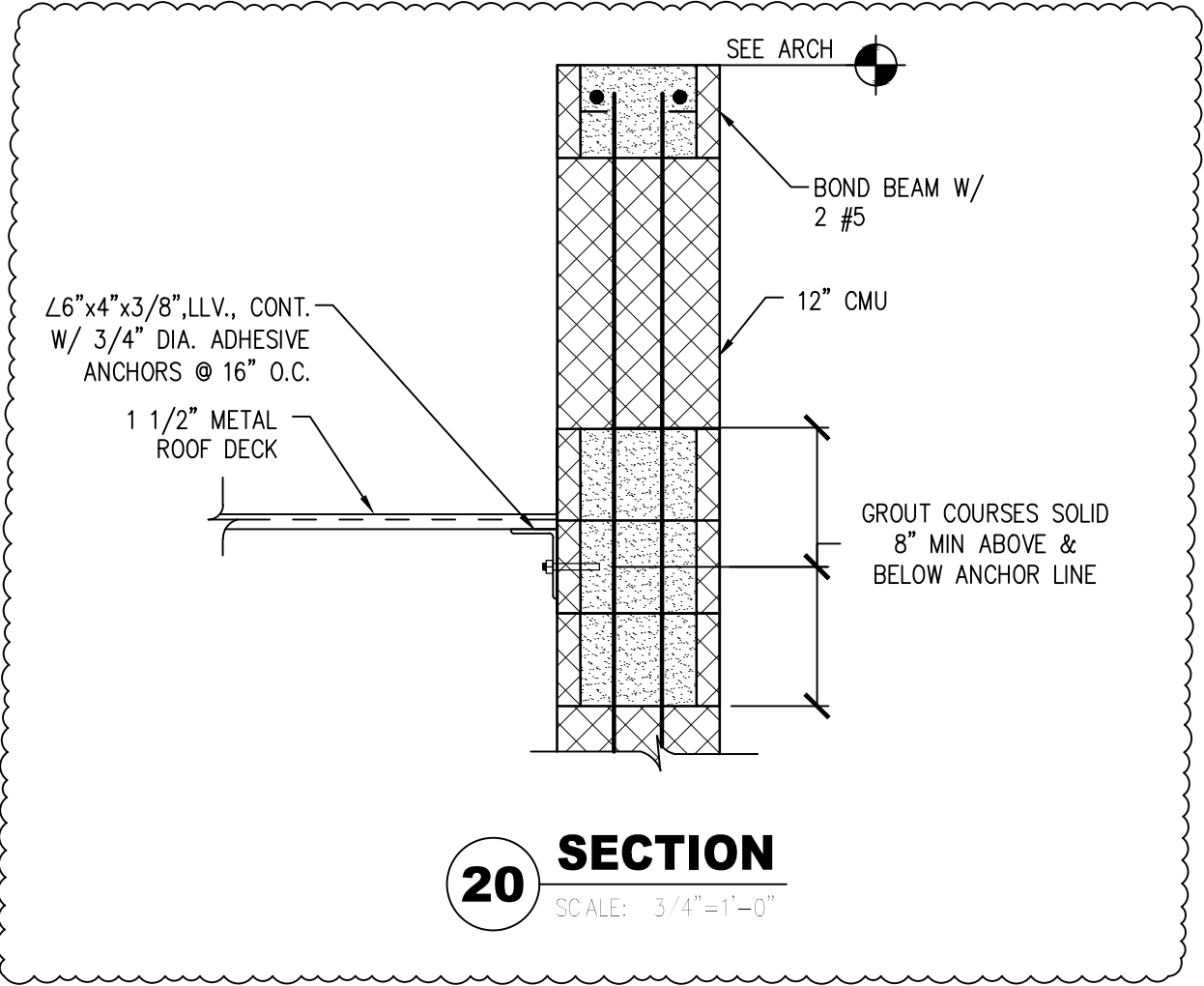
DRAWN BY: CDL

SCALE: AS NOTED

CHECKED BY: BDL

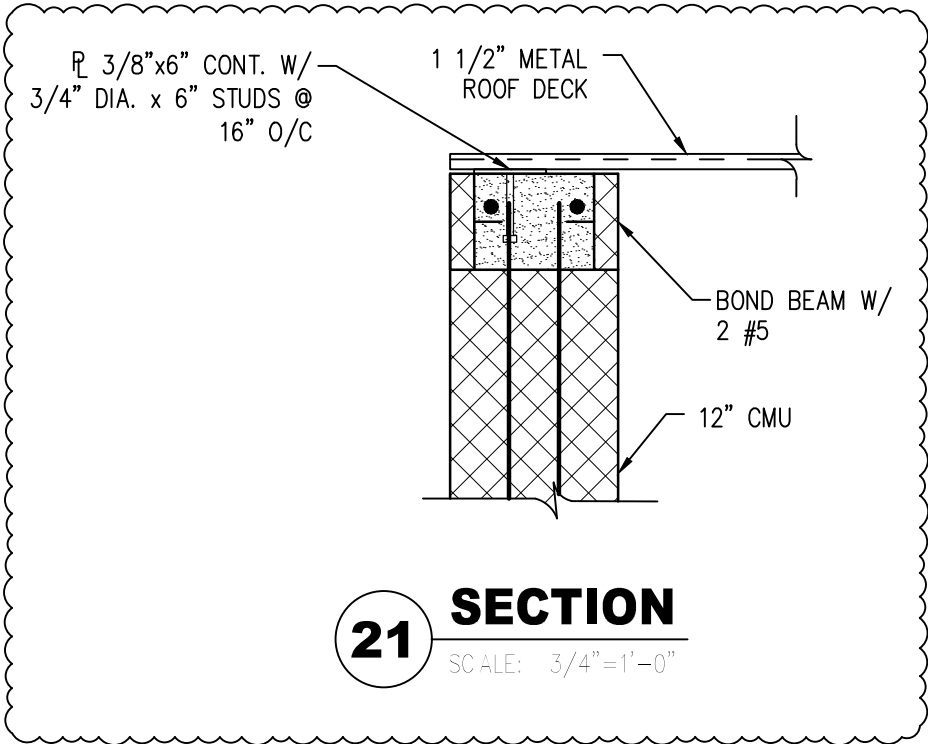
SKS1





20 SECTION
 SCALE: 3/4" = 1'-0"

	PROJECT DESCRIPTION CONSTRUCTION OF NEW DNA FACILITY – PENNSYLVANIA STATE POLICE WILLOW CROSSING ROAD, GREENSBURG WESTMORELAND, PA DGS 210-4 PHASE 1		SKS3	
	SHEET TITLE / REFERENCE DRAWING:			SECTIONS/S303
	ISSUE DATE: 11/14/2022	DRAWN BY: CDL		
	SCALE: AS NOTED	CHECKED BY: BDL		



SECTION 221113 - FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions of the Construction Contract," "Special Conditions," and "Division 1 – General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.
- B. Comply with Municipal Authority of Westmoreland County (MAWC) requirements for the installation of water mains and services.

1.2 SUMMARY

- A. This Section includes water-distribution piping and related components outside the building for combined water service and fire-service mains.
- B. Utility-furnished products include water meters that will be furnished to the site, ready for installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.
- B. Field quality-control test reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with requirements of utility company supplying water. Include backflow prevention.
 - 2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.

3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
 - C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - D. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.
 - E. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.
 - F. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve supervision for fire-service-main piping for fire suppression.
 - G. NSF Compliance:
 1. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Preparation for Transport: Prepare valves and hydrants according to the following:
 1. Ensure that valves are dry and internally protected against rust and corrosion.
 2. Protect valves against damage to threaded ends and flange faces.
 3. Set valves in best position for handling. Set valves closed to prevent rattling.
- B. During Storage: Use precautions for valves according to the following:
 1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
- C. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- D. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- E. Protect flanges, fittings, and specialties from moisture and dirt.

1.8 PROJECT CONDITIONS

- A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:
 1. Notify Department personnel no fewer than two days in advance of proposed interruption of service.
 2. Do not proceed with interruption of water-distribution service without Department's written permission.

1.9 COORDINATION

- A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 COPPER TUBE AND FITTINGS

- A. Soft Copper Tube: ASTM B 88, Type K (ASTM B 88M, Type A), water tube, annealed temper.
 - 1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
- B. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
- C. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

2.2 DUCTILE-IRON PIPE AND FITTINGS

- A. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.
 - 1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - 2. Gaskets: AWWA C111, rubber.

2.3 SPECIAL PIPE FITTINGS

- B. Ductile-Iron Rigid Expansion Joints:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. EBA Iron, Inc.
 - b. U.S. Pipe and Foundry Company.
 - 3. Description: Three-piece, ductile-iron assembly consisting of telescoping sleeve with gaskets and restrained-type, ductile-iron, bell-and-spigot end sections complying with AWWA C110 or AWWA C153. Select and assemble components for expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
 - a. Pressure Rating: 250 psig minimum.
- C. Ductile-Iron Flexible Expansion Joints:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

Construction of New DNA Facility
Pennsylvania State Police, Greensburg, PA

- a. EBAA Iron, Inc.
 - b. Hays Fluid Controls; a division of ROMAC Industries Inc.
 - c. Star Pipe Products.
3. Description: Compound, ductile-iron fitting with combination of flanged and mechanical-joint ends complying with AWWA C110 or AWWA C153. Include two gasketed ball-joint sections and one or more gasketed sleeve sections. Assemble components for offset and expansion indicated. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
- a. Pressure Rating: 250 psig minimum.

D. Ductile-Iron Deflection Fittings:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - a. EBAA Iron, Inc.
3. Description: Compound, ductile-iron coupling fitting with sleeve and 1 or 2 flexing sections for up to 15-degree deflection, gaskets, and restrained-joint ends complying with AWWA C110 or AWWA C153. Include AWWA C111, ductile-iron glands, rubber gaskets, and steel bolts.
 - a. Pressure Rating: 250 psig minimum.

2.4 GATE VALVES

A. AWWA, Cast-Iron Gate Valves:

1. Nonrising-Stem, Resilient-Seated Gate Valves:
 - a. Description: Gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 200 psig.
 - 3) End Connections: Mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.

2.5 GATE VALVE ACCESSORIES AND SPECIALTIES

- A. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches in diameter.
1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

2.6 WATER METERS

- A. Water meters will be furnished and installed by Water Company.

2.7 CONCRETE VAULTS

- A. Description: Precast, reinforced-concrete vault, designed for A-16 load designation according to ASTM C 857 and made according to ASTM C 858.
 - 1. Ladder: ASTM A 36/A 36M, steel or polyethylene-encased steel steps.

2.8 DETECTOR CHECK VALVES

- A. Detector Check Valves:
 - 1. Description: Galvanized cast-iron body, bolted cover with air-bleed devices for access to internal parts, and flanged ends. Include one-piece bronze disc with bronze bushings, pivot, and replaceable seat. Include appropriate bypass taps in inlet and outlet for bypass meter connection. Set valve to allow minimal water flow through bypass meter when major water flow is required.
 - a. Standards: UL 312 and FMG approved.
 - b. Pressure Rating: 175 psig.

2.9 FIRE HYDRANTS

- A. Dry-Barrel Fire Hydrants:
 - 1. Description: Freestanding, with one NPS 4-1/2 and two 2-1/2 outlets, 5-1/4-inch main valve, drain valve, and NPS 6 mechanical-joint inlet. Include interior coating according to AWWA C550. Hydrant shall have cast-iron body, compression-type valve opening against pressure and closing with pressure.
 - a. Standard: AWWA C502
 - b. Pressure Rating: 250 psig.

2.10 BACKFLOW PREVENTION

- A. Double-Check, Backflow-Prevention Assemblies:
 - 1. Standard: ASSE 1015.
 - 2. Operation: Continuous-pressure applications, unless otherwise indicated.
 - 3. Size: See details.
 - 4. Pressure Loss at Design Flow Rate: As required plumbing systems and related hydraulic operations. At Walnut Ridge consider existing water flows and rate controls.
 - 5. Body: Cast iron with interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.
 - 6. End Connections: Flanged.
 - 7. Configuration: Designed for horizontal, straight through flow.
 - 8. Accessories: OS&Y gate valves with flanged ends on inlet and outlet.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Refer to Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- C. Do not use flanges or unions for underground piping.
- D. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.
 - 1. Copper tube, ASTM B 88, Type K (ASTM B 88M, Type A); wrought-copper, solder-joint fittings; and brazed joints.
 - 2. Ductile-iron, push-on-joint pipe; ductile-iron, push-on-joint fittings; and gasketed or mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.

3.3 VALVE APPLICATIONS

- A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.
- B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
 - 1. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient seated gate valves with valve box.

3.4 PIPING INSTALLATION

- A. Water-Main Connection: Arrange with utility company for tap of size and in location indicated in water main.
- B. Comply with NFPA 24 for fire-service-main piping materials and installation.
- C. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.
- D. Bury piping with depth of cover over top at least 48 inches.
- E. Install piping by tunneling or jacking, or combination of both, under streets and other obstructions that cannot be disturbed.

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- F. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.
 - 1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.
- G. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.5 JOINT CONSTRUCTION

- A. Make pipe joints according to the following:
 - 1. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
 - 2. Copper-Tubing, Pressure-Sealed Joints: Use proprietary crimping tool and procedure recommended by copper, pressure-seal-fitting manufacturer.
 - 3. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

3.6 ROUGHING-IN FOR WATER METERS

- A. Rough-in piping and specialties for water meter installation according to utility company's written instructions.

3.7 BACKFLOW PREVENTER INSTALLATION

- A. Install backflow preventers of type, size, and capacity indicated. Include valves and test cocks. Install according to requirements of plumbing and health department and authorities having jurisdiction.
- B. Do not install backflow preventers that have relief drain in vault or in other spaces subject to flooding.
- C. Do not install bypass piping around backflow preventers.
- D. Support backflow preventers, valves, and piping near floor and on brick or concrete piers.

3.8 CONCRETE VAULT INSTALLATION

- A. Install precast concrete vaults according to ASTM C 891.

3.9 ANCHORAGE INSTALLATION

- A. Anchorage, General: All per United Water Pennsylvania standards. Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
 - 1. Concrete thrust blocks.
 - 2. Locking mechanical joints.
 - 3. Set-screw mechanical retainer glands.
 - 4. Bolted flanged joints.
 - 5. Heat-fused joints.
 - 6. Pipe clamps and tie rods.

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- B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - 1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
- C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.10 VALVE INSTALLATION

- A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.

3.11 DETECTOR-CHECK VALVE INSTALLATION

- A. Install in vault.
- B. Install for proper direction of flow. Install bypass with water meter, gate valves on each side of meter, and check valve downstream from meter.
- C. Support detector check valves, meters, shutoff valves, and piping on concrete piers.

3.12 FIRE HYDRANT INSTALLATION

- A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
- B. Wet-Barrel Fire Hydrants: Install with valve below frost line. Provide drainage.
- C. AWWA Fire Hydrants: Comply with AWWA M17.
- D. UL/FMG Fire Hydrants: Comply with NFPA 24.

3.13 CONNECTIONS

- A. Connect water-distribution and fire-protection piping to new domestic and fire services provided at property line.
- B. Connect water-distribution piping to interior domestic water and fire-suppression piping.

3.14 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.
 - 1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig. Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is 2 quarts per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.

- C. Prepare reports of testing activities.

3.15 IDENTIFICATION

- A. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Section 312000 "Earth Moving."
- B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel.

3.16 CLEANING

- A. Clean and disinfect water-distribution piping as follows:
 - 1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
 - 2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
 - 3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:
 - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
 - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.
- B. Prepare reports of purging and disinfecting activities.

END OF SECTION 221113

SECTION 221313 - FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions of the Construction Contract," "Special Conditions," and "Division 1 – General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SUMMARY

- A. This Section includes gravity-flow, nonpressure sanitary sewerage outside the building, with the following components:
 - 1. Cleanouts.
 - 2. Piping
 - 3. Manholes

1.3 PERFORMANCE REQUIREMENTS

- A. Comply with requirements of Municipal Authority of Westmoreland County (MAWC).

1.4 SUBMITTALS

- A. Product Data: For piping and cleanout materials.
- B. Field quality-control test reports.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, fitting, and joining materials.

2.2 PVC PIPE AND FITTINGS

- A. PVC Sewer Pipe and Fittings, NPS 15 and Smaller: ASTM D 3034, SDR 35, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.

2.3 NONPRESSURE-TYPE PIPE COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
2. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Shielded, Flexible Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Ring-Type, Flexible Couplings: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.4 CLEANOUTS

A. Gray-Iron Cleanouts: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.

1. Top-Loading Classification: Heavy duty.
2. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

2.5 MANHOLES

A. Standard Precast Concrete Manholes:

1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Diameter: 48 inches minimum unless otherwise indicated.
3. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.
4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section; with separate base slab or base section with integral floor.
5. Riser Sections: 4-inch minimum thickness, of length to provide depth indicated.
6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated; with top of cone of size that matches grade rings.
7. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
8. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
9. Steps: Individual FRP steps; wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
10. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, with diameter matching manhole frame and cover, and with height as required to adjust manhole frame and cover to indicated elevation and slope.

B. Manhole Frames and Covers:

1. Description: Ferrous; 24-inch ID by 7- to 9-inch riser, with 4-inch minimum-width flange and 26-inch diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "SANITARY SEWER."

2. Material: ASTM A 48/A 48M, Class 35 gray iron unless otherwise indicated.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

2. Benches: Concrete, sloped to drain into channel.

2.6 CONCRETE

A. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water/cementitious materials ratio.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Pipe couplings and fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.

1. Use nonpressure-type flexible couplings where required to join gravity-flow, nonpressure sewer piping, unless otherwise indicated.
 - a. Shielded flexible couplings for same or minor difference OD pipes.
 - b. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

B. Gravity-Flow, Nonpressure Sewer Piping: Use the following pipe materials:

1. NPS 5 and NPS 6: NPS 6 PVC sewer pipe and fittings, gaskets, and gasketed joints.

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewerage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves,

and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.

- C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- D. Install gravity-flow, nonpressure, drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.
 - 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place-concrete supports or anchors.
 - 3. Install piping with 36-inch minimum cover.
 - 4. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.
- E. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure, drainage piping according to the following:
 - 1. Join PVC sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-gasket joints.
 - 2. Join dissimilar pipe materials with nonpressure-type, flexible couplings.

3.4 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
 - 1. Use light-duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 - 2. Use heavy-duty, top-loading classification cleanouts in vehicle-traffic service areas.
- B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.
- C. Set cleanout frames and covers in concrete pavement with tops flush with pavement surface.

3.5 MANHOLE INSTALLATION

- A. General: Install manholes complete with appurtenances and accessories indicated.
- B. Install precast concrete manhole sections with sealants according to ASTM C 891.
- C. Form continuous concrete channels and benches between inlets and outlet.

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- D. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches above finished surface elsewhere unless otherwise indicated.

3.6 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318.

3.7 CONNECTIONS

- A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains specified in Division 22 Section "Sanitary Waste and Vent Piping."
- B. Make connections to existing piping and underground manholes.
 - 1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

3.8 CLOSING ABANDONED SANITARY SEWER SYSTEMS

- A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:
 - 1. Close open ends of piping with at least 8-inch thick, brick masonry bulkheads.
 - 2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

3.9 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate report for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 - 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

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1. Do not enclose, cover, or put into service before inspection and approval.
 2. Test completed piping systems according to requirements of authorities having jurisdiction.
 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 4. Submit separate report for each test.
 5. Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction as per the following:
 - a. Testing by water wherein all buried and under-slab piping (both inside and outside the foundation) is filled with water and a temporary water column is introduced to a minimum of ten feet of head to the highest portion of the buried and under-slab piping, with no water loss observed during a fifteen minute period: or
 - b. Testing by air where in all buried and under-slab piping is pressurized with air to a minimum of five pounds per square inch and thereafter held for a period of five minutes with no noticeable pressure drop.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

END OF SECTION 221313