South Fayette Township School District
New District Maintenance and Bus Depot Facility

Project No: 24-S49-01B

3631 Old Oakdale Road, McDonald, PA 15057

ADDENDUM 4

October 31, 2025

This Addendum forms part of the Contract Documents and modifies the original bidding documents dated October 1, 2025. Acknowledge receipt of this Addendum by inserting its number and date in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

BIDDING RFI & RESPONSES

The following bidding RFIs and responses are included for reference by all bidding contractors. Responses to RFIs are considered part of the project. All RFIs received to date are included below. Any un-answered RFIs are highlighted and shall be answered in future addenda.

RFI #	Bidding Contractor	Question	Response	Response By
GC01	Stonemile Group	C001 Geotechnical Recommendations:	*See attached RFI document and corresponding response by CEC. Answer was too long to include in this list.*	CEC
GC02	Cast & Baker Corp	413/C403, Toe Drain, shows 12" perf pipe. Sheet C400B calls for 4" perf pipe. Which size is correct?	*The toe drains shall consist of 4-inch perforated HDPE pipe, as specified on Sheet C400B. The total trench width, including AASHTO No. 57 stone, shall be 12 inches.*	CEC
GC03	The Flag Factory	The specifications for finish contradictory, indicating both "natural satin" and "clear anodic". Please clarify which finish is required.	*Clear Anodic should be provided.*	DRAW
GC04	Cast & Baker Corp	Geotech Supplemental Sheet-2: It shows the Toe Bench Outlet Drains going into the Basin Outlet Structure. Can you provide us with a profile or invert elevations at the structure?	*The invert elevation is as indicated on Outlet Structure 34. The toe bench outlet drains shall connect at an invert elevation of 1116.80 feet or higher, provided that a minimum positive slope of 1.0% can be maintained to the outlet structure from the bench.*	CEC

GC05	VendRick	Please advise if Drawing C300 is available in CAD format for cut/fill calculations.	*C300 CAD file is provided for reference in performing cut/fill calculations. Quantities derived from this file are for contractor use only and shall not be shared with any other party. This file is provided for reference only and not for construction. Please review the disclaimer below prior to using this file for the intended cut/fill calculations.*	CEC
GC06	VendRick	Please confirm the HVAC Prime is to provide the temporary heat and the ELEC Prime is to provide the temporary electric as directed in Spec 011200	*Responsibilities for temporary heat is described in 01 5000 Article 3.10. Responsibility for temporary power, distribution, lighting, connections per 011200*	DRAW
GC07	Franjo	The specifications list the metal roofing panels as 040 aluminum, but lists the gutter and downspouts as both matching the panels, and as 050 aluminum. Which is the correct thickness for the gutters and downspouts?	0.050	DRAW (SK)
GC08	Vendrick	H2 Wall Type provided on Drawing A002 Interior Partition Types is labelled, "to deck". The H2 wall type shown on building section 2/A301 is shown at partial height, stopping 1'-6" above acoustical ceiling. Please confirm if the intent of H2 wall Type is to extend to the deck above, or if a partial height assembly is acceptable?	H2 wall type shall be to 6" min above ceiling. See attached revised sheet A002 and A301 for reference.	DRAW
GC09	Waller / Tresco Paving	Will there be underdrain on the entrance road? It is shown on detail 201 on drawing C800. All reference to paving that I see refer to details 212 and 217 on drawing C801. Not sure if detail 201/C800 is relevant on this project or not since it is not a township roadway project. It also shows conflicting pavement construction.	The entrance drive and wedge curb are to be constructed in accordance with Details 212 and 217 on Sheet C801. These details represent the required pavement section for the private entrance road and do not include an underdrain. Detail 201 on C800 depicts a standard South Fayette Township roadway section with underdrain. This detail was included at the Township's request for reference purposes only, in the event that future roadway repair or restoration is required along Old Oakdale Road or within other public right-of-way areas. It is not intended to apply to the private entrance drive. Underdrains below the pavement section are not required along the entrance road. They are only applicable where shown on the PennDOT inlet details to relieve water behind the inlet	CEC

			structure, as indicated in those standard details.	
GC10	Cast and Baker	C501: Are there any requirements for crossing the waterline and gas on the sanitary sewer with heavy equipment? Does the gas company have any special requirements for excavating around their line?	Heavy equipment may only cross the existing gas and water lines after both utilities have been field-located, exposed, and properly supported in accordance with the respective utility's requirements. Per Peoples Natural Gas Company's requirements, no mechanical excavation is permitted within 18 to 24 inches of a marked gas facility until it has been hand-exposed or daylighted, and heavy equipment shall not be used over or adjacent to an exposed gas main unless first approved by a Peoples Gas field representative during construction. For the water main, Pennsylvania American Water follows the developer's standard manual, which requires maintaining a minimum 18-inch vertical separation and that any excavation over or near an active water main be performed under observation of a PA American Water field representative to ensure the main remains supported and undamaged.	CEC
GC11	R.A. Glancy	The Division 8 spec for Aluminum Framed Entrances and Storefront which would include door types AG2, frame types 2T & 3T and window types W-2 & W-2a.seems to have been omitted from the bid documents. There are eight (8) single FRP doors on the door schedule with hollow metal frames. Is the hollow metals label correct, or should it be an aluminum frame?	Alum Framed Entrances and Storefront Spec has been provided in this addendum. There are a total of seven (7) FRP doors that shall have aluminum frames, per attached revised sheet A601.	DRAW
GC12	VendRick	Spec sections 011200 and 015000 refer to the CM Logistics Plan. Please advise where this drawing may be found. Thank you.	This reference can be deleted. There will not be a CM Logistics Plan provided for this project.	PJ Dick
GC13	VendRick	092116: The lower-level floor plan calls out section detail 4/A302, cut through the Vestibule/Entry 100 storefront. The enlarged detail provided for the head condition, 11/A601, calls out gypsum returns at the H2 Wall Type. There is no wall type shown at Vestibule/Entry 100 on the lower-level floor plan. Please confirm that there is no H2 wall type at Vestibule/Entry 100.	This is correct. This is a typical head detail at canopies, so the GPBD return would be provided at the similar head condition at the canopy on the upper level, but the CMU would be exposed on the Lower Level.	DRAW
GC14	Franjo	1. Can the AISC Steel certification requirements be waived?	1. No. AISC Steel Certification is required.	DRAW/ KSS

		2. I did not see a geotech report in the specs, can you provide the geotech report?	2. Geotechnical Report is provided as "Additional Information" and should be provided on Printscape website separate from other bidding documents.	
GC15	Stonemile	1. Who is to install the vertical 3" insulation and vertical air barrier? 2. The specifications list the metal roofing panels as 040 aluminum, but lists the gutter and downspouts as both matching the panels and as 050 aluminum. Which is the correct thickness for the gutter and downspout?	1. GC owns exterior enclosure, which would include insulation and air barrier. 2. 0.050	DRAW
GC16	Walter Mucci	1. Please provide an edge detail at rafter framing along column line 2 between A&B. 2. Specification Section 011200-13, Paragraph 1.9-B-1-f. I am unable to locate section 337000. 3. Please provide locations and limits of temporary fence. 4. Will a site concrete specification be provided or are we to use 033000? The details in the site drawings are not in sync with the information listed in 033000 (ie exterior concrete strength at 5000 psi in 033000 and 4000 psi on the site details). Please clarify. 5. A121 West side along column line 1 sections 2/A302 & 8/A121 are shown. 2/A302 then references 6/A121 which is incorrect as it is for a brick veneer condition. 8/A121 is also not correct as there are no columns along this wall. Please provide updated detail for this condition. 6. Detail 2/ASD101 shows a small section of aggregate that does not extend vertically to the subgrade above for the foundation drains. Wall sections on A300 and A301 all show the drainage aggregate extending vertically to the subgrade above. Which details are we following? This is especially critical at the high wall backfill as the quantity of stone will be significantly less if we follow 2/ASD101. 7. ASD101, Northwest corner, Note 5 states an existing 4" perf PVC	1. Provide rafter detail 6/A121 and see revised structural drawings. 2. Delete references to 337000 3. Temporary fencing locations and limits will be shown on the site logistics and phasing plans being prepared by PJ Dick. These plans will define the exact extents of fencing required for safety, security, and protection of work areas during construction. 4. Specification Section 32 1313 – Concrete Paving governs all exterior site concrete work. The compressive strength for exterior concrete is specified as 4,000 psi at 28 days. The value shown on Detail 213 is consistent with this specification and is the correct design strength to use for all site concrete sections. Section 033000 applies to building structural concrete, not exterior site concrete, and should not be used for this scope. 5. 6/A121 is correct edge condition. Similar edge profile shall be provided at both brick and metal panel exterior wall types. Metal pane manufacturers standard top trim shall be provided at soffit level to provide clean joint between metal panel siding and soffit material. 6. Drainage aggregate for foundation drains shall extend to sub-grade per the wall sections. 7. Note shall be revised to read "CONNECTION TO SITE STORMWATER LINE. REFER TO CIVIL DRAWING C400B." 8. Slab void by void form or equal. 9. C/S101 is correct and F/S200 may be voided.	DRAW, CEC, & KSS

		line. Please clarify where this existing line is coming from. Or is the intent to tie these foundation drains in the 8" storm line at this location? 8. 4/S300, can a void form product be specified? 9. Please clarify the requirements of the bearing of the footers. *C/S101 shows footers bearing on 2A extending to weathered rock/bedrock. *F/S200 shows lean concrete. 10. S000 Note 3.4 vs. Section 312000 Paragraph 3.19. Please clarify earthwork testing ownership responsibilities. 11. S000 Note 4.2 states all concrete to be 3000 psi except slab on deck at 4000. Section 033000 Paragraph 2.13C states slab on grade concrete to be 4000. Please clarify. 12. C/S200 shows an isolation joint between floor and CMU walls. Architectural sections show the vapor barrier being turned up and no expansion. Please advise which is to be followed. If expansion material is required, please confirm it will be caulked in exposed concrete areas. 13. Detail M/S200, are control cuts to be caulked in exposed floor areas? 14. Is MVRA required in the exposed hardened concrete? 15. A101, Note 3.1 Addendum 2 assigned the compressed air enclosure to the GC. Please provide information of what is required, details, etc. 16. Can contractor qualification statement be provided within 24 hours by low bidders only? 17. Drawing A603, Room Finish Schedule lists Stair S2. We are unable to locate the room. Please advise. 18. Detail 3/P001, is this detail accurate with regards to the ownership of the downspout boot and the 5'0" off the building by the PC since the GC owns the site storm?	*10. Answer Forthcoming* 11. Follow specification, with SOG concrete = 4,000 psi. 12. Isolation joint is not required. 13. Yes, provide caulk in exposed floor areas. 14. Areas scheduled for HRD-1 or HRD-2 can omit MVRA. 15. See specifications provided in Addendum #3 16. No 17. Stair S2 doesn't exist and that line should be removed from finish schedule. 18. Correct. PC owns the downspout boot and below grade storm piping within 5' of the building. GC owns gutters, downspouts, and site stormwater utility piping and final connection to building storm plumbing. GC also owns foundation drains. 19. The two black squares in the snow removal area represent the portable bus snow and ice brush removal system. Product details are included in attached revised site plan. 20. Yes, the curbs shown around the islands and sidewalks in the bus parking area on Sheet C200 are concrete curbs. 21. The sidewalks in the bus parking area are labeled to reference Detail 202 on Sheet C800, which is the South Fayette Township Sidewalk Detail. That detail calls for a concrete sidewalk with adjacent curb. Where curbs are shown directly adjoining both sides of the walk, as in the center islands. the curb and sidewalk are to be monolithic/integral in accordance with the "Typical Integral Curb and Sidewalk Detail" on Detail 203. 22. As this is a private site, underdrains are required only where specifically shown in plan view on the civil drawings. All other curbs and sidewalks, including those within the bus parking area, are to be constructed without underdrain in accordance with Detail 203 and the project-specific site details.	

		19. C200, there are 2 black squares in the snow melt area. Please advise what these are. 20. C200, Curbs for islands and sidewalks in the bus parking area, the printed pdf shows the curb as black. When zoomed in on the pdf there is a thin red line. Please confirm if this is a concrete curb. 21. C200, sidewalks in the bus parking area, if there are curbs on each side of the walk, which detail are we using? Are they monolithic or independent curb? 22. Detail 202/C800 shows a drain under all curbs and sidewalk edges. Detail 203/C800 does not show the drain. Are we only to include drains show in plan view? Please clarify. 23. Is the concrete outside of door 100/1 to be detail 213/C801? 24. C200 Does detail 215/C8010 apply where 213/C801 touches the building? 25. Which exterior concrete detail are we to use outside of door 211/1? And are these curbs monolithic or independent? 26. There is one housekeeping pad shown on the structural drawings. Will GC be responsible for all MEP housekeeping pads? 27. Please confirm that PennDOT 2A is required within the building footprint from subgrade down to weathered rock/bedrock. 28. In reference to my previous question, are bidders to assume the risk for the elevation of the rock? Or will a bidding elevation be provided and then field adjusted by unit cost? 29. 033000, Paragraph 2.12-B-8 Polished finish is not to have slag cement. Please confirm this does not apply to the hardened concrete. Without slag cement how do we counteract the ASR qualities of the large aggregate prevalent in our local area. 30. Addendum 2, Section 011200-4, Item B-19, Each contractor to furnish and install access panels.	23. The concrete immediately outside Door 100/1 is a frost slab, which is governed by the structural drawings for thickness, reinforcement, and frost protection. Beyond the limits of that frost slab, the exterior concrete transitions to the site concrete pavement per Detail 213/C801. Include the ½-inch expansion joint and haunch per Detail 215/C801 where the slab abuts the building. 24. Yes, Detail 215/C801 applies where the concrete pavement from Detail 213/C801 meets the building. At these locations, provide a ½-inch premolded expansion joint with sealant between the pavement and the building foundation. The haunch shown in Detail 215 is a thickened edge of concrete that extends approximately 8 inches below the slab along the face of the foundation wall. It provides added support where pavement loads occur close to the building, prevents edge settlement, and helps maintain a watertight joint by stabilizing the concrete along the building interface. 25. The concrete outside Door 211/1 should follow Detail 213/C801 – Concrete Pavement for the general exterior slab, with a frost slab provided immediately at the doorway per the structural drawings. At the building interface, include the ½-inch premolded expansion joint and haunch per Detail 215/C801. The adjacent curbs are monolithic with the sidewalk, consistent with the “Typical Integral Curb and Sidewalk Detail” in Detail 203/C800, and should be poured together with the adjoining concrete. *26. Answer Forthcoming* 27. Yes, that is correct. Within the building footprint, PennDOT 2A aggregate is required from the foundation subgrade down to weathered rock or bedrock in areas where native soils do not directly expose competent rock. As noted in the geotechnical report and plan notes, this material is to be placed	

		011200-9 C-14-E, Access Door and Frames are under GC scope of work. Please clarify. 31. Drawing C001, Layout General Note 11, is the GC to include providing any bollards beyond what are shown on the plans? 32. Door 100/1 Downspouts. C400B does not show the 4" or 8" lines to carry this water. ASD101 does show the 4" line for these downspouts but the routing is running through a frost wall. I do see the note on C400B that says "10 Typ" but I see 13 total for the project. Please consider the foundations at 100/1 when reviewing routing of the pipe. 33. Detail 410/C403 is the intention for finger drains to be installed at all 2x4 inlets only? Or the 4x4 also? C402 Inlet Assembly Note 9 states inlets to have weep holes. Please clarify what is required. 34. Detail 413/C403 shows a 12" pipe. Drawings C400B toe drains call out 4". Please clarify. 35. Detail 413/C403 shows that depth varies. I understand that it will need to slope and depth change in any flat areas but can a minimum depth be provided? 36. Drawing C400B, can the limits of SCM-2 detail 418/C403 be better defined? Is this on all slopes? Only fill slopes? Please advise. 37. Drawing C401, General PCSM Plan Notes #2 states contractor is responsible for costs associated with inspection and testing. 334100-6, Paragraph 3.09 states the owner will inspect. Please advise which is correct. 38. Drawing C401 Construction Sequence does not appear to be in sync with the updated project time lines per Addendum #1. 39. Drawing C400B, is it the intention to use C tops at all inlets at curb lines? Or will be use M tops against the curb? 422/C404 for 4x4 inlets only shows a flat top.	in overexcavated areas to establish a stable bearing stratum for shallow foundations and floor slabs. The 2A aggregate backfill serves as a structural replacement for unsuitable soils, ensuring uniform support and settlement control. Settlement monitoring is required after placement and prior to foundation and floor slab construction to confirm stability. 28. The base bid amount shall be determined by the contractors based on their own quantity takeoff using the civil plan set and geotechnical report. Section 01 2200 – Unit Prices states that unit prices apply in addition to the base bid amounts quantified by the contractor, meaning bidders are responsible for reviewing the bid material to determine the elevation to rock. Any additional excavation below determined levels to reach competent bearing material will be field-determined and paid under the applicable unit prices identified in the specification noted above. 29. No polished concrete in project. 30. All access panels shall be by GC. Coordinate locations with other Prime Contractors. 31. No, the General Contractor is only required to provide and install the bollards shown on the plans. General Note 11 is a standard reference directing protection of site features. It does not indicate additional bollards beyond those specifically depicted. Any added cost locations would be identified separately by the Owner if required during construction, as stated within the general note. 32. All downspouts, including those near Door 100/1, are intended to connect to the storm system per C400B exterior roof collection lines. Downspout piping should be routed to avoid conflict with frost walls, either sleeving through or dropping below as coordinated in the field. This applies similarly to all downspouts shown on the building	

		40. 417/C403, please confirm the anti seep collars are to be 81" x 81". 41. Are we to use Endwall Detail 407/C402 for the headwall (C400B structure #1) as well? 42. Detail 426/C404, please advise to the size of the 2B surrounding the underdrain pipe in the pond. 43. Detail 426/C404 - Forebay with Rock Check Dam Detail - Forebay area. Please advise to thickness of 2B required under Forebay. And is Geotextile required under that 2B? 44. Specification Section 329119, Paragraph 2.1A - Topsoil as specified in Section 310513. I am unable to locate this section. The main reason I would like to review this section is to know if screening of the onsite topsoil will be required for reuse, including for the SCM areas. 45. Please advise which detail we are to follow for storm sewer trenches. Detail 209/C800 or 501/C803. 46. Spec Section 084113 is not included in our manual. Please advise. 47. Drawing A603, Note 17 Stainless surrounds at Slop Sink. Are these by PC or GC? 48. Drawing A603, Note 13 states Flat Panel TV Wall mounted bracket shall be provided and installed. By who? If furnished by GC, please specify a bracket. A801 shows the displays of OFE-1a and 1c as owner furnished and contractor installed. Please clarify. 49. Specification Section 321313 2.04 A and 2.05H call for reinforcing with synthetic fiber. Details on C800 and C801 show wwf reinforcing. Please clarify what is required for sidewalks and for the concrete paving areas.	perimeter. There are a total of 13 downspouts. 33. Finger drains shown in Detail 410/C403 are installed through the weep holes of the inlets. All should have the 4" perforated HDPE pipes connected directly to the inlet weep holes, allowing subsurface drainage to enter the structure through those openings. This configuration applies to all inlets identified, not just specific sizes. 34. The toe drains shall consist of 4-inch perforated HDPE pipe, as specified on Sheet C400B. The total trench width, including AASHTO No. 57 stone, shall be 12 inches. 35. A minimum depth of 18 inches to invert should be provided for the toe drain below the adjacent finished grade at the slope toe. This ensures the perforated pipe is positioned deep enough to intercept any subsurface and surface seepage effectively while maintaining positive drainage to ultimately daylight. 36. Detail 418/C403 (SCM-2 – Soil Amendments-1) applies wherever shown by the dashed hatch pattern and associated callout on the plans. The hatch indicates the exact limits of soil amendment placement, which includes both cut and fill areas as noted. The hatch pattern will also be added to the legend for clarity. 37. Drawing C401, General PCSM Plan Note #2 assigns the contractor responsibility for the costs associated with inspection and testing. Specification Section 33 4100, Paragraph 3.09 states that the Owner or the Owner's representative will perform or oversee the inspections. Therefore, the Owner or their representative will perform the inspections, while the contractor is responsible for coordinating and paying for the costs of any required inspection and testing services. 38. The construction sequence shown on Drawing C401 was developed prior to the revisions issued in	

			Addendum #1 and therefore reflects the original project timeline. The sequence will be updated to concur with the current phasing and schedule provided in Addendum #1, and the contractor should follow the updated project milestones and durations as the governing schedule as identified in Addendum #1. 39. In locations with asphalt wedge curb, inlets shall be provided with M-tops (grate-only) rather than C-tops. C-tops are used only with full height vertical concrete curbs that include an integral curb opening. This is consistent with PennDOT Standards for Roadway Construction (RC-45M and Publication 72M), which specify that M-tops are to be used for wedge curb, shoulder, or flush pavement conditions. Refer to the standard PennDOT inlet assembly notes on Drawing C402. 40. Yes, that is correct. The anti-seep collars shown on Detail 417/C403 are to be a minimum 81 inches by 81 inches, as listed in the table. 41. For the culvert run identified on Sheet C400B, the detail for the culvert is Detail 419/C403, which specifies the 24-inch Oldcastle concrete inverted base split culvert (or equivalent). The structures labeled “Headwall (1)” and “Endwall (2)” at each end of that culvert are to be constructed as cast-in-place concrete headwall and endwall. These cast-in-place connections will need to be coordinated with Oldcastle so that the connection geometry match the requirements of the culvert section in Detail 419/C403. Detail 407/C402 may be used as a general headwall/endwall reference, but the final headwall and endwall dimensions and configuration at both ends of the culvert will be based on the Oldcastle manufacturer’s shop drawings. 42. The material surrounding the underdrain in Detail 426/C404 shall be AASHTO No. 57 crushed aggregate per General Note 7 and follow PennDOT Publication 408	

			Section 703. This is equivalent in gradation to 2B stone, with a typical particle size range of approximately 1 inch to ⅛ inch. 43. The PennDOT No. 57 (2B) stone extends from the underside of the Shoreblock SD-475-OC armor (approximately El. 1124.5) down to the underdrain invert at El. 1121. The resulting stone thickness is approximately 3.5 feet. Non-woven geotextile is required beneath the Shoreblock armor to prevent soil migration, consistent with Detail 426. 44. Topsoil Specification will be added to the Project Manual by addendum under Section 32 9119 – Landscape Grading. Pending issuance of the addendum, onsite topsoil intended for reuse shall be single screened to remove debris and stones. The screened topsoil shall be free of rocks, roots, and other deleterious materials and shall be suitable for establishing vegetation. These requirements apply to all areas of topsoil reuse, including within SCM areas. 45. Follow Detail 501/C803 for all on-site storm sewer trench installations. Detail 209/C800 applies only to Township right-of-way work. Bedding, backfill, and compaction shall conform to Detail 501/C803 and its associated tables. 46. Spec attached to this addendum. 47. Stainless Steel Surrounds at slop sinks are by GC. 48. OFE-1a AND OFE-1c notes have been modified to read that the TV and associated brackets will be furnished by Owner, installed by Contractor. Associated wall blocking will be by contractor. 49. Specification Section 32 1313, Paragraph 2.05H, provides the physical material specification for micro synthetic fiber reinforcement where used, but does not note the requirement for its use. Detail 213 on Sheet C801 includes a note stating that “in lieu of steel reinforcement, fibermesh reinforced	

			concrete may be utilized." Steel reinforcement is most typical. However, substitution with macro synthetic fibermesh reinforcement in lieu of welded wire fabric can be considered acceptable as an alternate.	
GC17	Franjo	Civil drawing C-400B calls out for SCM-2(Soil Amendments-1) plan north of the new parking lot along the slope down towards the retention pond. What are the limits for these soil amendments? The hatched area is not labeled and we believe the hatched area is in reference to where erosion control blankets are installed. Do the SCM-2 soil amendments also follow the limits of this hatched area? Are these amendments only at a depth of 6"?	Detail 418/C403 (SCM-2 – Soil Amendment Installation) applies wherever the dashed hatch pattern and callout SCM-2 (Soil Amendments-1) are shown on the plans. The hatch pattern defines the full limits of soil amendment placement. These amendments are entirely separate from the areas requiring erosion control blanketing (ECB). ECB is shown on the E&S plans as a separate solid hatch pattern. Per the construction sequence, ECBs are required only on slopes of 3H:1V or steeper for temporary stabilization, whereas the SCM-2 soil amendments are a permanent post-construction soil restoration measure. Per Detail 418/C403, soil amendments shall be tilled to a minimum depth of 6 inches. In areas where rock harder than shale is encountered, the amended soil depth shall be increased to 12 inches, as noted directly on the detail. The hatch pattern, in addition to the current labels shown in plan for soil amendments, will be added to the legend prior to issuance of the conformed construction set for clarity.	CEC
GC18	VendRick	Concerning the synthetic stucco ceilings, the specifications call for a prefinished color and on drawing A701, Reflected Ceiling Plans, it calls for it to be painted. (Note 1.1) Which one?	Provide acrylic finish coat specified in 072423, matching color PNT-2a scheduled on A603.	DRAW
GC19	VendRick	Concerning the CMU walls in Wash Bay 119, on the finish schedule, A603, on the comments is refers to "seal block with penetrating liquid treatment." I could not find any reference to any sealer on the drawings or the specifications. Please specify a product for this location.	Provide clear, ready-to-use, water based silane/siloxane blend with 400 grams/liter or less of VOCs; 10 year service life. Acceptable Products: • Sure Klean Weather Seal Siloxane PD by PROSOCO • 300-C Water-based Siloxane by Diedrich Technologies.	DRAW

			• Chemstop WB HD by Euclid Chemical. L&M Hydropel WB by Laticrete	
GC20	VendRick	321216 - Please clarify the paving specification. Sheet C403 - Detail 415 Permanent Access Road Sheet C800 - Detail 201 Road Paving Detail Sheet C801 - Detail 212 Asphalt Pavement Sections There are 3 different details on the drawings, the only one that shows heavy/light duty is the detail on page C801	Paving for the project shall follow Detail 212 on Sheet C801, which depicts both the heavy-duty and light-duty asphalt sections. These pavement types are clearly labeled on the plans, with Sheet C200 showing the limits of heavy-duty asphalt in the bus and drive aisles and light-duty asphalt in the car parking and front access area. Sheet C400B identifies the permanent access road stone section to Bio-Retention Rain Garden-1, which shall follow Detail 415 on Sheet C403 for the maintenance access section. Detail 201 on Sheet C800 was added at the request of South Fayette Township to illustrate their standard public roadway section with underdrain for reference purposes only in case repairs during construction are needed. It does not apply to any private or internal site pavements. All applicable paving details are already clearly identified on Sheets C200 and C400B with callouts.	CEC
GC21	R.A. Glancy	Would the GC or PC own the gas line from the building to the generator?	PC would own plumbing as shown in details 9/P001 and 14/P001. GC shall own all site gas plumbing between building and generator as shown in C500B Utility Plan.	DRAW
GC22	R.A. Glancy	Is a master plumber needed to install the storm piping system?	No, a master plumber is not required to install storm sewer piping.	DRAW
PC01	Wheels Mechanical	Just for confirmation, the sanitary pipe on drawing C500A, from existing manhole (9) to the new building outlet is being installed by the PC, correct?	Site sanitary utility work shall be the responsibility of the GC, from the connection points indicated on plumbing drawing 1/P100 to manhole indicated on Civil drawings. Refer to attached revised SECTION 01 1200 - MULTIPLE CONTRACT SUMMARY for further clarifications.	CEC
PC02	Wheels Mechanical	Will the owners be paying for the tap fees for the new water, gas, and sanitary connections? If not, does the design team have an idea of the known costs of these tap fees per utility? Calling the utility company is of no use for these costs.	Payment of all utility tap, connection, and capacity fees shall be by the Owner. The Contractor shall coordinate with the applicable utility companies to verify the physical extent of required taps and provide all associated documentation, including any referenced fee schedules, to the Owner for processing and payment to the utility provider. The Contractor shall not include such fees in the bid. The Contractor shall include	CEC

			within the scope of work all physical installation labor up to and including the utility point of connection, as indicated and noted on the Contract Drawings. See below revision to specification SECTION 22 0500 – GENERAL PROVISIONS AND COMMON WORK RESULTS FOR PLUMBING for this clarification.	
PC03	Newman Plumbing	221513-2-1.05 Quality assurance. This spec is for medical gas testing, not industrial air. Please advise		Tower
PC04	Newman Plumbing	221513: Compressed air piping Part 2 products call for type K copper & the valves are cleaned ,purged, and bagged according to CGA G-4.1. My question is can this piping and valve schedule be changed? The cost of this material is very high. Are other piping systems acceptable? IE aluminum or steel?		Tower
PC05	Newman Plumbing	Dwg S.200: Detail shows the typical procedure for trench drains installed in new floor pours by GC at the time of whole floor pour. Note on P001 detail 12 states PC responsible for concrete encastment. This conflicts with S200 and is not typical for new floor pours. Will note on P001 be removed?		Tower
PC06	Newman Plumbing	221519-2-1.05B: Delegated design are engineer designed and stamped submittals required or are manufactured recommended anchors/supports acceptable?		Tower
HC01	LMI	Can Siemens price this project as an extension of the current district wide Desigo CC solution in lieu of their Niagara SLX-8000 solution?	Yes, this is acceptable.	Tower
HC02	LMI	230993 - 3.08; 235523.13: Per equipment specification and sequence of operation, GIH heaters require manufacturers included controls, for require the unit to either include a BACnet or Modbus connection ability, or specified to be controlled by 3rd party install by BAS contractor. This is mentioned as a touchscreen wifi capable thermostat, with a list of points to be displayed on this touchscreen. These points area also listed in the BAS sequence of operation as requiring them to be shown through the BAS. The		Tower

		specifications do not allow for the points to be viewable to the BAS. This would DDC unitary controls. Please clarify.		
HC03	LMI	230900 - 1.03 3.D: Specification reads "Provide all cabling, terminations, and patch panels associated with equipment requiring IP connections to the districts IT network" Will the district be providing network switches for use by the BAS system?		Tower
EC01	Bronder Technical Services	265600 - What is the height of the site lighting poles (Types S01, 02, 03 & 04)? E003/10 - The detail for the site lighting pole base calls out both 36" and 24" diameter for the pole bases. Please confirm the diameter for the pole foundations.		Tower
EC02	Sargent	1. Both in the specifications and at the pre-bid, it is mentioned that this is an OCIP project. Can you please provide any paperwork that is required to be filled out and turned in with the bid? 2. Can you provide a Bid Bond Form? The form in the project manual is labeled as sample only.	1. Nothing additional is required with the bid, but bidders are reminded that each bidder certifies, by submitting a bid, that it has excluded all insurance costs from the Base Bid, Alternates and Unit Prices with respect to those insurance coverages that will be provided under the OCIP as set forth in the Contract Documents. 2. AIA A310 is an acceptable form. Sample is given for convenience, but since it's a copyright protected consumable document, we are not entitled to publish a blank form. It is available from the AIA, or possibly from the surety.	DRAW
EC03	Sargent	1. This spec sections requires the EC to provided a temporary dedicated 120V circuit for each piece of temp heating / colling equipment. Can you provide the quanities of temporary heaters / coolers? 2. This detail calls for concrete encasement under roadways only. Does the entire primary power / telephone duct bank need to be concrete encased? 3. Does the utility transformer require bollards and fencing?	1. No, the design does not estimate quantities of temporary equipment. After the contract award, the locations and quantities of temporary equipment will be determined by the GC, coordinating with the CM, prior to permanent enclosure; and by the HC after permanent enclosure." 2. Concrete encasement is only required where the conduit is routed under roadways. 3. Yes, bollards are required as shown on the civil drawings.	Tower

CHANGES TO PRIOR ADDENDA

N/A

CHANGES TO THE BIDDING DOCUMENTS

N/A

CHANGES TO PROJECT MANUAL

Item 4.G01: 08 4113 Aluminum Framed Entrances and Storefronts

Entire specification section re-issued.

Item 4.G02: 329119 - Landscape Grading

Entire specification section re-issued with information related to topsoils.

Item 4.P01 SECTION 221513 GENERAL SERVICE COMPRESSED AIR PIPING

Replace entire section with attached

Remove Sub-Section 1.05 A. & B.
Remove Sub-Section 2.03 A. entirely.
Remove Sub-Section 3.13 B. entirely.
Revise Sub-Section 3.15 A. to read as follows:

Engage factory-authorized service representative to train Client Agency's maintenance personnel to adjust, operate, and maintain compressed-air alarm systems. Refer to Division 01 Section "Demonstration and Training."

Item 4.E01 SECTION 274115 AUDIOVISUAL SYSTEM

Replace entire section with attached
ADD and REMOVE products from Sub-Section 2.04.A.2 as shown in revised section.

Item 4.E02 SECTION 282300 VIDEO SURVELILLANCE SYSTEM (VSS)

ADD Section 2.03.B.4.d as follow:
d. IR Ring: H4AMH-AD-IRIL1

Item 4.E03 SECTION 26 3600 TRANSFER SWITCHES

REMOVE all references to bypass-isolation (BPS).

The specification sections listed below are attached to and part of this addendum. They replace previously issued specifications in the Contract Documents. Where they had not been previously issued, they are now added to the Contract Documents. The descriptive information is informational only and is not intended to further modify the Contract Documents.

CHANGES TO DRAWINGS

Item 4.G03: C200

Entire drawing sheet re-issued. Added note for portable snow scraper

Item 4.G04: C400B

Entire drawing sheet re-issued. Clarified number of downspouts, soil amendment hatching legend note, headwall/endwall culvert clarification.

Item 4.G05: C401

Entire drawing sheet re-issued. Updated project schedule to match specs

Item 4.G06: C403

Entire drawing sheet re-issued. Clarified toe drain size

Item 4.G07: C404

Entire drawing sheet re-issued. Clarified depth of stone beneath forebay armor.

Item 4.G08: C905

Entire drawing sheet re-issued. Same as C401, updated project schedule to match specs

Item 4.G09: S000

Entire drawing sheet re-issued to clarify CIPC notes.

Item 4.G10: S102

Entire drawing sheet re-issued to clarify wall section along north wall.

Item 4.G11: S200

Entire drawing sheet re-issued to void overexcavation detail F/S200.

Item 4.G12: S301

Entire drawing sheet re-issued to clarify rafter detail 11/S301.

Item 4.G13: ASD-101-SUBDRAINAGE PLAN

Entire drawing sheet re-issued to clarify subdrainage keynote #5.

Item 4.G14: A002-INTERIOR PARTITION TYPES

Entire drawing sheet re-issued to clarify partition types H2 and H2b.

Item 4.G15: A101-FLOOR PLANS

Entire drawing sheet re-issued to add pipe bollard notes and to clarify details of upper level entrance canopy.

Item 4.G16: A121-ROOF PLAN AND ROOF DETAILS

Entire drawing sheet re-issued to clarify roof edge detail at west gable.

Item 4.G17: A201-EXTERIOR ELEVATIONS

Entire drawing sheet re-issued to clarify exterior keynotes.

Item 4.G18: A301-WALL SECTIONS

Entire drawing sheet re-issued to clarify height of H2 wall type at exterior walls.

Item 4.G19: A601-DOOR FRAME TYPES & FRAME DETAILS

Entire drawing sheet re-issued to clarify aluminum frames at FRP door types.

Item 4.G20: A801-INTERIOR LAYOUT PLANS

Entire drawing sheet re-issued to clarify that wall brackets for wall-mounted TVs are to be Owner-furnished, contractor-installed.

Item 4.P02: DRAWING P001 DETAILS- PLUMBING

REVISE Schematic 12/P001 note to read as follows:

Plumbing contractor shall refer to detail on S200 Detail K for trench drain at slab. Refer to Architectural drawings for floor slopes.

Item 4.P03: DRAWING P101 FOUNDATION PLAN- PLUMBING

ADD Note to 8" waterline entering the building near column line C/4 to read as follows:

Refer to site utilities for final connection by others.

Item 4.E04: DRAWING E002 ELECTRICAL SITE PLAN

Entire Sheet re-issued

ADD receptacle referencing Coded Note No. 39 at northwest corner of site.

ADD Coded Note No. 39 as follows: PROVIDE BOLLARD WITH INTEGRAL DUPLEX, GFCI, WEATHER RESISTANT RECEPTACLE, ARLINGTON GARD-N-POST GPBK28B OR EQUAL. ROUTE 2-#8 AND 1-#10 GROUND IN 1" CONDUIT TO DESIGNATED PANEL.

Item 4.E05: DRAWING E003 ELECTRICAL SITE DETAILS

Entire Sheet re-issued

CHANGE reference to 'OR EQUAL' in Coded Note No. 1 in Detail 12 to be 'OR EQUAL BY TALON METERING (MODEL NO. TL-7) OR EATON'.

Item 4.E06: DRAWING E101 LIGHTING PLANS

Entire Sheet re-issued

ADD GENERAL NOTE D. as follows 'ALL EXPOSED CONDUIT IN WASH BAY 118 TO BE SUITABLE FOR WET LOCATIONS AND FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE (SCHEDULE 80 PVC, LIQUIDTIGHT FLEXIBLE METAL CONDUIT, ETC.).'

ADD three dimming relay packs and one emergency relay pack to control zones 'a' through 'd' in Wash Bay 118. Locate relay packs in Bay 119.

CHANGE four switches designated as 'a', 'b', 'c' and 'd' in Wash Bay 118 to be three low voltage switches designated as 'LV2'. Typical of two locations. Lighting in Wash Bay 118 to be controlled through these low voltages switches and also programmed to turn off at the end of the day through the lighting controller.

Item 4.E07: DRAWING E102 LIGHTING DETAILS & SCHEDULES

Entire Sheet re-issued

CHANGE the following information associated with fixture type G01 and G02:

- REPCO II – HE WILLIAMS AP ARCHITECTURAL CURVED PANEL
- LAFACE & MCGOVERN – LITHONIA ENVX
- ARCHITECTURAL LIGHTING SALES – CORELITE INDEPTH CNC CURVE REGRESS

ADD the following to MOUNTING for fixture types S01, S02, & S03: - 22' STRAIGHT ROUND ALUMINUM.

ADD the following to MOUNTING for fixture type S04: - 27' STRAIGHT ROUND ALUMINUM.

REMOVE 'PROVIDE FIXTURE WITH EMBEDDED LIGHTING CONTROLS (OCCUPANCY SENSOR AND ONBOARD CONTROLS TO DIM LIGHTS TO FIELD-SELECTABLE LOW LEVEL WHEN UNOCCUPIED).' from GENERAL DESCRIPTION for fixture type G07.

Item 4.E08: DRAWING E201 POWER, FIRE ALARM, AV & DATA PLANS

Entire Sheet re-issued

ADD GENERAL NOTE G. as follows 'ALL EXPOSED CONDUIT IN WASH BAY 118 TO BE SUITABLE FOR WET LOCATIONS AND FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE (SCHEDULE 80 PVC, LIQUIDTIGHT FLEXIBLE METAL CONDUIT, ETC.).'

Item 4.E09: DRAWING E202 PAGING, SECURITY & CELLULAR ANTENNA PLANS

Entire Sheet re-issued

ADD GENERAL NOTE D. as follows 'ALL EXPOSED CONDUIT IN WASH BAY 118 TO BE SUITABLE FOR WET LOCATIONS AND FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE (SCHEDULE 80 PVC, LIQUIDTIGHT FLEXIBLE METAL CONDUIT, ETC.).'

Item 4.E10: DRAWING E203 POWER DISTRIBUTION DETAILS & SCHEDULES

Entire Sheet re-issued

CHANGE 'AUTOMATIC TRANSFER SWITCH' in Coded Notes No. 2 and No. 3 (Single-Line Diagram) to be 'OPEN/DELAYED TRANSITION AUTOMATIC TRANSFER SWITCH'.

Item 4.E11: DRAWING E205 PAGING $ AV DETAILS & SCHEDULES

Entire Sheet re-issued

CHANGE 'BLUETOOTH RECEIVER/WALLPLATE' in device AV.A4 in AV Diagram to be 'WIRELESS ACCESS POINT'.

CHANGE Air Media Receiver AM-3200 WF to Air Media Receiver AM-3200 in Gathering Room AV Diagram.

Item 4.E12: DRAWING E206 SECURITY & CELLULAR ANTENNA SYSTEM DETAILS & SCHEDULES

Entire Sheet re-issued

ADD the following to DESCRIPTION for all Multi-sensors in the CAMERA LOCATION SCHEDULE: WITH IR RING, WALL MOUNT, AND CORNER MOUNT.

SUPPLEMENTAL INFORMATION

N/A

END OF ADDENDUM 4

SECTION 08 4113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior manual-swing entrance doors and door frame units.
2. Project-out venting windows.

B. Related Sections:

1. Section 07 9213 "Elastomeric Joint Sealants" for installation of joint sealants installed with glazed aluminum curtain walls and for sealants to the extent not specified in this Section.
2. Section 08 8000 "Glazing" for glazing requirements to the extent not specified in this Section.

1.2 SOURCE COORDINATION

A. The manufacturer of the aluminum-framed entrances and storefronts must also be the manufacturer of the glazed aluminum curtain wall.

B. Coordinate aluminum finishes provided under this Section and Section 08 5113.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1. Include construction details, material descriptions, product test reports dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.

1. Include identification of color coating systems in dual-finish glazing assemblies. Locate operable units on Shop Drawings.
2. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
3. Include hardware reinforcement locations and factory preparation for hardware specified elsewhere in Project Manual.

C. Samples for Verifications: For each type of exposed finish required.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Warranties: Sample of special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data, to include in Maintenance Manuals.

B. Executed Warranties.

1.6 QUALITY ASSURANCE

A. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

B. Installer Qualifications: Capable of performing Work of this Section and who is acceptable to manufacturer.

C. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

D. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Provide system with materials, components, and assemblies matching curtainwall construction in existing building in appearance, quality, performance, and maintenance, to the satisfaction of Architect.
2. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

E. Pre-installation Conference: Conduct conference at Project site. Review methods and procedures related to glazed aluminum curtain-wall systems including, but not limited to, the following:

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Discuss and confirm compatibility in appearance, performance, maintenance, and finish with existing curtainwall and sunshade products in existing Intermediate School building.
3. Coordinate aluminum finishes with products of this Section and Section 08 5113 “Aluminum Windows”

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating aluminum-framed systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 WARRANTY

A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Noise or vibration caused by thermal movements.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
d. Water leakage through fixed glazing and framing areas.
e. Failure of operating components to function properly.

2. Warranty Period: Five years from date of Substantial Completion.

B. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Warranty Period:

a. Organic Color Finish: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:

1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:

a. Deflection exceeding specified limits.
b. Thermal stresses transferring to building structure.
c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
d. Noise or vibration created by wind and by thermal and structural movements.
e. Loosening or weakening of fasteners, attachments, and other components.
f. Sealant failure.
g. Failure of operating units to function properly.

B. Storefront Design: Design aluminum-framed systems using performance requirements and design criteria indicated.

C. Structural Loads – Design in compliance with prevailing building code, using required basic wind speeds, importance factor and exposure category, with the following minimum requirements:

1. Wind Loads: As indicated on Drawings.

D. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to L/360 of clear span or 1/8 inch, whichever is smaller.

E. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity but not less than 10 seconds.

F. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

G. Water Penetration Under Static Pressure: No evidence of water penetration when tested per ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft..

H. Energy Performance: Exterior glazed storefront system shall have certified and labeled energy performance ratings in accordance with NFRC.

1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.37 Btu/sq. ft. x h x deg F as determined according to NFRC 100 when tested with a glass make-up with a COG of 0.29.

   a. Insulating Entrance Doors: Min. U-0.6
   b. Project-out Windows: Whole window U-factor of not more than 0.46.

2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 at west facing glass as determined according to NFRC 200.

   a. Insulating Entrance Doors: Max. SHGC-0.40
   b. Project-out Windows: Max SHGC-0.40

3. Air Infiltration: Maximum air leakage through fixed glazing and framing areas of 0.10 cfm/sq. ft. of fixed wall area as determined according to ASTM E 283 at a minimum static-air-pressure differential of 6.24 lbf/sq. ft., equivalent to a 50 mile per hour wind.

   a. Insulating Entrance Doors: Max 1.0 cmf/sq.ft.
   b. Project-out Windows: Max 0.1 cmf/sq.ft.

4. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC- certified condensation resistance rating of no less than 74 as determined according to NFRC 500.

   a. Insulating Entrance Doors: Not less than 49 frame and 68 glass
   b. Project-out Windows: Not less than 70

2.2 MANUFACTURERS – STOREFRONT SYSTEM

A. **Basis-of-Design Product**: Subject to compliance with requirements, provide **Apogee Architectural Metals; EFCO Xtherm Series 403X (T) storefront (exterior locations),** or comparable products, meeting all performance requirements, by one of the following:

1. Kawneer North America
2. Oldcastle Building Envelope
3. Tubelite, an Apogee Industries company
4. YKK AP

B. Dimensions

1. Sightline: 2 inches (exterior).
2. Frame Depth: 4-1/2 inches.

2.3 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209.
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.
5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Thermally broken with dual thermal breaks.
2. Glazing System: Retained mechanically with gaskets on four sides.
3. Glazing Plane: Front (exterior), Centered (interior, u.n.o.)
4. Thermally broken sill flashing.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
2. Reinforce members as required to receive fastener threads.
3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.

D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.

E. Concealed Flashing: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding flashing compatible with adjacent materials.

F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.

1. Sealants used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

G. Assemble storefront windows in patterns shown on Drawings.

2.5 GLAZING SYSTEMS

A. Glazing: As specified in Section 08 8000 "Glazing."

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

2.6 ENTRANCE DOOR SYSTEMS

A. Entrance Door: Subject to compliance with requirements, provide one of the following:

1. Basis of Design: **EFCO LLC**, an Apogee Industries company; **Series D502 (TS) Wide Stile** swing door,
2. Kawneer North America: 500T InsulPour Thermal Entrances
3. Oldcastle Building Envelope; WS-500TC
4. Tubelite, and Apogee Industries company; Therml-Block Wide Stile
5. YKK AP 50T Thermal Wide Stile

B. Door Construction: 5” head sightline, 2 to 2-1/4-inch overall thickness, with minimum 0.1875-inch-thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded.

C. Door Design: Wide stile; 5 -inch nominal width.

1. Sill Sightline: Smooth surfaced for width of door in area within 10 inches above floor or ground plane.
2. Glazing Stops and Gaskets: Manufacturer’s standard.

a. Provide nonremovable glazing stops on outside of door.

D. Entrance Door Hardware:

1. Provide manufacturer’s standard full height mid-rail recessed pull.
2. Weather Stripping: Manufacturer's standard replaceable components.

a. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
b. Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

3. Balance of hardware as specified in Section 08 7100 “Door Hardware”
4. Exit devices specified in Division 08 shall be factory-installed by door manufacturer.

2.7 VENTING WINDOWS

1. Manufacturer's standard units, complying with AAMA/WDMA/CSA 101/I.S.2/A440, with self-flashing mounting fins, and as follows:

    a. Basis of Design: EFCO 875X
    b. Window Type: Fixed and Project-out Awning.
    c. Minimum Performance Class and Grade: AW-PG80.
    d. Hardware: Manufacturer's standard; of aluminum, stainless steel, carbon steel, or bronze; complying with AAMA 907, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows and sized to accommodate sash or ventilator weight and dimensions. Cadmium-plated hardware is not permitted. Do not use aluminum in frictional contact with other metals. Where exposed, provide extruded, cast, or wrought aluminum, solid white bronze, die-cast zinc with special coating finish or nonmagnetic stainless steel.

        1) Cam handle locking system with US25D brushed finish.
        2) Friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.
        3) Stainless steel operating arms.
        4) Limit Devices: Concealed friction adjustor and adjustable stay bar limit devices designed to restrict sash opening.
            a) Limit clear opening to 4 inches for ventilation; with custodial key release.

    e. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.
    f. Insect Screens: Provide removable insect screen on each operable exterior sash, with screen frame finished to match window unit, complying with SMA 1004 or SMA 1201, and as follows:

        1) Aluminum Wire Fabric: 18-by-16, mesh of 0.013-inch-diameter, coated aluminum wire.

    g. Glazing: As scheduled.

2.8 ACCESSORY MATERIALS

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section "Elastomeric Joint Sealants."

B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil thickness per coat.

2.9 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing from exterior.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

1. At exterior doors, provide compression weather stripping at fixed stops.
2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.

E. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

1. At pairs of exterior doors, provide sliding weather stripping retained in adjustable strip mortised into door edge.

F. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.10 ALUMINUM FINISHES

A. High-Performance Organic Finish: As required per 08 4413 “Glazed Aluminum Curtain Walls” for dual-finish frame.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Section 07 9200 "Joint Sealants" to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

F. Install glazing as specified in Section 08 8000 "Glazing."

G. Entrance Doors: Install doors in storefront framing to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

H. Install perimeter joint sealants as specified in Division 07 Section "Elastomeric Joint Sealants" and to produce weathertight installation.

3.3 ERECTION TOLERANCES

A. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
2. Alignment:

a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.

3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8 inch.

3.4 ADJUSTING

A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.

3.5 PROTECTION AND CLEANING

A. Protect the glass, aluminum materials and finishes, and other exposed components, against damage from construction activities and harmful substances. Remove protective coatings and clean the aluminum surfaces as recommended for the type of finish applied.

1. Monitor component surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact curtainwall surfaces, remove contaminants immediately according to manufacturer's written recommendations.

B. Clean aluminum surfaces immediately after installing. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

C. Clean glass immediately after installing. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove non-permanent labels and clean surfaces.

D. Touch-up, repair or replace damaged products before Substantial Completion

E. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period

END OF SECTION 08 4113

SECTION 22 1513 - GENERAL SERVICE COMPRESSED AIR 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. Where the word “Contractor”, occurs, it shall mean any or all Prime Contractors as applicable.

1.2 SUMMARY

A. This Section includes piping and related specialties for general service compressed air systems operating at 200 psig or less.

B. Related Sections include the following:

1. Division 22 Section 22 1519 "General Service Packaged Air Compressors and Receivers" for general service air compressors and accessories.

1.3 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. CR: Chlorosulfonated polyethylene synthetic rubber.

C. EPDM: Ethylene-propylene-diene terpolymer rubber.

D. HDPE: High-density polyethylene plastic.

E. NBR: Acrylonitrile-butadiene rubber.

F. PE: Polyethylene plastic.

G. PVC: Polyvinyl chloride plastic.

H. High-Pressure Compressed air Piping: System of compressed air piping and specialties operating at pressures between 150 and 200 psig.

1.4 SUBMITTALS

A. Product data for the following:

1. Plastic pipes, fittings, and valves.
2. Dielectric fittings.
3. Flexible pipe connectors.
4. Safety valves.

5. Pressure regulators. Include rated capacities and operating characteristics.
6. Automatic drain valves.
7. Filters. Include rated capacities and operating characteristics.
8. Lubricators. Include rated capacities and operating characteristics.
9. Quick couplings.
10. Hose assemblies.

B. Brazing and Welding certificates.

C. Qualification Data: For Installers.

D. Field quality control test reports.

E. Operation and Maintenance Data: For general-service compressed air piping specialties to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Brazing: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications," or to AWS B2.2, "Standard for Brazing Procedure and Performance Qualification."

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.

C. ASME Compliance

1. Comply with ASME B31.1, "Power Piping," for high-pressure compressed air piping.
2. Comply with ASME B31.9, "Building Services Piping," for low-pressure compressed air piping.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. Schedule 40, Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B, black or hot-dip zinc coated with ends threaded according to ASME B1.20.1.

1. Steel Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, galvanized seamless steel pipe. Include ends matching joining method.
2. Malleable-Iron Fittings: ASME B16.3, Class 150 or 300, threaded.
3. Malleable-Iron Unions: ASME B16.39, Class 150 or 300, threaded.
4. Steel Flanges: ASME B16.5, Class 150 or 300, carbon steel, threaded.
5. Wrought-Steel Butt-Welding Fittings: ASME B16.9, Schedule 40.
6. Steel Flanges: ASME B16.5, Class 150 or 300, carbon steel.
7. Grooved-End Fittings and Couplings:

a. 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:
b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Anvil International, Inc.
2) Star Pipe Products; Star Fittings Division
3) Victaulic Company.
4) Ward Manufacturing, Inc.

c. Couplings: AWWA C606 or UL 213, for steel-pipe dimensions and rated for 300-psig minimum working pressure. Include ferrous housing sections, gasket suitable for compressed air, and bolts and nuts. Provide EDPM gaskets for oil-free compressed air. Provide NBR gaskets if compressed air contains oil or oil vapor.

B. Copper Tube: ASTM B 88, Type K or L and ASTM B 88, Type M seamless, drawn-temper, water tube.

1. Wrought-Copper Fittings: ASME B16.22, solder-joint pressure type or MSS SP-73, wrought copper with dimensions for brazed joints.
2. Cast-Copper-Alloy Flanges: ASME B16.24, Class 150 or 300.
3. Copper Unions: ASME B16.22 or MSS SP-123.

C. Transition Couplings for Metal Piping: Metal coupling or other manufactured fitting same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.2 JOINING MATERIALS

A. Pipe-Flange Gasket Materials: Suitable for compressed air piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

a. Full-Face Type: For flat-face, Class 125, cast iron and cast-bronze flanges.

b. Narrow-Face Type: For raised-face, Class 250, cast iron and steel flanges.

B. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated.

E. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.3 VALVES

A. Metal Ball, Butterfly, Check, Gate, and Globe Valves: Comply with requirements in Division 22 Section 22 0523 "General-Duty Valves for Plumbing Piping."

2.4 DIELECTRIC FITTINGS

A. General Requirements for Dielectric Fittings: Combination fitting of copper alloy and ferrous materials with insulating material; suitable for system fluid, pressure, and temperature. Include threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Dielectric Unions: Factory fabricated union assembly, for 250-psig minimum working pressure at 180°F.

1. Manufacturers - subject to compliance with requirements, provide products by one of the following:

a. Capitol Manufacturing Company
b. Central Plastics Company
c. EPCO Sales, Inc.
d. Hart Industries International, Inc.
e. Watts Water Technologies, Inc.; Water Products Division
f. Zurn Plumbing Products Group; Wilkins Division

C. Dielectric Flanges: Factory fabricated companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

1. Manufacturers - subject to compliance with requirements, provide products by one of the following:

a. Capitol Manufacturing Company
b. Central Plastics Company
c. EPCO Sales, Inc.
d. Watts Water Technologies, Inc.; Water Products Division

D. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

1. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.
2. Manufacturers - subject to compliance with requirements, provide products by one of the following:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Central Plastics Company.
d. Pipeline Seal and Insulator, Inc.

2.5 FLEXIBLE PIPE CONNECTORS

A. Manufacturers - subject to compliance with requirements, provide products by one of the following:

1. Flex-Hose Co., Inc.
2. Flexicraft Industries.
3. Hyspan Precision Products, Inc.
4. Mercer Rubber Company
5. Metraflex, Inc.
6. Proco Products, Inc.
7. Unaflex, Inc.
8. Universal Metal Hose; a Hyspan Company

B. Bronze-Hose Flexible Pipe Connectors: Corrugated-bronze tubing with bronze wire-braid covering and ends brazed to inner tubing.

1. Working-Pressure Rating: 200 psig minimum.
2. End Connections, NPS 2 (DN 50) and Smaller: Threaded copper pipe or plain-end copper tube.
3. End Connections, NPS 2-1/2 (DN 65) and Larger: Flanged copper alloy.

C. Stainless Steel Hose Flexible Pipe Connectors: Corrugated-stainless steel tubing with stainless steel wire-braid covering and ends welded to inner tubing.

1. Working-Pressure Rating: 200 psig minimum.
2. End Connections, NPS 2 (DN 50) and Smaller: Threaded steel pipe nipple.
3. End Connections, NPS 2-1/2 (DN 65) and Larger: Flanged steel nipple.

2.6 SLEEVES

A. Galvanized Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

B. Stack Sleeve Fittings: Manufactured, cast iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

2.7 ESCUTCHEONS

A. General Requirements: Manufactured wall and ceiling escutcheons and floor plates, with ID to closely fit around pipe and tube and OD that completely covers opening.

B. One-Piece, Deep-Pattern Escutcheons: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. One-Piece, Cast-Brass Escutcheons: With set screw.

1. Finish: Polished chrome-plated and rough brass.

D. Split-Casting, Cast-Brass Escutcheons: With concealed hinge and set screw.

1. Finish: Polished chrome-plated and rough brass.

E. One-Piece, Stamped-Steel Escutcheons: With set screw or spring clips and chrome-plated finish.

F. Split-Plate, Stamped-Steel Escutcheons: With concealed hinge, set screw or spring clips, and chrome-plated finish.

G. One-Piece, Floor plate Escutcheons: Cast iron.

H. Split-Casting, Floor plate Escutcheons: Cast brass with concealed hinge and set screw.

2.8 SPECIALTIES

A. Safety Valves: ASME Boiler and Pressure Vessel Code: Section VIII, "Pressure Vessels," construction; National Board certified, labeled, and factory sealed; constructed of bronze body with poppet-type safety valve for compressed air service.

1. Pressure Settings: Higher than discharge pressure and same or lower than receiver pressure rating.

B. Air Main Pressure Regulators: Bronze body, direct acting, spring-loaded manual pressure-setting adjustment, and rated for 250-psig inlet pressure, unless otherwise indicated.

1. Type: Pilot operated.

C. Air Line Filter Regulator, lubricator combination: Regulating assembly with line pressure adjusting knob, lubricator, metal bowl with sight glass, 2-inch diameter line pressure gage, 5-micron filter unit and automatic drain. Based on Model 27FRL4-DG manufactured by Coilhose

D. Air Line Filter Regulator, lubricator combination: Regulating assembly with line pressure adjusting knob, lubricator, metal bowl with sight glass, 2-inch diameter line pressure gage, 5-micron filter unit and automatic drain. Based on Model 2000 manufactured by ARO (Ingersoll Rand)

E. Automatic Drain Valves: Stainless steel body and internal parts, rated for 200-psig minimum working pressure, capable of automatic discharge of collected condensate.

2.9 QUICK COUPLINGS

A. Manufacturers - subject to compliance with requirements, provide products by one of the following:

1. Aeroquip Corporation; Eaton Corporation
2. Parker Hannifin Corp.; Fluid Connectors Group; Quick Coupling Division
3. Rectus Corporation
4. Schrader-Bridgeport; Amflo Division
5. Snap-Tite, Inc.; Quick Disconnect & Valve Division.
6. Tuthill Corporation; Hansen Coupling Division

B. General Requirements for Quick Couplings: Assembly with locking-mechanism feature for quick connection and disconnection of compressed air hose.

C. Automatic-Shutoff Quick Couplings: Straight-through brass body with O-ring or gasket seal and stainless steel or nickel-plated-steel operating parts.

1. Socket End: With one-way valve and threaded inlet for connection to piping or threaded hose fitting.
2. Plug End: Flow-sensor-bleeder, check-valve type with barbed outlet for attaching hose.

D. Valveless Quick Couplings: Straight-through brass body with stainless steel or nickel-plated-steel operating parts.

1. Socket End: With O-ring or gasket seal, without valve, and with barbed inlet for attaching hose.
2. Plug End: With barbed outlet for attaching hose.

2.10 HOSE ASSEMBLIES

A. Description: Compatible hose, clamps, couplings, and splicers suitable for compressed air service, of nominal diameter indicated, and rated for] 300-psig minimum working pressure, unless otherwise indicated.

1. Hose: Reinforced double-wire-braid, CR-covered hose for compressed air service.
2. Hose Clamps: Stainless steel clamps or bands.
3. Hose Couplings: Two-piece, straight-through, threaded brass or stainless steel O-ring or gasket-seal swivel coupling with barbed ends for connecting two sections of hose.
4. Hose Splicers: One-piece, straight-through brass or stainless steel fitting with barbed ends for connecting two sections of hose.

2.11 GROUT

A. Description: ASTM C 1107, Grade B, non-shrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume adjusting, non-staining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

A. Compressed-Air Piping between Air Compressors and Receivers: Use the following piping materials for each size range:

1. NPS 2 size and Smaller: Schedule 40, galvanized-steel pipe; threaded, malleable-iron fittings; and threaded joints.
2. NPS 2 and Smaller: Type K, copper tube; wrought-copper fittings; and brazed joints.

B. Low-Pressure Compressed-Air Distribution Piping: Use the following piping materials for each size range:

1. NPS 2 and Smaller: Type K, copper tube; wrought-copper fittings; and brazed joints.
2. NPS 2 size and Smaller: Schedule 40, galvanized-steel pipe; threaded, malleable-iron fittings; and threaded joints.

C. Drain Piping: Use the following piping materials:

1. NPS 2 and Smaller: Type K copper tube; wrought-copper fittings; and brazed or soldered joints.

3.2 VALVE APPLICATIONS

A. General-Duty Valves: Comply with requirements in Division 22 Section 22 0523 "General-Duty Valves for Plumbing Piping" for metal general-duty valves. Use metal valves, unless otherwise indicated.

1. Metal General-Duty Valves: Use valve types specified in "Valve Applications" Article in Division 22 Section 22 0523 "General-Duty Valves for Plumbing Piping" according to the following:

a. High-Pressure Compressed Air: Valve types specified for medium-pressure compressed air.
b. Equipment Isolation NPS 2 (DN 50) and Smaller: Safety-exhaust, copper-alloy ball valve with exhaust vent and pressure rating at least as great as piping system operating pressure.

3.3 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of compressed air piping. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, air-compressor sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install piping concealed from view and protected from physical contact by building occupants, unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited, unless otherwise indicated.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal and to coordinate with other services occupying that space.

E. Install piping adjacent to equipment and machines to allow service and maintenance.

F. Install air and drain piping with 1 percent slope downward in direction of flow.

G. Install nipples, flanges, unions, transition and special fittings, and valves with pressure ratings same as or higher than system pressure rating, unless otherwise indicated.

H. Equipment and Specialty Flanged Connections:

1. Use steel companion flange with gasket for connection to steel pipe.
2. Use cast-copper-alloy companion flange with gasket and brazed joint for connection to copper tube. Do not use soldered joints for connection to air compressors or to equipment or machines producing shock or vibration.

I. Flanged joints may be used instead of specified joint for any piping or tubing system.

J. Install eccentric reducers where compressed air piping is reduced in direction of flow, with bottoms of both pipes and reducer fitting flush.

K. Install branch connections to compressed air mains from top of main. Provide drain leg and drain trap at end of each main and branch and at low points.

L. Install thermometer and pressure gauge on discharge piping from each air compressor and on each receiver. Comply with requirements in Division 22 Section 22 05 19 "Meters and Gauges for Plumbing Piping."

M. Install piping to permit valve servicing.

N. Install piping free of sags and bends.

O. Install fittings for changes in direction and branch connections.

3.4 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints for Steel Piping: Join according to AWS D10.12/D10.12M.

E. Brazed Joints for Copper Tubing: Join according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter.

F. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Join according to ASTM B 828 or CDA's "Copper Tube Handbook."

G. Dissimilar Metal Piping Material Joints: Use dielectric fittings.

3.5 VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in Division 22 Section 22 05 23 "General-Duty Valves for Plumbing Piping."

B. Install shutoff valves and unions or flanged joints at compressed air piping to air compressors.

C. Install shutoff valve at inlet to each automatic drain valve, filter, lubricator, and pressure regulator.

D. Install check valves to maintain correct direction of compressed air flow to and from compressed air piping specialties and equipment.

3.6 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. NPS 2 (DN 50) and Smaller: Use dielectric unions.

C. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Use dielectric flanges.

D. NPS 5 (DN 125) and Larger: Use dielectric flange kits.

3.7 FLEXIBLE PIPE CONNECTOR INSTALLATION

A. Install flexible pipe connectors in discharge piping of each air compressor.

B. Install stainless steel hose flexible pipe connectors in steel compressed air piping.

3.8 SPECIALTY INSTALLATION

A. Install safety valves on receivers in quantity and size to relieve at least the capacity of connected air compressors.

B. Install air-main pressure regulators in compressed air piping at or near air compressors.

C. Install air-line pressure regulators in branch piping to equipment and tools.

D. Install automatic drain valves on aftercoolers, receivers, and dryers. Discharge condensate onto nearest floor drain.

E. Install coalescing filters in compressed air piping at or near air compressors and upstream from mechanical filters.

F. Install mechanical filters in compressed air piping at or near air compressors and downstream from coalescing filters.

G. Install air-line lubricators in branch piping to machine tools.

H. Install quick couplings at piping terminals for hose connections.

I. Install hose assemblies at hose connections.

3.9 CONNECTIONS

A. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment and machine.

B. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment and machine.

3.10 SLEEVE INSTALLATION

A. Sleeves are not required for core-drilled holes.

B. Permanent sleeves are not required for holes formed by removable PE sleeves.

C. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs using galvanized-steel pipe.

D. Install sleeves for pipes passing through concrete and masonry walls, gypsum board partitions, and concrete floor and roof slabs.

1. Wall Penetrations: Cut sleeves to length for mounting flush with both surfaces.
2. Floor Penetrations: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level. Extend cast iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

E. Install sleeves in new walls and slabs as new walls and slabs are constructed.

F. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

1. Steel Pipe Sleeves: For pipes smaller than NPS 6 (DN 150).
2. Steel Sheet Sleeves: For pipes NPS 6 (DN 150) and larger, penetrating gypsum board partitions.
3. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast iron soil pipe to extend sleeve to 2 inches above finished floor level. Comply with requirements in Division 07 Section "Sheet Metal Flashing and Trim" for flashing.

    a. Seal space outside of sleeve fittings with grout.

G. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.11 ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

B. New Piping:

1. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep pattern.
2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish, stamped steel with set screw or spring clips.
3. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece or split-casting, cast brass with polished chrome-plated finish.
4. Bare Piping in Unfinished Service Spaces: One piece, cast brass with polished chrome-plated finish, stamped steel with set screw or spring clips.
5. Bare Piping in Equipment Rooms: One-piece, stamped steel with set screw or spring clips.
6. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece floor plate.

3.12 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements in Division 22 Section 22 0529 "Hangers and Supports for Plumbing Piping and Equipment" for pipe hanger and support devices.

B. Vertical Piping: MSS Type 8 or 42, clamps.

C. Individual, Straight, Horizontal Piping Runs:

1. 100 Feet or Less: MSS Type 1, adjustable, steel clevis hangers.
2. Longer than 100 Feet: MSS Type 43, adjustable roller hangers.

D. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.

E. Base of Vertical Piping: MSS Type 52, spring hangers.

F. Support horizontal piping within 12 inches of each fitting and coupling.

G. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.

H. Install hangers for Schedule 40, steel piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1/4 to NPS 1/2 (DN 8 to DN 15): 96 inches with 3/8-inch rod.
2. NPS 3/4 to NPS 1-1/4 (DN 20 to DN 32): 84 inches with 3/8-inch rod.
3. NPS 1-1/2 (DN 40): 12 feet with 3/8-inch rod.
4. NPS 2 (DN 50): 13 feet with 3/8-inch rod.
5. NPS 2-1/2 (DN 65): 14 feet with 1/2-inch rod.
6. NPS 3 (DN 80): 15 feet with 1/2-inch rod.
7. NPS 3-1/2 (DN 90): 16 feet with 1/2-inch rod.
8. NPS 4 (DN 100): 17 feet with 5/8-inch rod.

I. Install supports for vertical, Schedule 40, steel piping every 15 feet.

J. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1/4 (DN 8): 60 inches with 3/8-inch rod.
2. NPS 3/8 and NPS 1/2 (DN 10 and DN 15): 72 inches with 3/8-inch rod.
3. NPS 3/4 (DN 20): 84 inches with 3/8-inch rod.
4. NPS 1 (DN 25): 96 inches with 3/8-inch rod.
5. NPS 1-1/4 (DN 32): 108 inches with 3/8-inch rod.
6. NPS 1-1/2 (DN 40): 10 feet with 3/8-inch rod.
7. NPS 2 (DN 50): 11 feet with 3/8-inch rod.
8. NPS 2-1/2 (DN 65): 13 feet with 1/2-inch rod.
9. NPS 3 (DN 80): 14 feet with 1/2-inch rod.
10. NPS 3-1/2 (DN 90): 15 feet with 1/2-inch rod.
11. NPS 4 (DN 100): 16 feet with 1/2-inch rod.

K. Install supports for vertical copper tubing every 10 feet.

3.13 LABELING AND IDENTIFICATION

A. Install identifying labels and devices for general-service compressed air piping, valves, and specialties. Comply with requirements in Division 22 Section 22 0553 "Identification for Plumbing Piping and Equipment."

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Engage qualified testing agency to perform field tests and inspections of compressed air piping in industrial facilities and prepare test reports.

B. Perform tests and inspections of compressed-air piping in industrial facilities and prepare test reports.

C. Tests and Inspections:

1. Piping Leak Tests for Compressed-Air Piping: Test new and modified parts of existing piping. Cap and fill general-service compressed-air piping with oil-free dry nitrogen to pressure of 50 psig above system operating pressure, but not less than 150 psig. Isolate test source and let stand for four hours to equalize temperature. Refill system, if required, to test pressure; hold for two hours with no drop in pressure.
2. Repair leaks and retest until no leaks exist.
3. Inspect filters and pressure regulators for proper operation.

3.15 DEMONSTRATION

A. Engage factory-authorized service representative to train Client Agency's maintenance personnel to adjust, operate, and maintain compressed-air alarm systems. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 22 1513

SECTION 27 4115 - AUDIOVISUAL SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The Drawings, Specifications, General Conditions, Supplementary Conditions and other requirements of Division 1, apply to the work specified in Division 27, and shall be complied with in every aspect. The Contractor shall examine the documents, which make up the Contract Documents and shall coordinate them with the work on the Technology Drawings and Division 27 of these specifications.

1.02 SUMMARY

A. Provide labor and materials required to design, procure, deliver, install, test, train, commission, program and place into operation the audio and video systems as called for in the contract documents, and according to applicable codes and regulations.

B. Furnish and install all labor, materials, apparatus, and appliances essential to the complete functioning of the systems described and/or indicated herein, or which may be reasonably implied as essential whether mentioned in the Contract Drawings and Specifications or not.

C. System components included herein, but not limited to, the following:

1. Faceplates and Back boxes
2. Assistive Listening Equipment
3. Equipment Racks
4. Audio Infrastructure
5. Microphones
6. Wireless Microphone Systems
7. Audio Digital Signal Processors
8. Amplifiers and Speakers
9. Controls
10. Network Equipment
11. Video Infrastructure
12. Projectors and Projection Screens
13. Wires and Cabling

1.03 CONTRACTOR QUALIFICATIONS

A. All AV systems shall be actualized, installed and configured by the Electrical Contractor or a single subcontractor directly to the Electrical Contractor. Multiple subcontractors shall not be allowed.

B. Responsible contractor shall have the following certifications on staff at the project site during construction.

1. RCDD
2. CTS-I

C. Manufacturer Qualifications: The Manufacturer or Supplier fabricating the material or equipment described in this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work for this Section.

D. Installer Qualifications: The Contractor performing the Work of this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work for this Section.

E. The Contractor performing the Work of this Section may demonstrate compliance with the above qualification requirements by demonstrating that it is certified or authorized as an installer by a manufacturer designated as acceptable in these Specifications. A copy of such manufacturer certification or authorizations must be submitted, or verified in writing by the manufacturer.

1.04 SUBMITTALS

A. Submit shop drawings, wire markings, all manufacturer's data, samples and test procedure and reports as called for hereinafter. All submissions to be in English Language. All submittals require the approval of Owner/Engineer.

1. Submit each AV system as independent submittals.
2. Submittals that contain components from multiple AV systems will not be approved.

B. Submit a single guarantee stating that all parts of the work are in accordance with Contract requirements. Guarantee work against faulty and improper material and workmanship for a period of one (1) year from date of final acceptance by the Owner, except that where guarantees or warranties for longer terms are specified herein, such longer term to apply. Within 24 hours after notification, correct any deficiencies, which occur during the guarantee period at no additional cost to the Owner, to the satisfaction of the Owner and Engineer. Obtain similar guarantees from subcontractors, manufacturers, suppliers and sub-trade specialists, if any.

C. Indemnify the Owner and the Architect/Engineer against loss, liability, damage or expense, including attorneys' fees, in connection with any claim resulting from damage, which may be asserted by any third party.

1.05 OWNER'S MANUALS

A. General:

1. Submit 2 draft copies of owner's manuals for review. After review by authorized representative, the contractor shall incorporate review comments and submit 6 final copies.
2. Update manuals with modifications made to system during guarantee period. Provide replacement pages or supplements in quantity stated above.
3. Assemble owner's manuals into multi-volume sets as necessary and required by the Owner.
4. Protect each volume with a heavy-duty vinyl plastic binder. Volumes to have plastic printed dividers between major sections and have oversized binders to accommodate up to 2-inch-thick set of additional information.
5. Each binder to be silk-screened with project name and volume title on front cover and binder.
6. On the first page of each manual identify with project name, manual title, owner's name, engineer's name, contractor's name, address and service phone number, and person who prepared manual.

B. Operating manual to serve as training and reference manual for all aspects of day-to-day operation of the system. As a minimum include the following:

1. Sequence of operation for on-line and off-line operating modes. The sequences shall cross-reference the system point names.
2. System manufacturers complete operating manuals.

C. Provide maintenance manual to serve as training and reference manual for all aspects of day-to-day maintenance and major system repairs. As a minimum include the following:

1. Complete as-built installation drawings for each system.
2. Photographs and drawings showing installation details and locations of equipment.

3. Routine preventive maintenance procedures, corrective diagnostic troubleshooting procedures, and calibration procedures.
4. Parts list with manufacturer's catalog numbers and ordering information.
5. Manufacturer's operating set up, maintenance and catalog literature for each piece of equipment.
6. Maintenance and repair instructions.
7. Recommended spare parts.
8. Field test reports.

D. Provide Programming Manual to serve as training and reference manual for all aspects of system programming. As a minimum include the following:

1. Complete programming manuals, and reference guides.
2. Details of any special software packages supplied with system.
3. Information required for independent programming of system.
4. Software troubleshooting procedures.

1.06 QUALITY CONTROL

A. Quality Assurance:

1. Comply with current governing codes, ordinances and regulations, and all other applicable codes.
2. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
3. The products shall be compliant with test reports, such as ISO-9001, ISO-9014, UL1950, or CE conforming to the rigid EMC requirements for electromagnetic emissions, immunity and harmonics where applicable.
4. Where codes or standards are listed herein, the applicable portions apply.
5. Plans, specifications, codes, and standards are minimum requirements. Where requirements differ, apply the more stringent.
6. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer at the time of submitting the bid.
7. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.
8. Equipment and materials supplied shall be complete, model numbers accurate, and the performance shall conform to manufacturer's specifications.
9. All equipment and materials shall be new and shall conform to applicable codes.
10. Repair or replace any items damaged during installation.
11. Procure and pay for all necessary permits, licenses, inspections, and observe any requirements stipulated therein.
12. The installation shall conform to the latest safety codes and regulations. Where conflicts exist, the most stringent code or regulation shall apply.
13. Adhere to all Quality Assurance items in the Sub-Contract Agreement issued by the Construction Manager.

B. Assurance:

1. Comply with current governing codes, ordinances and regulations, and all other applicable codes.
2. Comply with the requirements of agencies or authorities having jurisdiction over any part of the work and secure all necessary permits.
3. The products shall be compliant with test reports, such as ISO-9001, ISO-9014, UL1950 or CE conforming to the rigid EMC requirements for electromagnetic emissions, immunity and harmonics where applicable.
4. Where codes or standards are listed herein, the applicable portions apply.
5. Plans, specifications, codes and standards are minimum requirements. Where requirements differ, apply the more stringent.

6. Should any change in plans or specifications be required to comply with governing regulations, notify the Architect/Engineer at the time of submitting the bid.
7. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced full-time Superintendent who is authorized to make decisions on behalf of the Contractor.
8. Installer Qualifications: The Contractor performing the Work of this Section must, within the last five (5) consecutive years, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work for this Section.
9. The Contractor performing the Work of this Section may demonstrate compliance with the above qualification requirements by demonstrating that it is certified or authorized as an installer by a manufacturer designated as acceptable in these Specifications. A copy of such manufacturer certification or authorizations must be submitted, or verified in writing by the manufacturer.
10. Equipment and materials supplied shall be complete, model numbers accurate, and the performance shall conform to manufacturer's specifications.
11. All equipment and materials shall be new and shall conform to applicable codes.
12. Repair or replace any items damaged during installation.
13. Procure and pay for all necessary permits, licenses, inspections, and observe any requirements stipulated therein.
14. The installation shall conform to the latest safety codes and regulations. Where conflicts exist, the most stringent code or regulation shall apply.
15. Adhere to all Quality Assurance items in the Sub-Contract Agreement issued by the Construction Manager.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in factor containers. Store in clean, dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

B. The work covered in this document consists of furnishing all labor, material and services necessary to install a complete audiovisual system as indicated on the project drawings and in these specifications.

C. Deliverables:

1. Prior to ordering materials or commencing any construction activities, the contractor shall provide the Owner with a complete bill of materials, including all quantities of components, devices, equipment, and wiring required to complete this work. Submit product data, including manufacturer’s data sheets for all proposed system components. Submit three copies with all specific items that will be provided clearly indicated and any options highlighted.

PART 2 - PRODUCTS

2.01 SYSTEMS DESCRIPTION

A. Refer to drawings for AV system details.

B. Refer to Section 2.4 for AV System Operational Notes and Products.

C. AV system include but are not limited to the following:

1. Gathering

2.01 EQUIPMENT AND SYSTEM PERFORMANCE REQUIREMENTS

A. General Equipment Requirements

1. The contractor shall provide all options, accessories and hardware necessary to meet the intended function of the design even if they are not specifically listed. (i.e., mounting kits, separate or additional power supplies, input modules, transformers, media converters, media extenders, licensing, hard drives and memory cards etc.)
2. Deviations from this specification must be documented in writing to the Architect, Engineer and Owner at least ten business days prior to the bid date.
3. The System components shall all be listed and labeled by Underwriters Laboratories Incorporated (UL).
4. All products shall be new and under warranty at the time of installation. B-stock, previously installed, refurbished or used equipment shall not be provided on this project.
5. Where the specification lists several manufacturers for a major item, or group of items, the AV Integrator shall provide that entire item from one manufacturer only.

B. Faceplates and Back Boxes

1. Faceplates shall be stainless steel with laser engraved lettering. ProCo WPE series or equivalent.
2. Floor Boxes shall be as specified in Division 26. Unspecified floor boxes shall be Legrand Evolution series or equivalent with the following features: Sliding cable doors, floor material insert, minimum of 3¼" of wire space behind faceplates, 2-hour fire rated.
3. Custom Wall Boxes
4. Ceiling Enclosures shall
5. Standard Back Boxes shall be as specified in Division 26.

C. Assistive Listening Equipment

1. Provide rack mountable RF Transmitter with external antenna capable of covering the entire audience area, both seating and standing room.
    a. All transmitter models shall comply to FCC Part 15 as of July 16, 2016.
    b. Functions and Features:
        1) 17 wide band programmable channels / 8 simultaneous use channels (interpretation).
        2) Audio DSP Microprocessor capable of automatic gain control and limiting, EQ settings.
        3) Audio frequency response of 31 - 16000 Hz, ±3 dB.
        4) RJ-45 Ethernet Jack for Network Control
    c. Accessories
        1) Provide the following:
            a) Power Supply
            b) Rack mount kit
2. External FM Antenna
    a. Provide external antenna as recommended by the transmitter manufacturer that is the most appropriate for the coverage area.
    b. Provide antenna mounting hardware or outdoor weather protection for antenna exposed to the elements as required.
    c. Provide antenna cable as recommended by the manufacturer. If information is not available from the manufacturer, provide the following:
        1) RG-59/U low loss 75 Ohm for cable runs up to 25 feet.
        2) RG-6/U low loss 75 Ohm for cable runs up to 200 feet.

3. RF Receivers

   a. Provide pocket sized portable RF Receivers capable of being worn with a belt clip or lanyard. The lanyard shall have an integrated neck loop.
   b. RF Receivers shall be compatible with all channels of the transmitter.
   c. Provide over the ear required Headphones / Earbuds as needed.

4. Functions and Features

   a. Programmable OLED screen with screen timeout and display settings.
   b. 17 wide band programmable channels / 8 simultaneous use channels (interpretation).
   c. Audio frequency response of 200 Hz - 15 kHz, ±3dB.
   d. Field replaceable AA alkaline or NiMH rechargeable battery.
   e. Receiver shall be capable of at least 30 hrs. battery life w NiMH, 50 Hrs. with Alkaline

5. Accessories

   a. Charging Station/Carrying Case

      1) Provide receiver charging station/carrying cases capable of storing and charging all receivers simultaneously.

   b. Signage

      1) Provide signage. Quantity shall comply with ADA standards.

D. Equipment Racks

1. Provide full metal rack with welded joints. Wall racks shall be Middle Atlantic WRD series or approved equivalent. Floor racks shall be Middle Atlantic ERK series or approved equivalent.
2. Provide the following accessories:

   a. Body Panels as listed below, unless noted otherwise on drawings and details.

      1) Vented front door
      2) Vented top
      3) Solid side panels
      4) Solid Rear with cable pass through

   b. Power Strips

      1) Vertical for racks > 24 in tall.
      2) Horizontal or vertical for racks ≤ 24 tall.
      3) Integral switching capability. Unswitched power strips may be connected to switched power strips.
      4) Integral surge suppression

   c. Lockable drawers with ball bearing runners for all accessories including but not limited to cables and microphones.

      1) Provide foam insert for microphones and other sensitive equipment.

   d. Shelves for non-rack mountable AV equipment.
   e. Wire management and raceway

E. Audio Distribution Equipment and Cabling

1. Audio shall be distributed using balanced signals. When receiving a signal from an unbalanced audio device, the signal shall be immediately converted to a balanced audio signal using an unbalanced input transformer Radio Design Labs TX series or equivalent.
2. All cabling shall be plenum rated.

F. Microphones

1. Speech Handheld microphones shall be Shure SM series or equivalent.
2. Theatrical vocal and instrumental microphones shall be Shure Beta Series or equivalent.
3. Over the Ear microphones shall be Shure Countryman or equivalent.
4. Lapel microphones shall be Shure Microflex or equivalent.
5. Athletic Headword microphones shall be Shure SM series or equivalent.

G. Wireless Microphone Systems

1. Wireless microphone systems shall be of the manufacturer and series indicated on the drawings and details or approved equivalent. Unspecified wireless microphone systems shall be Shure QLX-D series or approved equivalent with the features listed below.
    a. 24-bit digital audio
    b. AES-256 encryption
    c. 120dB of dynamic range
2. Transmitters shall be of the same manufacturer and series as the receiver and shall have the following features:
    a. Full metal construction
    b. Lithium-Ion rechargeable battery
    c. External charging contacts for docked charging
    d. Backlit LCD display
    e. Frequency band matching receiver
3. Antenna systems shall be provided to cover the intended use area with 100% reliable wireless device use.
    a. Antennas shall be located in line of site of the transmitter use area. Multiple antennas may be required.
    b. Antenna cable shall be as approved by the wireless microphone manufacturer. Antenna cable shall be pre-terminated. Multiple runs of cable shall have identical lengths.
4. Provide the following accessories:
    a. Battery charger with capacity for every transmitter battery to charge simultaneously
    b. Spare batteries - OEM batteries. (1) or 20% of system total, whichever is greater. Spare batteries shall not be considered when selecting battery charger size.

H. Audio Digital Signal Processors

1. Audio DSPs shall be of the manufacturer and series indicated on the drawings and details or approved equivalent.

I. Amplifiers, Speakers and Performance Requirements

1. Amplifiers and Speakers shall be provided to meet the audio performance requirements listed below based on application.
    a. Basis of Design speakers and amplifiers are indicated in the AV details. Provide manufacture and series of those indicated or approved equivalent.
2. Speakers
    a. Wall mounted speaker hardware shall allow for 3-axis of adjustment.
3. Amplifiers shall be provided in dual channel component to meet the audio performance requirements listed below.
    a. Maximum Input Level: +21 dBu
    b. Crosstalk: < -80dB (ref. 1 kHz, at 100 W/4 Ω)
    c. Frequency Response: 10 Hz to 21 kHz (±1 dB)

d. Input Impedance: active balanced
e. Signal-to-Noise Ratio (A-weighted): >104dB
f. Output Noise, A-weighted: < -68dBu
g. Output Stage Topology: Class AB
h. Power Requirement

1) As needed to provide System 3dB Headroom

i. Signal Processing

1) FIR Filters, Audio Limiters; Output delay per channel; 31 band GEQ per channel; PEQ per channel; Load impedance
2) Stand-By Programmable power-on timer

4. Speaker and Amplifier selection, configuration and layout shall meet the following audio performance requirements across all listeners with +3dB headroom.

a.	Auditorium/Theater:	106dB ± 2dB	40Hz - 18kHz
b.	Gymnasium:	106dB ± 3dB	45Hz - 16kHz
c.	Auxiliary Gym/Natatorium:	106dB ± 3dB	60Hz - 16kHz
d.	Misc. Multimedia:	90dB ± 3dB	80Hz - 16kHz
e.	Conference/Classroom:	80dB ± 3dB	250Hz - 8kHz
f.	Misc. speech reinforcement:	90dB ± 3dB	80Hz - 16khz

J. Controls

1. Provide User interface devices and control to every piece of equipment as indicated on the drawings. Controls processors and related equipment is not indicated on the drawings. The contractor shall provide a complete controls system by Crestron, Extron or approved equivalent with the following features:

a. Controls systems shall be serviceable by any controls integrator. Proprietary controls systems with limited integrator support will not be accepted.
b. Controls systems shall be Serial and Ethernet based.

2. Power Sequencers shall be provided as part of the controls system.
3. Controls system programing shall be the property of the owner and shall be provided to the owner at the completion of the project.

K. Network Equipment

1. A dedicated network switch shall be provided for every AV system which uses network controls, network audio protocols or network video protocols. Switches shall be Cisco SG300-MP series or equivalent with the features list below.

a. 30W POE power on all ports simultaneously
b. Non-Blocking layer 3 managed switch
c. VLAN and IGMP snooping support
d. 1 Gbps on all ports with total packet forwarding rate of at least 1.4 Mpps * port count.
e. Capability of switches Energy Efficiency Settings off.
f. DiffServ (DSCP) Quality of Service (QoS) with strict priority and 4 queues.
g. (2) SPF ports
h. Spare capacity of (4) ports or 20%, whichever is greater.

2. Fiber Media Converters shall be cut-through SPF or SPF+ modules in lieu of store-and-forward standalone converts.
3. Wi-Fi Routers shall be business class appliance with the following features:

a. 802.11B/G/N/AC

L. Video Distribution Equipment

1. Video distribution cabling shall support 4K/60 4:4:4 Chroma sampling.
2. Video distribution over 20 feet shall utilize HDBaseT. Proprietary protocols shall be allowable only if the equipment is dual compatible with HDBaseT.
3. All cabling shall be plenum rated.

M. Projectors

1. Specified model numbers establish a series of projector and basic performance requirements. The actual projector model number required may vary. Projector lenses shall be field coordinated.
2. It is the responsibility of the contractor to field verify the exact projector installation parameters and coordinate with the manufacturer to provide the correct lens, then confirm with the engineer.
    a. Projector lenses that are not coordinated and that are deemed inadequate by the engineer will be replaced solely at the expense of the contractor.
3. Measure actual projection throw distance and provide lens or projector model that best suits the installation. Verify with the engineer after selection and prior to ordering.
4. Field coordinate all mounting hardware required. Provide blocking in walls as required.
5. Coordinate color of projector and projector mounting hardware, enclosure supports, etc. with the architect or engineer prior to ordering.
6. Provide structural engineering services as required for any device heavier than 200lbs, including the weight of mounting hardware, enclosures, etc.

N. Projection Screens

1. All projection screen shall be considered custom for the sake of model numbers and ordering. Specified model numbers establish a series of projection screen and basic requirements. The actual projection model number required may vary. Projection screens shall be field coordinated.
2. It is the responsibility of the contractor to field verify the exact projection screen requirements and coordinate with the manufacturer to provide the correct screen, then confirm with the engineer.
    a. Projection screens that are not coordinated and that are deemed inadequate by the engineer will be replaced solely at the expense of the contractor.
3. Projection screens shall be installed at or recessed in the ceiling. If there is no ceiling, the screen shall be suspended from the structure or wall mounted at the elevation indicated on the drawings. If no elevation is provided, request an elevation from the engineer.
4. Measure actual black drop required for appropriate screen elevation. Inform the engineer of any obstructions or conflicts prior to ordering screen.
5. Provide structural engineering services as required for any screen heavier than 200lbs, including the weight of mounting hardware.

O. Wires and Cabling

1. Provide the following West Penn Wire part numbers or equivalent:
    a. SUB-Loudspeakers WPHA210
    b. Speaker 2 - 4 - 8 Ohms WP227
    c. Speakers 70 V WP226
    d. Speaker with VCP WP 245
    e. Antennas WP810
    f. Crestron Video DM Cable
    g. Projector Screen WP 232
    h. Telex Intercom per Channel WP 303
    i. Line level cable WP291
    j. Microphone Cable WP452
    k. Microphone WP291
    l. Control WP225

P. Owner Furnished Equipment (OFE)

1. In each system, the video source equipment shall be furnished by the Owner (OFE). Portable source equipment such as DVDs, VCRs, laptop computers, microphone system, document cameras, etc. shall be owner furnished except where identified on the contract drawings.

2.02 GENERAL EQUIPMENT REQUIREMENTS

A. Document deviations from this specification writing to the Architect and Owner at least ten business days prior to the bid date.

B. The System components shall all be listed and labeled by Underwriters Laboratories Incorporated (UL).

C. All products shall be new and under warranty at the time of installation. Do not provide B-stock, previously installed, refurbished or used equipment.

D. Where the specification lists several manufacturers for a major item, or group of items, the AV Integrator shall provide that entire item from one manufacturer only.

E. The contractor shall provide all options, accessories and hardware necessary to meet the function of the design even if they are not specifically listed (i.e., mounting kits, separate or additional power supplies, input modules, transformers, etc.).

2.03 MANUFACTURERS

A. Refer to drawings and schedule for equipment part numbers.

B. Provide products as indicated in drawings, schedules and specifications.

1. The Engineer and/or Owner prefer the products specified, however substitution is considered. Substitute products shall only be acceptable if approved in writing by the engineer. Submit substitutions in accordance with Section 27 0100 “Basic Communications Systems Requirements”.

2.04 SYSTEM SPECIFIC INFORMATION

A. Gathering

1. Operational Notes

a. The gathering AV system enables large group presentation.
b. A motorized projector screen permanently recessed in lay-in ceiling drops down at the presentation wall. The projector hangs from the ceiling via a fixed pole mount.
c. AV sources include a wall plate with HDMI input and a wireless presentation system. Audio sources include a mic wall plate with one XLR input, Bluetooth receiver wall plate, and one channel of wireless microphones.
d. The audio inputs mix through a DSP (Digital Signal Processor) into 2 output channels, Room left and Room right.
e. The wall mounted touch screen control shall control the system with the following functions: On, Off, Volume Up, Volume Down, and Source Select
f. A wall mounted av rack shall hold all of the av equipment. Sequenced power distribution strips shall serve all equipment with in the rack.

2. Products

a. Refer to detail for more information.
b. Provide the following products:

System Name			
Quantity	Model	Manufacturer	Description
1	LWR-2123	Lowell	Rack-Sectional Wall Mount-21U, 23inD, 1pr Adj Rails, Blk
1	LFD-21FV	Lowell	Door-Fully Vented Front-21U, Locking, Blk
1	RRD-21	Lowell	Rack Rails-21U, Tapped 10-32, 1pr
1	ACSPR-RPC1-2009	Lowell	PDU with 9 (15A) Outlets, 20A Rating, Advanced Multi-Stage Surge Suppression, Over-Under Voltage Protection, Remote Circuitry
1	ACS-1506-WW	Lowell	12" Power Strip | 6 (15A) Outlets, Wall Wart Spacing
1	TesiraFORTÉ AI	Biamp	Fixed I/O DSP with 12 analog inputs, 8 analog outputs, 8 channels con-figurable USB audio.
1	CP4	Crestron	4-Series™ Control System
1	HD-TX-301-C-E	Crestron	DM Lite® Transmitter and 3x1 Auto-Switcher for HDMI®, VGA, and Analog Audio Signal Extension over CATx Cable
1	HD-RXC-4KZ-101	Crestron	DM® Essentials 4K60 4:4:4 Receiver for HDMI®, RS-232, and IR Signal Extension over CATx Cable
1	AM-3200	Crestron	The AirMedia® Receiver
1	AM-TX3-100	Crestron	AirMedia® Series 3 Connect Adaptor
1	UFAF-3	Middle Atlantic	3SP PANEL,UFA SERIES BPC
1	UFA-14.5	Middle Atlantic	Rack Shelf 1SP UNIV FA SHELF,14.5"D
1	UD3	Middle Atlantic	3 RU Utility Rack Drawer
1	GSM4212P-100NAS	Netgear	Netgear 8-Port POE+ 2 Non-POE Gigabit Ethernet Managed
~~1~~	~~CG03974~~	~~C2G~~	~~4ft Cat6 Snagless Unshielded UTP Ethernet Network Patch Cable - Blue~~
1	LT-800-216-01	Listen	Stationary RF Transmitter
1	LA-326	Listen	Universal Rack Mounting Kit
6	CG04008	C2G	4ft Cat6 Snagless Unshielded UTP Ethernet Network Patch Cable - Yellow
1	SLXD4	Shure	Half-Rack, Single Channel Receiver
1	PX3	Yamaha	Dual-channel; 500W x 2 @ 4Ω; lightweight Class-D design; built-in DSP; 2RU
			Loudspeakers
2	Control 29AV	JBL	8" 2-WAY MONITOR SPEAKER
2	MTC-29UB	JBL	U-Bracket for Control 29
2	SAS-100-20	Adaptive Technolo-gies	Wall Mounting Arm
			Projector
1	ACCESS E ULT: Ulti-mate Access E Screen 1 4 2 0 3 2 U	Draper	Ceiling recessed 165 " Diagonal 16:10, Matt White XT1000E, 110V, White case including flanges.
1	PT-FRZ60U	Panasonic	6,000 Lumens, Laser, WUXGA Resolution (1,920 x 1,200), 4K/60 Signal Input, 1DLP Projector, White
1	ET-DLE150	Panasonic	Lens
1	VMCA2b-01	Chief	I-Beam Adapter for ceiling mount

System Name			
Quantity	Model	Manufacturer	Description
1	CMS0203W	Chief	2-3' Adjustable Extension Column, Pole
1	CMA348W	Chief	Large Venue Vibration Isolating Coupler, White
1	VCMUW	Chief	Heavy Duty Universal Projector Mount
1	HD-RXCA-4KZ-101	Crestron	DM® Essentials 4K60 4:4:4 Receiver for HDMI®, RS-232, and IR Signal Extension over CATx Cable, Wall Plate, Black
1	ACSP-2002-VTE	Lowell	Advanced Multi-Stage Surge Suppression with 2 (20A) Outlets, Over-Under Voltage Protection
1	CBL-8K-HD-3	Crestron	Certified HDMI® 2.1 Cable, 48 Gbps, 3 ft
1	CG27191	C2G	3 ft Cat6 Snagless Unshielded UTP Ethernet Network Patch Cable - Yellow
1	CG27151	C2G	3 ft Cat6 Snagless Unshielded UTP Ethernet Network Patch Cable - Black
			System Antennas
1	DFINW	RF Venue	Diversity Fin Antenna - White
1	LA-122	Listen	Antenna Kit
3	LA-304	Listen	ALS Notification Signage Kit
1	XPA-1610	Luxul	Apex™ Wave 2 AC3100 Dual-Band Access Point
			Touch Panel
1	Custom	Proco	1 Gang Metal Painted White w (1) XLRF Labeled Mic 1
1	HD-TXC-4KZ-211-2G-W	Crestron	DM® Essentials 4K60 4:4:4 Transmitter and 2x1 Auto-Switcher for HDMI® and USB-C® DisplayPort™ Signal Extension over CATx Cable, Wall Plate, White
1	TSW-770-W-S	Crestron	7 in. Wall Mount Touch Screen, White Smooth
1	TSW-UMB-70	Crestron	Universal Mounting Bracket for TSW-70 Series
1	DB-BT1A	RDL	Bluetooth Audio to Dante Interface, White
1	TX-TPR2A	RDL	Active Two-Pair Receiver - Twisted Pair Format-A
1	PS-24AS	RDL	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug
			Microphone - Stand - Audio Cable
~~2~~ 1	SM58S	Shure	Cardioid Dynamic, On-Off Switch
2	MS-10E	Atlas	All-Purpose Mic Stand Ebony
2	HOGM-25.K	Rapco / Proco	RoadHog 25' Mic Cable
1	SLXD1=-G58	Shure	Bodypack Transmitter
1	WL194	Shure	Micro Cardioid Lavalier Microphone
1	SLXD2/SM58=-G58	Shure	Handheld Transmitter with SM58® Microphone
~~4~~ 2	SB903	Shure	Shure Lithium-Ion Rechargeable Battery
~~2~~ 1	SBC203	Shure	Dual Docking Station for SLX-D transmitters and SB903 battery
1	CBL-HD-20	Crestron	Crestron® Certified HDMI® Interface Cable, 18 Gbps, 20 ft (6.1 m)
4	LR-4200-216	Listen	Intelligent DSP RF Receiver (216 MHz) (battery included)
4	LA-445 Blk	Listen	Brackaway Lanyard
4	LA-401	Listen	Universal Ear Speaker
2	LA-430	Listen	Intelligent Ear Phone/Neck Loop Lanyard

System Name			
Quantity	Model	Manufacturer	Description
1	LA-384-01	Listen	Intelligent 4-Unit Charging Tray

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment and enclosures described in this specification shall be installed plumb and square per manufacturer's instructions.

B. All equipment, except that designated as movable, portable or loose equipment, shall be secured and permanently attached to the permanent structure in a manner which will require the use of a tool (e.g.: screw driver, nut driver, etc.) for removal.

C. All supports shall meet or exceed the load requirements of the intended application with a minimum safety factor of five.

D. Provide blocking in the walls as required to support equipment and devices. If a general contractor is present on the project, coordinate required blocking with the general contractor prior the installation of walls.

E. Provide support structure and hardware with a SAE Grade 8 load rating (min.).

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that related conditions, including equipment that has been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

B. All devices connected to equipment specified in this section shall bear the UL label and comply with the applicable National Electrical Code (NEC) standards.

3.03 INSTALLATION

A. Contractor shall furnish all equipment, labor, system setup, and other services necessary for the proper installation of the products/system as indicated on the drawings and specified herein. System setup information shall include each components proper mounting and alignment and properly verified signal pathways and operation. Proper operational control functions shall be verified.

B. Install in accordance with manufacturer's handling and installation instructions.

C. Install in accordance with all local and pertaining codes and regulations

D. Utilize an installer with demonstrated experience in projects of similar size and complexity.

E. Equipment shall be ready for use to condition at the end of installation.

F. Energize equipment in accordance with manufacturer's instructions.

G. All equipment must be labeled, inventoried, and asset tagged using the owner's templates and asset tags.

H. Mount system components securely within the rack.

I. Mount external antenna outside of rack within the area it serves.

J. Assistive Listening

1. Unbox all receiver and headsets. Fully charge all receivers. Place receiver and headset into charging/storage case for owner's use.
2. Install all assisted listening ADA compliant signage in required areas per ADA standards.

3.04 WIRING METHODS

A. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters. Conceal raceway and cables except in unfinished spaces.

1. All cabling shall be plenum rated.

B. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures: Bundle, lace, and train cables to terminal points and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

D. Support cables not enclosed in raceways on J-Hooks. Install, size, and space J-Hooks to comply with TIA/EIA-568-B.

E. Cable Management

1. Verify tie wraps are snug yet allow the cable to slide. Unshielded twisted pair (UTP) cables shall only be laced and bound with Velcro ties.
2. Verify terminations have sufficient service loop to allow for re-terminating without having to open a cable bundle or a pathway to lay a new cable.
3. Verify that cables have been dressed appropriately and bundled according to type. Cables should also have appropriate separation according to signal type and level.
4. Verify all cables have clearly legible, unambiguous labels that are visible without having to take apart the system or the cable bundles. Cable labels shall be permanent and non-slipping.

3.05 ELECTRICAL CONNECTIONS

A. Splices shall not be used anywhere in the system.

B. Ground rack mounted equipment and conductor and cable shields to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

3.06 IDENTIFICATION

A. Comply with Section 270553 "Identification of Communication Systems."

B. Color code wires, and apply wire and cable marking tape to designate wires and cables so they are uniformly identified and coordinated with wiring diagrams throughout the system.

3.07 SYSTEM TESTING AND PERFORMANCE VERIFICATION

A. Audio Performance

1. Harmonic Distortion and Noise

   a. Measure and record the total harmonic distortion + noise (THD+N) of the audio system from 20-20kHz.
   b. THD+N shall be less than 0.01%, +4 dBu, 20-20 kHz, unity gain, 20kHz BW

2. Signal-to-Noise

   a. Measure and record the signal-to-noise ratio (SNR) of the audio system from 20-22kHz.
   b. SNR shall be greater than 90 dB re +4 dBu, 22 kHz BW, unity gain

3. Frequency Response

   a. Measure and record the system's frequency response for speech sound reinforcement and for program sound amplification.

   b. Frequency Response shall be “C” weighted

1)	Auditorium/Theater	106dB ± 2dB	40Hz - 18kHz
2)	Gymnasium	110dB ± 3dB	45Hz - 16kHz
3)	Auxiliary Gym/Natatorium	106dB ± 3dB	60Hz - 16kHz
4)	Misc. Multimedia	90dB ± 3dB	80Hz - 16kHz
5)	Conference/Classroom	80dB ± 3dB	250Hz - 8kHz
6)	Misc. speech reinforcement	90dB ± 3dB	80Hz - 16khz

   c. Any variance from the specifications above must be approved by the engineer.

4. Audio Input Calibration

   a. Calibrate audio system inputs so that all input signal levels are equal.
   b. Adjust the microphone input gain to demonstrate that a standard talker, positioned at each talker position in the room, produces a dBu level of zero at the output bus of the digital signal processor. Verify signal levels for both transmitting and receiving normal speech.

5. Amplifiers

   a. Verify no power amplifier exceeds its rated load. Measure and record the impedance at a specific frequency for each loudspeaker line of each power amp. If available, 63, 250, and 1,000 Hz are recommended.

6. Speaker Polarity

   a. Program loudspeakers in the same system shall produce consistent polarity for a mono input signal across all channels.
   b. Polarized speech reinforcement sound systems so that positive acoustic pressure on a microphone result in positive acoustic pressure at all loudspeakers.

7. Assistive Listening

   a. Tests and Inspections:

      1) Perform operational system tests to verify compliance with the Specifications and make adjustments to bring system into compliance. Include operation of all channels of RF transmission, all input sources and all functions.

         a) Perform operational systems tests on wireless systems only after all wireless systems are operational and online.
         b) All assistive listening systems shall be tested simultaneously to check for interference across systems.

      2) Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

   b. The Assistive Listening Systems will be considered defective if it does not pass tests and inspections.
   c. Prepare test and inspection reports.

d. Adjusting

1) Program system according to Owner's requirements. Set system so RF transmissions operate on Owner-required frequencies and do not interfere with other radio frequencies in use.
2) Set RF transmission power to the lowest signal strength selectable that maintains 100% reliability for the intended use of the system.
3) Adjust sound-output level of adjustable signal devices to suit Owner's requirements.
4) Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

B. Video Performance

1. Video Infrastructure

a. For digital video infrastructure, use a test signal generator to demonstrate that digital video transport provides a reliable signal of 4K/60 4:4:4. Record the results.
b. For NTSC sources, demonstrate that a consistent, 1-volt, peak-to-peak test signal at each source produces a 1-volt, peak-to-peak to each destination. Verify at each destination using SMPTE color bars, peak white and five-step multi-burst.
c. Demonstrate consistent 700 mV from each source to each destination. Observe results using a flat-field pattern signal at 1,024x768 resolution. Measure peak-to-peak voltage using a 200 MHz oscilloscope.

2. Projected Displays

a. Verify image is in focus and in the center of the projection surface.
b. Measure and record the projector brightness at 9 points across the image using an incident-light meter.
c. Measure and record the contrast ratio with ambient lighting in normal operating mode.

3. Multiple Resolutions

a. Demonstrate that the video system is able to display stable, properly scaled images with no artifacts when switching between various resolutions and aspect ratio. At a minimum, the following resolutions shall be used: 3840x2160, 1920x1200, 1920x1080, 1,024x768, 1280x1024, and 1280x720 sources, plus all sources in the performance criteria.

3.08 PROTECTION AND CLEANING

A. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

B. Repair or replace damaged components before Substantial Completion of the project.

C. Remove temporary tags, coverings, and construction debris from interior and exterior surfaces of the equipment. Remove construction debris from equipment area and dispose of properly.

3.09 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain system components.

END OF SECTION 27 4115

SECTION 32 9119 - LANDSCAPE GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Final grade topsoil for finish landscaping.

B. Related Sections:
   1. Section 31 2213 - Rough Grading: Site contouring.
   2. Section 31 2316.13 - Trenching: Backfilling trenches.
   3. Section 31 2323 - Fill: Backfilling at building areas.
   4. Section 32 9219 - Seeding and Soil Supplements: Finish ground cover.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Topsoil:
   1. Basis of Measurement: By square yard.
   2. Basis of Payment: Includes excavating existing topsoil, supplying topsoil materials, stockpiling, preparing and scarifying substrate surface, placing where required, and rolling.

1.3 SUBMITTALS

A. Section 01 3300 - Submittal Procedures: Submittal procedures

B. Materials Source: Submit name of imported materials source.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

B. Perform Work in accordance with relevant Federal, State, County, and Municipal standards.

PART 2 - PRODUCTS

2.1 MATERIALTOPSOIL MATERIALS

A. Topsoil: Excavated and reused material.
   1. Graded.
   2. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
      a. Screening: Single screened.

B. Topsoil Type: Imported borrow.
   1. Friable loam.
   2. Reasonably free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds, and foreign matter. Free of pests, pest larvae, and matter toxic to plants.
      a. Screening: Single screened.
      b. Grading analysis:
         1) 2 inch sieve: minimum 100 percent passing.
         2) No. 4 sieve: minimum 75 percent passing.

3) No. 10 sieve: minimum 60 percent passing, with following content, as defined by ASTM D6913:

a) Sand: 5-70 percent
b) Silt: 10-70 percent
c) Clay: 5-36 percent

3. Acidity range (pH) of 6.0 to 7.0, as defined by ASTM G51.
4. Containing minimum of 4 percent and maximum of 10 percent inorganic matter as determined by ASTM D2974.
5. Magnesium to exceed 100 units; phosphorus to exceed 150 units; potassium to exceed 120 units; soluble salts/conductivity not to exceed 900 ppm/0.9 mmhos/cm in soil.

2.2 SOURCE QUALITY CONTROL

A. Section 01 4000 - Quality Requirements: Testing and Inspection Services: Testing and analysis of soil material.

B. Testing and Analysis of Structural Fill Material: Perform in accordance with ASTM D1557, ASTM D6913, and ASTM D4318.

C. Testing and Analysis of Topsoil Material: Perform in accordance with ASTM D6913, ASTM D4318, ASTM G51, and ASTM D2974..

D. When tests indicate materials do not meet specified requirements, change material and retest.

E. Furnish materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 7300 - Execution Requirements: Verification of existing conditions before starting work.

B. Verify building and trench backfilling have been inspected.

C. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

A. Protect landscaping and other features remaining as final Work.

B. Protect existing structures, fences, sidewalks, utilities, paving, and curbs.

C. Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

D. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated sub-soil.

E. Scarify subsoil to depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil

3.3 SUBSTRATE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches, stones, in excess of 2 inch in size. Remove contaminated subsoil.

C. Scarify surface to depth of 6 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

A. Place topsoil in areas where seeding is required. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material, structures, and other site features to prevent damage.

E. Lightly compact placed topsoil.

F. Leave stockpile area and site clean and raked, ready to receive landscaping.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.5 TOLERANCES

A. Section 01 4000 - Quality Requirements: Tolerances.

B. Top of Topsoil: Plus, or minus 1/2 inch.

3.6 PROTECTION OF INSTALLED WORK

A. Section 01 7300 - Execution Requirements: Requirements for protecting finished Work.

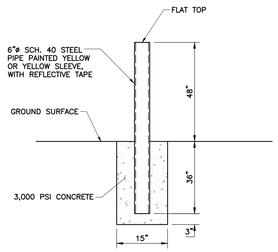
B. Prohibit construction traffic over topsoil.

END OF SECTION 32 9119

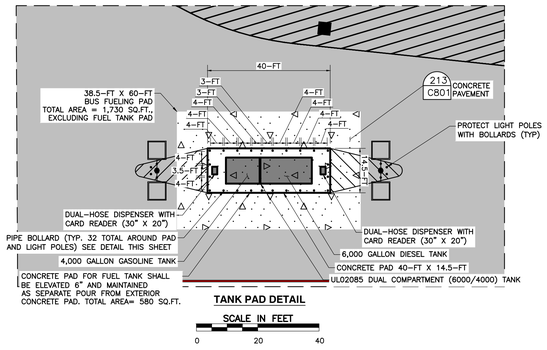
NORTH

SCM-1

PIPE BOLLARD
N.T.S.



TANK PAD DETAIL
SCALE IN FEET
0 20 40



LEGEND

- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- 385 EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING FENCE LINE
- EXISTING DITCH FLOW LINE
- ST EXISTING STORM PIPE
- W EXISTING WATER LINE
- G EXISTING GAS LINE
- OHW-E EXISTING OVERHEAD WIRE
- EXISTING TREELINE
- SIGN
- WV WATER BOX (WATER VALVE)
- FIRE HYDRANT
- WATER MANHOLE
- WV WATER VAULT
- WMK WATERLINE MARKER
- GMK GAS LINE MARKER
- GUY WIRE
- GUY POLE
- EXISTING FEMA FLOODPLAIN
- EXISTING WETLAND
- B-1 BORING LOCATION
- EXISTING WETLAND – PEM
- EXISTING WETLAND – PFO
- EXISTING WETLAND – PSS
- EXISTING EPHEMERAL STREAM
- EXISTING INTERMITTENT STREAM
- CALCULATED 100-YR WSE
- **EXISTING PERENNIAL STREAM**
- **PROPOSED SAWCUT**
- PROPOSED CONCRETE CURB
- PROPOSED DEPRESSED CONC. CURB
- PROPOSED ASPHALT WEDGE CURB
- PROPOSED CONCRETE
- PROPOSED STRIPING
- PROPOSED SIDEWALK
- PROPOSED BUILDING
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED TREELINE
- PROPOSED FENCE
- PROPOSED GUIDERAIL
- PROPOSED SIGNAGE
- **PROPOSED LIGHT POST**

NOTE:

IT IS TO BE NOTED THAT BATTLE RIDGE ROAD IS A STATE ROUTE. FOR ANY FUTURE WORK TO TAKE PLACE ON THE STATE ROUTE, A HIGHWAY OCCUPANCY PERMIT IS REQUIRED PURSUANT TO § 420 OF THE ACT OF JUNE 1, 1945 (P.L. 1242, NO. 428), KNOWN AS THE – STATE HIGHWAY LAWI BEFORE DRIVEWAY ACCESS TO A STATE HIGHWAY IS PERMITTED.

UNIT 6 TO DOLPHIN RUN DRAINAGE AREA = 4.27 AC

UNIT 7 TO DOLPHIN RUN DRAINAGE AREA = 61.66 AC

UNIT 6 TO DOLPHIN RUN DRAINAGE AREA = 4.27 AC

PARKING STRIPING 206 C800

ANGLED PARKING STRIPING 207 C800

225 C802 6-FT HIGH CHAIN LINK FENCE

INSET THIS SHEET

SNOW REMOVAL AREA

PORTABLE SNOW SCRAPER (FURNISHED AND INSTALLED BY CONTRACTOR) – SCRAPER SYSTEMS™ FLEET PLOW 880B HEAVY-DUTY BUS SCRAPER OR SIMILAR AS APPROVED BY OWNER AND ARCHITECT

FUEL TANKS AND ASSOCIATED PUMPS TO BE FURNISHED AND INSTALLED BY OWNER.

8-FT WIDE VEHICLE GATE 225 C802

SK SDE SIDEWALK (PROPOSED)

SK SDE SIDEWALK (EXISTING)

6,000 GALLON DIESEL FUEL
4,000 GALLON GAS
UL 2085 DUAL COMPARTMENT TANK

FUELING TANK

DELIVERIES SIGNAGE DP-3 (SEE SHEET A902)

CONCRETE APRON AROUND BUILDING (TYP.) 213 C801

FROST SLABS AT DOORS (TYP.). SEE STRUCTURAL PLANS FOR CONTINUATION.

BUS DEPOT

220 C801 CONCRETE/ASPHALT TURNDOWN

213 C801 CONCRETE PAVEMENT

224 C802 DUMPSTER ENCLOSURE

AIR COMPRESSOR PAD

226 C802 VAN ACCESSIBLE SIGNAGE (TYP.)

228 C802 ADA RAMP

202 C800 215 C801 SIDEWALK (TYP.)

CONCRETE SIDEWALK (TYP.) 202 C800

DIRECTION ARROWS (TYP.) 223 C801

PROPOSED SEGMENTAL RETAINING WALL. DELEGATED DESIGN-BUILD BY CONTRACTOR. SUBMIT STAMPED PLANS FOR REVIEW TO LICENSED PROFESSIONAL. 231 C805

PEDESTRIAN CROSS-WALK(TYP.) 223 C801

216 C801 DEPRESSED CURB (TYP.)

227 C802 FLAGPOLE

LIGHT DUTY ASPHALT 212 C801

STOP BAR (TYP.) 223 C801

GUIDERAIL (TYP.) 219 C801

233 C805 MOTION SENSOR WITH MOUNTING POST

232 C805 SWING GATE OPERATOR

229 C802 CONCRETE ISLAND

ASPHALT WEDGE CURB (TYP.) 217 C801

HEAVY DUTY ASPHALT (TYP.) 212 C801

208 C800 CONCRETE WHEEL STOP

222 C801 ACCESSIBLE PARKING (TYP.)

226 C802 ACCESSIBLE SIGNAGE (TYP.)

226 C802 VAN ACCESSIBLE SIGNAGE (TYP.)

DIRECTIONAL SIGNAGE DP-2 (SEE SHEET A902)

DIRECTION ARROW (TYP.) 223 C801

25-FT WETLAND BUFFER. WAIVER GRANTED.

WETLAND 11
DRAINAGE AREA = 1.94 AC

UNIT 8 TO DOLPHIN RUN DRAINAGE AREA = 1.93 AC

30' FRONT SETBACK

OLD OAKDALE ROAD
VARIABLE WIDTH

RIGHT OF WAY LINE

ASPHALT PAVING

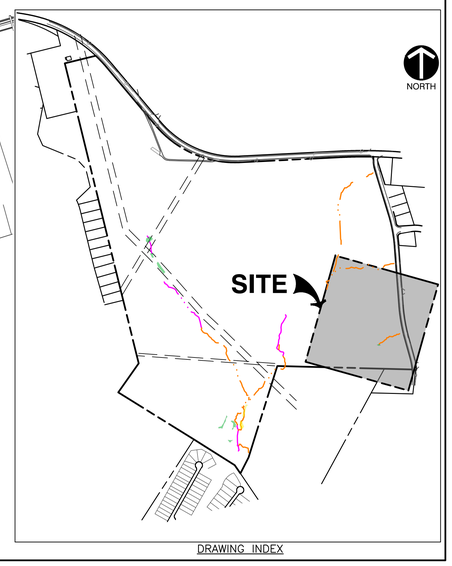
MAIN ENTRANCE SIGNAGE DP-1 (SEE SHEET A902)

214 C801 SAWCUT AND MATCH EXISTING GRADES

223 C802 226 C802 STOP SIGN AND BAR (TYP.)

SOUTH FAYETTE MIDDLE SCHOOL

SCALE IN FEET
0 40 80



DRAWING INDEX

ONE CALL SERIAL NO.: 20243171361

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE–STOP CALL PENNSYLVANIA ONE CALL SYSTEM, INC.
1-800-242-1776

PENNSYLVANIA ACT 287 (1974) AS AMENDED BY ACT 50 (2017) REQUIRES NO LESS THAN 3 WORKING DAYS NOTICE NOR MORE THAN 10 WORKING DAYS NOTICE FROM EXCAVATORS WHO ARE ABOUT TO DIG, DRILL BLAST, AUGER, BORE, GRADE, TRENCH, OR DEMOLISH WHEN IN THE CONSTRUCTION PHASE. FOR LOCATION REQUESTS IN THE STATE OF PENNSYLVANIA, CALL 811 OR 1-800-242-1776. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM PLANS AND MARKINGS COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES CI/ASCE 38-2, QUALITY LEVEL C). OTHER UNDERGROUND UTILITIES MAY EXIST WHICH ARE NOT SHOWN AS A RESULT OF INFORMATION NOT BEING PROVIDED BY THE UTILITY OWNER, HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, FULLY AND RELIABLY DEPICTED. WHERE ADDITIONAL INFORMATION IS NEEDED, THE CLIENT OR CONTRACTOR IS ADVISED THAT EXCAVATION MAY BE NECESSARY. IN THE EVENT OF DAMAGE OR VIOLATION OF ACT 50, EXCAVATORS AND PROJECT OWNERS ARE REQUIRED TO FILE AN ALLEGED VIOLATION REPORT (AVR) WITHIN TEN (10) DAYS OF THE OCCURRENCE. DESIGNERS ARE REQUIRED TO FILE AN AVR WITHIN THIRTY (30) DAYS OF THE OCCURRENCE OF ANY FACILITY OWNERS ARE REQUIRED TO FILE AN ALLEGED VIOLATION REPORT (AVR) WITHIN TEN (10) DAYS OF THE OCCURRENCE. DESIGNERS ARE REQUIRED TO FILE AN AVR WITHIN THIRTY (30) DAYS OF THE OCCURRENCE OF ANY

ONE CALL SERIAL NO.: 20243171361

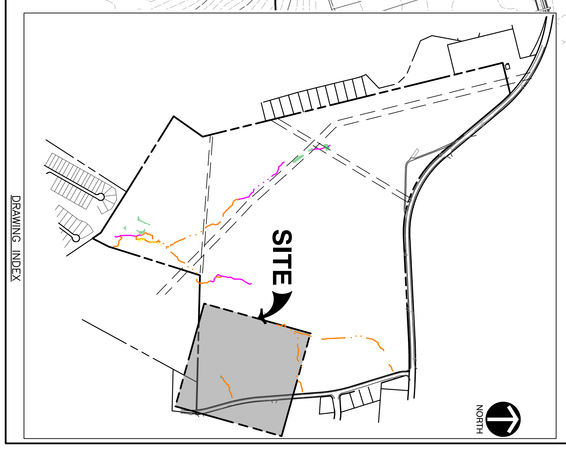
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE–STOP CALL PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776

REFERENCE

1. TOPOGRAPHIC SURVEY FOR SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT, PREPARED BY: CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED: JANUARY 2024.

SCALE IN FEET
0 40 80

DRAWING INDEX



INFILTRATION TEST	ACTUAL INFILTRATION RATE (in./hr.)	DESIGN INFILTRATION RATE (in./hr.)	FACTOR OF SAFETY
IT–1	0.01 X (NOT USED IN CALCS)	0.00	2
IT–2	0.01 X (NOT USED IN CALCS)	0.00	2
IT–3	0.06 X (NOT USED IN CALCS)	0.03	2
IT–4	0.01 X (NOT USED IN CALCS)	0.00	2
IT–5	0.13✓	0.06	2
IT–6	0.08 X (NOT USED IN CALCS)	0.04	2
IT–7	0.07 X (NOT USED IN CALCS)	0.02	2
IT–8	0.04 X (NOT USED IN CALCS)	0.03	2
IT–9	0.06 X (NOT USED IN CALCS)	0.03	2
IT–10	0.04 X (NOT USED IN CALCS)	0.02	2

LEGEND

EXISTING PROPERTY LINE
EXISTING EASEMENT
EXISTING RIGHT-OF-WAY
EXISTING MAJOR CONTOUR
EXISTING INTERMEDIATE CONTOUR
EXISTING FENCE LINE
EXISTING DITCH FLOW LINE
EXISTING STORM PIPE
EXISTING GAS LINE
EXISTING OVERHEAD WIRE
EXISTING TREELINE
SIGN
WATER BOX (WATER VALVE)
FIRE HYDRANT
WATER MANHOLE
WATERLINE MARKER
GAS LINE MARKER
GUY WIRE
GUY POLE
EXISTING 100 YEAR FLOODPLAIN
BORING LOCATION
EXISTING WETLAND
EXISTING WETLAND – PEM
EXISTING WETLAND – PFO
EXISTING INTERMITTENT STREAM
EXISTING EPHEMERAL STREAM
EXISTING PERENNIAL STREAM
PROPOSED CONCRETE CURB
PROPOSED DEPRESSED CONC. CURB
PROPOSED ASPHALT WEDGE CURB
PROPOSED CONCRETE
PROPOSED SIDEWALK
PROPOSED BUILDING
PROPOSED HEAVY DUTY ASPHALT
PROPOSED LIGHT DUTY ASPHALT
PROPOSED TREELINE
PROPOSED CANOPY
PROPOSED SIGNAGE
PROPOSED LIGHT POST
PROPOSED INDEX CONTOUR
PROPOSED INTERMEDIATE CONTOUR
PROPOSED SLOPE LABEL
PROPOSED SPOT ELEVATION
CURB ELEVATIONS
PROPOSED STORM PIPE
PROPOSED INLET TYPES
PROPOSED STORM MANHOLE
PROPOSED ENDWALL W/ RIPRAP
PROPOSED SINGLE LINE STORM PIPE
PROPOSED TOE DRAIN
INFILTRATION TEST LOCATION
SOIL AMENDMENTS
NPDES PERMIT/LIMIT OF DISTURBANCE
SOIL BOUNDARY TYPE
HSG SOIL NAME

Proj No. 24-S49-01B
Issue Date 10/01/2025

C400B

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NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY

3631 OLD OAKDALE RD MCDONALD, PA, 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD
MCDONALD, PA, 15057

STORMWATER MANAGEMENT PLAN (1 OF 2)

REVISIONS
4 ADDENDUM #4 10/31/2025

BIDDING SET

DATE 06/06/2025
SCALE AS SHOWN
DESIGNED BY DRAWN BY
CHECKED BY AJMB
APPROVED BY JJP
*MANUS SIGNATURE ON FILE

Civil & Environmental Consultants, Inc.
4350 Northern Pike
Suite 141
Monroeville, PA 15146
Ph: 724.327.5200
www.cecinc.com

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
412.561.7117 www.DRAWcollective.com

GENERAL PCSM PLAN NOTES

1. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION, INSPECTION, TESTING AND FINAL ACCEPTANCE OF ALL NEW STORMWATER MANAGEMENT FACILITIES CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE REGULATING AGENCIES CONCERNING INSTALLATION, INSPECTION AND APPROVAL OF THE STORM DRAINAGE SYSTEM CONSTRUCTION.
3. ALL STORMWATER MANAGEMENT FACILITIES, INCLUDING COLLECTION AND CONVEYANCE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
4. ANY WORK PERFORMED IN THE LOCAL OR STATE RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL OR STATE REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
5. STORM PIPE MATERIAL OPTIONS ARE AS FOLLOWS: HDPE. ALL INLETS ARE TO BE PENNDOT TYPE M OR TYPE M MODIFIED INLETS UNLESS OTHERWISE SPECIFIED. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL FOR ALL INLETS, MANHOLES, YARD DRAINS AND ENDWALLS.
6. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
7. APPROVAL OF A STORMWATER MANAGEMENT PLAN BY THE TOWNSHIP SHALL NOT BE CONSTRUED AS AN INDICATION THAT SAID PLAN COMPLIES WITH THE REQUIREMENTS, LAWS, OR STANDARDS OF ANY AGENCY OF THE COMMONWEALTH WHICH MAY OR MAY NOT GOVERN SAID ACTIVITY.
8. A LICENSED PROFESSIONAL OR THEIR DESIGNEE MUST BE PRESENT ON SITE DURING INSTALLATION OF THE BIORETENTION FACILITIES.
9. IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER BMP REQUIRED BY AN APPROVED STORMWATER MANAGEMENT PLAN, OR ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED STORMWATER MANAGEMENT PLAN, UNLESS THE TOWNSHIP GRANTS AN EXCEPTION IN WRITING.
10. INSTALL CONSTRUCTION FENCE AROUND THE PROPOSED BIORETENTION AREAS PRIOR TO THE START OF CONSTRUCTION. BIORETENTION AREAS SHALL BE PROTECTED FROM SEDIMENT LADEN RUNOFF DURING CONSTRUCTION.
11. CONSTRUCTION WASTES ARE NOT ANTICIPATED ON SITE. PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH AND/OR FROM THE PROJECT SITE AND POST CONSTRUCTION STORMWATER MANAGEMENT BMPS WILL BE UNDERTAKEN IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTIONS, TITLE 25, CHAPTER 102.8 (F)(11).
12. ALTHOUGH THERE ARE NO ANTICIPATED POTENTIALS FOR GEOLOGICAL OR SOIL CONDITIONS TO CAUSE POLLUTION DURING CONSTRUCTION ON SITE, IF SUCH A SITUATION IS ENCOUNTERED, CONTRACTOR TO CONTACT DESIGNEE, BUTLER COUNTY CONSERVATION DISTRICT, PADEP, AND THE TOWNSHIP IMMEDIATELY.
13. EFFORTS WILL BE MADE TO MINIMIZE IMPERVIOUS AREAS IN ALL DELINEATED WATERSHEDS.
14. CONTRACTOR IS TO PROTECT ALL VEGETATION, STREAMS, AND WETLANDS THAT ARE OUTSIDE THE DETERMINED LIMIT OF DISTURBANCE AND LIMIT LAND CLEARING AND GRADING TO AREAS NECESSARY TO COMPLETE PROPOSED SITE IMPROVEMENTS.
15. MINIMIZE SOIL COMPACTION TO THE FULLEST EXTENT POSSIBLE IN ALL PROPOSED UNIMPROVED AREAS AND BIORETENTION STORMWATER MANAGEMENT BMP AREAS.

CONSTRUCTION WASTE RECYCLING/DISPOSAL

CONSTRUCTION WASTES ARE REFUSE MATERIALS THAT ARE EXISTING ON-SITE OR GENERATED DURING THE COURSE OF CONSTRUCTION AND INCLUDE, BUT ARE NOT LIMITED TO, PAPER, PLASTIC, RUBBER, WOOD, TEXTILE, AND METAL PRODUCTS.

INSTALLATION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING WASTE RECYCLING/DISPOSAL AREAS ON THE E&S PLAN ONCE THEY HAVE BEEN DETERMINED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL WASTE RECYCLING/DISPOSAL PERMITS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

MAINTENANCE: ALL CONSTRUCTION WASTE SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF AT A STATE-APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL/STATE CODES AND PERMIT REQUIREMENTS. THE BURNING OF WASTE MATERIALS WILL NOT BE PERMITTED.

GEOLOGIC FORMATIONS/SOIL CONDITIONS

1. IF DURING CONSTRUCTION GEOLOGIC HAZARDS ARE ENCOUNTERED, THE CONTRACTOR IS TO CONTACT THE OWNER, THE DESIGN PROFESSIONAL, THE LOCAL CONSERVATION DISTRICT, AND THE PADEP FOR PROPER HANDLING OF THESE MATERIALS.
2. IF WATER TABLE IS ENCOUNTERED:
   - KEEP EXCAVATIONS AS SHALLOW AS PRACTICAL;
   - CONSTRUCT DURING DRY WEATHER;
   - PUMPS AND WATER FILTER BAGS SHALL BE UTILIZED IF GROUNDWATER IS ENCOUNTERED;
   - CONSTRUCT INTERMEDIATE DRAINS, IF NECESSARY TO CONTROL AND DISCHARGE WATER FROM FILLS.
3. IF ERODIBLE SOILS ARE ENCOUNTERED:
   - UTILIZE EROSION CONTROL BLANKETS, SILT SOCKS, TEMPORARY AND PERMANENT SEEDING, AND DIVERSION CHANNELS TO MINIMIZE EROSION.
4. SOIL COMPACTION
   - MINIMIZE SOIL COMPACTION TO THE FULLEST EXTENT POSSIBLE IN ALL UNIMPROVED AREAS.

THERMAL IMPACTS

THERMAL IMPACTS WILL BE ADDRESSED BY THE USE OF SOIL AMENDMENTS AND A BIO-RETENTION RAIN GARDEN. RUNOFF FROM THE PROPOSED DEVELOPMENT'S IMPERVIOUS SURFACES WILL BE CONVEYED THROUGH A STORMWATER PIPING SYSTEM AND INTO THE STORMWATER FACILITY BEFORE BEING DISCHARGED. INFILTRATION, EVAPOTRANSPIRATION, AND THE TIME REQUIRED FOR RUNOFF TO REACH THE DISCHARGE POINTS WILL PROVIDE COOLING EFFECTS THAT WILL OFFSET THERMAL IMPACTS GENERATED BY THE PROPOSED IMPERVIOUS SURFACES. FURTHERMORE, FLOW THROUGH THE VEGETATED AREAS WILL ALSO PROVIDE ADDITIONAL OPPORTUNITY FOR THE RUNOFF TO INFILTRATE INTO THE GROUND RATHER THAN BEING DIVERTED DIRECTLY INTO WATERWAYS, FURTHER OFFSETTING POTENTIAL THERMAL IMPACTS. EFFORTS WILL BE MADE TO MINIMIZE SOIL COMPACTION.

CHAPTER 93 DESIGNATION

UNT TO DOLPHIN RUN (WWF)

MAINTENANCE PROGRAM

TO PROVIDE EFFECTIVE OPERATION OF THE STORMWATER MANAGEMENT SYSTEMS, THE FOLLOWING OPERATIONS AND MAINTENANCE PROGRAM SHALL BE IMPLEMENTED FOR THIS PROJECT. THE LANDOWNER OR THEIR REPRESENTATIVE SHALL INSPECT AND MAINTAIN ALL STORMWATER MANAGEMENT FACILITIES AND SEWERS. INSPECTION OF THE FACILITIES WILL OCCUR AFTER EACH RUNOFF PRODUCING EVENT OR AS DESCRIBED BELOW. THE LANDOWNER SHALL MAINTAIN RECORDS OF INSPECTIONS FOR 10 YEARS AND EACH INSPECTION SHOULD BE SENT TO THE BOROUGH AFTER ITS COMPLETION. THE LANDOWNER SHALL CAUSE TO HAVE THE STORMWATER MANAGEMENT FACILITIES TO BE INSPECTED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN PENNSYLVANIA AT AN INTERVAL NOT TO EXCEED 2 YEARS.

MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEMS SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:

STORMWATER COLLECTION SYSTEM:

1. INLET GRATES SHOULD BE KEPT FREE OF TRASH AND DEBRIS.
2. INLETS SHOULD BE INSPECTED A MINIMUM OF TWO (2) TIMES PER YEAR AND BE CLEANED OUT WHEN DEBRIS REACHES HALF THE DISTANCE FROM THE BOTTOM OF THE INLET TO THE INVERT OF THE OUTLET PIPE.
3. PIPES SHOULD BE FLUSHED AS NEEDED TO CLEAR BUILD-UP OF DEBRIS THAT MAY INTERFERE WITH THE FLOW OF WATER THROUGH THE PIPES.

ESTIMATED COST OF MAINTENANCE FOR STORMWATER COLLECTION SYSTEM:

IT WAS ASSUMED THAT THE TIME IT TAKES TO INSPECT ONE (1) INLET GRATE WOULD BE APPROXIMATELY 1/2 HOUR AT $30.00 AN HOUR. THESE ESTIMATED COSTS DO NOT INCLUDE UNEXPECTED INSPECTIONS DUE TO RAINFALL EVENTS.

STORMWATER OUTFALLS:

1. PIPE OUTFALLS SHOULD BE INSPECTED A MINIMUM OF TWO (2) TIMES PER YEAR AND BE KEPT FREE OF DEBRIS AND VEGETATION THAT MAY INTERFERE WITH THE DISCHARGE OF WATER.
2. CLEAR THE ENERGY DISSIPATERS/OUTLET PROTECTION APRONS OF ALL DEBRIS.
3. REPLACE ANY DISLODGED ROCK. ROCK SHOULD BE REPLACED AS NEEDED TO PREVENT EROSION AND SCOUR AROUND THE OUTFALL.

ESTIMATED COST OF MAINTENANCE FOR STORMWATER OUTFALLS:

IT WAS ASSUMED THAT THE TIME IT TAKES TO INSPECT ONE (1) OUTFALL WOULD BE APPROXIMATELY 1-HOUR AT $30.00 AN HOUR. THESE ESTIMATED COSTS DO NOT INCLUDE UNEXPECTED INSPECTIONS DUE TO RAINFALL EVENTS.

BIO-RETENTION RAIN GARDEN AREA:

PROPERLY DESIGNED AND INSTALLED AREAS REQUIRE MONTHLY MAINTENANCE:

1. BIO-RETENTION AREAS SHOULD BE INSPECTED FOR AND CLEANED OF DEBRIS AND LITTER.
2. VEGETATION SHOULD BE STABILIZED AS NEEDED. DETRITUS SHOULD BE REMOVED ON A YEARLY BASIS. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
3. MULCHED AREAS SHOULD BE RE-SPREAD IF EROSION IS EVIDENT.
4. FERTILIZER AND PESTICIDE USE SHOULD BE AVOIDED.
5. DURING PERIODS OF EXTENDED DROUGHT, BIO-RETENTION AREAS MAY NEED WATERING.
6. TREES AND SHRUBS IN BIO-RETENTION AREAS SHOULD BE INSPECTED FOR HEALTH TWICE A YEAR.
7. OUTLET STRUCTURES AND ENDWALLS SHALL BE INSPECTED AND SHALL BE KEPT FREE OF DEBRIS AND VEGETATION. CLEAR THE ENERGY DISSIPATERS/OUTLET PROTECTION APRONS OF ALL DEBRIS. REPLACE ANY DISLODGED ROCK. ROCK SHOULD BE REPLACED AS NEEDED TO PREVENT EROSION AND SCOUR AROUND OUTFALLS.

ESTIMATED COST OF MAINTENANCE FOR BIO-RETENTION:

IT WAS ASSUMED THAT THE TIME IT TAKES TO INSPECT ONE BIO-RETENTION RAIN GARDENS WOULD BE APPROXIMATELY 3-HOURS AT $50.00 AN HOUR. THE APPROXIMATED COST TO INSPECT ONE (1) RAIN GARDEN WOULD BE $150.00 PER INSPECTION AND $1,800.00 PER YEAR. THESE ESTIMATED COSTS DO NOT INCLUDE UNEXPECTED INSPECTIONS DUE TO RAINFALL EVENTS.

SOIL AMENDMENTS MAINTENANCE:

1. SOIL AMENDMENTS – VISUALLY INSPECT AREAS A MINIMUM OF FOUR TIMES PER YEAR AND AFTER MAJOR STORMS (GREATER THAN 2 INCHES IN 24 HOURS). SOILS MAY BECOME RE-COMPACTED OVER TIME DUE TO FOOT TRAFFIC OR MOWING; REPEAT THE SOIL RESTORATION PROCESS IN AREAS WHERE RUNOFF PONDS FOR LONGER THAN 24 HOURS (PER ANNUM: ~$2000/YR).

GENERAL MAINTENANCE:

1. ALL PROPOSED PAVED SURFACES SHALL BE SWEPT ONE (1) TO TWO (2) TIMES A MONTH USING BOTH A MECHANICAL BROOM AND A VACUUM FILTER OR A COMBINATION THEREOF.

ESTIMATED COST OF MAINTENANCE FOR STREET SWEEPING:

THE APPROXIMATED COST PER PARKING LOT SWEEP IS $2,500.00.

1. SEDIMENT AND DEBRIS REMOVED FROM STORMWATER FACILITIES SHALL BE DISPOSED OF IN AN APPROPRIATE LOCATION IN ACCORDANCE WITH THE LOCAL AND STATE CODES. UNDER NO CIRCUMSTANCE SHALL SEDIMENT BE DISPOSED OF IN OR NEAR WATERS OF THE COMMONWEALTH.
2. ALL TEMPORARY E&S MEASURES ARE TO BE REMOVED ONCE THE SITE IS DEEMED STABILIZED BY THE CONSERVATION DISTRICT.

DOCUMENTS REQUIRED TO BE ON SITE

THE FOLLOWING DOCUMENTS MUST BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION:

1. E&S PLAN.
2. INSPECTION RECORDS.
3. MONITORING RECORDS.
4. MAINTENANCE INSTRUCTIONS SHOULD SPECIFY THAT INSPECTIONS BE LOGGED ONTO DEP FORM 3800-FM-BCW0271d DATED 12/2024 & KEPT ON SITE AT ALL TIMES.

IN ADDITION, A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.

ALL TEMPORARY E&S CONTROLS ARE TO BE REMOVED ONCE THE SITE IS DEEMED STABILIZED BY THE CONSERVATION DISTRICT.

TYPE SLOPE AND EXTENT OF SOILS

ACCORDING TO THE SOIL CLASSIFICATION INFORMATION COMPILED FROM THE USDA WEB SOIL SURVEY, THE PROPOSED PROJECT'S LIMIT OF DISTURBANCE IS LOCATED IN AN AREA WITH FOUR SOIL TYPES PRESENT. THE SOIL TYPES AND GENERAL LIMITATIONS AND CHARACTERISTICS ARE AS FOLLOWS:

SOIL CLASSIFICATION SUMMARY

SYMBOL	SOIL TYPE	SLOPE	HSG
CuC	CULLEOKA CHANNERY SILT LOAM	8-15%	B
CuD	CULLEOKA CHANNERY SILT LOAM	15-25%	B
DoC	DORMONT SILT LOAM	8-15%	D
GuD	GUERNSEY SILT LOAM	15-25%	C
UCB	URBAN LAND-CULLEOKA COMPLEXT	GENTLE	B

LIMITATIONS AND RESOLUTIONS:

1. SEASONAL HIGH WATER TABLE:
   a. KEEP EXCAVATIONS AS SHALLOW AS PRACTICAL;
   b. CONSTRUCT DURING DRY WEATHER;
   c. PUMPS AND WATER FILTER BAGS SHALL BE UTILIZED IF GROUNDWATER IS ENCOUNTERED;
   d. CONSTRUCT INTERMEDIATE DRAINS, IF NECESSARY TO CONTROL AND DISCHARGE WATER FROM FILLS.
2. ERODIBLE:
   a. EROSION CONTROL BLANKETS, SILT SOCKS, TEMPORARY AND PERMANENT SEEDING, AND DIVERSION CHANNELS WILL BE USED TO MINIMIZE EROSION.
3. SLOPE:
   a. REGRADE THE SITE TO SUITABLE SLOPES FOR DESIRED FUNCTION.
4. TRENCHING:
   a. TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. STOCKPILES SHALL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH;
   b. WATER ENCOUNTERED IN THE TRENCH SHALL BE PUMPED FROM THE AREA BY USE OF A FILTER BAG;
   c. DEEP TRENCHES ARE TO BE SHORED TO PREVENT CAVING. CONSULT OSHA STANDARDS AND REGULATIONS;
   d. TRENCHES WILL BE BACKFILLED WITH COMPACTED STONE AND/OR COMPACTED SUITABLE MATERIAL REMOVED FROM THE TRENCH;
5. LOW STRENGTH:
   a. TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. STOCKPILES SHALL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH.
6. DEPTH TO BEDROCK:
   a. AVOID DEEP EXCAVATIONS WHERE SHALLOW SOILS EXIST.
7. CORROSION:
   a. PROPOSED SUBSURFACE CONCRETE AND STEEL WILL BE SEALED OR COATED WITH CORROSIVE RESISTANT MATERIAL.
8. PIPING:
   a. TRENCH PLUGS SHALL BE UTILIZED IN ACCORDANCE WITH THE PADEP STANDARD DETAIL. WATER SHALL BE DIVERTED AWAY FROM OPEN TRENCHES.
9. POOR TOPSOIL:
   a. THE SOIL AMENDMENTS REQUIRED WITH EACH VEGETATIVE STABILIZATION MIX SPECIFIED ON THE E&S PLAN(S) AND NOTES DRAWINGS ARE DESIGNED TO COUNTERACT THIS LIMITATION
10. SOIL COMPACTION
    a. MINIMIZE SOIL COMPACTION TO THE FULLEST EXTENT POSSIBLE IN ALL PROPOSED UNIMPROVED AREAS AND BIO-RETENTION STORMWATER MANAGEMENT BMP AREAS

SCM CONSTRUCTION SEQUENCE (BIO-RETENTION RAIN GARDEN)

1. NOTIFY THE LICENSED PROFESSIONAL OR THEIR DESIGNEE AT LEAST TWO DAYS PRIOR TO THE START OF THE BIORETENTION RAIN GARDENS CONSTRUCTION. THE LICENSED PROFESSIONAL OR THEIR DESIGNEE MUST BE PRESENT DURING THE BIORETENTION AREA CONSTRUCTION.
2. BEGIN EARTHMOVING OPERATIONS TO CONSTRUCT THE PROPOSED BIORETENTION POND. PLACE FILL FOR THE BERM IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS. SLOPE FILL AWAY FROM THE FACE OF SLOPE, AND USE A PUMP AND FILTER BAG TO DRAIN PONDED WATER AS IT IS BEING BROUGHT TO FINAL GRADE.
3. ONCE THE RAIN GARDEN BOTTOM ELEVATION HAS BEEN REACHED, INSTALL HEADWALL, ROCK APRON, THE RAIN GARDEN DISCHARGE PIPE, AND THE OUTLET CONTROL STRUCTURE AND TRASH RACK.
4. EXCAVATE THE AREA FOR THE RAIN GARDEN'S SUBSURFACE STONE AND SOIL MEDIUM ZONE AND PLACE THE LINER, THEN PLACE STONE, SOIL, AND UNDERDRAIN IN ACCORDANCE WITH THE DETAIL PROVIDED.
5. CONTINUE CONSTRUCTION OF REMAINING BERM AND ALL APPURTENANCES AND PLANTINGS.
6. MINIMIZE SOIL COMPACTION IN THE BIORETENTION AREAS. PLANTING SOIL IN THE BIORETENTION AREAS SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB-GRADE PREPARATION/BED INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUB-GRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL. INSTALL PLANTING SOIL IN 18-INCH MAXIMUM LIFTS AND LIGHTLY COMPACT (TAMP WITH BACKHOE BUCKET OR BY HAND). KEEP EQUIPMENT OUT – DO NOT COMPACT. EXCAVATE FROM ONE END TO THE OTHER. INSTALL PLANTING SOIL TO GRADES INDICATED ON THE DRAWINGS AND CONCURRENTLY, PLANT TREES AND SHRUBS ACCORDING TO SUPPLIER'S RECOMMENDATIONS AND ONLY FROM MID-MARCH THROUGH THE END OF JUNE OR FROM MID-SEPTEMBER THROUGH MID-NOVEMBER. INSTALL 2-INCHES TO 3-INCHES SHREDDED HARDWOOD MULCH OR COMPOST MULCH EVENLY AS SHOWN ON PLANS. DO NOT APPLY MULCH IN AREAS WHERE GROUND COVER IS TO BE GRASS OR WHERE COVER WILL BE ESTABLISHED BY SEEDING.
7. PROTECT BIORETENTION AREAS FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION. PLACE ORANGE CONSTRUCTION FENCE AROUND THE PERIMETER OF THE BIORETENTION AREAS TO LIMIT ACCESS INTO THESE AREAS BY CONSTRUCTION VEHICLES.

SCM CONSTRUCTION SEQUENCE (SOIL AMENDMENTS)

1. NOTIFY THE LICENSED PROFESSIONAL OR THEIR DESIGNEE AT LEAST TWO DAYS PRIOR TO THE APPLICATION OF SOIL AMENDMENTS. THE LICENSED PROFESSIONAL OR THEIR DESIGNEE MUST BE PRESENT DURING THE APPLICATION OF SOIL AMENDMENTS.
2. ALL CONSTRUCTION SHOULD BE COMPLETED AND STABILIZED BEFORE BEGINNING SOIL RESTORATION.
3. SOIL AMENDMENT MEDIA USUALLY CONSISTS OF COMPOST, BUT CAN INCLUDE MULCH, MANURES, SAND, AND MANUFACTURED MICROBIAL SOLUTIONS.
4. COMPOST SHOULD BE ADDED AT A RATE OF 2:1 (SOIL:COMPOST). IF A PROPRIETARY PRODUCT IS USED, THE MANUFACTURER'S INSTRUCTIONS SHOULD BE FOLLOWED IN TERMS OF MIXING AND APPLICATION RATE.
5. SOIL RESTORATION SHOULD NOT BE USED ON SLOPES GREATER THAN 50%. IN THESE AREAS, DEEP-ROOTED VEGETATION CAN BE USED TO INCREASE STABILITY.
6. PROCEDURE: ROTOTILL, OR RIP THE SUBGRADE, REMOVE ROCKS, DISTRIBUTE THE COMPOST, SPREAD THE NUTRIENTS, ROTOTILL AGAIN.
7. ADD 6 INCHES COMPOST / AMENDMENT AND TILL UP TO 8 INCHES FOR MINOR COMPACTION.
8. ADD 10 INCHES COMPOST / AMENDMENT AND TILL UP TO 20 INCHES FOR MAJOR COMPACTION.

CRITICAL STAGES OF CONSTRUCTION

1. DURING THE INSTALLATION OF THE BIO-RETENTION RAIN GARDEN (SCM-1), WHICH INCLUDES ALL PHASES AND PARTS OF THE INSTALLATION, THE FIRST VISIT SHOULD OCCUR DURING THE INSTALLATION OF THE SEDIMENT BASIN TO AVOID ANY POTENTIAL FUTURE CONCERNS IN PHASE 4.
2. DURING THE INSTALLATION OF THE SOIL AMENDMENTS (SCM-2).

CONSTRUCTION SEQUENCE

THE CONSTRUCTION OF THE PROJECT CONSISTS OF FOUR GENERAL PHASES OF CONSTRUCTION. ALL E&S CONTROL FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED E&S CONTROL PLAN AND THE PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL DATED MARCH 2012.

A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENT POLLUTION CONTROL. ALL NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW EVERY DETAILED PIECE OF MATERIAL OR EQUIPMENT. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE THE EXTENT AND DURATION OF EARTH DISTURBANCE ACTIVITY AND SOIL COMPACTION, AND SHALL MAXIMIZE THE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION TO THE GREATEST EXTENT POSSIBLE.

CRITICAL STAGES OF CONSTRUCTION ARE UNDERLINED.

BUS DEPOT CONSTRUCTION SEQUENCE

PHASE 1 (WINTER 2026):

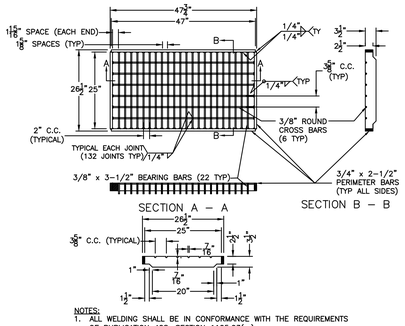
1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE ALLEGHENY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
2. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
3. LAY OUT THE LIMITS OF THE CONSTRUCTION SITE AND ESTABLISH BENCHMARKS AND REFERENCE POINTS.
4. STAKE OUT THE LIMIT OF DISTURBANCE AS INDICATED ON THE CONSTRUCTION PLANS.
5. INSTALL THE ROCK CONSTRUCTION ENTRANCE #1 IN THE LOCATION SHOWN ON THE PLAN AND IN ACCORDANCE WITH THE STANDARD DETAIL.
6. CLEAR ONLY THOSE AREAS NECESSARY TO REACH AND INSTALL PERIMETER E&S CONTROLS AND PROPOSED INLET PROTECTION SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN. INSTALL COMPOST FILTER SOCKS #1 TO #17 IN THE LOCATIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE SIZE SPECIFICATIONS ON THE E&S PLAN DRAWINGS, AND THE STANDARD DETAIL. ALL PERIMETER COMPOST FILTER SOCK SHALL BE INSTALLED PARALLEL TO THE CONTOURS. TREES SHALL NOT BE REMOVED IN ORDER TO INSTALL COMPOST FILTER SOCKS.
7. INSTALL ORANGE CONSTRUCTION FENCING AROUND EXISTING WETLANDS.
8. INSTALL THE CONSTRUCTION STAGING AREA.
9. INSTALL OUTCASTLE CONCRETE CULVERT FOR ROAD CROSSING.
10. INSTALL GAS STUB CONNECTION IN COORDINATION WITH GAS COMPANY.
11. INSTALL TEMPORARY COMPOST FILTER SOCKS #A THROUGH #H, THEN INSTALL ACCESS ROAD INTO SITE.
12. EXCAVATE AND INSTALL SEDIMENT BASIN #1, WITH BAFFLE, SEDIMENT CLEANOUT STAKE, ENDWALL WITH RIPRAP-3, EMERGENCY SPILLWAY WITH BLANKETING, PERMANENT RISER OUTLET STRUCTURE WITH TEMPORARY EXTENSION, SKIMMER, BERM, AND ANTI-SEEP COLLARS ON SEDIMENT BASIN OUTLET PIPE. CLEAN OUT SEDIMENT FROM THE SEDIMENT BASIN WHEN SEDIMENT REACHES THE CLEANOUT STAKE.
13. INSTALL PERMANENTLY LINED VEGETATIVE CHANNEL-1 TO CHANNELIZE AND DIRECT RUNOFF TO SEDIMENT BASIN-1. INSTALL RIPRAP-2 AT END OF CHANNEL TO DIRECT RUNOFF INTO SEDIMENT BASIN-1.
14. INSTALL TEMPORARY TOP OF SLOPE BERM BELOW ACCESS ROAD WHERE SHOWN IN PLAN.
15. INSTALL THE TEMPORARY 18" HDPE PIPE CONNECTION TO CHANNEL-1.
16. INSTALL TEMPORARY RIPRAP APRON-1.
17. INSTALL ALL STORM COLLECTION SYSTEM TO EXTENT SHOWN IN PLAN. INSTALL INLET PROTECTION IN PROPOSED INLETS AS THEY ARE INSTALLED.
18. BEGIN CLEARING AND GRUBBING OF SITE TO LIMITS OF PHASE #1 CONSTRUCTION WORK SHOWN.
19. PLACE STRIPPED TOPSOIL IN THE TOPSOIL STOCKPILE AREAS DESIGNATED ON THE PLANS AND/OR REMOVE FROM SITE. STOCKPILE LOCATIONS MAY VARY IN THE FIELD, AND ADDITIONAL STOCKPILE LOCATIONS MAY BE USED AS NECESSARY. ALL TOPSOIL STOCKPILE AREAS SHALL HAVE COMPOST FILTER SOCK ADJACENT TO PILE. THEREFORE, INSTALL COMPOST FILTER SOCK #18 AROUND THE TOPSOIL STOCKPILE.
20. DISTURBED AREAS ARE TO BE TEMPORARILY REVEGETATED. CESSATION OF WORK ACTIVITY FOR 4 DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION.
21. NOTE: NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE BEFORE INITIATING SEEDING AND MULCHING OPERATIONS.
22. COMMENCE TO PHASE 2.

PHASE 2 (SPRING 2027)

23. MONITOR THE CLEANOUT STAKE FOR SEDIMENT BASIN #1 AND REMOVE SEDIMENT PER THE MAINTENANCE PROGRAM.
24. BEGIN PREPARING AREA TO LIMITS SHOWN FOR PHASE 2 CONSTRUCTION WORK. REMOVE TEMPORARY COMPOST FILTER SOCKS #A THROUGH #H AS INSTALLED IN PHASE #1.
25. DISTURBED AREAS ARE TO BE TEMPORARILY REVEGETATED ACCORDING TO PROJECT DETAILS UPON CESSATION OF ACTIVITIES IN EACH AREA AS SOON AS PRACTICABLE.
26. BEGIN GENERAL CUT/FILL OPERATIONS, START CUTS AT TOPS OF SLOPES AND DEPOSIT THE MATERIAL AT THE BOTTOM OF PROPOSED FILL SLOPES. INSTALL ALL TOE KEYS AND DRAINS AS PER THE GEOTECHNICAL RECOMMENDATIONS.
27. REMOVE THE TEMPORARY 18" HDPE PIPE CONNECTION TO CHANNEL-1. REMOVE THE TEMPORARY RIPRAP APRON-1.
28. INSTALL THE BUS DEPOT BUILDING PAD. COMPACT THE BUILDING PAD TO THE REQUIRED DENSITY, AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
29. INSTALL WATER AND SANITARY UTILITIES. INSTALL COMPOST FILTER SOCKS #1' TO #26' BELOW SANITARY LINE FILL SLOPES.
30. INSTALL ELECTRIC UTILITIES AS PER MEP PLANS PROVIDED BY TOWER ENGINEERING.
31. INSTALL ALL STORMSEWER LINES, MANHOLES AND INLETS. INSTALL INLET PROTECTION IN THE PROPOSED INLETS AS THEY ARE INSTALLED. INSTALL ENDWALL WITH RIPRAP APRON-4.
32. REMOVE TOP OF SLOPE BERM ONCE SITE HAS ACHIEVED FINAL SUBGRADE.
33. FINISH GRADING IN PROPOSED PAD AND SEED. APPLY EROSION CONTROL BLANKETING ON SLOPES OF 3:1 OR STEEPER.
34. CONTINUE TO ROUTE RUNOFF TO THE TEMPORARY SEDIMENT BASIN.
35. MAINTAIN ACCESS ROAD INTO SITE.
36. RE-APPLY ALL STORED TOPSOIL TO THE FINAL GRADED SLOPES AND FLAT PERVIOUS AREAS.
37. COMMENCE TO PHASE 3.

PHASE 3 (SPRING 2027)

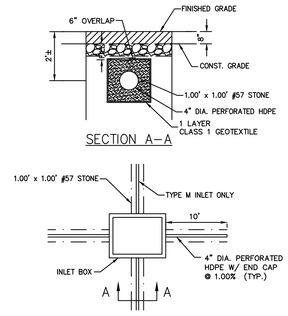
38. ONCE THE BUILDING PAD HAS BEEN FULLY ESTABLISHED, BEGIN CONSTRUCTION OF THE BUILDING ADDITION.
39. INSTALL CONCRETE WASHOUT FACILITY.
40. INSTALL CONCRETE SIDEWALKS.
41. CONNECT ALL ROOF COLLECTION LINES AROUND THE NEW BUILDING.
42. FINALIZE THE INSTALLATION OF ALL UTILITY TAPS TO THE PROPOSED BUILDING.
43. INSTALL ALL ROAD AND PARKING BINDER COURSE AND CURBING TO LIMITS OF P



NOTES:
1. ALL WELDING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 1105.03(m).
2. ALL BEARING BARS AND PERIMETER BARS SHALL BE ASTM A572 GRADE 50 STEEL. ALL CROSS BARS SHALL BE A36 STEEL.
3. ALL CROSS BARS SHALL BE LOCATED FLUSH ALONG THE TOP SURFACE OF THE GRATE.
4. COAT GRATES WITH AN APPROVED BITUMIOUS PAINT, IN ACCORDANCE WITH PUBLICATION 408, SECTION 605.2(d), IN THE SHOP OF FIELD PRIOR TO INSTALLATION.
5. AS AN ALTERNATE TO BITUMINOUS PAINT, GALVANIZE GRATES IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(a).

PENNDOT BICYCLE SAFE GRATE

DETAIL 409
BICYCLE SAFE GRATE
N.T.S.



DETAIL 410
FINGER DRAINS
N.T.S.

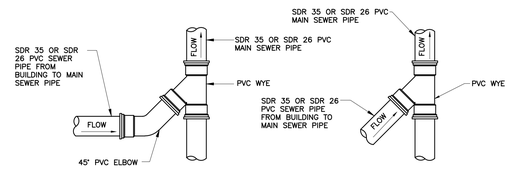


SECTION VIEW

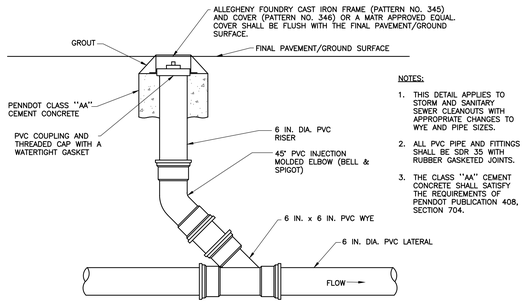
PERCENT SLOPE	SPACING (FT)
<5	250
5–15	150
15–30	100
>30	50

NOTES:
1. WATERBARS SHALL DISCHARGE TO A STABLE AREA.
2. WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.
3. MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.
4. WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED.
5. SEE PA DEP EROSION CONTROL MANUAL TABLE 3.1 FOR WATERBAR SPACING.

DETAIL 411
PERMANENT WATERBAR
N.T.S.

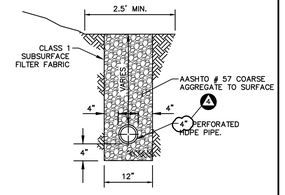


NOTES:
1. THESE DETAILS APPLY TO STORM AND SANITARY SEWER CONNECTIONS WITH APPROPRIATE CHANGES TO WYE AND PIPE SIZES, AND PIPE MATERIALS.
2. ALL PVC PIPE AND FITTINGS SHALL BE MINIMUM SDR 35 WITH RUBBER GASKETED JOINTS.



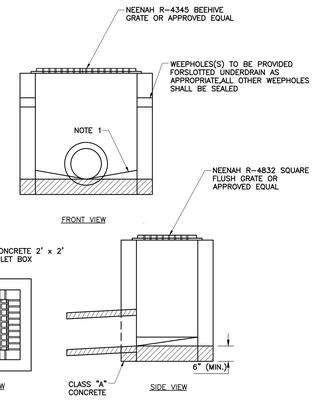
NOTES:
1. THIS DETAIL APPLIES TO STORM AND SANITARY SEWER CLEANOUTS WITH APPROPRIATE CHANGES TO WYE AND PIPE SIZES.
2. ALL PVC PIPE AND FITTINGS SHALL BE SDR 35 WITH RUBBER GASKETED JOINTS.
3. THE CLASS "AA" CEMENT CONCRETE SHALL SATISFY THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 704.

DETAIL 412
STORM AND SANITARY SEWER CLEANOUT & WYE CONNECTIONS
N.T.S.



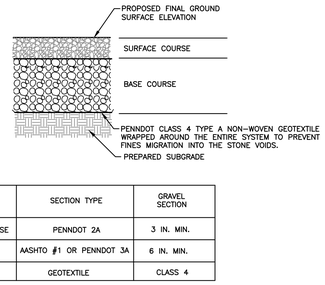
TOE DRAIN DETAIL
N.T.S.

DETAIL 413
TOE DRAIN DETAIL
N.T.S.



NOTES:
1. ALL DRAINAGE STRUCTURES SHALL HAVE POURED-IN-PLACE CONCRETE CHANNEL BOTTOMS
2. LADDER BARS SHALL BE INSTALLED IN STRUCTURES EXCEEDING A DEPTH OF 5 FEET.

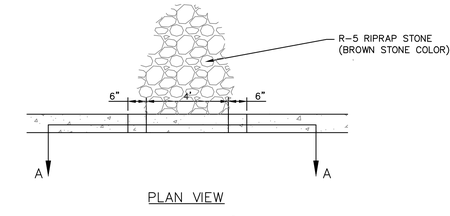
DETAIL 414
24" YARD INLET WITH FLUSH GRATE TOP
N.T.S.



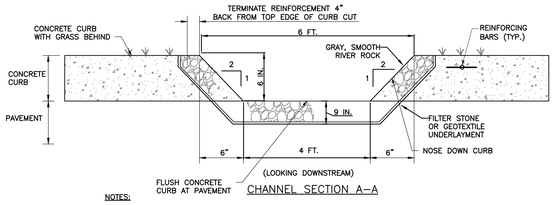
ITEM	SECTION TYPE	GRAVEL SECTION
SURFACE COURSE	PENNDOT 2A	3 IN. MIN.
BASE COURSE	AASHTO #1 OR PENNDOT 3A	6 IN. MIN.
LINER	GEOTEXTILE	CLASS 4

NOTES:
1. PRIOR TO PLACEMENT OF PENNDOT CLASS 4 GEOTEXTILE, THE PAVEMENT SUBGRADE SHALL BE PREPARED AS FOLLOWS:
   A. PAVEMENT SUBGRADE SHALL BE PROOFROLLED USING A FULLY-LOADED DUMP TRUCK PRIOR TO PAVEMENT CONSTRUCTION. ANY SOFT AREAS SHALL BE OVEREXCAVATED TO A FIRM AND COMPETENT MATERIAL AND BACKFILLED AS DESCRIBED IN 1B.
   B. ALL APPROVED FILL SHALL BE PLACED IN MAXIMUM 8 IN. THICK, LOOSE LIFTS AND COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AND WITHIN ±3% OF ITS OPTIMUM MOISTURE CONTENT. THE FILL MATERIAL'S MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT SHALL BE DETERMINED BY ASTM D1557 (MODIFIED PROCTOR).
   C. AFTER COMPACTION, THE PAVEMENT SUBGRADE SHALL PROVIDE A FIRM UNYIELDING FOUNDATION WITH NO SUDDEN, SHARP OR ABRUPT CHANGES OR BREAKS IN GRADES. NO STANDING WATER OR EXCESS MOISTURE SHALL BE PRESENT. ALL SOFT AND YIELDING AREAS SHALL BE REWORKED BY OVEREXCAVATING TO A FIRM AND COMPETENT MATERIAL, AND BACKFILLED AS DESCRIBED IN 1B.
   D. THE SUBGRADE SHALL BE GRADED AND SHAPED AS REQUIRED TO CONSTRUCT THE AGGREGATE BASE COURSE IN CONFORMANCE WITH THE GRADES, LINES AND THICKNESSES SHOWN ON THE DRAWINGS.

DETAIL 415
PERMANENT ACCESS ROAD
N.T.S.



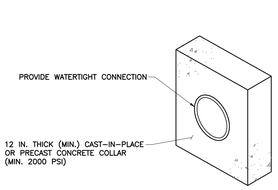
PLAN VIEW



CHANNEL SECTION A–A

NOTES:
1. FILTER STONE UNDERLAYMENT FOR BED SLOPES ≥ 0.10 FT/FT (10 %) SHALL BE USED.
2. CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.
3. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.
4. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
5. THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

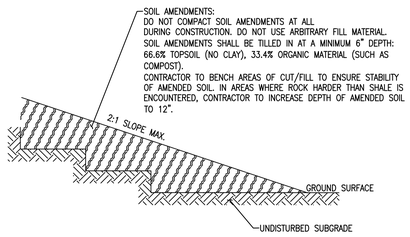
DETAIL 416
CURB CUT
N.T.S.



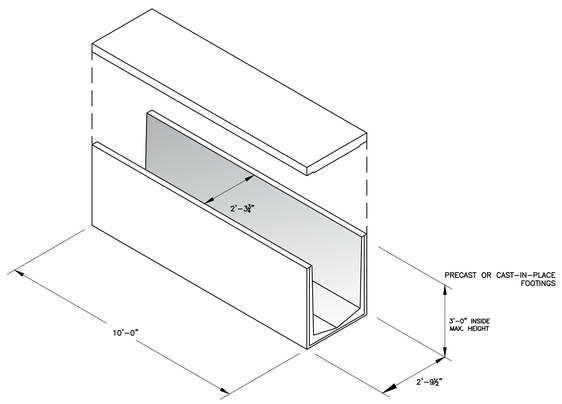
BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
1	18	81	2	10	13

NOTES:
1. ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
2. COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

DETAIL 417
CONCRETE ANTI-SEEP COLLARS
N.T.S.

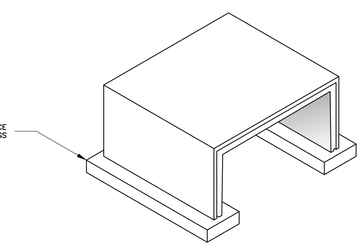


DETAIL 418
SCM-2 (SOIL AMENDMENT INSTALLATION)
N.T.S.



SPLIT CULVERT 2636

2'-0" WIDE
TOP WEIGHT = 1,500 LBS.
BASE WEIGHT = 3,790 LBC.



INVERTED BASE

NOTES:
- MAXIMUM INSIDE HEIGHT AS SHOWN
- CAN BE MADE TO ANY HEIGHT SHORTER THAN MAXIMUM
- DESIGNED FOR HS-20 WHEEL LOADS
- SEE TRENCH SECTION FOR ADDITIONAL DETAILS

DETAIL 419
OLD CASTLE PRECAST DETAIL
N.T.S.

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
412.561.7117 www.DRAWcollective.com

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JOHN JOSEPH FRYDRYCH ENGINEER (HHD)

4350 Northern Pike
Suite 141
Monroeville, PA 15146
Ph: 724.327.5200
www.cecinc.com

Civil & Environmental Consultants, Inc.

DATE:	06/06/2025
SCALE:	AS SHOWN
CEC PROJECT NO.	343.013.1
DRAWN BY:	DMM
CHECKED BY:	AJMS
APPROVED BY:	JJF*

*HAND SIGNATURE ON FILE

REVISIONS
4 ADDENDUM #4 10/31/2025

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3631 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD
MCDONALD, PA. 15057

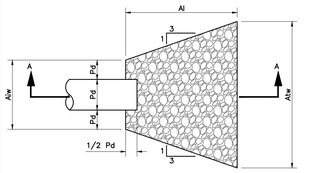
STORMWATER MANAGEMENT DETAILS (2 OF 3)

Proj No. 24-S49-01B
Issue Date 10/01/2025

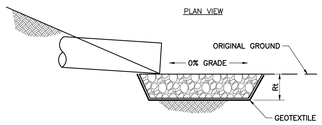
C403

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5/6/2025 12:49:08 PM Autodesk Docs://S49-24-01 South Fayette SD/24-S49-01B South Fayette SD - Bus Depot - Maintenance Building CENTRAL R23.rvt

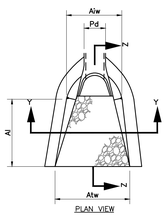


PLAN VIEW

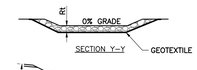


SECTION A–A

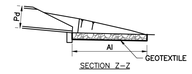
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		
		SIZE R–__	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Alw (FT)	TERMINAL WIDTH Atw (FT)
1	24	R–5	27	12	6	18
2	N/A	R–7	45	12	6	18
3	18	R–5	27	8	4.5	12.5
4	36	R–5	27	20	9	29
TEMP–1	18	R–5	27	8	4.5	12.5



PLAN VIEW



SECTION Y–Y

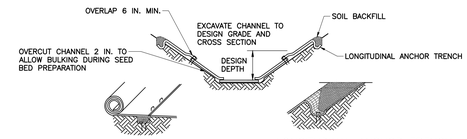


SECTION Z–Z

NOTES:

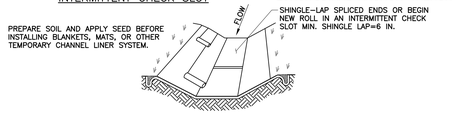
1. ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.
2. ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.
3. EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.

DETAIL 420
RIPRAP APRON
N.T.S.

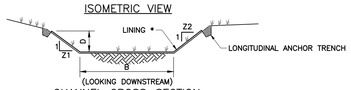


INTERMITTENT CHECK SLOT

LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW



CHANNEL CROSS–SECTION

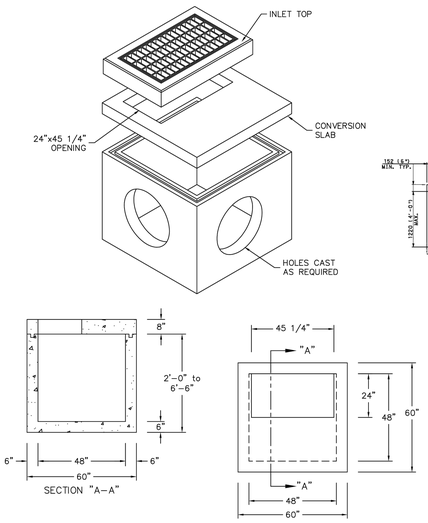
* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

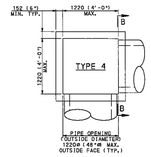
CHANNEL NO.	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
1	2.0	1.0	6	2	2	P550, PERM. LINER

NOTES:

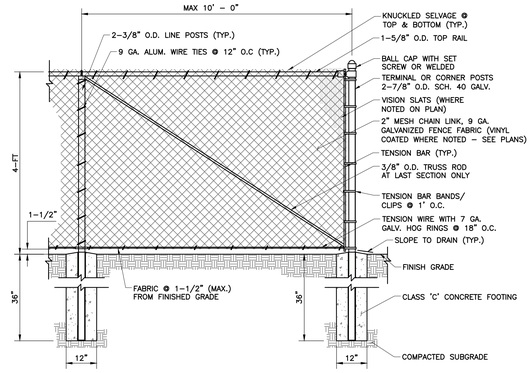
1. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
2. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
3. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.
4. NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

DETAIL 421
VEGETATED CHANNEL
N.T.S.





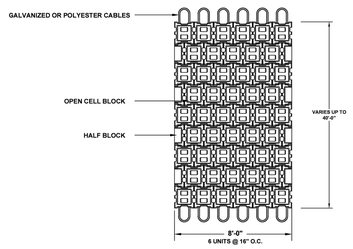
DETAIL 422
STANDARD PENNDOT TYPE 4 INLET BOX (4 FT X 4 FT)
N.T.S.



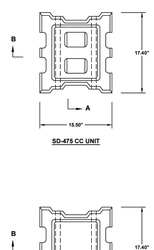
NOTES:

1. MATERIALS FOR CONSTRUCTION SHALL BE BLACK VINYL COATED STEEL.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW.
3. PROVIDE PRIVACY SLATS WHERE INDICATED ON PLANS.

DETAIL 423
CHAIN LINK FENCE
N.T.S.



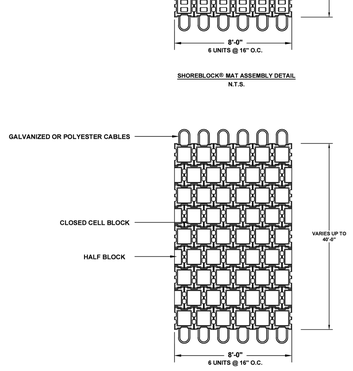
SHOREBLOCK® MAT ASSEMBLY DETAIL
N.T.S.



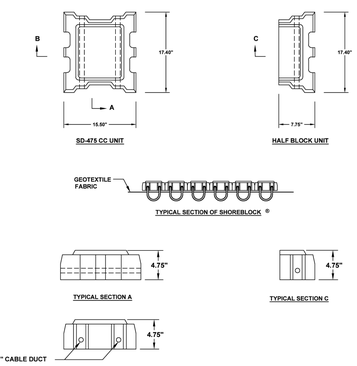
SD-475 CC UNIT

SD-475 CC UNIT

HALF BLOCK UNIT



SHOREBLOCK® MAT ASSEMBLY DETAIL
N.T.S.



DETAIL 424
SHOREBLOCK SD-475-OC REVETMENT UNITS FOR FOREBAY
N.T.S.

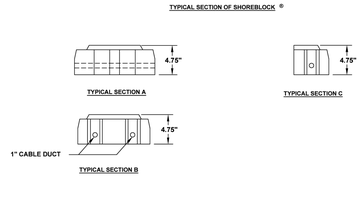
TECHINCAL SPECIFICATIONS

1) SHOREBLOCK® UNITS ARE MANUFACTURED IN ACCORDANCE WITH ASTM C90 AND C140 AND THE FOLLOWING CRITERIA:
   A) CONCRETE UNIT WEIGHT 130 -150 LBS/CF
   B) MINIMUM COMPRESSIVE STRENGTH - 4,000 PSI.
   C) MAXIMUM ABSORPTION - 9%
   D) DIMENSIONAL TOLERANCE ± 1/8"
2) GALVANIZED OR POLYESTER CABLING

ASSEMBLY SPECIFICATIONS

1) SHOREBLOCK ® UNITS ARE SHOP ASSEMBLED IN A CABLED MATTERESS AS SHOWN ABOVE.
2) SHOREBLOCK ® MATS ARE PLACED BY THE CONTRACTOR IN THE FIELD ON PREPARED SLOPES PER THE CONTRACT DRAWINGS.

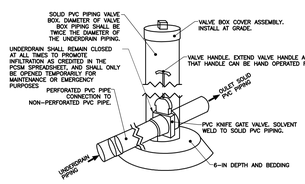
UNIT	UNIT WEIGHT LBS.	SYSTEM WEIGHT (lbs/sq.ft)	OPEN AREA
SD-475 OC	62 - 67	29 - 32	20%
SD-475 CC	78 - 84	44 - 48	10%



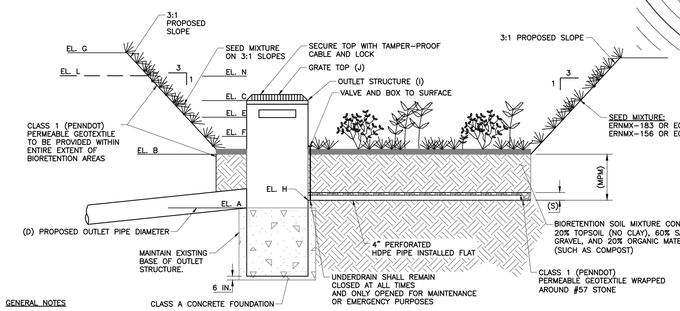
NOTES:

1. MATERIALS FOR CONSTRUCTION SHALL BE BLACK VINYL COATED STEEL.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW.
3. PROVIDE PRIVACY SLATS WHERE INDICATED ON PLANS.

DETAIL 425
CHAIN LINK FENCE GATES
N.T.S.



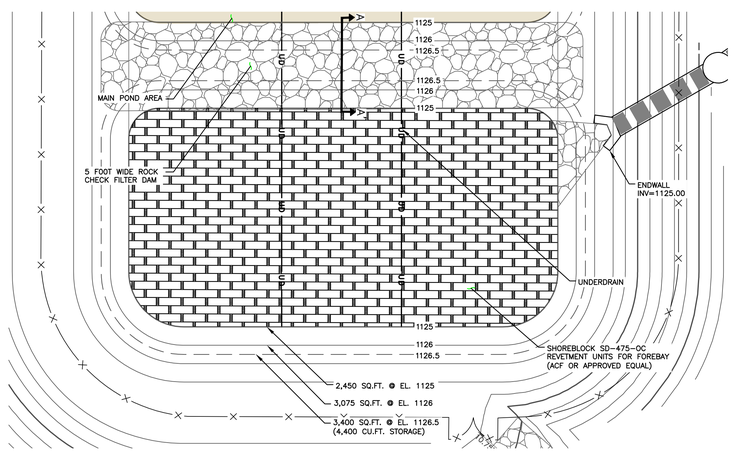
DETAIL 426
INFILTRATION BIO-RETENTION RAIN GARDEN-1 (SCM-1)
N.T.S.

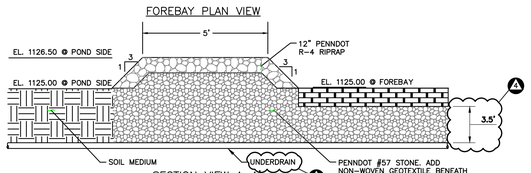


GENERAL NOTES

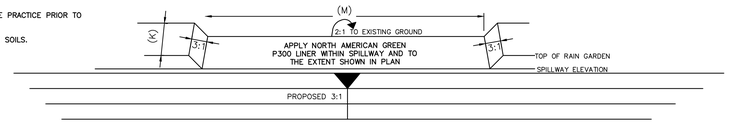
1. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE BMP DURING OR IMMEDIATELY FOLLOWING EXCAVATION, THIS MATERIAL SHALL BE REMOVED FROM THE PRACTICE PRIOR TO CONTINUING CONSTRUCTION.
2. GRADING OF BIORETENTION DEVICES SHALL BE ACCOMPLISHED USING LOW–COMPACTION EARTH–MOVING EQUIPMENT TO PREVENT COMPACTION OF UNDERLYING SOILS.
3. ALL SUB MATERIALS BELOW THE SPECIFIED BIORETENTION DEPTH (ELEVATION) SHALL BE UNDISTURBED, UNLESS OTHERWISE NOTED.
4. SITE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND PLACING MODIFIED SOIL MIX AS PER SPECIFICATIONS.
5. POND UNDERDRAINS SHALL BE PROVIDED.
6. UNDERDRAINS SHALL BE SLOPED TO DRAIN AND SHALL BE OUTLETTED INTO THE PRE–CAST CONCRETE OUTLET STRUCTURES.
7. THE AASHTO NO. 57 AGGREGATE SHALL MEET THE REQUIREMENTS OF PADOT PUBLICATION 408, SECTION 703.
8. THE CLASS I DRAINAGE GEOTEXTILE SHALL MEET THE REQUIREMENTS OF PADOT PUBLICATION 408, SECTION 735, AND SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 212.
9. ALL UNDERDRAINS ARE TO REMAIN IN THE CLOSED POSITION, UNLESS TEMPORARY DEWATERING IS REQUIRED UNDER EMERGENCY CONDITIONS, SUCH AS OUTLET STRUCTURE FAILURE OR INFILTRATION INADEQUACY DUE TO SILTATION.
10. THE UNDERDRAIN SHALL REMAIN CLOSED AT ALL TIMES TO PROMOTE INFILTRATION AS CREDITED IN THE PCSM SPREADSHEET, AND SHALL ONLY BE OPENED TEMPORARILY FOR MAINTENANCE OR EMERGENCY PURPOSES

BIORETENTION AREA	AASHTO #57 WASHED STONE. 40% VOIDS (S)	MODIFIED SOIL PLANTING MIX DEPTH (MPM)	PROPOSED PIPE INVERT OUT (EL. A)	BED BOTTOM ELEV (EL. B)	TOTAL PONDING ELEVATION (EL. C)	PROPSED OUTLET PIPE DIAMETER (D)	ORIFICE (EL. E)	ORIFICE (EL. F)	BERM ELEVATION (EL. G)	UNDERDRAIN ELEVATION (EL. H)	OUTLET STRUCTURE (I)	GRATE TOP (J)	BERM WIDTH (K)	EMERGENCY SPILLWAY (EL. L)	EMERGENCY SPILLWAY CREST LENGTH (M)	MAXIMUM WSE CREST (N)
BIORETENTION RAIN GARDEN–1	6"	48"	1116.80	1125.00	1126.00	18" HDPE	1125.48 (2"ø)	N/A	1128.00	1121.00	24 IN. X 48 IN. STANDARD PENNDOT TYPE M REINFORCED INLET BOX	24 IN. X 48 IN. ACF FLAT TRASH RACK SERIES (CHILD–PROOF NON–CLOGGING)	10'	1126.50	60'	1126.38





FOREBAY WITH ROCK CHECK DAM



EMERGENCY SPILLWAY DETAIL

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
412.561.7117 www.DRAWcollective.com

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JOHN JOSEPH FRYDRYCH ENGINEER 049621

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Civil & Environmental Consultants, Inc.

DATE:	06/06/2025
DRAWN BY:	DMM
SCALE:	AS SHOWN
CHECKED BY:	AJMS
CEC PROJECT NO.	343-131
APPROVED BY:	JJF*

*HAND SIGNATURE ON FILE

REVISIONS
4 ADDENDUM #4 10/31/2025

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3631 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD
MCDONALD, PA. 15057

STORMWATER MANAGEMENT DETAILS (3 OF 3)

Proj No. 24-S49-01B
Issue Date 10/01/2025

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5/6/2025 12:49:08 PM Autodesk Docs://S49-24-01 South Fayette SD/24-S49-01B South Fayette SD - Bus Depot - Maintenance Building CENTRAL R23.rvt

CONSTRUCTION SEQUENCE

THE CONSTRUCTION OF THE PROJECT CONSISTS OF FOUR GENERAL PHASES OF CONSTRUCTION. ALL E&S CONTROL FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED E&S CONTROL PLAN AND THE PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL DATED MARCH 2012.

A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENT POLLUTION CONTROL. ALL NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW EVERY DETAILED PIECE OF MATERIAL OR EQUIPMENT. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE THE EXTENT AND DURATION OF EARTH DISTURBANCE ACTIVITY AND SOIL COMPACTION, AND SHALL MAXIMIZE THE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION TO THE GREATEST EXTENT POSSIBLE.

CRITICAL STAGES OF CONSTRUCTION ARE UNDERLINED.

BUS DEPOT CONSTRUCTION SEQUENCE

PHASE 1 (WINTER 2026):

1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE ALLEGHENY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
2. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
3. LAY OUT THE LIMITS OF THE CONSTRUCTION SITE AND ESTABLISH BENCHMARKS AND REFERENCE POINTS.
4. STAKE OUT THE LIMIT OF DISTURBANCE AS INDICATED ON THE CONSTRUCTION PLANS.
5. INSTALL THE ROCK CONSTRUCTION ENTRANCE #1 IN THE LOCATION SHOWN ON THE PLAN AND IN ACCORDANCE WITH THE STANDARD DETAIL.
6. CLEAR ONLY THOSE AREAS NECESSARY TO REACH AND INSTALL PERIMETER E&S CONTROLS AND PROPOSED INLET PROTECTION SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN. INSTALL COMPOST FILTER SOCKS #1 TO #17 IN THE LOCATIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE SIZE SPECIFICATIONS ON THE E&S PLAN DRAWINGS, AND THE STANDARD DETAIL. ALL PERIMETER COMPOST FILTER SOCK SHALL BE INSTALLED PARALLEL TO THE CONTOURS. TREES SHALL NOT BE REMOVED IN ORDER TO INSTALL COMPOST FILTER SOCKS.
7. INSTALL ORANGE CONSTRUCTION FENCING AROUND EXISTING WETLANDS.
8. INSTALL THE CONSTRUCTION STAGING AREA.
9. INSTALL OUTCASTLE CONCRETE CULVERT FOR ROAD CROSSING.
10. INSTALL GAS STUB CONNECTION IN COORDINATION WITH GAS COMPANY.
11. INSTALL TEMPORARY COMPOST FILTER SOCKS #A THROUGH #H, THEN INSTALL ACCESS ROAD INTO SITE.
12. EXCAVATE AND INSTALL SEDIMENT BASIN #1, WITH BAFFLE, SEDIMENT CLEANOUT STAKE, ENDWALL WITH RIPRAP-3, EMERGENCY SPILLWAY WITH BLANKETING, PERMANENT RISER OUTLET STRUCTURE WITH TEMPORARY EXTENSION, SKIMMER, BERM, AND ANTI-SEEP COLLARS ON SEDIMENT BASIN OUTLET PIPE. CLEAN OUT SEDIMENT FROM THE SEDIMENT BASIN WHEN SEDIMENT REACHES THE CLEANOUT STAKE.
13. INSTALL PERMANENTLY LINED VEGETATIVE CHANNEL-1 TO CHANNELIZE AND DIRECT RUNOFF TO SEDIMENT BASIN-1. INSTALL RIPRAP-2 AT END OF CHANNEL TO DIRECT RUNOFF INTO SEDIMENT BASIN-1.
14. INSTALL TEMPORARY TOP OF SLOPE BERM BELOW ACCESS ROAD WHERE SHOWN IN PLAN.
15. INSTALL THE TEMPORARY 18" HDPE PIPE CONNECTION TO CHANNEL-1.
16. INSTALL TEMPORARY RIPRAP APRON-1.
17. INSTALL ALL STORM COLLECTION SYSTEM TO EXTENT SHOWN IN PLAN. INSTALL INLET PROTECTION IN PROPOSED INLETS AS THEY ARE INSTALLED.
18. BEGIN CLEARING AND GRUBBING OF SITE TO LIMITS OF PHASE #1 CONSTRUCTION WORK SHOWN.
19. PLACE STRIPPED TOPSOIL IN THE TOPSOIL STOCKPILE AREAS DESIGNATED ON THE PLANS AND/OR REMOVE FROM SITE. STOCKPILE LOCATIONS MAY VARY IN THE FIELD, AND ADDITIONAL STOCKPILE LOCATIONS MAY BE USED AS NECESSARY. ALL TOPSOIL STOCKPILE AREAS SHALL HAVE COMPOST FILTER SOCK ADJACENT TO PILE. THEREFORE, INSTALL COMPOST FILTER SOCK #18 AROUND THE TOPSOIL STOCKPILE.
20. DISTURBED AREAS ARE TO BE TEMPORARILY REVEGETATED. CESSATION OF WORK ACTIVITY FOR 4 DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION.
21. NOTE: NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE BEFORE INITIATING SEEDING AND MULCHING OPERATIONS.
22. COMMENCE TO PHASE 2.

PHASE 2 (SPRING 2027):

23. MONITOR THE CLEANOUT STAKE FOR SEDIMENT BASIN #1 AND REMOVE SEDIMENT PER THE MAINTENANCE PROGRAM.
24. BEGIN PREPARING AREA TO LIMITS SHOWN FOR PHASE 2 CONSTRUCTION WORK. REMOVE TEMPORARY COMPOST FILTER SOCKS #A THROUGH #H AS INSTALLED IN PHASE #1.
25. DISTURBED AREAS ARE TO BE TEMPORARILY REVEGETATED ACCORDING TO PROJECT DETAILS UPON CESSATION OF ACTIVITIES IN EACH AREA AS SOON AS PRACTICABLE.
26. BEGIN GENERAL CUT/FILL OPERATIONS. START CUTS AT TOPS OF SLOPES AND DEPOSIT THE MATERIAL AT THE BOTTOM OF PROPOSED FILL SLOPES. INSTALL ALL TOE KEYS AND DRAINS AS PER THE GEOTECHNICAL RECOMMENDATIONS.
27. REMOVE THE TEMPORARY 18" HDPE PIPE CONNECTION TO CHANNEL-1. REMOVE THE TEMPORARY RIPRAP APRON-1.
28. INSTALL THE BUS DEPOT BUILDING PAD. COMPACT THE BUILDING PAD TO THE REQUIRED DENSITY, AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
29. INSTALL WATER AND SANITARY UTILITIES. INSTALL COMPOST FILTER SOCKS #1' TO #26' BELOW SANITARY LINE FILL SLOPES.
30. INSTALL ELECTRIC UTILITIES AS PER MEP PLANS PROVIDED BY TOWER ENGINEERING.
31. INSTALL ALL STORMSEWER LINES, MANHOLES AND INLETS. INSTALL INLET PROTECTION IN THE PROPOSED INLETS AS THEY ARE INSTALLED. INSTALL ENDWALL WITH RIPRAP APRON-4.
32. REMOVE TOP OF SLOPE BERM ONCE SITE HAS ACHIEVED FINAL SUBGRADE.
33. FINISH GRADING IN PROPOSED PAD AND SEED. APPLY EROSION CONTROL BLANKETING ON SLOPES OF 3:1 OR STEEPER.
34. CONTINUE TO ROUTE RUNOFF TO THE TEMPORARY SEDIMENT BASIN.
35. MAINTAIN ACCESS ROAD INTO SITE.
36. RE-APPLY ALL STORED TOPSOIL TO THE FINAL GRADED SLOPES AND FLAT PERVIOUS AREAS.
37. COMMENCE TO PHASE 3.

PHASE 3 (SPRING 2027):

38. ONCE THE BUILDING PAD HAS BEEN FULLY ESTABLISHED, BEGIN CONSTRUCTION OF THE BUILDING ADDITION.
39. INSTALL CONCRETE WASHOUT FACILITY.
40. INSTALL CONCRETE SIDEWALKS.
41. CONNECT ALL ROOF COLLECTION LINES AROUND THE NEW BUILDING.
42. FINALIZE THE INSTALLATION OF ALL UTILITY TAPS TO THE PROPOSED BUILDING.
43. INSTALL ALL ROAD AND PARKING BINDER COURSE AND CURBING TO LIMITS OF PHASE 3 CONSTRUCTION WORK SHOWN.
44. INSTALL ALL PERIMETER FENCING AND GUIDERAIL.
45. CONTINUE TO INSTALL EROSION CONTROL BLANKETING ON ALL SLOPES 3:1 OR STEEPER.
46. DISTURBED AREAS ARE TO BE TEMPORARILY REVEGETATED ACCORDING TO PROJECT DETAILS UPON CESSATION OF ACTIVITIES IN EACH AREA AS SOON AS PRACTICABLE.
47. COMMENCE TO PHASE 4.

PHASE 4 (SUMMER 2027):

48. INSTALL THE ACCESS ROAD TO THE SCM-1.
49. REMOVE ROCK CONSTRUCTION ENTRANCES #1 AND FINISH PAVING.
50. INSTALL THE FINAL PAVING WEARING COURSE AND SEAL.
51. REMOVE THE CONCRETE WASHOUT FACILITY.
52. APPLY ALL SOIL AMENDMENTS (SCM-2).
53. INSTALL ALL LANDSCAPING PER THE CONSTRUCTION LANDSCAPING PLANS.
54. ENSURE ALL AREAS ARE PERMANENTLY SEEDED.
55. AT THIS POINT, ALL MAJOR EARTH MOVING OPERATIONS ARE COMPLETE. ALL SITE IMPROVEMENTS HAVE BEEN CONSTRUCTED AND STABILIZED. THE FOLLOWING STEPS ASSUME THE SITE HAS REACHED "SITE STABILIZATION". (NOTE: THE SITE IS NOT CONSIDERED STABILIZED UNTIL A UNIFORM 70% PERENNIAL VEGETATED COVER EXISTS OVER THE ENTIRE SITE).
56. CONVERT SEDIMENT BASIN-1 INTO THE PERMANENT BIO-RETENTION RAIN GARDEN CONFIGURATION AS FOLLOWS: ENSURE THE SEDIMENT BASIN IS DEWATERED; REMOVE TEMPORARY BAFFLES; REMOVE ACCUMULATED SEDIMENT EXCAVATE TO REQUIRED INVERT ELEVATION; DO NOT COMPACT; SCARIFY BOTTOM; IMMEDIATELY STABILIZE THE AREA WITH PERMANENT SEEDING AND PLANTS; REMOVE ALL TEMPORARY STRUCTURES; REMOVE THE SEALS FROM THE ORIFICES ON THE PRIMARY PERMANENT OUTLET STRUCTURE; NOTIFY THE ENGINEER LISTED ON THE NPDES PERMIT TO CONDUCT INFILTRATION CONFIRMATION OF THE SUBGRADE.
57. INSTALL INFILTRATION BIO-RETENTION RAIN GARDEN-1 (SCM-1). INSTALL FOREBAY, INSTALL RAIN GARDEN SOIL MIX, UNDERDRAINS AND PERMANENT FENCE AROUND THE BMP.
58. ONCE ALL AREAS HAVE BEEN PERMANENTLY STABILIZED, AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL GRASSED AREAS AND THE EROSION CONTROL BLANKET HAS BEEN INSTALLED AT LOCATIONS SHOWN ON THE PLANS, REMOVE ALL EROSION AND SEDIMENT CONTROL FACILITIES SUCH AS COMPOST FILTER SOCK AND INLET PROTECTION. NOTIFY THE ENGINEER LISTED ON THE NPDES PERMIT TO BEGIN THE NOTICE OF TERMINATION PROCESS.

DOCUMENTS REQUIRED TO BE ON SITE

THE FOLLOWING DOCUMENTS MUST BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION:

1. E&S PLAN.
2. INSPECTION RECORDS.
3. MONITORING RECORDS.
4. MAINTENANCE INSTRUCTIONS SHOULD SPECIFY THAT INSPECTIONS BE LOGGED ONTO DEP FORM 3800-FM-BCW0271d DATED 12/2024 & KEPT ON SITE AT ALL TIMES.

IN ADDITION, A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.

ALL TEMPORARY E&S CONTROLS ARE TO BE REMOVED ONCE THE SITE IS DEEMED STABILIZED BY THE CONSERVATION DISTRICT.

TYPE SLOPE AND EXTENT OF SOILS

ACCORDING TO THE SOIL CLASSIFICATION INFORMATION COMPILED FROM THE USDA WEB SOIL SURVEY, THE PROPOSED PROJECT'S LIMIT OF DISTURBANCE IS LOCATED IN AN AREA WITH FOUR SOIL TYPES PRESENT. THE SOIL TYPES AND GENERAL LIMITATIONS AND CHARACTERISTICS ARE AS FOLLOWS:

SOIL CLASSIFICATION SUMMARY

SYMBOL	SOIL TYPE	SLOPE	HSG
CuC	CULLEOKA CHANNERY SILT LOAM	8-15%	B
CuD	CULLEOKA CHANNERY SILT LOAM	15-25%	B
DoC	DORMONT SILT LOAM	8-15%	D
GuD	GUERNSEY SILT LOAM	15-25%	C
UCB	URBAN LAND-CULLEOKA COMPLEXT	GENTLE	B

LIMITATIONS AND RESOLUTIONS:

1. SEASONAL HIGH WATER TABLE:
   a. KEEP EXCAVATIONS AS SHALLOW AS PRACTICAL;
   b. CONSTRUCT DURING DRY WEATHER;
   c. PUMPS AND WATER FILTER BAGS SHALL BE UTILIZED IF GROUNDWATER IS ENCOUNTERED;
   d. CONSTRUCT INTERMEDIATE DRAINS, IF NECESSARY TO CONTROL AND DISCHARGE WATER FROM FILLS.
2. ERODIBLE:
   a. EROSION CONTROL BLANKETS, SILT SOCKS, TEMPORARY AND PERMANENT SEEDING, AND DIVERSION CHANNELS WILL BE USED TO MINIMIZE EROSION.
3. SLOPE:
   a. REGRADE THE SITE TO SUITABLE SLOPES FOR DESIRED FUNCTION.
4. TRENCHING:
   a. TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. STOCKPILES SHALL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH;
   b. WATER ENCOUNTERED IN THE TRENCH SHALL BE PUMPED FROM THE AREA BY USE OF A FILTER BAG;
   c. DEEP TRENCHES ARE TO BE SHORED TO PREVENT CAVING. CONSULT OSHA STANDARDS AND REGULATIONS;
   d. TRENCHES WILL BE BACKFILLED WITH COMPACTED STONE AND/OR COMPACTED SUITABLE MATERIAL REMOVED FROM THE TRENCH;
5. LOW STRENGTH:
   a. TRENCHES SHALL BE EXCAVATED WITH APPROPRIATE LAYBACK BANKS TO PREVENT CAVE-INS. STOCKPILES SHALL BE LOCATED AT A SUFFICIENT DISTANCE AWAY FROM THE TRENCH.
6. DEPTH TO BEDROCK:
   a. AVOID DEEP EXCAVATIONS WHERE SHALLOW SOILS EXIST.
7. CORROSION:
   a. PROPOSED SUBSURFACE CONCRETE AND STEEL WILL BE SEALED OR COATED WITH CORROSIVE RESISTANT MATERIAL.
8. PIPING:
   a. TRENCH PLUGS SHALL BE UTILIZED IN ACCORDANCE WITH THE PADEP STANDARD DETAIL. WATER SHALL BE DIVERTED AWAY FROM OPEN TRENCHES.
9. POOR TOPSOIL:
   a. THE SOIL AMENDMENTS REQUIRED WITH EACH VEGETATIVE STABILIZATION MIX SPECIFIED ON THE E&S PLAN(S) AND NOTES DRAWINGS ARE DESIGNED TO COUNTERACT THIS LIMITATION
10. SOIL COMPACTION
    a. MINIMIZE SOIL COMPACTION TO THE FULLEST EXTENT POSSIBLE IN ALL PROPOSED UNIMPROVED AREAS AND BIO-RETENTION STORMWATER MANAGEMENT BMP AREAS

BMP CONSTRUCTION SEQUENCE (BIO-RETENTION RAIN GARDENS)

1. NOTIFY THE LICENSED PROFESSIONAL OR THEIR DESIGNEE AT LEAST TWO DAYS PRIOR TO THE START OF THE BIORETENTION RAIN GARDENS CONSTRUCTION. THE LICENSED PROFESSIONAL OR THEIR DESIGNEE MUST BE PRESENT DURING THE BIORETENTION AREA CONSTRUCTION.
2. BEGIN EARTHMOVING OPERATIONS TO CONSTRUCT THE PROPOSED BIORETENTION POND. PLACE FILL FOR THE BERM IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS. SLOPE FILL AWAY FROM THE FACE OF SLOPE, AND USE A PUMP AND FILTER BAG TO DRAIN PONDED WATER AS IT IS BEING BROUGHT TO FINAL GRADE.
3. ONCE THE RAIN GARDEN BOTTOM ELEVATION HAS BEEN REACHED, INSTALL HEADWALL, ROCK APRON, THE RAIN GARDEN DISCHARGE PIPE, AND THE OUTLET CONTROL STRUCTURE AND TRASH RACK.
4. EXCAVATE THE AREA FOR THE RAIN GARDEN'S SUBSURFACE STONE AND SOIL MEDIUM ZONE AND PLACE THE LINER, THEN PLACE STONE, SOIL, AND UNDERDRAIN IN ACCORDANCE WITH THE DETAIL PROVIDED.
5. CONTINUE CONSTRUCTION OF REMAINING BERM AND ALL APPURTENANCES AND PLANTINGS.
6. MINIMIZE SOIL COMPACTION IN THE BIORETENTION AREAS. PLANTING SOIL IN THE BIORETENTION AREAS SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB-GRADE PREPARATION/BED INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUB-GRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL. INSTALL PLANTING SOIL IN 18-INCH MAXIMUM LIFTS AND LIGHTLY COMPACT (TAMP WITH BACKHOE BUCKET OR BY HAND). KEEP EQUIPMENT OUT - DO NOT COMPACT. EXCAVATE FROM ONE END TO THE OTHER. INSTALL PLANTING SOIL TO GRADES INDICATED ON THE DRAWINGS AND CONCURRENTLY, PLANT TREES AND SHRUBS ACCORDING TO SUPPLIER'S RECOMMENDATIONS AND ONLY FROM MID-MARCH THROUGH THE END OF JUNE OR FROM MID-SEPTEMBER THROUGH MID-NOVEMBER. INSTALL 2-INCHES TO 3-INCHES SHREDDED HARDWOOD MULCH OR COMPOST MULCH EVENLY AS SHOWN ON PLANS. DO NOT APPLY MULCH IN AREAS WHERE GROUND COVER IS TO BE GRASS OR WHERE COVER WILL BE ESTABLISHED BY SEEDING.
7. PROTECT BIORETENTION AREAS FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION. PLACE ORANGE CONSTRUCTION FENCE AROUND THE PERIMETER OF THE BIORETENTION AREAS TO LIMIT ACCESS INTO THESE AREAS BY CONSTRUCTION VEHICLES.

BMP CONSTRUCTION SEQUENCE (SOIL AMENDMENTS)

1. NOTIFY THE LICENSED PROFESSIONAL OR THEIR DESIGNEE AT LEAST TWO DAYS PRIOR TO THE APPLICATION OF SOIL AMENDMENTS. THE LICENSED PROFESSIONAL OR THEIR DESIGNEE MUST BE PRESENT DURING THE APPLICATION OF SOIL AMENDMENTS.
2. ALL CONSTRUCTION SHOULD BE COMPLETED AND STABILIZED BEFORE BEGINNING SOIL RESTORATION.
3. SOIL AMENDMENT MEDIA USUALLY CONSISTS OF COMPOST, BUT CAN INCLUDE MULCH, MANURES, SAND, AND MANUFACTURED MICROBIAL SOLUTIONS.
4. COMPOST SHOULD BE ADDED AT A RATE OF 2:1 (SOIL:COMPOST). IF A PROPRIETARY PRODUCT IS USED, THE MANUFACTURER'S INSTRUCTIONS SHOULD BE FOLLOWED IN TERMS OF MIXING AND APPLICATION RATE.
5. SOIL RESTORATION SHOULD NOT BE USED ON SLOPES GREATER THAN 50%. IN THESE AREAS, DEEP-ROOTED VEGETATION CAN BE USED TO INCREASE STABILITY.
6. PROCEDURE: ROTOTILL, OR RIP THE SUBGRADE, REMOVE ROCKS, DISTRIBUTE THE COMPOST, SPREAD THE NUTRIENTS, ROTOTILL AGAIN.
7. ADD 6 INCHES COMPOST / AMENDMENT AND TILL UP TO 8 INCHES FOR MINOR COMPACTION.
8. ADD 10 INCHES COMPOST / AMENDMENT AND TILL UP TO 20 INCHES FOR MAJOR COMPACTION.

GENERAL MAINTENANCE NOTES

ALL E&S CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER (CLEANED, REPAIRED, ETC.) UNTIL ALL DISTURBED TRIBUTARY AREAS ARE STABILIZED. ALL TEMPORARY E&S CONTROLS WILL REMAIN IN PLACE UNTIL A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE, THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL PERMANENT FACILITIES.

1. ALL TEMPORARY RUNOFF E&S CONTROLS SHALL BE INSPECTED AT LEAST AT THE BEGINNING AND END OF EACH DAY AND AFTER EACH RUNOFF EVENT TO MAINTAIN THEIR EFFECTIVENESS. ANY DAMAGED CONTROLS SHALL BE REPAIRED OR REPLACED BY THE END OF THE WORKING DAY.
2. ALL SLOPES SHALL BE CHECKED FOR SIGNS OF EROSION AND/OR SEDIMENTATION.
3. ALL DISCHARGE LOCATIONS SHALL BE INSPECTED TO ASCERTAIN THE EFFECTIVENESS OF THE CONTROLS. ADDITIONAL CONTROL MEASURES SHALL BE IMPLEMENTED AS NEEDED.
4. DURING CONSTRUCTION, SEDIMENT REMOVED FROM THE EROSION CONTROL DEVICES SHALL BE DISPOSED OF BY SPREADING IT ONSITE. ONCE A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED AND THE TEMPORARY E&S CONTROLS ARE REMOVED, ALL ACCUMULATED SEDIMENT WILL BE DISPOSED OF AT A PADEP APPROVED FACILITY.
5. ALL SITE ENTRANCE AND EXIT POINTS SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE TRACKING OF MUD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN STREETS OF MUD AND KEEP THE STREETS IN A CLEAN AND DUST-FREE CONDITION.
6. SEEDED AND VEGETATED AREAS SHALL BE CHECKED REGULARLY TO INSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDED AS NECESSARY.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE AND INSPECTIONS, AND SHALL MAINTAIN RECORDS OF ALL INSPECTIONS. INSPECTIONS SHOULD BE LOGGED ON PADEP FORM 3800-FM-BCW0271D, DATED 12/2024 OR AS UPDATED, AND KEPT ONSITE AT ALL TIMES.

CRITICAL STAGES OF CONSTRUCTION

1. DURING THE INSTALLATION OF THE BIO-RETENTION RAIN GARDEN (SCM-1), WHICH INCLUDES ALL PHASES AND PARTS OF THE INSTALLATION. THE FIRST VISIT SHOULD OCCUR DURING THE INSTALLATION OF THE SEDIMENT BASIN TO AVOID ANY POTENTIAL FUTURE CONCERNS IN PHASE 4.
2. DURING THE INSTALLATION OF THE SOIL AMENDMENTS (SCM-2).

RECYCLING OR DISPOSAL OF MATERIALS

1. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE. CONSTRUCTION WASTES INCLUDE, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIALS, CONCRETE WASH WATER, SANITARY WASTES, ETC. THAT COULD ADVERSELY IMPACT WATER QUALITY.
2. PROPER TRASH DISPOSAL, RECYCLING OF MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.
3. UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPS BE USED FOR TEMPORARY STORAGE OR DEMOLITION MATERIALS OF CONSTRUCTION WASTES.
4. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.

GEOLOGIC FORMATIONS/SOIL CONDITIONS

1. IF DURING CONSTRUCTION GEOLOGIC HAZARDS ARE ENCOUNTERED, THE CONTRACTOR IS TO CONTACT THE OWNER, AND THE DESIGN PROFESSIONAL.
2. IF WATER TABLE IS ENCOUNTERED:
   • KEEP EXCAVATIONS AS SHALLOW AS PRACTICAL;
   • CONSTRUCT DURING DRY WEATHER;
   • PUMPS AND WATER FILTER BAGS SHALL BE UTILIZED IF GROUNDWATER IS ENCOUNTERED;
   • CONSTRUCT INTERMEDIATE DRAINS, IF NECESSARY TO CONTROL AND DISCHARGE WATER FROM FILLS.
2. IF ERODIBLE SOILS ARE ENCOUNTERED:
   • UTILIZE EROSION CONTROL BLANKETS, SILT SOCKS, TEMPORARY AND PERMANENT SEEDING, AND DIVERSION CHANNELS TO MINIMIZE EROSION.
3. SOIL COMPACTION
   • MINIMIZE SOIL COMPACTION TO THE FULLEST EXTENT POSSIBLE IN ALL UNIMPROVED AREAS.

CHAPTER 93 DESIGNATION

UNT TO DOLPHIN RUN (WWF)

SEED MIXTURE

REFER TO PASHEK + MTR PLAN SHEET L004 FOR ALL SEEDING AND TOPSOIL REQUIREMENTS

TABLE 1 MOWED PERMANENT SEED MIXTURE

TO BE SEEDED BETWEEN APRIL 1 AND MAY 30, OR BETWEEN SEPTEMBER 1 AND OCTOBER 1.

Apply all of the following mixture components:

SCIENTIFIC NAME	COMMON NAME	MINIMUM % PURITY	MINIMUM % GERMINATION	SEEDING RATE (lbs/1000SF)	SEEDING RATE (lbs/ACRE)
Lolium perenne	perennial ryegrass (A mixture of at least 2 fine-leaf, turf type varieties.)	98	90	1.2	52
Festuca rubra	red fescue (Pennlawn)	98	85	2.4	105
Poa pratensis	Kentucky Blue Grass (mix atleast 4 named varieties)	98	80	2.4	105
			TOTAL:	6.0	262

NOTE: If the above seeding dates cannot be observed, use appropriate temporary seeding mixture.

TABLE 2 NON-MOWED SLOPE SEED MIXTURE

TO BE SEEDED BETWEEN APRIL 1 AND MAY 30 OR BETWEEN SEPTEMBER 1 AND OCTOBER 1.

Apply all of the following mixture components.

SCIENTIFIC NAME	COMMON NAME	MINIMUM % HARDSEED	MINIMUM % PURITY	MINIMUM % GERMINATION	SEEDING RATE (lbs/1000SF)	SEEDING RATE (lbs/ACRE)
Lolium perenne	perennial ryegrass (A mixture of at least 2 fine-leaf, turf type varieties.)	N/A	98	80	0.8	35
Festuca rubra	red fescue (Pennlawn)	N/A	98	85	0.8	35
Lotus corniculatus	birdsfoot trifoil ("Viking")	20	98	80	0.7	30
plus, depending on the season, and on the seed availability, add one of these nurse crops.						
Avena sativa	Oats- April 1 To Sept 1	N/A	98	85	1.5	64
Secale cereale	Winter Rye April 1 to October 1	N/A	98	85	1.3	56
Secale cereale	Winter Rye October 1 to April 1	N/A	98	85	2.6	112
				TOTAL:	7.7	332

NOTE: If above seeding dates cannot be observed, use the appropriate temporary seeding mixture.

NOTES:

1. PROVIDE SEED MIXTURES INDICATED ON DRAWING L005, PLANTING AND TREE PROTECTION DETAILS, FOR EACH MOWED LAWN AND NON-MOWED AREAS.
2. PROVIDE 6" TOPSOIL OVER ALL AREAS TO BE SEEDED (MOWED AND NON-MOWED AREAS).

TABLE 3 TEMPORARY SEED MIX

Apply one of the following species within the time frame specified.

SCIENTIFIC NAME	COMMON NAME	MINIMUM % PURITY	MINIMUM % GERMINATION	SEEDING RATE (lbs/1000SF)	SEEDING RATE (lbs/ACRE)
Avena sativa	Oats- April 1 TO Sept 1	98	85	2.2	96
or Secale cereale	Winter Rye- April 1 - October 30	98	85	2.6	112
			TOTAL:	4.8	208

NOTE: If seeding after October 30, increase straw mulch rate to 4 tons per acre.

TOPSOIL REPLACEMENT SPECIFICATIONS

1. GRADED AREAS SHOULD BE SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREAS AND TO PROVIDE A ROUGHENED SURFACE TO PREVENT TOPSOIL FROM SLIDING DOWN THE SLOP.
2. TOPSOIL SHOULD BE UNIFORMLY DISTRIBUTED ACROSS THE DISTURBED AREA TO A DEPTH OF 4 TO 8 INCHES MINIMUM, 2 INCHES ON FILL OUTSLOPES.
3. SPREADING SHOULD BE DONE THAT SODDING/SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL PREPARATION OR TILLAGE.
4. IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOIL PLACEMENT SHOULD BE CORRECTED IN ORDER TO PREVENT FORMATION OF DEPRESSIONS UNLESS SUCH DEPRESSIONS ARE PART OF THE PCSM PLAN.
5. TOPSOIL SHALL NOT BE PLACED IF TOPSOIL OR SUBSOIL IS FROZEN OR MUDDY, EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
6. COMPACTED SOILS SHOULD BE SCARIFIED 6 TO 12 INCHES ALONG CONTOUR WHEREVER POSSIBLE PRIOR TO SEEDING.

TABLE 11.1 TOPSOIL REPLACEMENT SPECIFICATIONS
CUBIC YARDS OF TOPSOIL REQUIRED FOR APPLICATION TO VARIOUS DEPTHS

DEPTH (in)	PER 1,000 SQUARE FEET	PER ACRE
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806
7	21.7	940
8	24.8	1,074

COMPOST FILTER SOCK SPECIFICATIONS

TABLE 4.1 COMPOST FILTER SOCK FABRIC MINIMUM SPECIFICATION

MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
	3/8"	3/8"	3/8"	3/8"	1/8"
		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY %	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS
TWO-PLY SYSTEMS					
INNER CONTA

GENERAL NOTES

1.0 GENERAL

1.1 Shop drawings
- a. Shop drawings for materials shall be submitted to the Architect for review prior to the start of fabrication or commencement of work.
- b. No portion of the Structural Contract Drawings may be reproduced for submittal as shop drawings unless authorized by KSS in writing. Violation of this provision will result in the rejection of the shop drawings and will be returned not reviewed by the structural engineer.
- c. Shop drawings shall bear the General Contractor's stamp of approval, which shall constitute certification that he has verified all field measurements, construction criteria, materials and similar data and has checked each drawing for completeness, coordination, and compliance with the contract documents. Shop drawings not reviewed by the General Contractor prior to submittal will be rejected.
- d. Changes to shop drawings that are re-submitted must be clouded or otherwise clearly indicate the changes that have been made to a previously issued and reviewed drawing.
- e. The contractor shall provide written notice of deviations of any type from the requirements of the Construction Documents. The notice must be received prior to shop drawing submittal. The contractor remains liable for any deviation unless reviewed by the structural engineer and acknowledged in writing, prior to receipt of the shop drawings.
- f. The contractor shall provide a schedule for submittal and shop drawing submissions as well as required return dates to the architect/structural engineer at least 30 days before submittals are received.
- g. Shop drawings will be returned not later than 10 working days after receipt by the structural engineer.
- h. Shop drawings shall be submitted electronically for structural review in the form of pdf files. Shop drawings will be returned to the contractor with Structural Engineer's comments, also in the form of pdf files. This requirement applies to shop drawings for structural review only and it supersedes any other requirements indicated on any other drawings or in any section of the specifications.

1.2 The structural drawings shall govern the work for structural features, unless otherwise noted. Discrepancies between the architectural and structural drawings shall be reported to the architect and engineer for review and clarification before proceeding with related work.

1.3 In case of conflict between the General Notes, Specifications, and Drawings regarding structural issues, the Contractor shall submit an RFI for clarification.

1.4 Work not indicated on a part of the drawings, but reasonably implied to be similar to that shown at corresponding places, shall be repeated.

1.5 The contractor is responsible for means and methods of construction and construction procedures, fabrication processes, coordination of work with other trades and jobsite safety.

1.6 The structure has been designed for its final/in use condition. Temporary bracing, sheeting, shoring, etc., required to ensure the structural integrity/stability of the structure, adjacent existing structures, sidewalks, utilities, etc., during construction is the Contractor's responsibility and shall be designed by a Registered Professional Engineer employed by the contractor.

1.7 The Contractor shall refer to Architectural, Mechanical, Plumbing, and Electrical Drawings for size and locations of openings, sleeves, concrete housekeeping pads, inserts and depressions.

1.8 The contractor shall coordinate support of all mechanical equipment with the mechanical drawings and the appropriate equipment manufactures.

1.9 Information contained on the hard copy of this drawing retained by Keystone Structural Solutions controls over variances or changes that might be introduced due to plotting by others via electronic document transfer.

1.10 The distribution and/or use of the electronic files of the structural drawings is strictly prohibited unless written authorization is provided by Keystone Structural Solutions.

1.11 The structural construction documents are instruments of professional services and shall remain the property of KSS. The documents are not intended or represented to be suitable for reuse by the Client or others on extensions of this project or on any other project.

2.0 DESIGN CRITERIA

2.1 Design Codes:
- a. IBC 2021
- b. ANSI/ASCE-7 2016
- c. PA Uniform Construction Code (UCC)

2.2 Live Loads:

a. Roof live load	20 psf
b. Upper level live load	80 psf
c. Stairs	100 psf

2.3 Snow Load:

a. Ground snow load (Pg)	25 psf
b. Flat-roof snow load (Pf)	18 psf
c. Exposure factor (Ce)	1.0
d. Thermal Factor (Ct)	1.0
e. Snow Importance factor (Is)	1.0
f. Additional drift load at conditions per ASCE-7	

2.4 Wind Load:

a. Risk Category II Wind	110 mph
b. Wind Exposure category	B
c. Internal pressure coefficient	+/- 0.18
d. Components & Cladding per ASCE-7	25 psf min.

2.5 Seismic Load:

a. Seismic Occupancy Category	II
b. Seismic importance factor (Ie)	1.00
c. Spectral response accel. – short (Ss)	0.090
d. Spectral response accel. – 1 sec.(S1)	0.045
e. Site Class (S)	C
f. Spectral response coeff. – short (Sds)	0.078
g. Spectral response coeff. – 1 sec. (Sd1)	0.045
h. Seismic Design Category	A
i. Basic seismic force resisting system: • Ordinary reinforced masonry shear walls	
j. Seismic-response coefficient (Cs)	0.048
k. Response modification factor (R)	2.0
l. Seismic Base Shear	0.01W
m. Analysis procedure:	Equivalent Lateral Force

3.0 FOUNDATIONS

3.1 Foundations have been designed and shall be constructed in accordance with criteria established by Civil & Environmental Consultants, Inc. in their report prepared for this project dated June 9, 2025, and revised on August 15, 2025. The contractor shall be thoroughly familiar with the requirements of this report.

3.2 Spread footings have been designed to bear on weathered rock/bedrock, or imported PennDOT 2A aggregate fill, assuming an allowable net bearing capacity of 3,000 psf. Where weathered rock/bedrock is not encountered at the footing bearing elevation, over-excavate to rock and back fill with imported aggregate.

3.3 Concrete slabs-on-grade have been designed to bear on 6" (min.) granular sub-base, AASHTO #57 grading, over weathered rock/bedrock, or imported PennDOT 2A aggregate fill. Where weathered rock/bedrock is not encountered at the bottom of sub-base elevation, over-excavate to rock and back fill with imported aggregate.

3.4 The contractor shall retain the services of a professional geotechnical engineer to verify that the material on which foundations bear meets the criteria of the geotechnical report.

3.5 Elevations shown on the drawings at which foundations bear are approximate. Step-in footing locations and elevations shown on the drawings shall be field verified and adjusted as required so that bottom of exterior footings are a minimum of 3'-6" below surrounding finished grade for frost protection.

3.6 Retaining walls have been designed based on the following criteria:

a. At Rest Pressure:	72 PCF
b. Active Pressure:	52 PCF
c. Passive Pressure:	250 PCF
d. Soil Friction Coefficient:	0.3
e. Soil Weight:	115 PCF

3.7 Divide floor slabs on grade into segments by means of contraction and construction joints as indicated on the drawings. Position of joints other than those shown on the drawings shall be submitted to the architect for approval.

3.8 No backfilling against walls shall be done until the slabs at the top and bottom have been placed or proper temporary shoring has been installed to brace the wall. Walls having backfill against both sides shall have the backfill placed on both sides with a maximum differential height of 8 inches.

3.9 Construction joint keys shall be 2x4 (nominal & tapered) u. n. o.

3.10 Coordinate foundation drain locations with architectural, mechanical and/or civil drawings.

4.0 REINFORCED CONCRETE

4.1 Reinforced concrete work shall be in accordance with the "Building Code Requirements for Reinforced Concrete" (ACI 318) and the Specifications for Structural Concrete (ACI 301) of the American Concrete Institute (editions as required by governing code).

4.2 Cast-in-place concrete shall have a minimum 28-day compressive Strength (f'c) of 3000 psi u.n.o. below:
a. Slabs-on-Metal Deck, Slabs-on-Grade, 4 4000 psi

4.3 Air entrainment: 6% (+/-1.5%) in piers, grade beams, footings and other concrete exposed to freeze/thaw.

4.4 Concrete shall be normal weight concrete (144 pcf) with cement conforming to ASTM C150, Type I or ASTM C595, Type IL. Aggregate shall conform to ASTM C33.

4.5 Prior to concrete placement, the contractor shall submit to the architect for review, a concrete mix design for each type of concrete, prepared in accordance with the specifications.

4.6 Reinforcement:

a. Deformed bars:	ASTM A615, Grade 60.
b. Welded Wire Reinforcement:	ASTM A1064
c. Deformed Bar Anchors:	Nelson Type D2L, ASTM A496.

4.7 Reinforcement shall be detailed, fabricated, and placed in accordance with the A.C.I. "Detailing Manual No. SP-66", latest edition.

4.8 Reinforcement shall be securely held in place while placing concrete. If required, additional bars, stirrups, or chairs shall be provided by the contractor to furnish support for bars.

4.9 Reinforcing bars shall have the following minimum concrete cover:

a. Cast against earth:	3"
b. Exposed to earth or weather	
• (No. 5 or smaller):	1-1/2"
• (No. 6 or larger):	2"
c. Concrete not exposed to weather	
• Slabs, Walls, Joists:	3/4"
• Beams and Columns:	1-1/2"

4.10 Reinforcing bar splices shall be Class 'B' tension lap per ACI 318 u.n.o. Lap welded wire fabric two full mesh lengths at splices and wire tie together.

4.11 Fiber reinforcing of the type and dosage as specified on plan shall be uniformly dispersed throughout concrete slabs.

4.12 Welded wire fabric shall be placed one-third of the slab thickness from the top or 2" from the top (1" for slabs on deck), whichever is closest to the surface, u.n.o.

4.13 Leveling grout shall be non-shrink, non-metallic, factory pre-mixed grout in accordance with ASTM C1107, with f'c of not less than 5000 psi.

4.14 Contractor shall verify dimensions and locations of slots, pipe sleeves, etc., as required for mechanical trades before concrete is placed.

4.15 The beams and girders supporting elevated floors are designed to have a deflection of not more than one inch under the wet weight of concrete and self-weight of structure. The contractor is responsible to provide a level concrete surface in accordance with the specifications. Additional concrete or temporary shoring may be needed and shall be provided by the contractor.

4.16 Construction joints in slabs on metal deck shall be located as indicated on the drawings.

5.0 POST INSTALLED ANCHORS

5.1 Post installed anchors shall be used only where specified on structural drawings.

5.2 The installation of post installed anchors for missing or misplaced cast in place anchors shall be approved by the engineer of record (EOR).

5.3 Anchors shall be installed in strict accordance with manufacturer's printed installation instructions in conjunction with edge distance, spacing and embedment depths as indicated on the drawings.

5.4 The contractor shall arrange for a manufacturer's field representative to provide installation training for all products to be used, prior to the commencement of work. Only trained installers shall perform post installed anchor installation. A record of training shall be kept on site and be made available to the EOR/IOR as requested.

5.5 Adhesive anchors installed in horizontal to vertically overhead orientation to support sustained tension loads shall be done by a certified adhesive anchor installer (AAI) as certified through ACI/CRSI (ACI 318-11 D.9.2). Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation.

5.6 Concrete adhesive anchors must be installed in concrete aged a minimum of 21 days (ACI 318-11 D.2.2).

5.7 Post installed anchors shall be the type and product specified on the structural drawings or product substitutions are as follows:

Post Installed Concrete Anchors	
Type	**Approved Anchors**
Expansion	Dewalt Power-Stud+SD2 or Hilti Kwik Bolt TZ
Screw	Dewalt Screw Bolt+ or Hilti Kwik HUS-EZ
Adhesive	Dewalt AC200+, Dewalt Pure220+, Dewalt Pure110+ or Hilti HY200

Solid Grouted Masonry Anchors	
Type	**Approved Anchors**
Expansion	Dewalt Power-Stud+SD1 or Hilti Kwik Bolt 3
Screw	Dewalt Screw Bolt+ or Hilti Kwik HUS-EZ
Adhesive	Dewalt AC100+ Gold or Hilti HY70

Post Installed Reinforcing Bars	
Type	**Approved Anchors**
Adhesive	Dewalt Pure220+, Dewalt Pure110+, Dewalt AC200+ or Hilti HY200

6.0 MASONRY

6.1 Masonry work shall be in conformance with the latest edition of the "Building Code Requirements for Masonry Structures" (TMS 402) and the "Specifications for Masonry Structures" (TMS 602) of The Masonry Society.

6.2 Mortar for structural masonry shall conform to ASTM C270 and ASTM C780. Materials include: Portland cement - ASTM C150, Type I. Lime - ASTM C207. Type S mortar shall be used for structural masonry, except Type M mortar shall be used for ivany block and masonry retaining walls and basement walls. Type N mortar shall be used for veneers.

6.3 Grout shall conform to ASTM C476 and ASTM C-1019, and have a minimum compressive strength of 2150 psi. u.n.o. Grout for ivany type units shall have a minimum compressive strength of 3000 psi. Slump shall be 8 to 10 inches. Maximum aggregate size shall be 3/8".

6.4 Concrete masonry units: Hollow block shall conform to ASTM C90 , Type 1. Solid blocks shall conform to ASTM C145. Block to have a minimum net area compressive strength of the units of 2,000 psi, and a minimum net area compressive strength of masonry (prism strength) of 2,000 psi (f'm), unless noted otherwise.

6.5 Ivany type (open end block) units shall conform to ASTM C90, Type 1. Block to have a minimum net area compressive strength of the units of 4,000 psi, and a minimum net area compressive strength of masonry (prism strength) of 3,000 psi (f'm).

6.6 Deformed bar reinforcement shall conform to ASTM A615, grade 60. Provide lap splices with a min. of 48 bar diameters. Provide bar spacers as required to properly locate reinforcing within CMU cells.

6.7 Horizontal joint reinforcing for vertically reinforced walls shall be galvanized, standard class, Ladder type DUR-O-WAL (or equal), conforming to A1064 and ASTM A951, spaced at 16" o.c. u.n.o. Side rods shall be No. 9 with No. 9 cross rods u.n.o. Ladder type or truss type may be used for walls without vertical reinforcing. Provide one-piece prefabricated units at 8" o.c. at all wall corners and intersections. Provide additional joint reinforcing in the first two courses above and below masonry openings. Extend at least 2'-0" beyond each side of the opening. Provide lap as recommended by the manufacturer with a minimum of 6". Discontinue reinforcing at control joints.

6.8 Provide full bed and head joints.

6.9 Grout cells of CMU solid for CMU lintels, bond beams, cells with vertical reinforcement and at least two courses, 24" wide below beam bearing plates, u.n.o.

6.10 Vertical control joints in masonry veneers shall be provided where indicated on the Architectural Drawings or as approved by Architect. Joints should be located at a maximum spacing of 20 feet on center, and in accordance with the latest NCMA standards.

6.11 Vertical control joints in CMU walls shall be provided where indicated on the Structural Drawings or as approved by the Structural Engineer. Joints should be located at a maximum spacing of 25 feet on center, and in accordance with the latest NCMA standards. CMU control joints need not align with veneer control joints. If joint locations are not provided on structural drawings, the masonry contractor shall submit a joint location plan for review and approval by the engineer of record.

6.12 Masonry walls shall be securely braced until floor and/or roof systems have been installed and are capable of stabilizing the walls.

6.13 Brick veneer anchors shall be spaced not more than 24" o.c. vertically and horizontally and shall not support more than 2.67 sq. ft. of wall area. Provide additional anchors at 8" o.c. around openings.

7.0 STRUCTURAL STEEL

7.1 Structural steel work shall be in accordance with the AISC Steel Construction Manual (15th Edition - (ASD), including the "Specification for Structural Steel Buildings" (AISC 360-16) and the "Code of Standard Practice for Steel Buildings and Bridges" (AISC 303-16).

7.2 Structural steel shall conform to the following:
- a. Wide flange shapes and WT's: ASTM A992 with a minimum yield strength of 50,000 psi.
- b. Channels, angles, plates and miscellaneous connection material: ASTM A36 with a minimum yield strength of 36,000 psi, u.n.o.
- c. Pipes: ASTM A53, Types E or S, with minimum yield strength of 35,000 psi.
- d. Steel Tubing: ASTM A500, Grade B, with a minimum yield strength of 46,000 psi for square and rectangular and 42,000 psi for round.

7.3 Anchor bolts shall be ASTM F1554, Grade 36, u.n.o. Nuts shall be ASTM A 563 Heavy Hex carbon steel. Washers shall be ASTM F 436.

7.4 Headed shear stud connectors shall conform to ASTM A108, Grade 1015 or 1020, cold finished carbon steel.

7.5 Steel beams shall be equally spaced in bays unless otherwise noted.

7.6 Steel exposed to the exterior shall be hot dipped galvanized according to ASTM A-123. When galvanized steel is field welded provide appropriate ventilation measures. Welded surfaces shall be ground smooth and coated with galvanizing repair paint. Galvanizing repair paint shall be a high zinc dust content paint complying with Military Specifications MIL-P-21035 (Ships) or SSPC-Paint-20.

7.7 Do not paint steel where encased with concrete, to receive spray-on fireproofing, at field weld areas, at the top flange of composite beams or at S.C. bolt areas.

7.8 Structural Steel Fabricator shall provide for vertical and horizontal field adjustment of support assemblies.

7.9 Cuts, holes, coping, etc. required for other trades shall be shown on the shop drawings and made in the shop. Cuts or burning of holes in the field will not be permitted.

7.10 Structural steel frames shall be securely braced until floor slabs, roof decks and shear walls have been installed and are capable of stabilizing the frames.

7.11 STEEL STAIRS

a. Design and detailing of steel stairs, handrails and top rails of guards shall be provided by the fabricator.

b. The fabricator shall provide design drawings for the stairs signed and sealed by a professional engineer registered in the state in where the project is located.

c. Design drawings shall be submitted to the EOR for review and approval prior to fabrication. Shop drawing submissions shall adhere to the guidelines noted in section 1.1 of these general notes.

d. Design loads:

Stairs:
Uniform Load: 100 lbf/sq. ft.
Concentrated Load: 300 lbf applied on an area of 4 sq. in
Uniform and concentrated loads need not be assumed to act concurrently.

Handrails and Top Rails of Guards:
Uniform load of 50 lbs/ft applied in any direction.
Concentrated load of 200 lbf applied in any direction.
Uniform and concentrated loads need not be assumed to act concurrently.

Limit deflection of treads, platforms, and framing members to L/360 or 1/4 inch, whichever is less.

e. Coordinate all dimensions and elevations with the architectural drawings.

8.0 STRUCTURAL STEEL CONNECTIONS

8.1 All steel details and connections shall be in accordance with the requirements of the AISC Steel Construction Manual (15th Edition - (ASD), including the "Specification for Structural Steel Buildings" (AISC 360-16) and the "Code of Standard Practice for Steel Buildings and Bridges" (AISC 303-16).

8.2 All connections, unless indicated as being fully designed on structural drawings shall be designed and detailed by a licensed professional engineer working for or retained by the fabricator licensed in the state where the project is located. The design and detail shall comply with all applicable codes and specification sections.

8.3 Unless otherwise noted as being fully designed, details indicated on drawings indicate general criteria for design and detailing of connections. Details indicated on drawings are not intended to convey complete connector sizes, plate sizes, weld sizes, number of bolts, or any other specific information that is obtained through designing of an individual connection for a given set of loads.

8.4 Submit connections not indicated as being fully designed on the drawings to KSS for review prior to the preparation of shop drawings.

8.5 Alternate connections to those shown on drawings will only be considered acceptable if contractor formally submits alternates prior to the preparation of shop drawings and KSS approves the submittal.

8.6 For connection design and detailing, set connection work point at intersection of member centerlines, u.n.o.

8.7 Design all connections for forces indicated on the drawings and/or notes. Connection design forces indicated on the drawings represent the total combined un-factored load (ASD) forces, uno

8.8 Design of members is based on assumption of 3/4-inch diameter ASTM A325 bolts. Use no more than two bolt diameters, one grade per diameter, skip one size between diameters. Connections shall be Type N for framed connections and Type SC Class A for bracing and hangers uno.

8.9 Unless alternate connections are approved by the structural engineer, bolted connections shall be double angle connections in accordance with AISC. Alternatively, single plate connections in accordance with AISC can be used for beam to beam connections only. The minimum depth of the connection must be more than 67% of the beam depth except that beams framing to columns shall have full depth connections using minimum 5/16" double angle connections; minimum 5/16" single connection plates may be used at wind moment connections at HSS columns and skewed connections, u.n.o.

8.10 Non-composite beam connections shall be designed for loads indicated on the drawings, or a minimum of one half the uniform load capacity of the beam as indicated in the AISC Manual, Maximum Total Uniform Load Tables. The steel fabricator is responsible for the connection design utilizing the above criteria. Fabricator's responsibilities include using a Registered Professional Engineer to design the structural-steel connections.

8.11 Composite beams require connection capacities indicated for non-composite beams to be increased by 50% unless higher loads are indicated on the drawings.

8.12 Welding shall be in accordance with the "Structural Welding Code ANSI/AWS D1.1", American Welding Society, latest edition. Use E70XX electrodes.

8.13 Field welded surfaces shall be cleaned, ground smooth, and coated with appropriate primer/paint as specified.

8.14 Where reinforcing bars are shown welded to structural steel, provide deformed Low-Alloy-Steel Reinforcing Bars: ASTM A706 or use ASTM A615, Grade 60 reinforcing bars with E90xx electrodes.

9.0 METAL DECK

9.1 Metal deck shall be designed, detailed and installed in accordance with the "Design Manual for Floor Decks and Roof Decks" of the Steel Deck Institute, latest edition.

9.2 Composite floor deck shall be in conformance with the "Specifications for Composite Steel Floor Deck" of the Steel Deck Institute, latest edition. Sheet steel for galvanized deck shall conform to ASTM A653 G60, Structural Quality with a minimum yield strength of 33 ksi.

9.3 Roof deck shall be in conformance with the "Specifications for Steel Roof Deck" of the Steel Deck Institute, latest edition. Sheet steel for galvanized deck shall conform to ASTM A653 G60, Structural Quality with a minimum yield strength of 33 ksi.

9.4 Roof deck shall be fastened to the supporting steel at the ends of the units and at all intermediate supports with Hilti powder actuated fasteners (PAFs). Hilti X-HSN24 PAFs shall be used into joists and Hilti X-ENP19 PAFs shall be used into steel beams. PAFs shall be spaced at 12" o.c. in a 36/4 pattern. Deck side laps shall be connected with Hilti S-SLC-01 screws at quarter points between the supports. Fasten perimeter edges of deck panels with PAFs at 12" o.c. Any split or partial panels shall be fastened to the supporting structure in every valley regardless of adjacent fastener patterns.

9.5 Composite steel floor deck shall be fastened to the supporting steel at the ends of the units and at all intermediate supports with Hilti powder actuated fasteners (PAFs). Hilti X-ENP19 PAFs shall be spaced at 12" o.c. in a 36/4 pattern where no shear studs are used. Fasten side laps and perimeter edges of panels between supports using Hilti S-SLC-01 screws at intervals not exceeding the lesser of 1/2 of the span or 36 inches.

9.6 Verify actual base material thickness on-site prior to purchasing or installing powder actuated fasteners. Consult manufacturer for correct fastener for corresponding base material thickness.

9.7 Deck installer may substitute alternate means of welding in lieu of mechanical fastening if connection and diaphragm capacity is maintained.

9.8 Deck units shall be placed in three (3) spans continuous, if possible. A minimum two (2) span condition must be maintained at all locations. Ends of adjacent deck units shall meet, either lapped or butted as appropriate, over supports.

9.9 Metal deck supplier shall provide light gage metal concrete pour stops, deck closure pieces and shall reinforce or support deck at openings and column areas as required, in accordance with the Steel Deck Institute.

10.0 STRUCTURAL WOOD

10.1 Design, fabrication and construction of wood framing shall conform with:
- a. "National Design Specifications for Wood Construction" (NDS), latest edition.

10.2 Sawn lumber shall be Spruce-Pine-Fir (SPF) No.1/No.2 or better, graded in accordance with the NFPA National Design Specification with the following base design values:
- a. Fb=875 psi (bending – single member use)
- b. Fv=135 psi (horizontal shear)
- c. Fc=1150 psi (compression parallel to grain)
- d. E=1,400,000 psi (modulus of elasticity)

10.3 Connections for wood framing shall be made in accordance with the nailing schedule shown in, Table 2304.10.1 of the IBC 2021, u.n.o.

10.4 Connections for wood framing, shall be made with appropriate metal hangers, framing angles, post caps or bases, straps, etc. as manufactured by Simpson Strong-Tie or approved equal and galvanized with G185 zinc coating minimum. Bolts or lag screws shall conform to ASTM A-307. Nails/Screws/Staples in contact with treated lumber shall be galvanized.

10.5 Plywood or OSB sheathing shall be in conformance with American Plywood Association (APA) specifications. Panels should be installed with a 1/8" spacing at all panel end and edge joints. Floor sheathing to be glued and nailed.

10.6 Wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete shall be preservative treated by pressure process in accordance with AWPA UC2.

11.0 PREFABRICATED WOOD TRUSSES

11.1 Design, fabrication and construction of prefabricated wood trusses shall conform to "Design Specifications for Metal Plate Connected Wood Trusses" (TPI-85) and the "Commentary & Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses" (TPI/HIB-91).

11.2 Prefabricated wood trusses shall be designed and engineered by the manufacturer. Design calculations and shop drawings for construction shall be provided to the architect for review and shall bear the engineering seal of the professional engineer responsible for their preparation.

11.3 Prefabricated wood trusses shall be designed to support the loads indicated by the design criteria, at the depth and spacing indicated on the drawings. Self weight of the trusses are not included in these loads. Lateral and uplift loads shall be applied in accordance with the design criteria.

11.4 The stability of the trusses during erection is the sole responsibility of the truss installer. Design of temporary and permanent bracing is the responsibility of truss fabricator/truss installer. The wood truss fabricator should indicate on the roof truss layout all temporary and permanent bracing as required by the truss design and by standard practice.

11.5 Truss manufacturer shall arrange truss web members as required by design. Web arrangements shown on the architectural or structural drawings are for illustrative purposes only. Truss connector plates shall be 20 gage minimum and designed in accordance with Truss Plate Institute Specifications.

11.6 Wood truss framing plans indicate the required basic truss layouts Alterations to the plans which require design revisions to the contract documents are not permitted.

11.7 If the truss manufacturer changes the truss layout, the new layout must be coordinated with all other structural drawings prior to submission of shop drawings. Shop drawings must be approved prior to start of fabrication.

11.8 Truss to truss connections are the truss manufacturer's responsibility.

11.9 No field alteration of prefabricated trusses is permitted unless done in accordance with truss manufacturer's approved modification detail.

11.10 Refer to mechanical drawings for locations and weights of any mechanical units to be supported by the roof trusses.

12.0 SPECIAL INSPECTIONS AND TESTING

12.1 INSPECTION AGENCY:
- a. Inspection agency or individual shall be retained by the owner to conduct the inspections and testing outlined below and as defined in Chapter 17 of the International Building Code
- b. Special Inspectors shall keep records of all inspections and tests and submit records to the Architect.

SOIL

• Bearing capacity	Periodic
• Excavation depth to proper material	Periodic
• Classification and testing of compacted material	Periodic
• Proper use of material	Continuous
• Site preparation	Periodic

CONCRETE

• Verifying use of required mix designs	Periodic
• Anchor bolt placement	Continuous
• Post-installed anchors	Continuous
• Reinforcing steel and placement	Periodic
• Formwork	Periodic
• Concrete Sampling	Continuous
• Curing Techniques	Periodic

MASONRY

• Material certificates of compliance	Periodic
• Verification of f'm every 5,000 S.F.	Periodic
• Mortar proportions	Periodic
• Placement of CMU and joints	Periodic
• Reinforcement placement	Continuous
• Grout placement	Continuous
• Anchor bolt type,size & placement	Continuous

STRUCTURAL STEEL

• Material Certificates of Compliance	Periodic
• Identification markings	Periodic
• Welding – Fillet welds < 5/16"	Periodic
• Welding – Fillet welds > 5/16"	Continuous
• Welding – Full / Partial Penetration	Continuous
• Inspection of steel frame connections	Periodic

METAL DECKING

• Welding	Periodic
• Verification of deck type, gage, finish	Periodic
• Sidelap fastening	Periodic

ABBREVIATIONS

A

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ASTM	American Society of Testing & Materials
AB	Anchor bolt
ADDL	Additional
ADJ	Adjustable
AESS	Architecturally Exposed Structural Steel
AFF	After Final Fllup, Above Finished Floor
AISI	American Iron & Steel Institute
ALUM	Aluminum
ALT	Alternate
ANC	Anchor
ANG	Angle
APA	American Plywood Association
ARCH	Architect/Architectural
ASD	Allowable Stress Design

B

BLDG	Building
BPL	Base Plate
BLKG	Blocking
BM	Beam
BOT	Bottom
BRG	Bearing
BT	Bent
BTW	Between

C

CANT	Cantilever
CA	Caisson
CAP	Caisson Cap
CJC	Center to Center
CFS	Cold-Formed Steel
CIP	Cast-In-Place
CJ	Contraction Joint
CLR	Clear / Clearance
CMU	Concrete Masonry Unit(s)
COL	Column
CONC	Concrete
CONN	Connection
CP	Concrete Pier
CONTR	Contractor
CONT	Continuous
COORD	Coordinate
CSK/S	Countersunk Screw

D

d(penny)	Nails(penny-weight)
D	Depth
DBA	Deformed Bar Anchor
DBL	Double
DEMO	Demolish
DET	Detail
DIA / Ø	Diameter
DIAG	Diagonal
DIM	Dimension
DWL(S)	Dowel(s)
DWG	Drawing

E

EA	Each
EF	Each Face
EW	Each Way
EL	Elevation
ELEC	Electrical
ENG	Engineer
EOD	Edge of Deck
EOR	Engineer of Record
EOS	Edge of Slab
EQ	Equal
EX	Existing
EXP	Expansion
EJ	Expansion Joint

F

FND	Foundation
FIN	Finish
FLG	Flange
FLR	Floor
FOM	Face of Masonry
FF	Finished Floor
FS	Far Side, Footing Step
FT(')	Foot
FTG	Footing
FRT	Fire Retardant Treated
FR	Fully Restrained

G

GA	Guage,gage
GALV	Galvanize
GB	Grade Beam
GC	General Contractor
GR	Grade
GT	Girder Truss
GYP	Gypsum

H

HD	Hold Down
HC	Hollow Core
HNGR	Hanger
HT	Height
HP	High Point
HORZ	Horizontal
HSS	Hollow Structural Steel

I

IBC	International Building Code
ID	Inside Diameter
IF	Inside Face
IN(")	Inch
INCL	Inclusive, Including
INFO	Information
IOR	Inspector of Record

J

JNT	Joint
JST	Joist

K

KB	Knee Brace
K	KIP (1000 pounds)
KLF	Kips Per Linear Foot
KSS	Keystone Structural Solutions

L

L	Angle
L	Long or Length
LAT	Lateral
LF	Linear Foot
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LONG	Longitudinal
LG	Long
LP	Low Point
LRFD	Load & Resistance Factor Design
LSH	Longside Horizontal
LSV	Longside Vertical
LVL	Laminated Veneer Lumber
LW	Long Way
LWC	Lightweight Concrete

M

MSRY	Masonry
MAX	Maximum
MC	Moment Connection
MECH	Mechanical
MEMB	Membrane, Member
MEP	Mechanical, Electrical and Plumbing
MFG	Manufacturer
MIN	Minimum
MISC	Miscellaneous
MO	Masonry opening
MP	Masonry Pier
MTL	Metal
MW	Masonry Wall

N

NIC	Not in Control
NS	Near Side
NTS	Not to Scale
NWC	Normal Without Concrete

O

OC	On Center
OD	Outside Diameter
OF	Outside Face
OPNG	Opening
OH	Opposite Hand
OPP	Opposite
OSB	Oriented Strand Board
OSH	Oversized Hole

P

PAF	Power Actuated Fastener
PC	Precast Concrete
PCF	Pounds per Cubic Foot
PEMB	Pre-engineered Metal Building
PEN	Penetration
PL	Plate
PLYWD	Plywood
PreFab	Prefabricated(d)
PMJ	Premolded Joint Filler
PROJ	Project; Projected, Projection
PSL	Parallel Strand Lumber
PCY	Pounds Per Cubic Yard
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PT	Pressure Treated, PrePost Tensioned

R

R	Radius
R/C	Reinforced Concrete
REF	Refer(ence)
REINF	Reinforcing
REQ	Required
RFI	Request for Information
RTN	Return
REV	Revise; Revision
RO	Rough Opening
RTU	Rooftop Unit

S

SCHED	Schedule
SECT	Section
SHT	Sheet
SIM	Similar
SC	Slip Critical
SJ	Steel Joist
SGLT	Struct. Glue Lam. Timber
SL	Slope
SOG	Slab-on-Grade
SOD	Slab-on-Deck
SPA	Space(s)
SPEC	Specification
SQ	Square
SSH	Short Slotted Hole
SS	Stainless Steel
STD	Standard
STIF	Stiffener
STIR	Stirrup
STL	Steel
STRUCT	Structural
SYM	Symmetrical

T

T or T/	Top
T&B	Top & Bottom
TD	Trench Drain
TEMP	Temporary
TEMP	Temperature
T&G	Tongue & Groove
TJ	Tie Joist
T/SL	Top of Slab
T/STL	Top of Steel
T/W	Top of Wall
THK	Thick
THRU	Through
TRANS	Transverse
TYP	Typical
TBD	To Be Determined

U

UNO	Unless Noted Otherwise

V

VERT	Vertical
VIF	Verify In Field

W

W	Width, Wide Flange
WF	Wall Footing
W/	With
W/O	Without
WD	Wood
WP	Work Point, Wood Post
WPL	Wall Plate
WT	Weight
WWF	Welded Wire Fabric

Y

YD	Yard

SYMBOLS LEGEND

CONCRETE WALL

MASONRY WALL

SHEAR WALL

STUD WALL

EXISTING FRAMING MEMBER

NEW FRAMING MEMBER

BRACE FRAME LOCATION

MASONRY CONTROL JOINT

MOMENT CONNECTION

OPENING IN BEAM WEB

DECK OR SLAB SPAN DIRECTION

PLANK MARK & SPAN DIRECTION

STEP IN SLAB

ELEVATION WORK POINT

BUILDING OR WALL SECTION, ELEVATION MARK

DETAIL MARK

REVISION MARK

SLOPE

MW# REINFORCED MASONRY WALL, SEE SCHEDULE

MP# REINFORCED MASONRY PIER, SEE SCHEDULE

BP# BEARING PLATE, SEE SCHEDULE

(SL) SLOPING STEEL

SLOPE TO LOW POINT

[##] NUMBER OF HEADED STUDS

COLUMN GRID CENTER LINE

STEEL LINE

DRAWING LIST

S000	GENERAL NOTES, ABBREVIATIONS & LEGENDS
S001	SCHEDULES
S101	LOWER LEVEL FOUNDATION PLAN
S102	UPPER FLOOR / LOW ROOF FRAMING PLAN
S103	HIGH ROOF FRAMING PLAN
S200	TYPICAL DETAILS
S300	FOUNDATION SECTIONS
S301	FRAMING SECTIONS

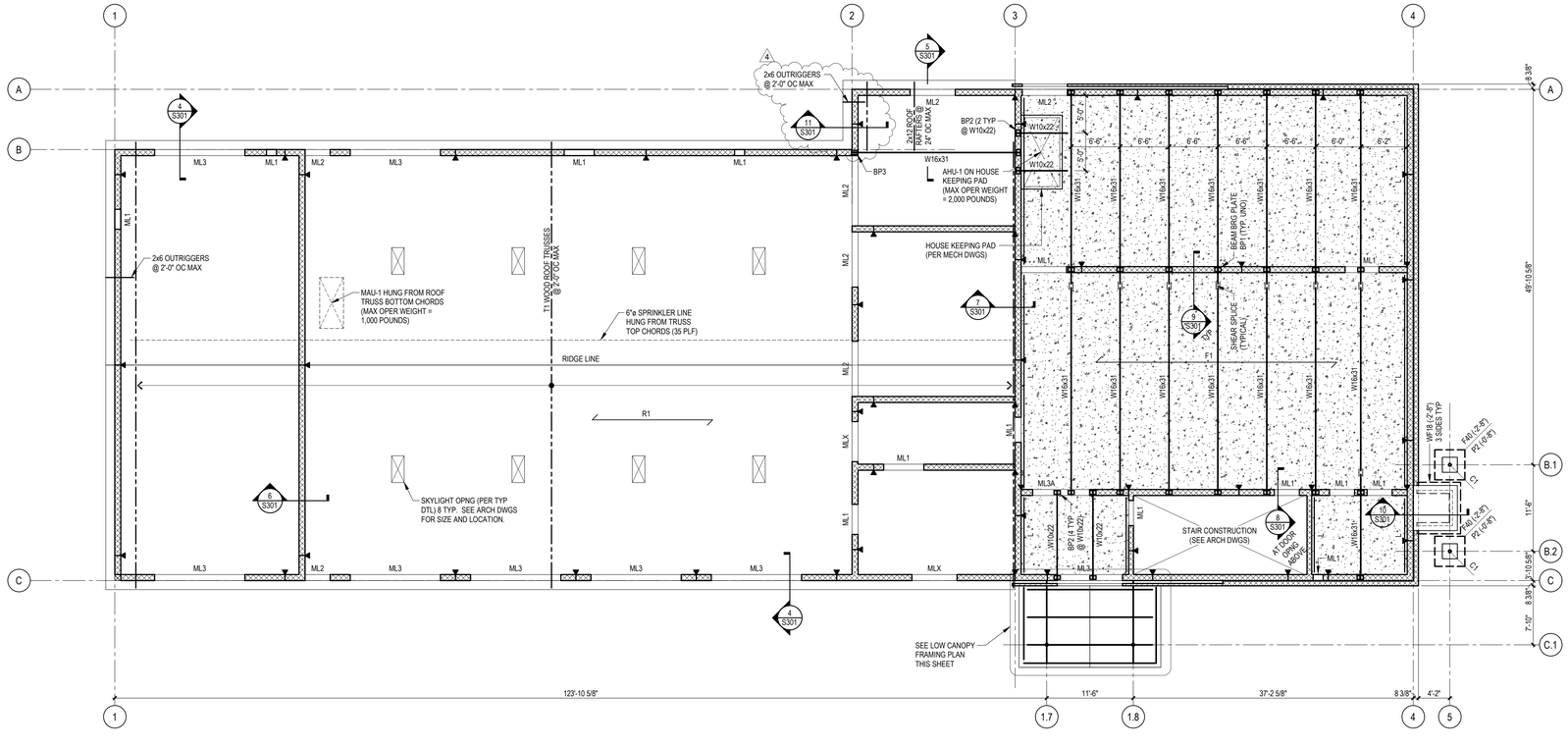
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470 Washington Road, Pittsburgh, PA 15228
412.561.7117 www.DRAWcollective.com

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL BRADLEY K. LECHWAR ENGINEER

REVISION

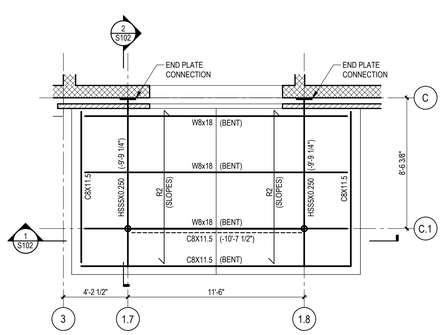


UPPER LEVEL / LOW ROOF FRAMING PLAN

1/8" = 1'-0"

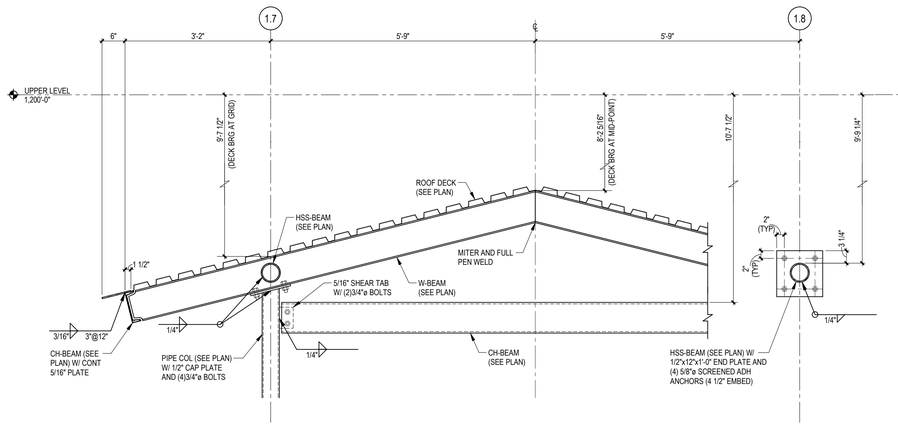
PLAN NOTES:

1. UPPER LEVEL FLOOR ELEVATION = 1200'-0". ELEVATIONS THIS PLAN ARE REFERENCED FROM THIS ELEVATION AS (+ OR -).
2. TOP OF STEEL AT (-5 1/2"), UNLESS OTHERWISE NOTED.
3. "F1" DESIGNATES SPAN DIRECTION OF 2" - 20 GA. GALVANIZED COMPOSITE METAL DECK + 3 1/2" NORMAL WEIGHT CONCRETE SLAB REINFORCED W/ 6x6 W2.1xW2.1 WWF; (5 1/2" TOTAL THICKNESS).
4. "R1" DESIGNATES SPAN DIRECTION OF 3/4" EXTERIOR GRADE, APA RATED PLYWOOD ROOF SHEATHING W/ 8d NAILS AT 4" OC MAX AT BOUNDARIES AND EDGES, AND 12" OC MAX IN FIELD.
5. "R2" DESIGNATES SPAN DIRECTION OF 1 1/2" - 20 GA. GALVANIZED WIDE-RIB (TYPE B) METAL ROOF DECK
6. "MLW" DESIGNATES SOLID GROUTED REINFORCED MASONRY LINTEL, SEE SCHEDULE AND TYPICAL DETAILS.
7. "L" DESIGNATES STEEL SLAB SUPPORT ANGLE, SEE TYPICAL DETAIL.



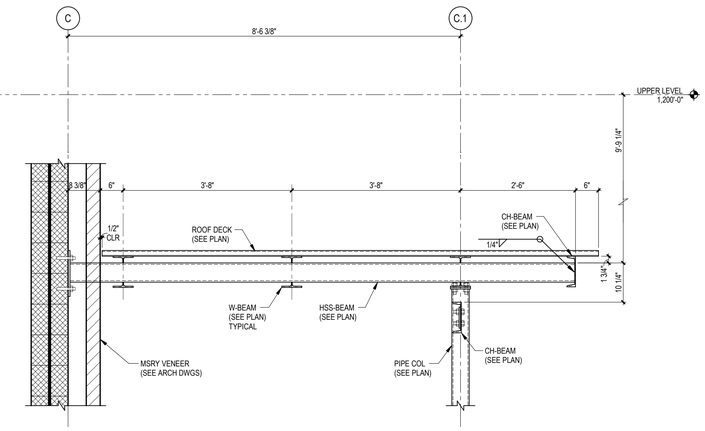
LOW CANOPY FRAMING PLAN

1/4" = 1'-0"



1 S102 SECTION

3/4" = 1'-0"



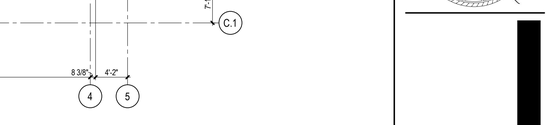
2 S102 SECTION

3/4" = 1'-0"

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REVISIONS
4 10/31/2025 Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY

3600 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TWP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA 15057

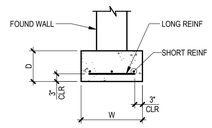
UPPER FLOOR / LOW ROOF FRAMING PLAN

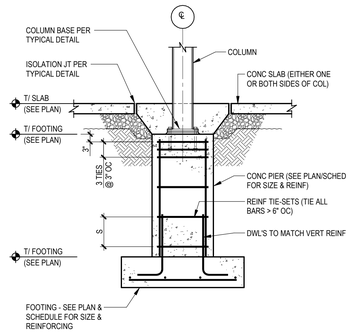
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Issue Date OCTOBER 1, 2025

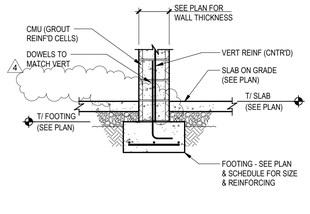
S102

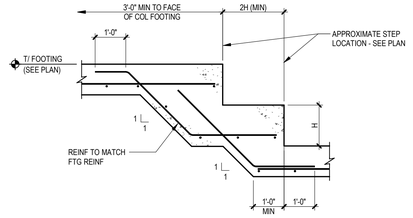
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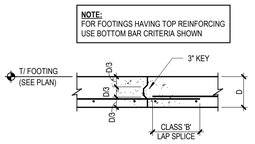
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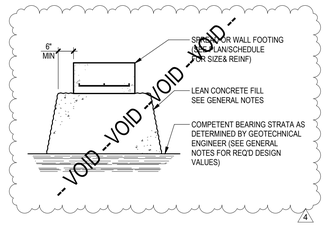












A S200 TYPICAL FOOTING DETAIL
1/2" = 1'-0"

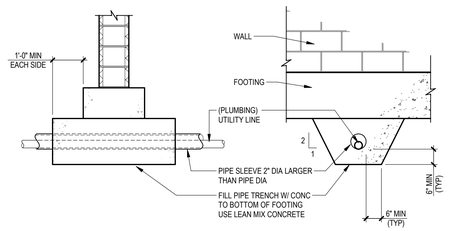
B S200 COLUMN PIER & FOOTING DETAIL
1/2" = 1'-0"

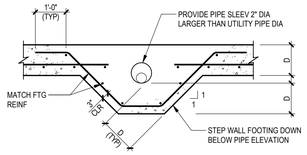
C S200 INTERIOR MASONRY WALL & FOOTING
1/2" = 1'-0"

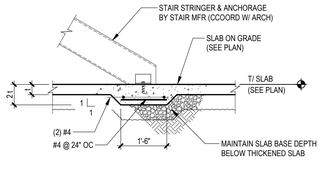
D S200 STEP-IN-WALL FOOTING DETAIL
1/2" = 1'-0"

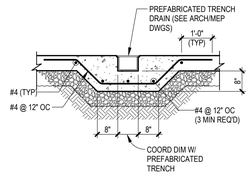
E S200 WALL FOOTING CONSTRUCTION JOINT DETAIL
1/2" = 1'-0"

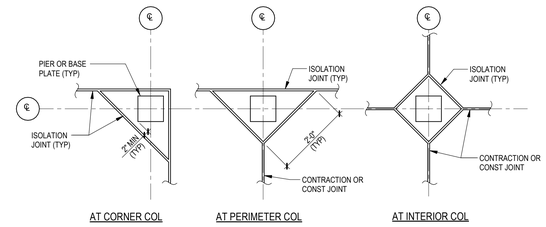
F S200 SPREAD OR WALL FOOTING OVER-EXCAVATION DETAIL
1/2" = 1'-0"











NOTES:
1. PROVIDE MINIMUM 2" CONCRETE COVER BEYOND BASE PLATE.
2. SEE SLAB ON GRADE JOINT DETAILS

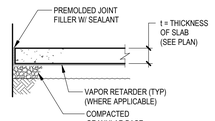
G S200 UTILITY PIPE UNDER WALL FOOTING DETAIL
1/2" = 1'-0"

H S200 UTILITY PIPE THRU WALL FTG. DETAIL
1/2" = 1'-0"

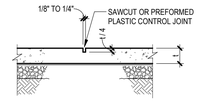
J S200 THICKENED SLAB-ON-GRADE AT STAIR STRINGER DETAIL
1/2" = 1'-0"

K S200 PREFABRICATED FLOOR TRENCH AT SLAB-ON-GRADE DETAIL
1/2" = 1'-0"

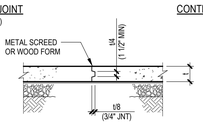
L S200 COLUMN/SLAB ON GRADE ISOLATION JOINT DETAILS
1/2" = 1'-0"



ISOLATION JOINT
(NOTE #1)



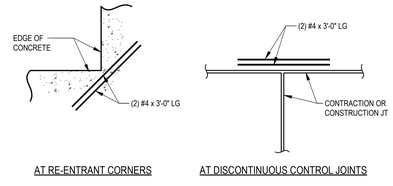
CONTRACTION JOINT
(NOTE #2)



CONSTRUCTION JOINT
(NOTE #3)

NOTES:
1. PROVIDE AT WALLS, COLUMN ISOLATION JOINTS OR OTHER FIXED PENETRATIONS AT THE FLOOR SLAB.
2. SEE PLAN FOR JOINT LAYOUT. IF NOT SHOWN, PROVIDE AT 12'-0" MAX OC AND SUBMIT PLAN LAYOUT FOR APPROVAL.
3. SUBSTITUTE CONSTRUCTION JOINTS FOR CONTRACTION JOINT AT END OF POUR LOCATIONS.

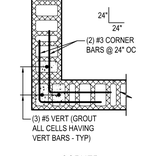
M S200 SLAB ON GRADE JOINT DETAILS (FIBER REINFORCED)
1/2" = 1'-0"



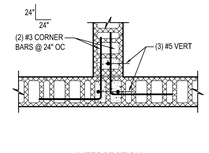
AT RE-ENTRANT CORNERS

AT DISCONTINUOUS CONTROL JOINTS

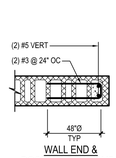
N S200 PLAN RE-ENTRANT AND DISCONTINUOUS CONTROL JOINTS AT SLAB DETAILS
1/2" = 1'-0"



CORNER



INTERSECTION



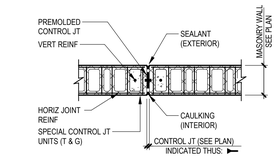
WALL END & DOOR/WINDOW JAMBS

NOTES:
1. CORNERS AND INTERSECTIONS UNLESS OTHERWISE NOTED OR SPECIFIED, AT POINTS WHERE CONCRETE MASONRY WALLS MEET OR INTERSECT, LAY 50% OF UNITS IN MASONRY BOND WITH ALTERNATE UNITS HAVING A BEARING ON NOT LESS THAN 4 INCHES ON THE UNIT BELOW

2. DOWELS UNLESS OTHERWISE NOTED OR SPECIFIED, PROVIDE DOWELS FROM CONCRETE FOOTING OR WALL BELOW WITH SAME SIZE AND SPACING AS VERTICAL BARS AT LEVEL BELOW. LAP 48 BAR DIAMETERS MINIMUM UNO.

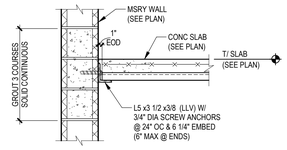
3. IF BOND BEAMS OCCUR; CORNER BARS SHALL BE SAME SIZE AND SPACING AS BOND BEAMS. LAP BOND BEAM REINFORCEMENT WITH CORNER AND END BARS (48 BAR DIAMETERS).

P S200 TYPICAL MASONRY WALL DETAILS
1/2" = 1'-0"

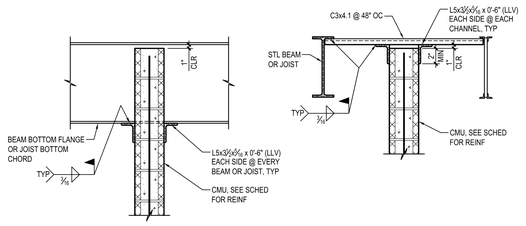


NOTES:
1. CONTROL JOINTS TO OCCUR FULL HEIGHT OF WALL
2. HORIZONTAL JOINT REINF TO BE DISCONTINUOUS, BOND BEAM REINF TO BE CONTINUOUS THRU JOINTS

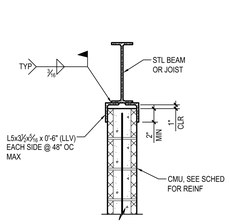
Q S200 CONTROL JOINT IN MASONRY WALL
1/2" = 1'-0"



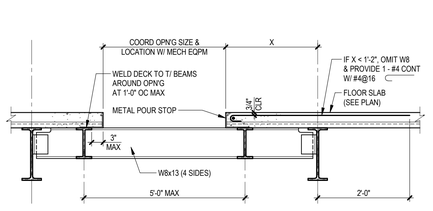
R S200 SLAB BEARING AT MASONRY WALL
3/4" = 1'-0"
(NOTED "L" ON PLAN)



NOTE:
TOP OF WALL SUPPORT REQUIRED AT ALL WALLS WHERE WALL SUPPORTS (COLUMNS AND PERPENDICULAR WALLS) ARE HORIZONTALLY SPACED MORE THAN 12'-0" APART, OR WHERE FIRST SUPPORT IS > 6'-0" FROM A FREE END

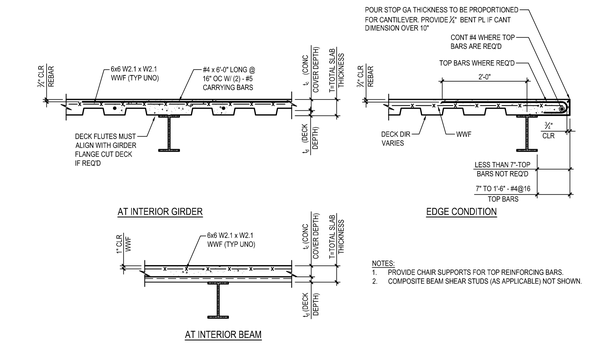


S S200 TOP OF CMU PARTITION SUPPORT DETAILS
3/4" = 1'-0"



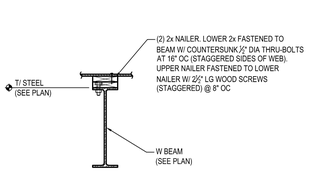
NOTES:
1. PROVIDE FRAME AT FLOOR OENINGS WHERE ANY OPENING DIMENSIONS EXCEEDS 1'-0".
2. WHEN OPENING SIZE EXCEEDS 5'-0", VERIFY ALL SIZES WITH ENGINEER.

T S200 FRAMING AT FLOOR OPENINGS DETAIL
3/4" = 1'-0"

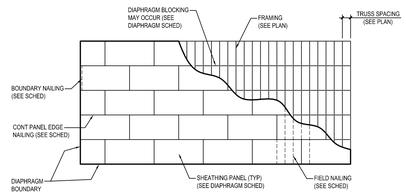


NOTES:
1. PROVIDE CHAIR SUPPORTS FOR TOP REINFORCING BARS.
2. COMPOSITE BEAM SHEAR STUDS (AS APPLICABLE) NOT SHOWN.

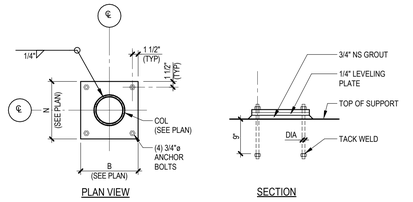
U S200 SLAB ON METAL DECK DETAILS
3/4" = 1'-0"



V S200 TOP FLANGE NAILER DETAIL
3/4" = 1'-0"



W S200 TYPICAL WOOD DIAPHRAGM ATTACHMENT PLAN
3/4" = 1'-0"



X S200 COLUMN BASE PLATE & SETTING DETAIL
3/4" = 1'-0"

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BRADLEY K. LECHWAR

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4 10/31/2025 Addendum #4

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NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TWP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA 15057

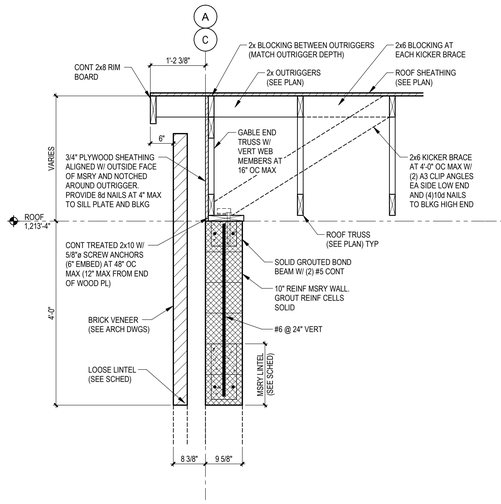
TYPICAL DETAILS

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Issue Date OCTOBER 1, 2025

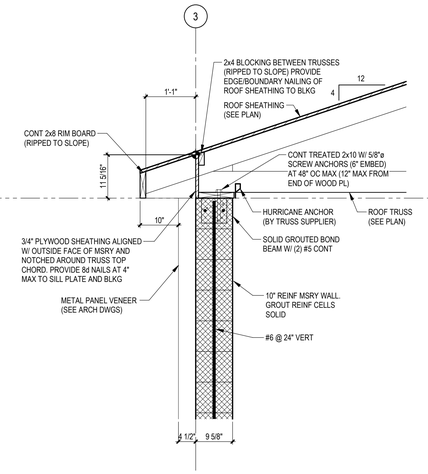
S200

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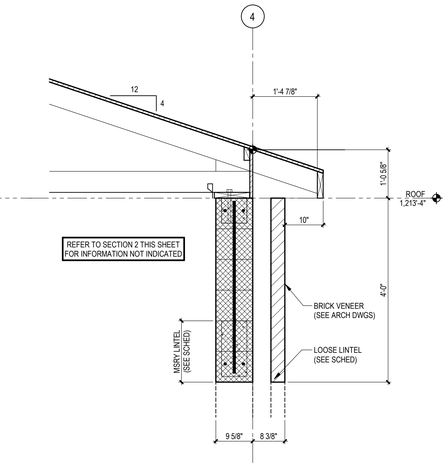
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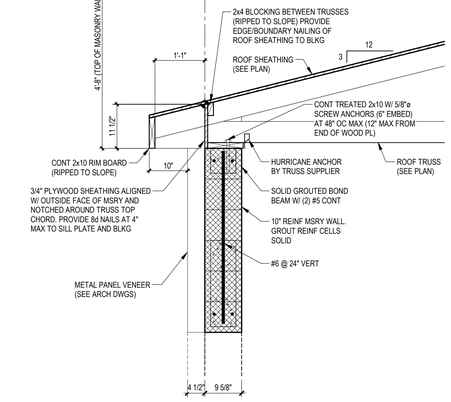
1 SECTION S301 3/4" = 1'-0"



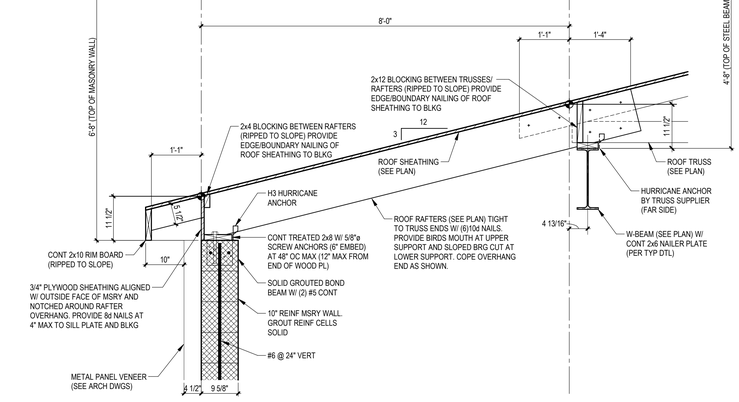
2 SECTION S301 3/4" = 1'-0"



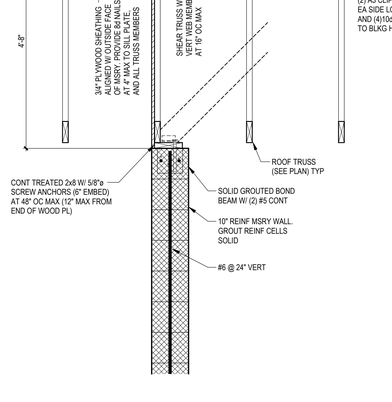
3 SECTION S301 3/4" = 1'-0"



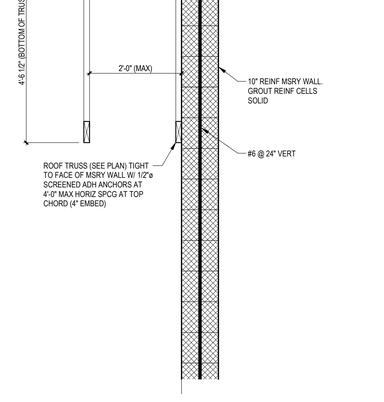
4 SECTION S301 3/4" = 1'-0"



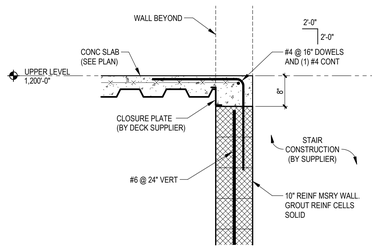
5 SECTION S301 3/4" = 1'-0"



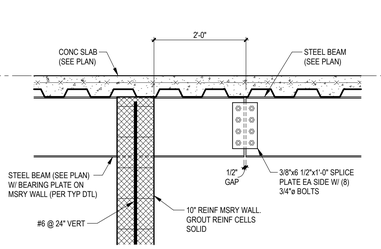
6 SECTION S301 3/4" = 1'-0"



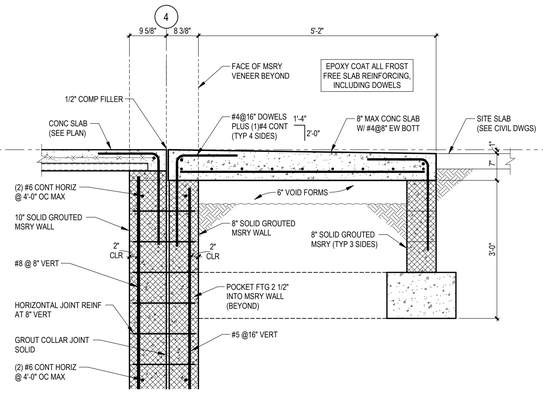
7 SECTION S301 3/4" = 1'-0"



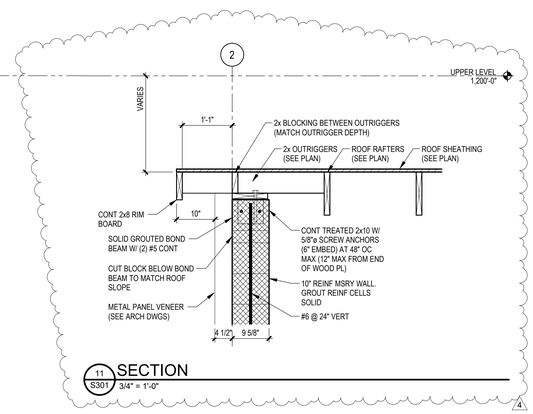
8 SECTION S301 3/4" = 1'-0"



9 SECTION S301 3/4" = 1'-0"



10 SECTION S301 3/4" = 1'-0"



11 SECTION S301 3/4" = 1'-0"

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4 10/31/2025 Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY

3600 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TWP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA 15057

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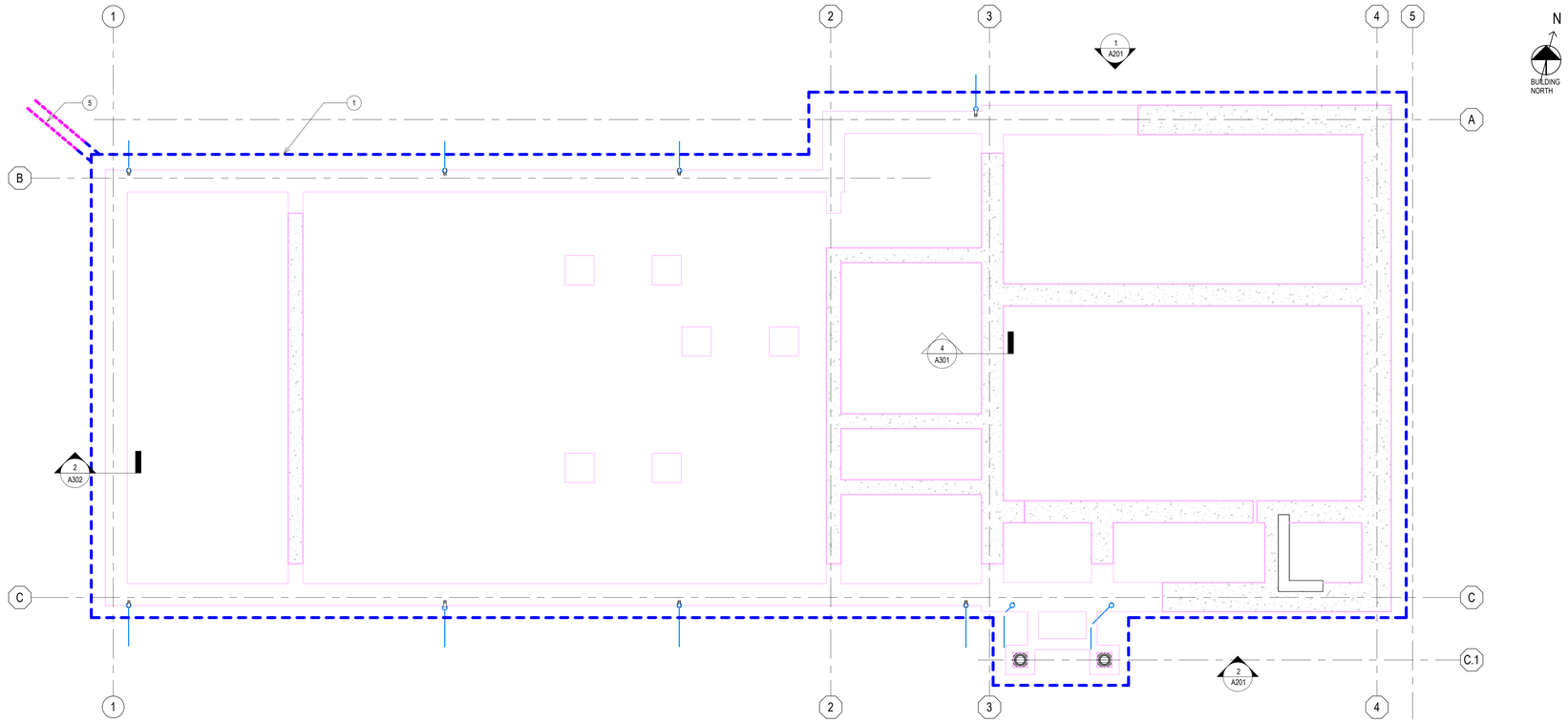
S301

FRAMING SECTIONS

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1 ASD101 — ASD101/1 - LOWER LEVEL SUBDRAINAGE PLAN

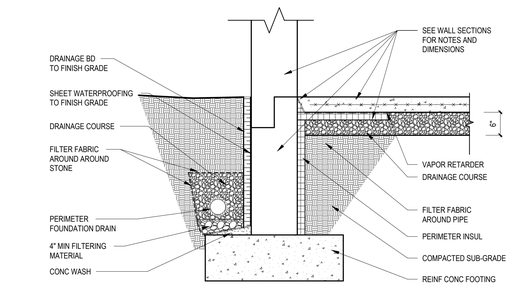
1/8" = 1'-0"

SUBDRAINAGE NOTES

1. INSTALL ALL UNDERDRAIN PIPING 12" BELOW FLOOR ELEVATION TO BOTTOM OF PIPE.
2. PROVIDE SLEEVES AS REQ'D FOR PIPING TO PASS THRU FOUNDATION WALLS.
3. UNDERDRAIN PIPING SHALL BE SET IN MINIMUM 12" CLEAN GRAVEL.
4. PROVIDE FITTINGS AS REQ'D TO INSTALL PIPING LEVEL - UNO.
5. PROVIDE PERFORATED PVC PIPE CONFORMING TO ASTM D-1784 WITH (4) ROWS OF 1/4" HOLES ON 4 1/4" CENTERS. PIPES SHALL HAVE BELLED ENDS AND BE CONNECTED WITH STANDARD PVC DRAINAGE FITTINGS. JOINTS SHALL BE SOLVENT WELDED.

2 — SUBDRAINAGE KEYNOTES

NUMBER	DESCRIPTION
1	6" DIA PERFORATED PVC COLLECTOR PIPING - PROVIDE FITTINGS AS REQ'D FOR CONNECTIONS, TYP. OF 3 LOCATIONS
5	CONNECTION TO SITE STORMWATER LINE. REFER TO CIVIL DRAWING C4008



2 ASD101 — TYPICAL DRAIN DTL @ EXTERIOR WALLS

3/4" = 1'-0"

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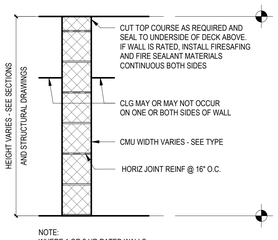
SUBDRAINAGE PLAN

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ASD101

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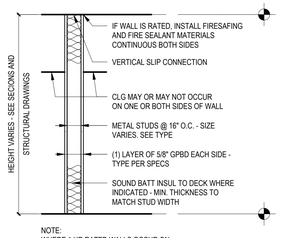
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NOTE:
WHERE 1 OR 2 HR RATED WALLS OCCUR ON PLANS, PROVIDE UL #U905

A8 8" CMU PARTITION TO DECK (7 5/8")

A10 10" CMU PARTITION TO DECK (9 5/8")



NOTE:
WHERE 1 HR RATED WALLS OCCUR ON PLANS, PROVIDE UL #U419

C2 2 1/2" MTL STUD & GPBD PARTITION TO DECK (3 3/4")

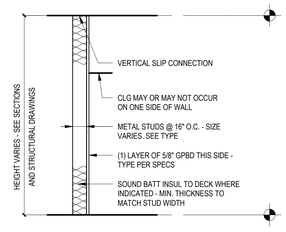
C2a 2 1/2" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (3 3/4")

C3 3 5/8" MTL STUD & GPBD PARTITION TO DECK (4 7/8")

C3a 3 5/8" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (4 7/8")

C6 6" MTL STUD & GPBD PARTITION TO DECK (7 1/4")

C6a 6" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (7 1/4")



H2 2 1/2" MTL STUD & GPBD PARTITION TO ABOVE CEILING (3 1/8")

H2a 2 1/2" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (3 1/8")

H2b 2 1/2" MTL STUD & GPBD PARTITION TO DECK (3 1/8")

H3 3 5/8" MTL STUD & GPBD PARTITION TO DECK (4 1/4")

H3a 3 5/8" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (4 1/4")

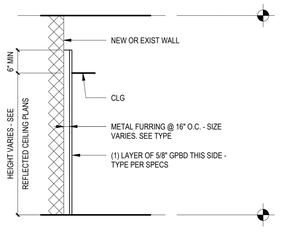
H3b 3 5/8" MTL STUD & GPBD PARTITION TO ABOVE CEILING (4 1/4")

H4 4" MTL STUD & GPBD PARTITION TO DECK (4 5/8")

H6 6" MTL STUD & GPBD PARTITION TO DECK (6 5/8")

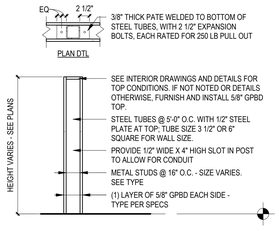
H6a 6" MTL STUD & GPBD PARTITION TO DECK W/ BATTS (6 5/8")

H6b 6" MTL STUD & GPBD PARTITION TO ABOVE CEILING (6 5/8")



J1 7/8" MTL FURRING & GPBD ONE SIDE TO ABOVE DECK (1 1/2")

J2 1 1/2" MTL FURRING & GPBD ONE SIDE TO ABOVE DECK (2 1/8")



P3 3 5/8" MTL STUD & GPBD PARTIAL HEIGHT PARTITION 3 1/2" STEEL TUBE (4 7/8")

P6 6" MTL STUD & GPBD PARTIAL HEIGHT PARTITION 6" STEEL TUBE (7 1/4")

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A002

INTERIOR PARTITION TYPES

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SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA. 15057

FLOOR PLANS

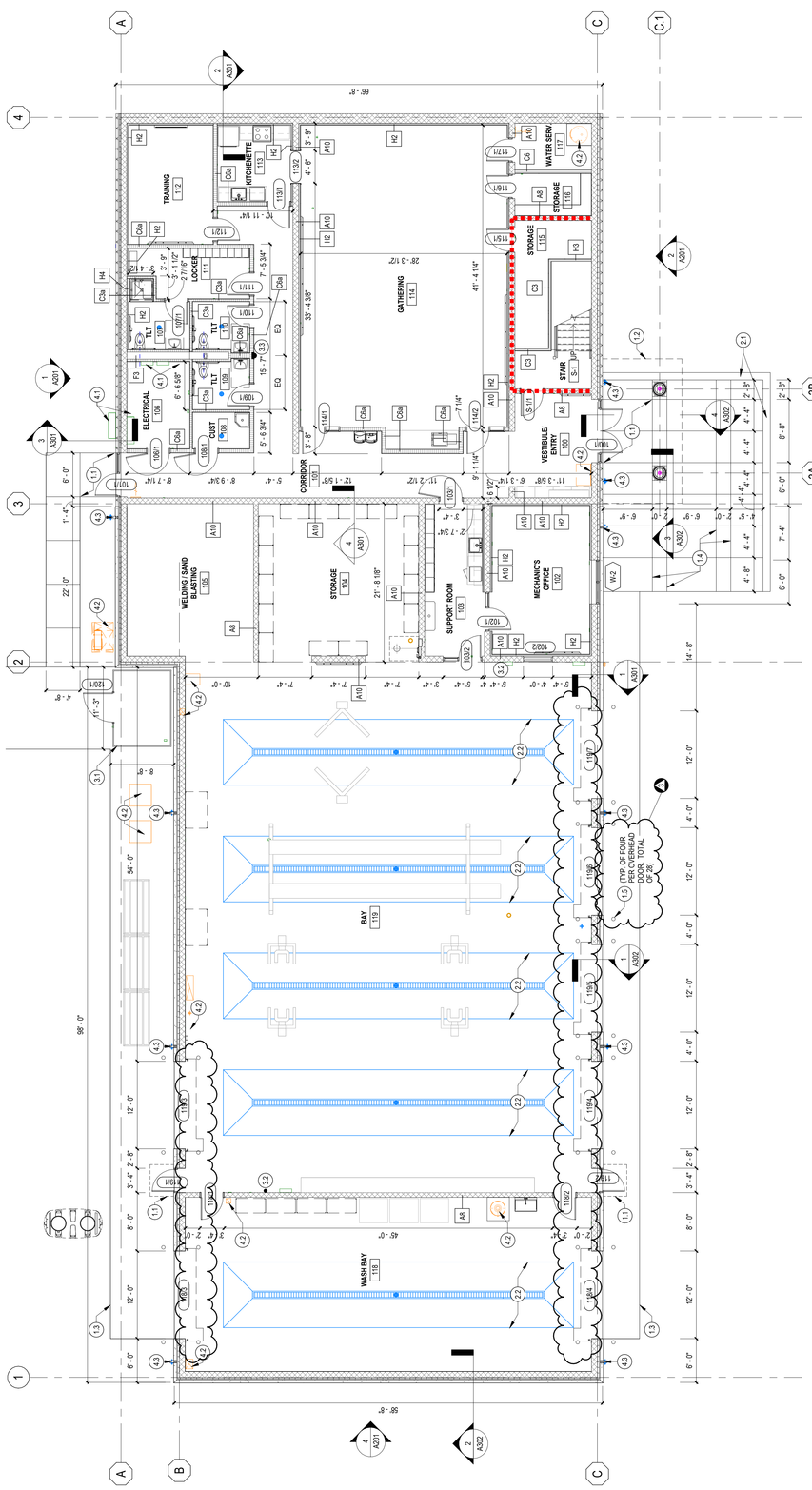
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3	10/31/25 Addendum #4

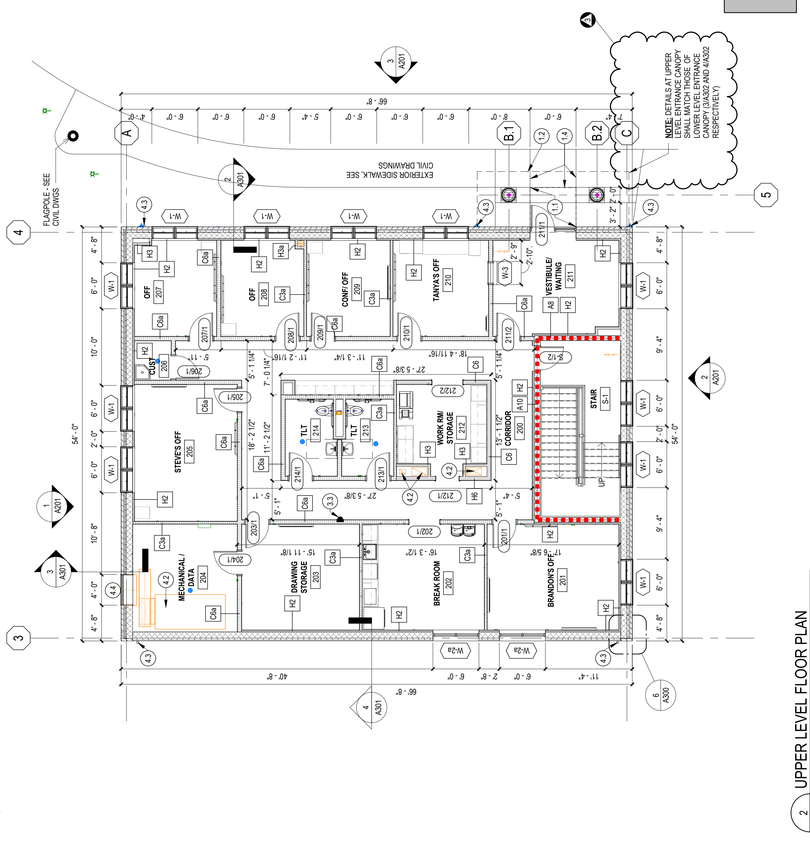
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CONSTRUCTION NOTES

NUM	DESCRIPTION
1 - GENERAL	
1.1	FROST FREE SLAB, OUTLINE TO ALIGN WITH PAVING
1.2	OUTLINE OF CANOPY ABOVE
1.3	OUTLINE OF CONCRETE APRON - SEE CIVIL DWGS
1.4	EXTERIOR PAVING CONTROL JOINT TO ALIGN WITH ADJACENT PAVING JOINTS - SEE CIVIL DRAWINGS
1.5	SURFACE MOUNTED BOLLARD - SEE ELECT. DRAWINGS
2 - SPECIALTIES	
2.1	VERSA-LOK RETAINING WALL - SEE CIVIL DRAWINGS
2.2	OUTLINE OF SLOPE TO FLOOR FRAME. COORDINATE WITH FLOORING DWGS & SPECIFICATIONS.
3 - SPECIALTIES	
3.1	PRE-FABRICATED AIR COMPRESSOR ENCLOSURE
3.2	FIRE EXTINGUISHER ON WALL BRACKET
3.3	RECESSED FIRE EXTINGUISHER CABINET
4 - MEP	
4.1	ELECTRICAL PANEL / EQUIPMENT. SEE ELECT DRAWINGS
4.2	MECANICHAL DUCT / EQUIPMENT. SEE ELECT DRAWINGS
4.3	ALUM DOWNSPOUT - CONNECT TO BOOT BELOW
4.4	EXTERIOR LOUVER. SEE HVAC DRAWINGS

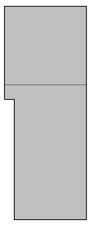


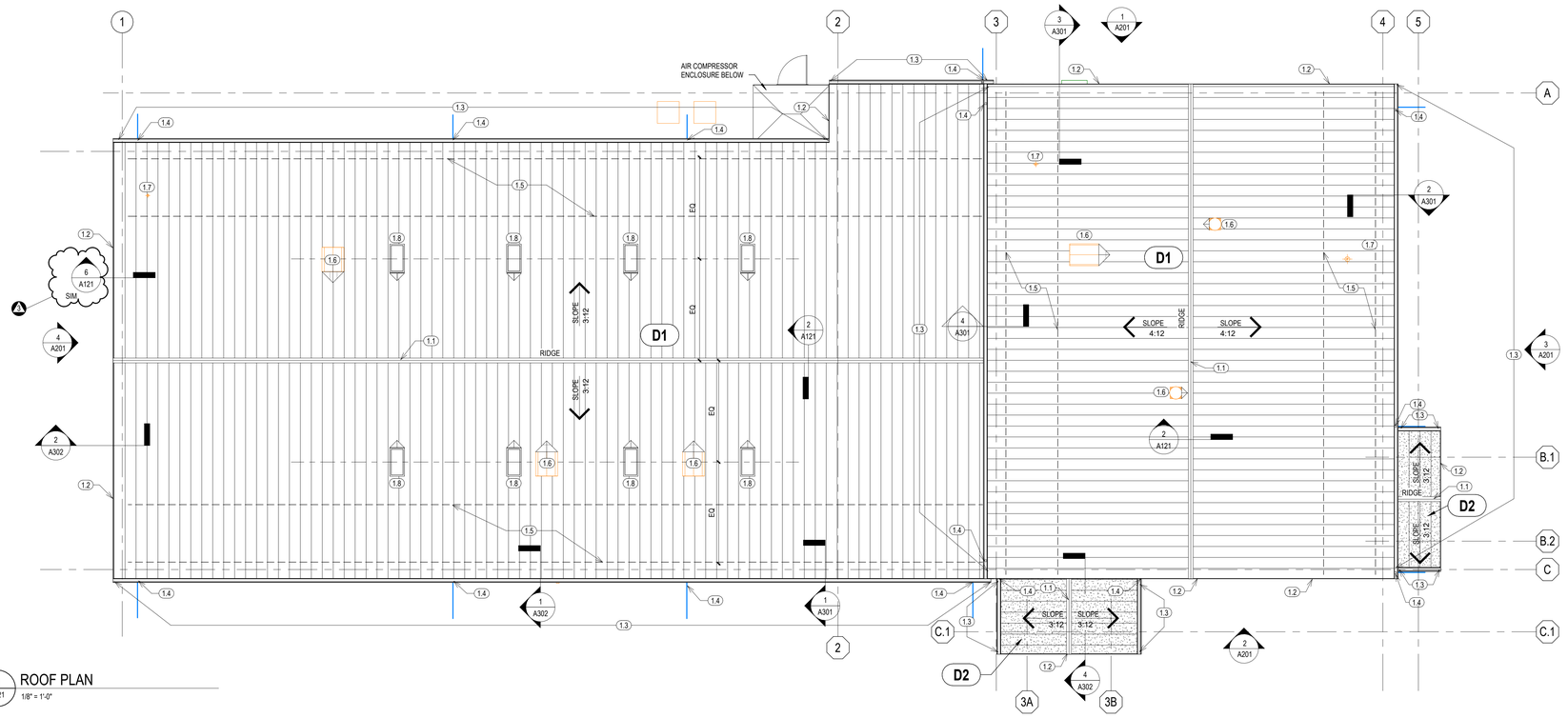
1 LOWER LEVEL FLOOR PLAN
A101 1/8" = 1'-0"



2 UPPER LEVEL FLOOR PLAN
A101 1/8" = 1'-0"

KEY PLAN





1 A121 ROOF PLAN
1/8" = 1'-0"

GENERAL ROOF NOTES

1. ROOFTOP EQUIPMENT SHOWN FOR INFORMATION PURPOSES ONLY. COORDINATE TYPE AND LOCATION WITH MECHANICAL, PLUMBING, ELECTRICAL, AND FOOD SERVICE DWGS.
2. SEE TYPICAL DETAILS FOR ROOFTOP EQUIPMENT PENETRATION, CURB, AND RAIL DETAILS.
3. PROVIDE METAL ROOFING CRICKET ON HIGH SIDE OF ALL MECH EQUIP AND SKYLIGHT CURBS AND RAILS TO DIVERT WATER AROUND EQUIPMENT.
4. ALL NEW ROOFS SHALL SLOPE A MINIMUM OF 1/4" PER 1'-0" UNLESS NOTED OTHERWISE. ALL CRICKETS SHALL SLOPE A MINIMUM OF 1/2" PER 1'-0" UNLESS NOTED OTHERWISE.
5. (ARROW) INDICATES DIRECTION OF ROOF SLOPE.
6. HP INDICATES HIGH POINT AND LP INDICATES LOW POINT.
7. IN INTERIOR SPACES WITH EXPOSED METAL ROOF DECK, GRIND SHARP TIPS OFF OF EXPOSED FASTENERS.
8. AT ALL ROOFS THAT ARE FLASHED INTO ADJACENT HIGH WALLS, COORDINATE ROOF FLASHING WITH THROUGH-WALL FLASHING AND WEEP HOLES. ROOF FLASHING SHALL NOT COVER OR OBSCURE WALL FLASHING OR WEEPS. SEE TYPICAL DETAILS.

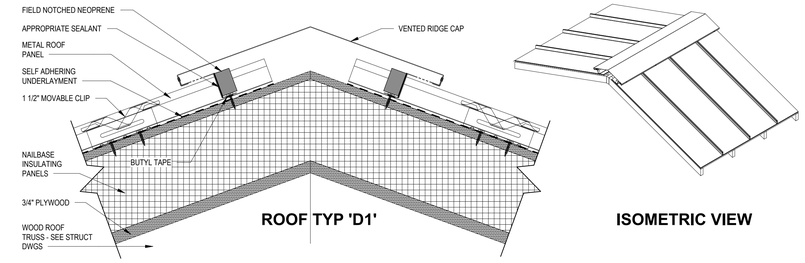
ROOFING TYPES

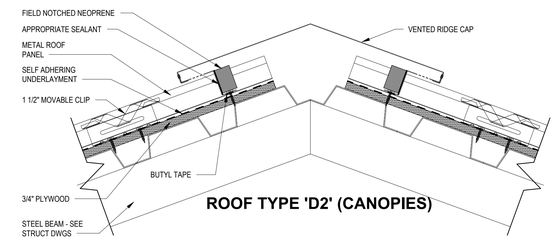
TYPE 'D1' — METAL PANEL ROOFING SYSTEM OVER 30# ROOFING FELTS OVER 3 3/4" NAILBASE INSULATING PANELS OVER PLYWOOD ROOF SHEATHING AND SLOPING WOOD STRUCTURE.

TYPE 'D2' — METAL PANEL ROOFING SYSTEM OVER 30# ROOFING FELTS OVER PLYWOOD ROOF SHEATHING AND SLOPING WOOD STRUCTURE.

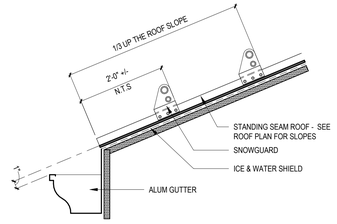
KEYNOTES - ROOF PLAN

NUM	DESCRIPTION
1.1	INSULATED (R30 MIN) METAL ROOF PANEL SYSTEM BY ROOF MNFR
1.2	METAL ENDWALL TRIM BY ROOF MNFR
1.3	METAL CONTOUR GUTTER BY ROOF MNFR
1.4	METAL DOWNSPOUT BY ROOF MNFR – TIE INTO STORMWATER PIPING
1.5	MECHANICALLY FASTENED METAL SNOWGUARDS BY ROOF MNFR
1.6	ROOFTOP MECHANICAL EQUIPMENT - SEE HVAC DRAWINGS
1.7	THROUGH-ROOF VENT PIPING - SEE HVAC DRAWINGS
1.8	24"x48" CURB-MOUNTED UNIT SKYLIGHT

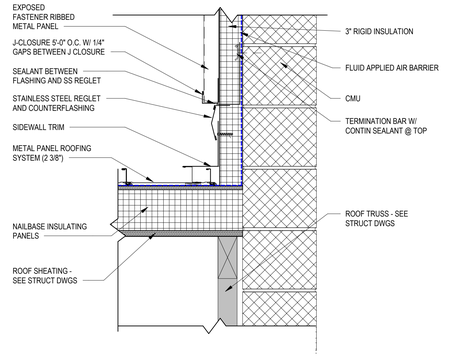




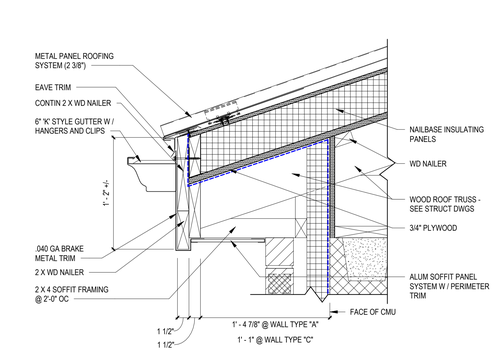
2 A121 METAL ROOF PANEL VENTED RIDGE DETAIL
3" = 1'-0"



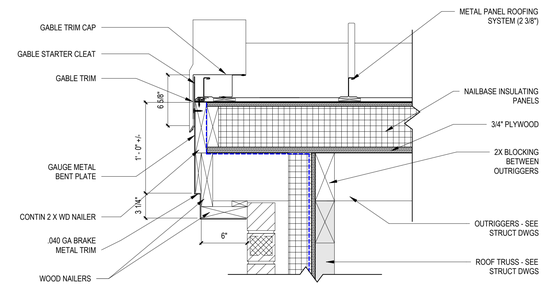
3 A121 TYP SNOW GUARD AND GUTTER DETAIL
1 1/2" = 1'-0"



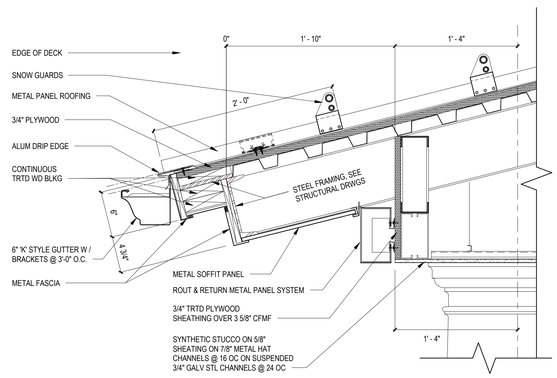
4 A121 TYP ROOF TO WALL FLASHING DETAIL
1 1/2" = 1'-0"



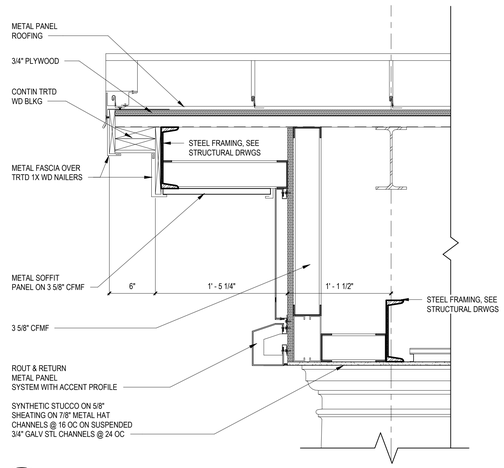
5 A121 ROOF EDGE OVERHANG DETAIL
1 1/2" = 1'-0"



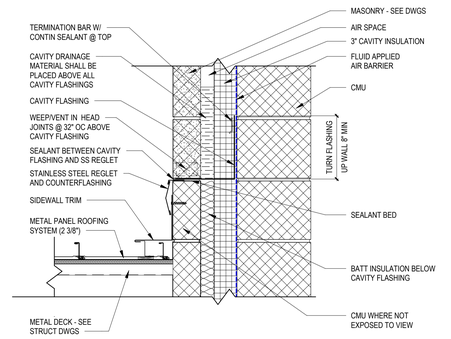
6 A121 ROOF EDGE RAKE DETAIL - METAL ROOF PANELS
1 1/2" = 1'-0"



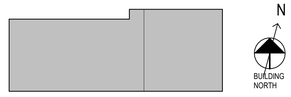
7 A121 CANOPY ROOF EDGE OVERHANG DETAIL
1 1/2" = 1'-0"



8 A121 CANOPY ROOF EDGE RAKE DETAIL - METAL ROOF PANELS
1 1/2" = 1'-0"



9 A121 CANOPY ROOF TO WALL FLASHING DETAIL
1 1/2" = 1'-0"



KEY PLAN

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REVISIONS
3 10/31/25 Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA, 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3600 OLD OAKDALE RD MCDONALD, PA, 15057

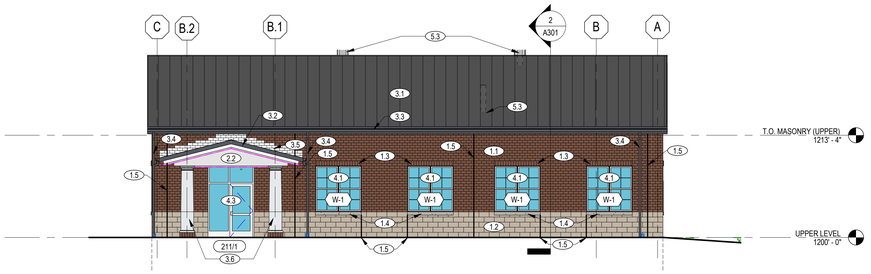
ROOF PLAN AND ROOF DETAILS

Proj No. 24-S49-01B
Issue Date OCTOBER 1, 2025

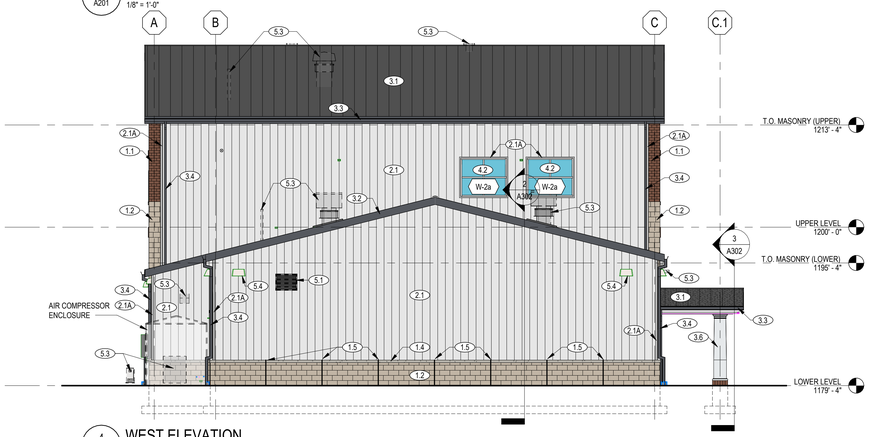
A121

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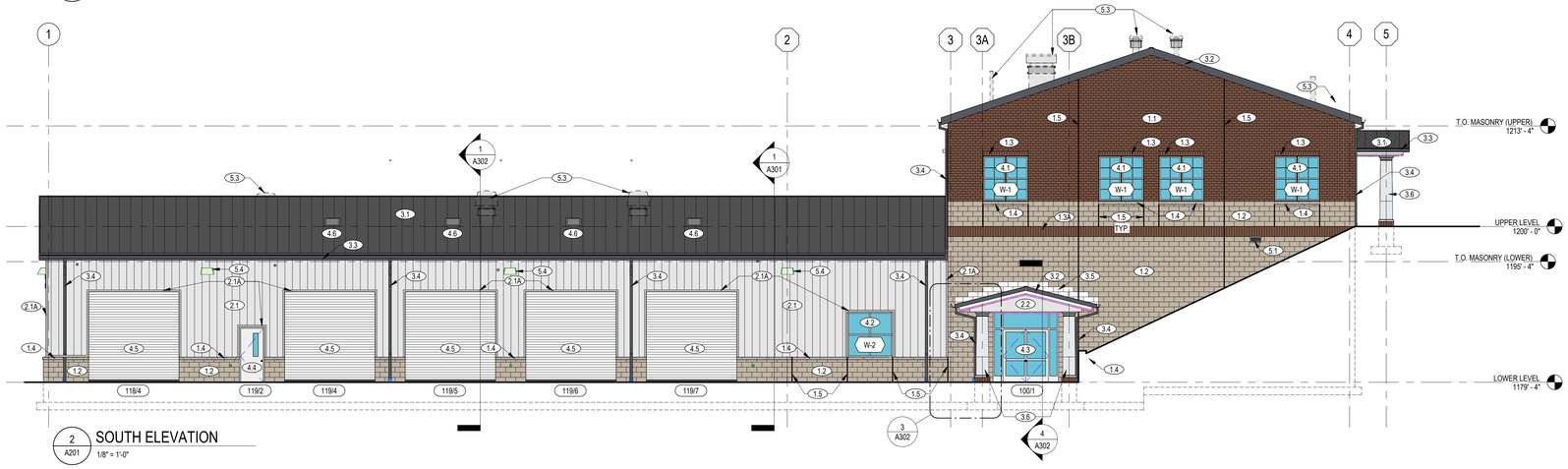
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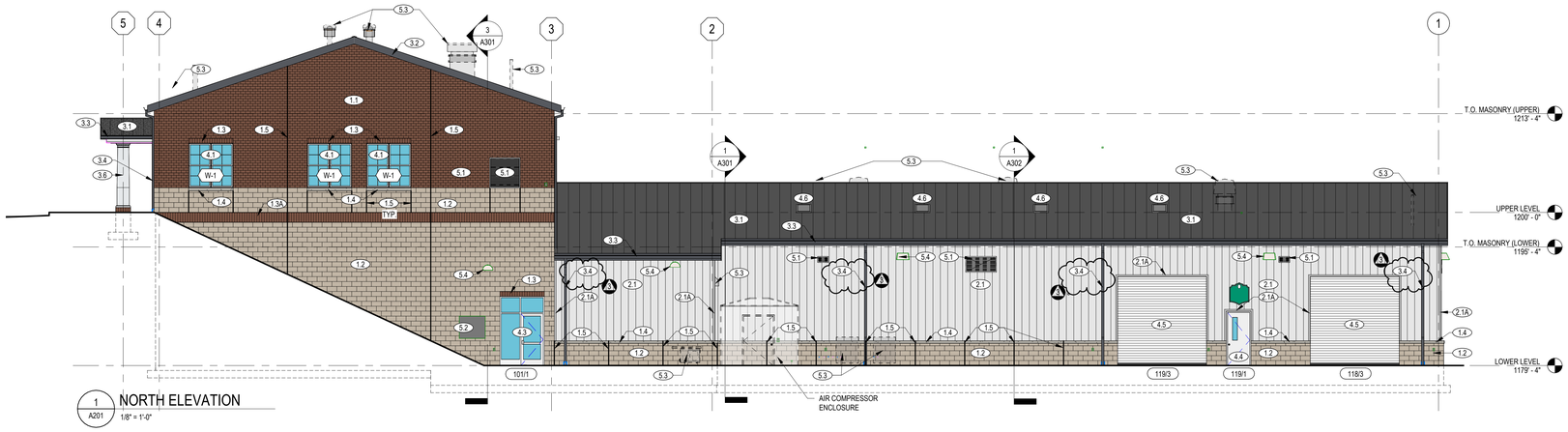
3 A201 EAST ELEVATION
1/8" = 1'-0"



4 A201 WEST ELEVATION
1/8" = 1'-0"



2 A201 SOUTH ELEVATION
1/8" = 1'-0"



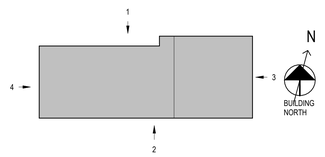
1 A201 NORTH ELEVATION
1/8" = 1'-0"

EXTERIOR COLOR SCHEDULE

NAME	MANUFACTURER & SERIES	MANUFACTURER COLOR AND NUMBERS	REMARKS	PRODUCT
MASONRY				
TYPE 'A' - ECONOMY BRICK (4X4X8)	GLEN-GERY	WINGATE	-	MASONRY
TYPE 'B' - GROUND FACE CMU (4X8X16)	TRENWYTH TRENDSTONE	STERLING GROUND FACE	-	MASONRY
CAST STONE SILLS	ROCKCAST	NATURAL	-	MASONRY
METAL PANELS				
RIBBED METAL WALL PANEL	DMI	993 OFF-WHITE	-	METAL PANELS
ROOF FINISHES				
METAL ROOFING, COPING, TRIM & FLASHING	PPG DURANAR	SLATE GRAY	-	ROOF FINISHES
WINDOWS / GLAZING				
ALUMINUM WINDOWS / CURTAIN WALL / STOREFRONT	PPG DURANAR	BONE WHITE - UC43350/SMW86823	-	WINDOWS / GLAZING
EXTERIOR DOORS				
ALUMINUM STILE & RAIL DOOR	PPG DURANAR	BONE WHITE - UC43350/SMW86823	-	EXTERIOR DOORS
INSULATED COILING DOORS	-	BONE WHITE - UC43350/SMW86823	-	EXTERIOR DOORS
FRP DOORS	-	BONE WHITE - UC43350/SMW86823	-	EXTERIOR DOORS
MORTAR				
M1	-	-	-	MORTAR
DECORATIVE				
GFRC COLUMN COVERS		WHITE SMOOTH - PLAIN ROMAN DORIC	-	DECORATIVE

1.1 EXTERIOR ELEVATION KEY NOTES

NUM	DESCRIPTION
1. CONCRETE / MASONRY	
1.1	MASONRY TYPE 'A'
1.2	MASONRY TYPE 'B'
1.3	MASONRY TYPE 'A' - SOLDIER COURSE
1.3A	MASONRY TYPE 'A' - DOUBLE SOLDIER COURSE
1.4	CAST STONE SILL - TYP. AT ALL WINDOWS (8"H)
1.5	MASONRY CONTROL JOINT/EXPANSION JOINT
2. METAL PANEL	
2.1	VERTICAL RIBBED ALUM SIDING SYSTEM
2.1A	ALUM SIDING TRIM @ CORNERS, ENDS & OPENINGS
2.2	ROUT & RETURN (R&R) COMPOSITE ALUM PANEL SYSTEM
3. METAL TRIM & ACCESORIES	
3.1	STANDING SEAM METAL ROOF SYSTEM
3.2	ALUM FASCIA
3.3	6" x 6" BOX GUTTER
3.4	4" x 6" DOWNSPOUT
3.5	ROOF TO WALL FLASHING
3.6	GFRC COLUMN SURROUND ON 8"H JUMBO BRICK VENEER BASE
4. FENESTRATION	
4.1	ALUMINUM WINDOW
4.2	ALUMINUM FRAMING SYSTEM - STOREFRONT
4.3	ALUMINUM RAIL & STILE DOOR AND FRAME
4.4	FRP DOOR & ALUM FRAME
4.5	OVERHEAD COILING DOOR
4.6	UNIT SKYLIGHT
5. MEP	
5.1	EXTERIOR MECHANICAL LOUVER - SEE MEP DWGS
5.2	ELECTRICAL EQUIPMENT - SEE MEP DWGS
5.3	MECHANICAL EQUIPMENT OR PIPING - SEE MEP DWGS
5.4	SURFACE-MOUNTED LIGHT FIXTURE BY EC



KEY PLAN

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REGISTERED ARCHITECT

REVISIONS		
3	10/31/25	Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA, 15057
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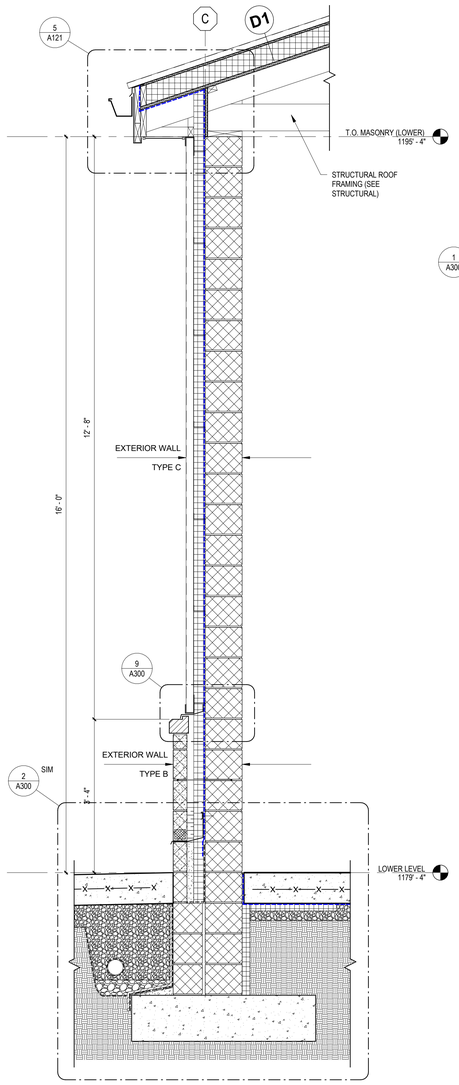
EXTERIOR ELEVATIONS

Proj No. 24-S49-01B
Issue Date OCTOBER 1, 2025

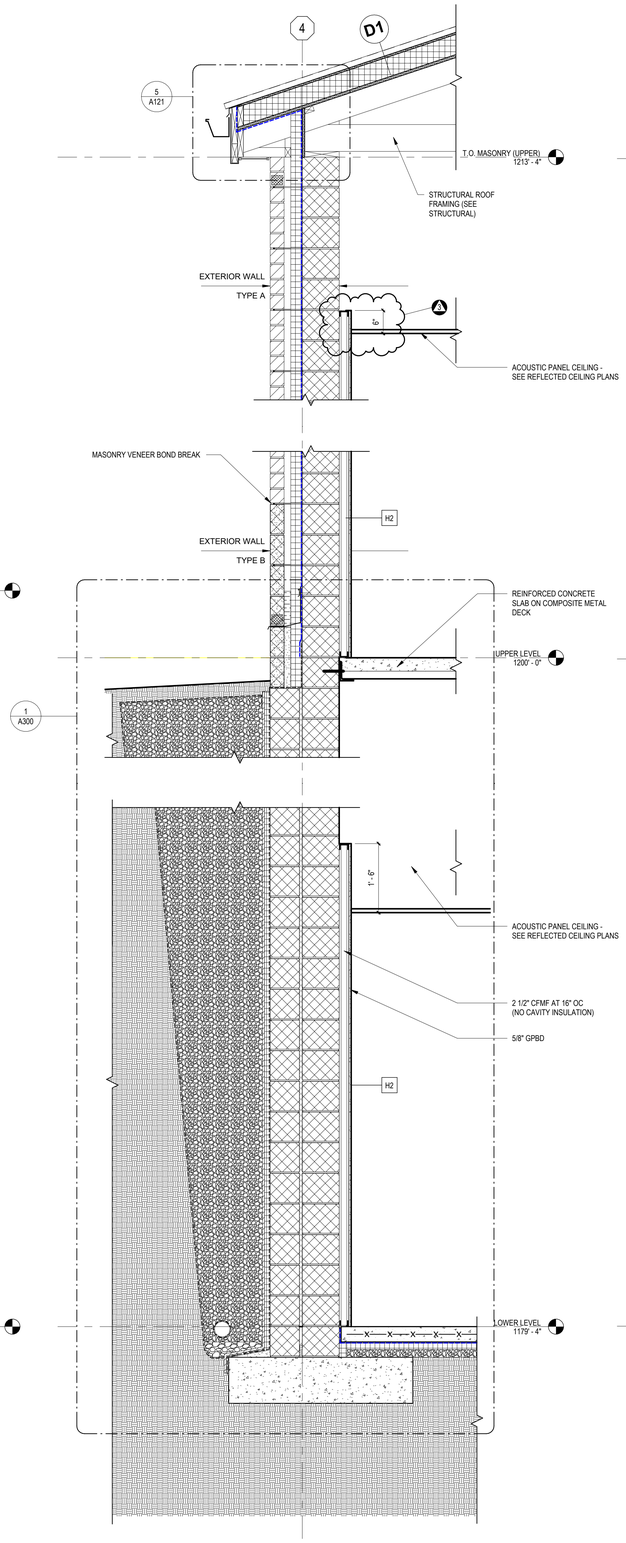
A201

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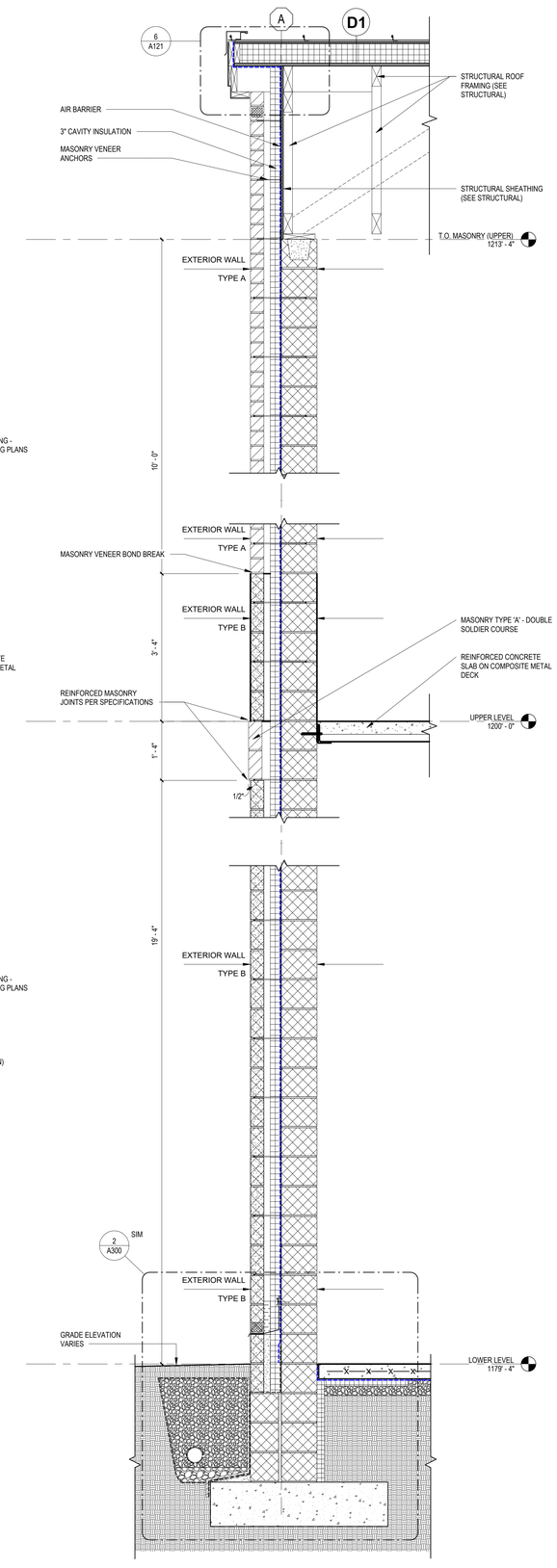
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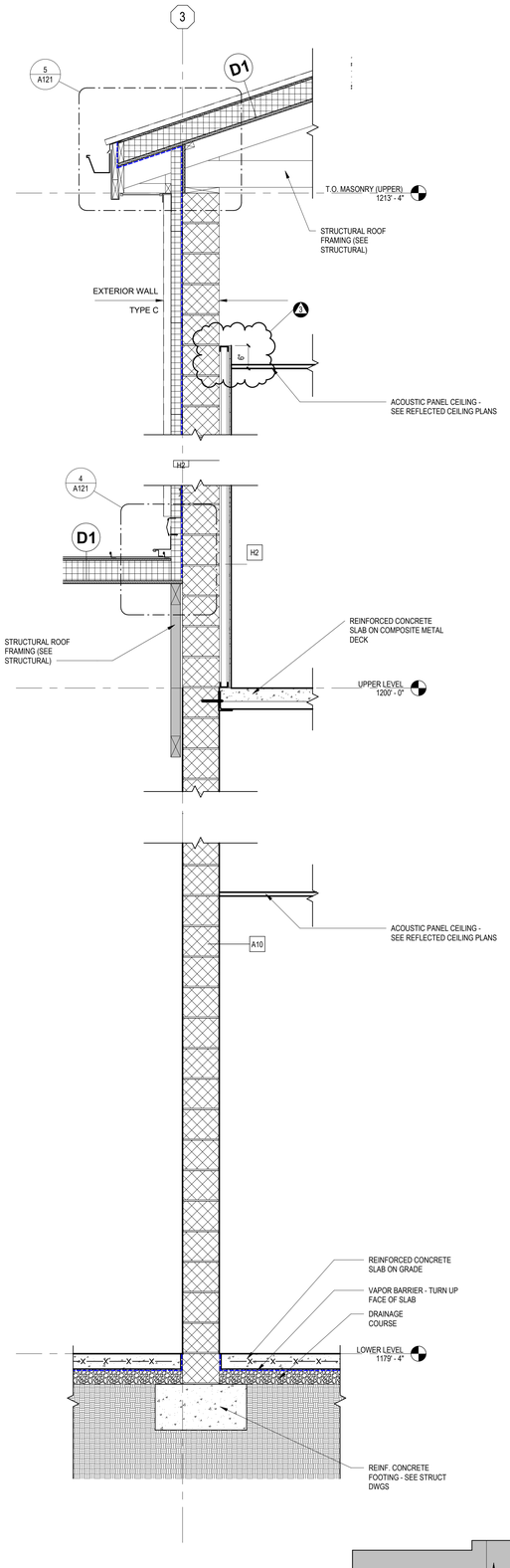
1 WALL SECTION
A301 3/4" = 1'-0"



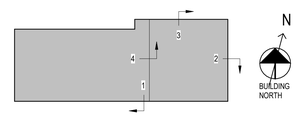
2 WALL SECTION
A301 3/4" = 1'-0"



3 WALL SECTION
A301 3/4" = 1'-0"



4 WALL SECTION
A301 3/4" = 1'-0"



KEY PLAN

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BIDDING SET

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WALL SECTIONS

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Issue Date OCTOBER 1, 2025

A301

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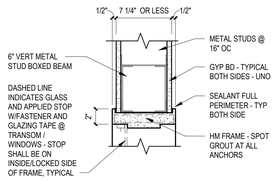
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DOOR SCHEDULE

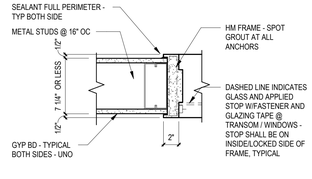
NUM	SIZE WIDTH	SIZE HEIGHT	SIZE THICK	PANEL MATL	PANEL TYPE	PANEL GLAZ	FRAME MATL	FRAME TYPE	FRAME GLAZ	FRAME DEPTH	RATING	HDW. SET NO.	REMARKS	COMMENTS
LOWER LEVEL														
100/1	6' - 0"	7' - 0"	1 3/4"	ALUM	AG2	4	ALUM	SF-3T	4	4 1/2		001	D1, H2, H3	
101/1	3' - 0"	7' - 0"	1 3/4"	ALUM	AG2	4	ALUM	SF-2T	4			002	H2, H3	
102/1	3' - 0"	7' - 2"	1 3/4"	FRP	F		ALUM	AL- 2	2	5 3/4		010	H1	
103/1	3' - 0"	7' - 2"	1 3/4"	FRP	N1	2	ALUM	AL- 1		5 3/4		021	D3, H1	
103/2	3' - 0"	7' - 2"	1 3/4"	FRP	F	1	ALUM	AL- 2	1	5 3/4		005	H1	
106/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		025 (A)	D3, H3	
107/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 7/8		026		
108/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		015	D2, D3	
109/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		020		
110/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		020		
111/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		019		
112/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018		
113/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		012		
113/2	4' - 5"	7' - 0"	1 3/4"	-	-		HM	HM-1		5 3/4		024	F1	
114/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-2	2	8 1/4		009		
114/2	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-2	2	8 1/4		009		
115/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 3/4	45 MIN	011	H4	
116/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 3/4		017		
117/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 3/4		017		
118/1	3' - 0"	7' - 2"	1 3/4"	FRP	N1	2	ALUM	AL- 1		5 3/4		006	H2	
118/2	3' - 0"	7' - 2"	1 3/4"	FRP	N1	2	ALUM	AL- 1		5 3/4		006	H2	
118/3	12' - 0"	12' - 0"		MTL	ICD2	-	MTL	-	-			023	H3	
118/4	12' - 0"	12' - 0"		MTL	ICD2	-	MTL	-	-			023	H3	
119/1	3' - 0"	7' - 2"	1 3/4"	FRP	N1	4	ALUM	AL- 1	4	5 3/4		004	H2, H3	
119/2	3' - 0"	7' - 2"	1 3/4"	FRP	N1	4	ALUM	AL- 1	4	5 3/4		004	H2, H3	
119/3	12' - 0"	12' - 0"		MTL	ICD1	-	MTL	-	-			022	H3	
119/4	12' - 0"	12' - 0"		MTL	ICD1	-	MTL	-	-			022	H3	
119/5	12' - 0"	12' - 0"		MTL	ICD1	-	MTL	-	-			022	H3	
119/6	12' - 0"	12' - 0"		MTL	ICD1	-	MTL	-	-			022	H3	
119/7	12' - 0"	12' - 0"		MTL	ICD1	-	MTL	-	-			022	H3	
120/1	4' - 0"	6' - 8"	1 3/4"	HM	F		HM	HM-1		5 3/4			H5	
S-1/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 3/4	45 MIN	008	H4	
UPPER LEVEL														
201/1	3' - 0"	7' - 2"	1 3/4"	WD	N1		HM	HM-1		8 1/4		018		
202/1	4' - 0"	7' - 0"	1 3/4"	-	-		HM	HM-1		8 1/4		024	F1	
203/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		013		
204/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		016		
205/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018		
206/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		014		
207/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018		
208/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018		
209/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018		
210/1	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		018 (A)		
211/1	3' - 0"	7' - 0"	1 3/4"	ALUM	AG2	4	ALUM	SF-2T	4			003	H2, H3	
211/2	3' - 0"	7' - 2"	1 3/4"	WD	N1	2	HM	HM-1		8 1/4		007		
212/1	3' - 0"	7' - 0"	1 3/4"	-	-		HM	HM-1		7 5/8		024	F1	
212/2	4' - 0"	7' - 0"	1 3/4"	-	-		HM	HM-1		8 1/4		024	F1	
213/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		020		
214/1	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		8 1/4		020		
S-1/2	3' - 0"	7' - 2"	1 3/4"	WD	F		HM	HM-1		5 3/4	45 MIN	008	H4	

HM VIEW WINDOW SCHEDULE

NUM	SIZE WIDTH	SIZE HEIGHT	SILL HEIGHT	FRAME TYPE	FRAME GLAZ	FRAME DEPTH	RATING	REMARKS	COMMENTS
102/2	4' - 0"	4' - 0"	3' - 4"	HM-R	1	5 3/4			



HEAD DETAIL

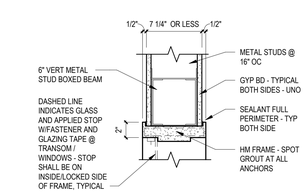


JAMB DETAIL

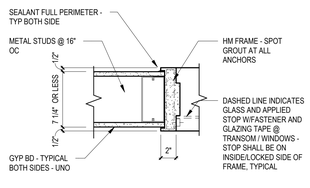
DETAIL SIMILAR @ HM WINDOWS

2 A601 HM DETAIL @ GYP BD / STUDS UP TO 6"

1 1/2" = 1'-0"



HEAD DETAIL

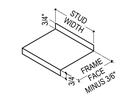


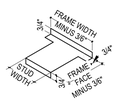
JAMB DETAIL

DETAIL SIMILAR @ HM WINDOWS

3 A601 HM DETAIL @ GYP BD / STUDS 8" OR GREATER

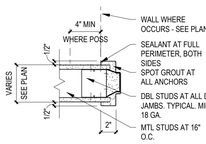
1 1/2" = 1'-0"



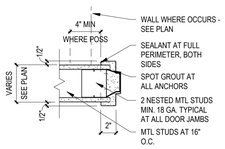


ANCHOR NOTE:
1. JAMB ANCHORS: PROVIDE NUMBER AND SPACING OF ANCHORS AS FOLLOWS:
   a. MASONRY TYPE: LOCATE ANCHORS NOT MORE THAN 18 INCHES FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 32 INCHES OC AND AS FOLLOWS:
      1) TWO ANCHORS PER JAMB UP TO 60 INCHES HIGH.
      2) THREE ANCHORS PER JAMB FROM 60 TO 90 INCHES HIGH.
      3) FOUR ANCHORS PER JAMB FROM 90 TO 120 INCHES HIGH.
      4) FOUR ANCHORS PER JAMB PLUS 1 ADDITIONAL ANCHOR PER JAMB FOR EACH 24 INCHES OR FRACTION THEREOF ABOVE 120 INCHES HIGH.
   b. STUD-WALL TYPE: LOCATE ANCHORS NOT MORE THAN 18 INCHES FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 32 INCHES OC AND AS FOLLOWS:
      1) THREE ANCHORS PER JAMB UP TO 60 INCHES HIGH.
      2) FOUR ANCHORS PER JAMB FROM 60 TO 90 INCHES HIGH.
      3) FIVE ANCHORS PER JAMB FROM 90 TO 96 INCHES HIGH.
      4) FIVE ANCHORS PER JAMB PLUS 1 ADDITIONAL ANCHOR PER JAMB FOR EACH 24 INCHES OR FRACTION THEREOF ABOVE 96 INCHES HIGH.
      5) TWO ANCHORS PER HEAD FOR FRAMES ABOVE 42 INCHES WIDE AND MOUNTED IN METAL-STUD PARTITIONS.
   c. COMPRESSION TYPE: NOT LESS THAN TWO ANCHORS IN EACH JAMB.
   d. POST INSTALLED EXPANSION TYPE: LOCATE ANCHORS NOT MORE THAN 6 INCHES FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 26 INCHES OC

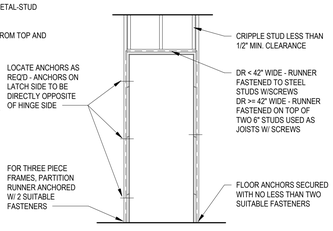
JAMB ANCHORS



JAMB



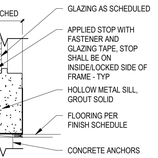
ALTERNATE JAMB



FRAME FOR STEEL STUD DOOR

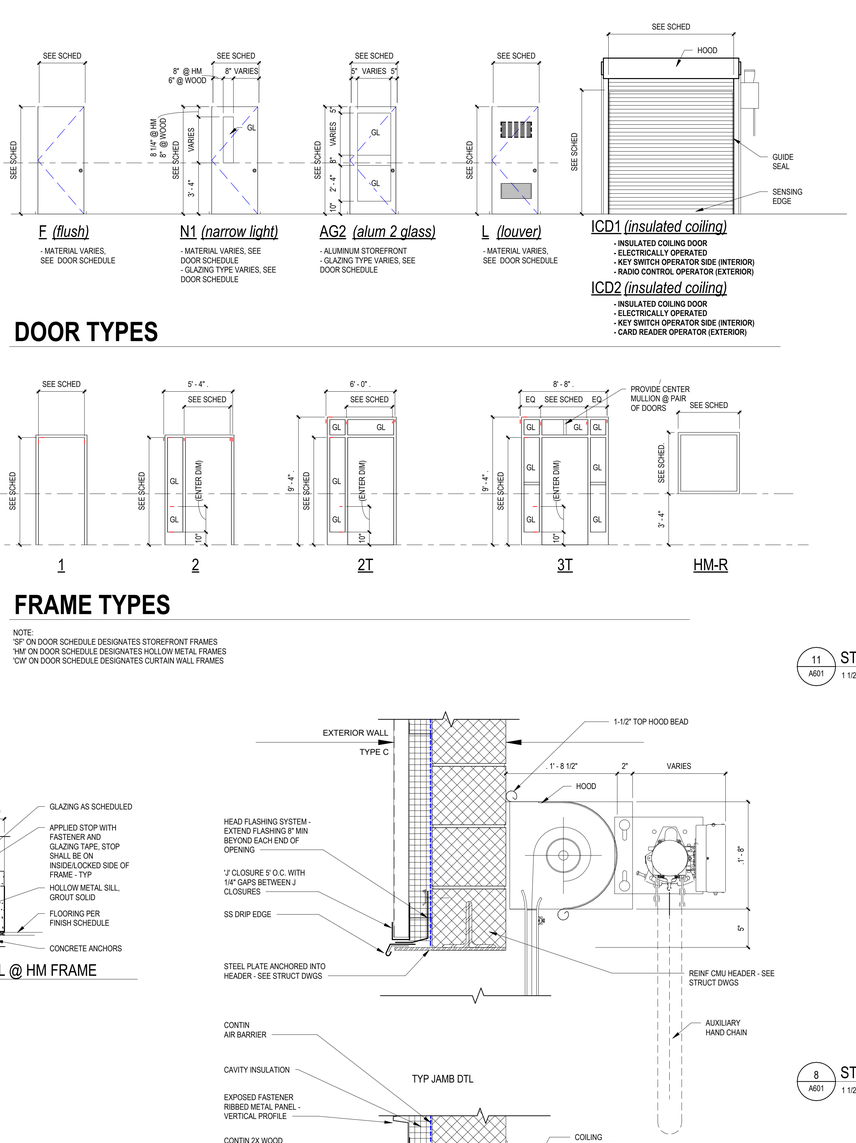
1 A601 TYPICAL METAL STUD FRAMING HM JAMB DETAILS / ELEVATIONS

1 1/2" = 1'-0"



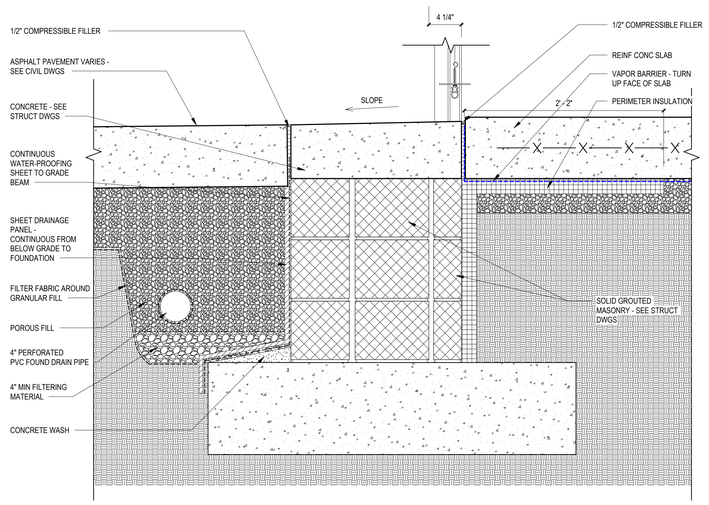
6 A601 SILL DTL @ HM FRAME

1 1/2" = 1'-0"



9 A601 INSULATED COILING SERVICE DOOR DETAILS

1 1/2" = 1'-0"



DOOR TYPES

1 | 2 | 2T | 3T | HM-R

FRAME TYPES

NOTE:
'SF' ON DOOR SCHEDULE DESIGNATES STOREFRONT FRAMES
'HM' ON DOOR SCHEDULE DESIGNATES HOLLOW METAL FRAMES
'CW' ON DOOR SCHEDULE DESIGNATES CURTAIN WALL FRAMES

F *(flush)*
- MATERIAL VARIES, SEE DOOR SCHEDULE

N1 *(narrow light)*
- MATERIAL VARIES, SEE DOOR SCHEDULE
- GLAZING TYPE VARIES, SEE DOOR SCHEDULE

AG2 *(alum 2 glass)*
- ALUMINUM STOREFRONT
- GLAZING TYPE VARIES, SEE DOOR SCHEDULE

L *(louver)*
- MATERIAL VARIES, SEE DOOR SCHEDULE

ICD1 *(insulated coiling)*
- **INSULATED COILING DOOR**
- **ELECTRICALLY OPERATED**
- **KEY SWITCH OPERATOR SIDE (INTERIOR)**
- **RADIO CONTROL OPERATOR (EXTERIOR)**

ICD2 *(insulated coiling)*
- **INSULATED COILING DOOR**
- **ELECTRICALLY OPERATED**
- **KEY SWITCH OPERATOR SIDE (INTERIOR)**
- **CARD READER OPERATOR (EXTERIOR)**

DOOR REMARKS

D1. PROVIDE EQUAL PAIR OF DOORS TO FIT OPENING
D2. PROVIDE 1" UNDERCUT
D3. INSTALL TO PERMIT 180 DEGREE SWING OPEN

FRAME REMARKS

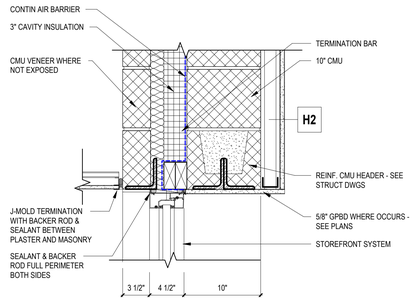
F1. PROVIDE CASED OPENING

HARDWARE REMARKS

H1. PROVIDE SOUND GASKETING
H2. PROVIDE WEATHER-STRIPPING
H3. ACCESS ELECTRICALLY MONITORED OR CONTROLLED - COORDINATE WITH SECURITY SYSTEM
H4. DOOR SHALL RESIST THE PASSAGE OF SMOKE (CLOSERS & SEALS REQUIRED)
H5. DOOR BY ENCLOSURE MFR. GC TO PROVIDE DOOR HARDWARE AND CYLINDER TO MATCH OWNER'S KEYING SYSTEM

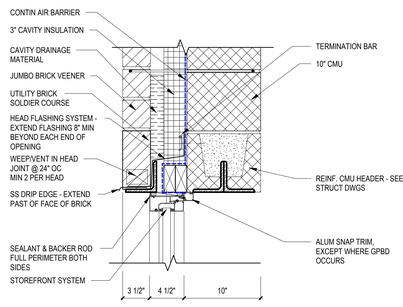
GLAZING LEGEND

SOUND	1	7/16" LAMINATED SOUND-REDUCING TEMPERED GLASS
BASIC - INTERIOR	2	TYP INTERIOR UNO - 1/4" TEMPERED GLASS
	2A	INTERIOR - 3/8" TEMPERED GLASS
FIRE	3	3/16" FIRE RESISTANCE RATED - 60 MIN (EXIT ENCLOSURES)
INSULATED	4	1" INSULATED - TYP EXTERIOR UNO - 1/4" TEMPERED INBOARD & OUTBOARD - LOW E COATING 2ND SURF



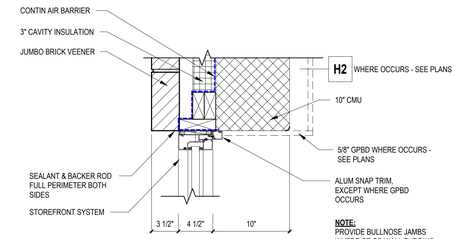
11 A601 STOREFRONT HEAD @ CANOPY

1 1/2" = 1'-0"



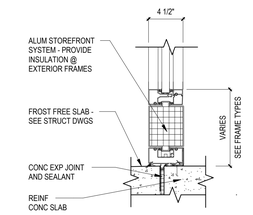
8 A601 STOREFRONT HEAD @ BRICK / CMU BACKUP

1 1/2" = 1'-0"



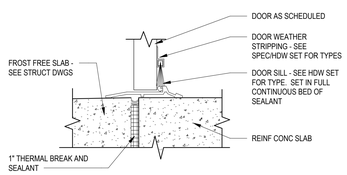
10 A601 STOREFRONT JAMB @ CMU / CMU BACKUP

1 1/2" = 1'-0"



7 A601 STOREFRONT SILL @ SIDELIGHT

1 1/2" = 1'-0"



5 A601 THRESHOLD DTL @ EXTERIOR DOOR

3" = 1'-0"

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
412.561.7117
www.DRAWcollective.com

REVISIONS
1 10/1/25 Addendum #1
3 10/31/25 Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA. 15057

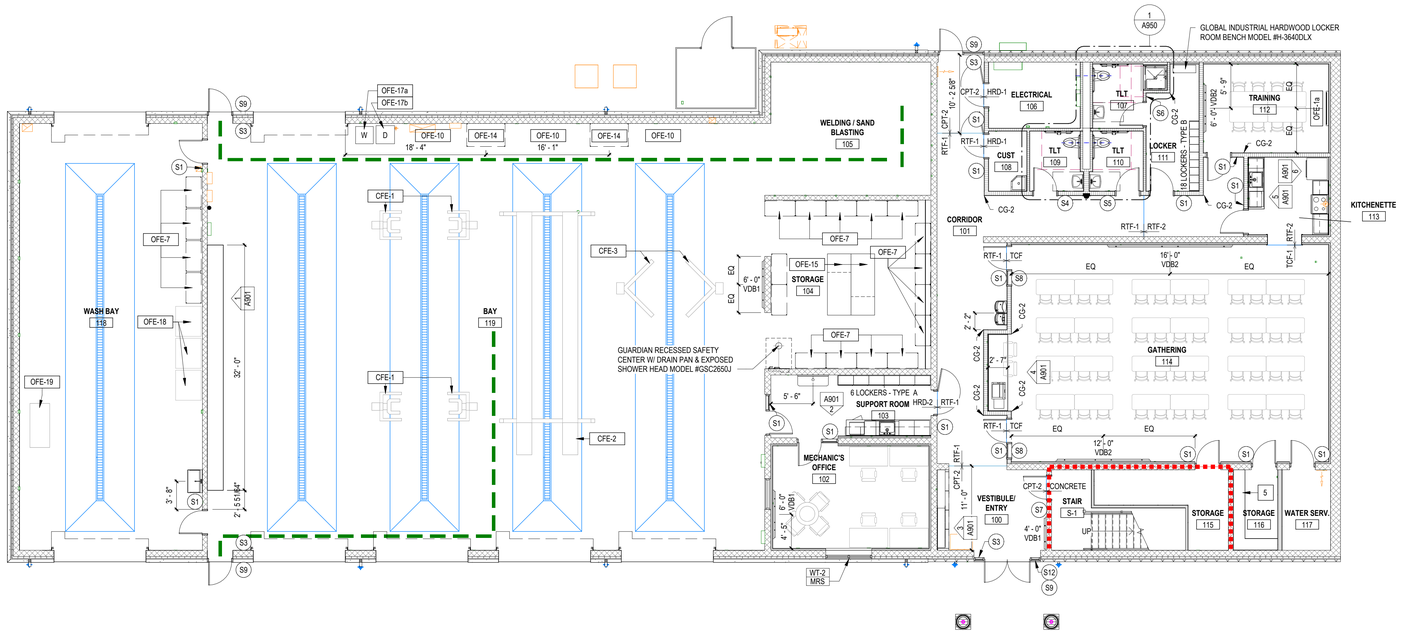
DOOR FRAME TYPES & FRAME DETAILS

Proj No. 24-S49-01B
Issue Date OCTOBER 1, 2025

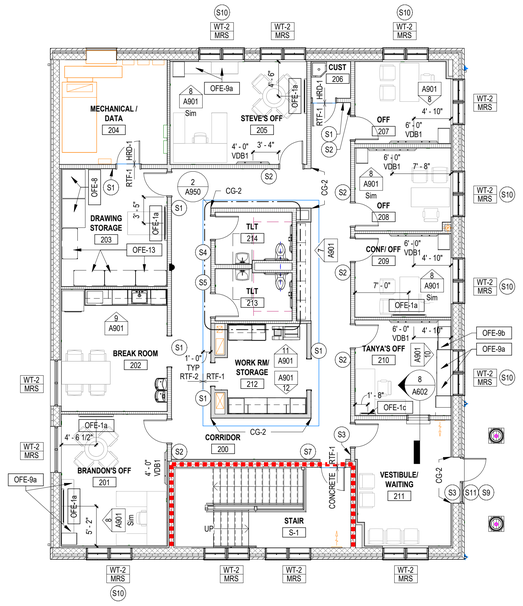
A601

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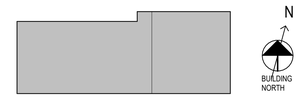
10/31/2025 4:27:16 PM Autodesk Docs://S49-24-01 South Fayette SD/24-S49-01B South Fayette SD - Bus Depot - Maintenance Building CENTRAL R23.rvt



1 A801 INTERIOR LAYOUT PLAN - LOWER LEVEL
1/8" = 1'-0"



2 A801 INTERIOR LAYOUT PLAN - UPPER LEVEL
1/8" = 1'-0"

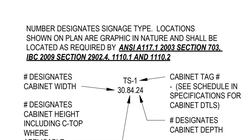


KEY PLAN

GENERAL INTERIOR/ CASEWORK NOTES

1. PROVIDE 1"-3" FILLER SCRIBED TO WALL AND WHERE APPROPRIATE AT CABINET INTERSECTIONS. COORDINATE WITH ARCHITECT AT AREAS INDICATED TO BE WIDER. ALL EXPOSED SIDES OF CASEWORK SHALL BE FINISHED WITH DECORATIVE LAMINATE INCLUDING UNDER KNEESPACES, AT ALL OPEN UNITS, AND AT GLASS DOOR UNITS.
2. PROVIDE TOP & SIDE FILLER PANELS AT ALL CASEWORK WITH CHASES; TYP.
3. ALL COUNTERTOPS SHALL BE PLASTIC LAMINATE HORIZONTAL GRADE UNO. ROUND ALL OUTSIDE CORNERS (1" RADIUS).
4. PROVIDE WIRE MANAGEMENT TRAY AT EACH GROMMET LOCATION; TYP.
5. PROVIDE STEEL COUNTERTOP SUPPORTS @ 3'-0" OC.
6. PROVIDE EPCO STAINLESS STEEL MC401 WIRE PULLS UNO.
7. PROVIDE LOCKS AT ALL WARDROBE DOORS & FILES. LOCKS SHALL BE KEYED ALIKE PER ROOM & MASTER KEYED.
8. WHEN AN ADA SINK OR KNEESPACE IS AT THE END OF A BANK OF CASEWORK, PROVIDE A FULL FINISHED END PANEL.
9. PROVIDE PAPER TOWEL DISPENSER AT ALL SINK LOCATIONS IN ADJACENT CASEWORK TO THE SINK CABINET - SEE TYP DETAIL.
10. COORDINATE ALL IC & NIC APPLIANCE SIZES AND LOCATIONS AND ADJUST CASEWORK ACCORDINGLY.
11. CASEWORK CONTRACTOR SHALL OWN ALL WORK TO PROVIDE CUT-OUT OPENING FOR ALL ELECTRICAL OUTLETS IN ANY CASEWORK. COORD. LOCATION & SIZE W/ ARCHITECT & EC PRIOR TO FABRICATION OR INSTALLATION.
12. CASEWORK CONTRACTOR SHALL COORDINATE ALL CASEWORK LOCATIONS WITH HC, EC, PC, & GC PRIOR TO CABINET FABRICATION TYP.

NUMBER DESIGNATES SIGNAGE TYPE. LOCATIONS SHOWN ON PLAN ARE GRAPHIC IN NATURE AND SHALL BE LOCATED AS REQUIRED BY ***ANSI A117.1 2003 SECTION 703, IBC 2009 SECTION 2902.4, 1110.1 AND 1110.2***



OWNER FURNISHED EQUIP - CONTRACTOR INSTALLED

TYPE	DESCRIPTION
OFE-1a	DIGITAL DISPLAY/ INTERACTIVE BOARD 60" & WALL BRACKET- MOUNT BOTTOM OF UNIT 36" AFF
OFE-1c	DIGITAL DISPLAY/ INTERACTIVE BOARD 60" & WALL BRACKET - MOUNT BOTTOM OF UNIT 31" AFF
OFE-2	COUNTERTOP MICROWAVE
OFE-3a	ACCESSIBLE UNDER COUNTER REFRIGERATOR
OFE-3b	FULLSIZE REFRIGERATOR
OFE-4a	ACCESSIBLE 30" ELECTRIC RANGE
OFE-4b	30" RANGE HOOD MODEL #EWS4 (BROAN)
OFE-5	ACCESSIBLE DISHWASHER
OFE-6a	FREE-STANDING PRINTER
OFE-6b	COUNTERTOP PRINTER
OFE-7	HIGH WEIGHT OPEN SHELVING
OFE-8	PAPER FLAT FILES
OFE-9a	2 DRWR LATERAL FILE
OFE-9b	4 DRWR LATERAL FILE
OFE-10	TOOLBOX
OFE-11	VICE - LOCATED & MOUNTED TO COUNTER W/ OWNER ITF
OFE-12	GRINDER - LOCATED & MOUNTED TO COUNTER W/ OWNER ITF
OFE-13	OPEN SHELVING
OFE-14	ULINE HEAVY-DUTY STEEL SHELVING MODEL #H-5444 - FASTEN TO WALL. COORD ITF W/ OFE-10
OFE-15	ULINE MODULAR DRAWER 1 PEDESTAL WORKBENCH W/ MAPLE TOP MODEL #H-10197-MAP W/ TAPLETOP POWER STRIP (18 OUTLETS)
OFE-16a	ULINE UNPAINTED STEEL PEGBOARD MODEL #H-4292
OFE-16b	ULINE UNPAINTED STEEL PEGBOARD MODEL #H-6450 W/ MOUNTING KIT MODEL #H-4294
OFE-17a	TOPLOAD WASHING MACHINE
OFE-17b	TOPLOAD DRYER
OFE-18	IBC TANK
OFE-19	MOBILE STAIRS

(CONTRACTOR FURNISHED EQUIP - CONTRACTOR INSTALLED)

TYPE	DESCRIPTION	MANUFACTURER & SERIES
CFE-1	MOBILE VEHICLE LIFT & JACK	ROTARY LIFT - MCHW418
CFE-2	4-POST VEHICLE LIFT	ROTARY SOLUTIONS - SM30 HEAVY DUTY
CFE-3	2-POST VEHICLE LIFT	ROTARY SOLUTIONS - SPO16 WIDE

CASEWORK/ INTERIOR NOTES

NUMBER	DESCRIPTION
1	FULLY FINISHED END PANEL FLUSH W/ ADJACENT CASEWORK - NOTCH AT TOE KICK
2	PRE-FINISHED METAL COUNTERTOP SUPPORTS AT 3'-0" OC - TYP
4	3" GROMMET LOCATION - COORDINATE WITH ARCHITECT/ OWNER ITF
5	18" DEEP 5-TIER METAL WALL MOUNTED ADJUSTABLE SHELVING - SEE DETAIL ON A902
7	LOCK - SEE GENERAL INTERIOR/ CASEWORK NOTES FOR MORE INFO.

WINDOW TREATMENT TYPES

WT-1 HB	
TYPE	DESCRIPTION
MRS	MESH ROLLER SHADE

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
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REVISIONS
3 10/31/25 Addendum #4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA. 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD MCDONALD, PA. 15057

INTERIOR LAYOUT PLANS

Proj No. 24-S49-01B
Issue Date OCTOBER 1, 2025

A801

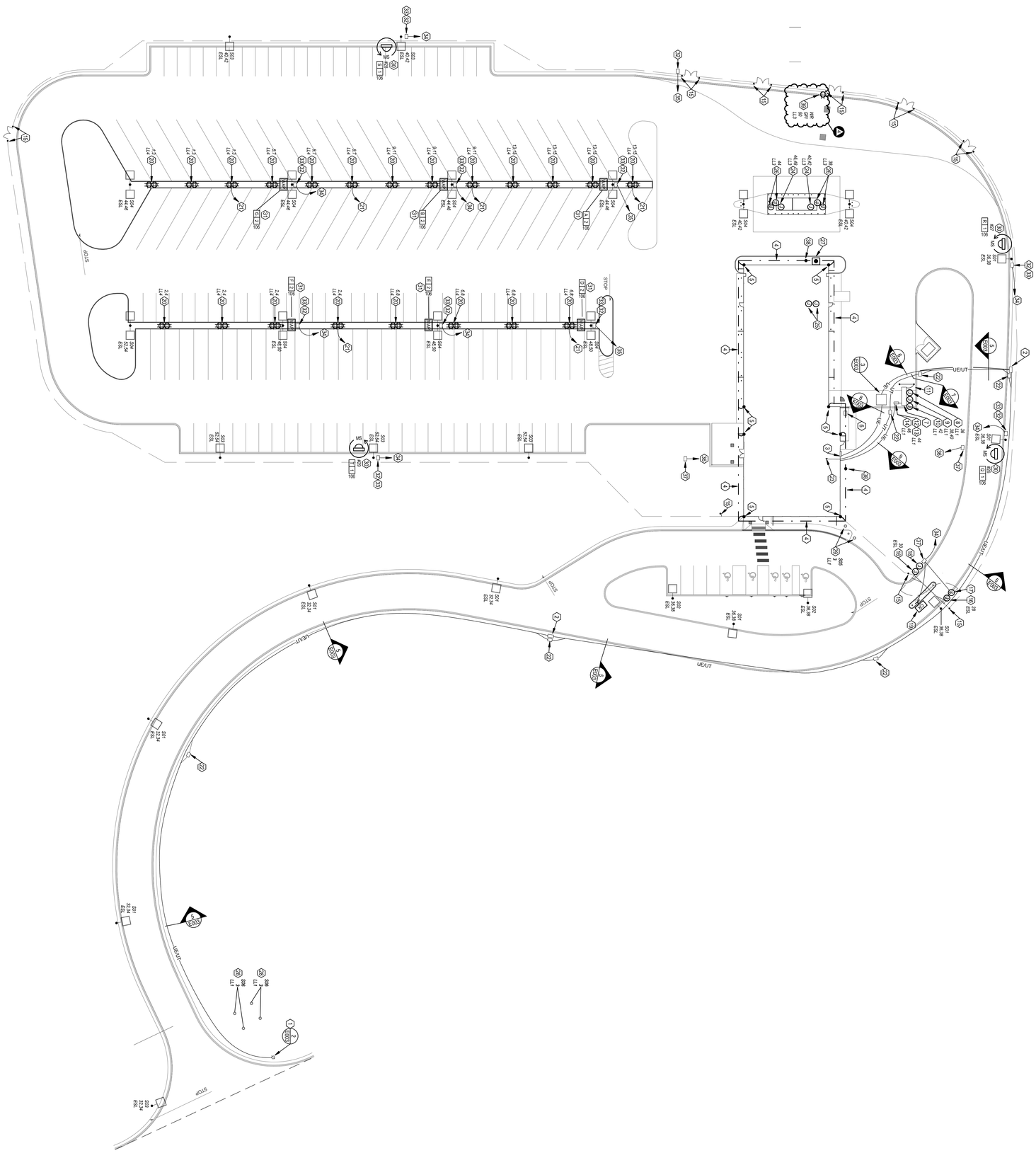
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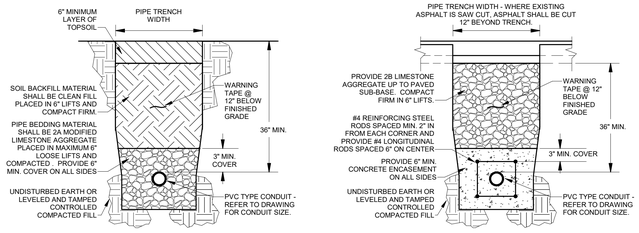
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1 / E002

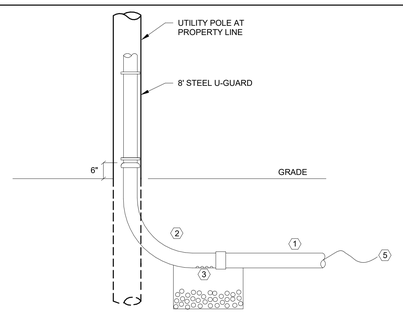
ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"


STOP
UE/UT
UE/UT
UE/UT

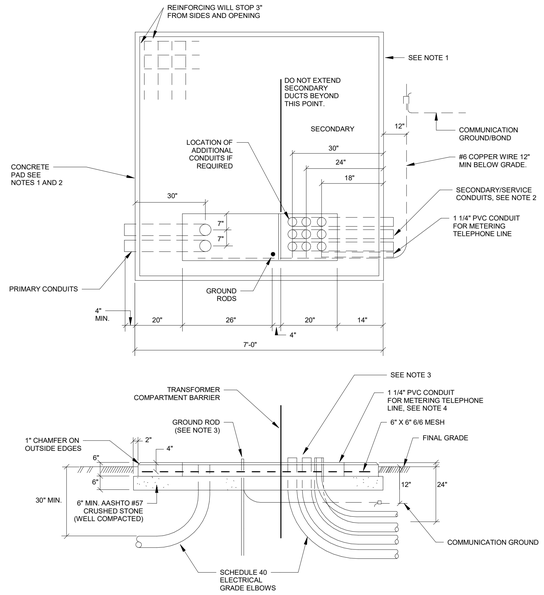


1 SINGLE CONDUIT DUCTBANK DETAIL
NOT TO SCALE



CODED NOTES:
1. INSTALL PVC CONDUIT WITH NEMA SPECIFICATION TC-6 PER THE SPECIFICATIONS FOR PRIMARY CABLES.
2. AT PAD AND POLE INSTALL 36" RADIUS 90°, GALVANIZED STEEL BEND(S) WITH A 40 MIL PLVC JACKET. EXTEND BEND(S) 6" INTO PAD OPENING OR 6" UP POLE.
3. DRILL FOUR 1/2" DIAM. HOLES ON 2" CENTERS AT THE LOW POINT OF EACH BEND AND REMOVE ALL INTERNAL BURRS. INSTALL AN 18" X 18" X 24"D FRENCH DRAIN.
4. AT PAD INSTALL A THREADED INSULATED GROUNDING BUSHING ON EACH BEND AND CONNECT TO THE GROUND BUS USING #4 SOFT DRAWN COPPER WIRE.
5. INSTALL AN 18 GA. NYLON CORD HAVING A MINIMUM BREAKING STRENGTH OF 170 POUNDS IN EACH CONDUIT. CAP ALL CONDUIT
6. E.C. TO PROVIDE ALL TRENCHING, BACKFILLING ANS SURFACE RESTORATION. NO BACKFILLING SHALL BEGIN UNTIL THE PRIMARY ELECTRICAL CONDUIT HAS BEEN INSPECTED AND APPROVED.

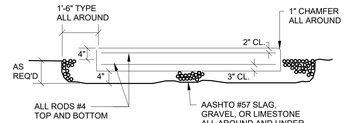
2 UTILITY POLE CONDUIT TERMINATION
NOT TO SCALE



NOTES:
1. CONCRETE SHALL BE 3000 PSI IN ACCORDANCE WITH THE GENERAL NOTES BELOW. VOLUME OF CONCRETE IS APPROXIMATELY 0.7 CU YDS.
2. SECONDARY DUCTS SHOULD NOT EXTEND MORE THAN 2" ABOVE TOP OF FOUNDATION. PRIMARY DUCTS SHOULD BE CUT OFF 2" BELOW TOP OFFOUNDATION TO ALLOW FOR TERMINATING THE CABLES.
3. EXTEND GROUND ROD 2" ABOVE TOP OF FOUNDATION TO ACCOMMODATE GROUND JUMPER
4. EXTEND 1 1/4" CONDUIT TO LOCATION AT CUSTOMER'S BUILDING WHERE TELEPHONE LINE SERVICE CAN BE MADE AVAILABLE AT THE TELEPHONE DEMARCATION POINT.

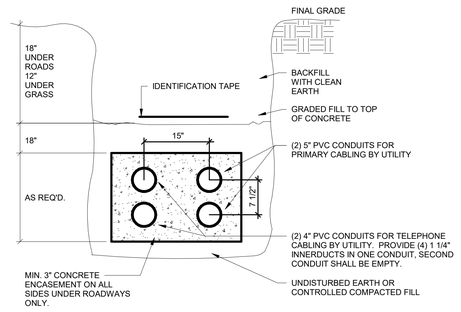
GENERAL NOTES
A. INSTALL ALL CONDUITS BEFORE PLACING PAD. CONDUITS SHOULD NOTE BE PLACED UNDER SECTIONS OF PAD SUPPORTING TRANSFORMER SO THAT ORIGINAL GROUND WILL NOT BE DISTURBED.
B. CONDUIT SHALL BE RIGID TYPE 2 PVC, SCHEDULE 40, SCHEDULE 80 PVC OR GALVANIZED STEEL.
C. BACKFILL SHALL BE CLEAN GRANULAR SOIL, FREE OF LARGE STONES AND PERISHABLE MATERIAL. ALL BACKFILL SHALL BE SPREAD AND COMPACTED IN MAXIMUM LAYERS OF 8 INCHES
D. THOROUGHLY COMPACT CRUSHED STONE OR GRAVEL
E. CONCRETE PAD MAY BE POURED IN PLACE OR MAY BE PRECAST.
F. TO PREVENT WATER MIGRATION FROM CONCRETE WHEN POURING, PLACE WATERPROOF MEMBRANE ON CRUSHED STONE OR GRAVEL BEFORE POURING CONCRETE
G. REINFORCING WIRE MESH SHALL CONFORM TO ASTM DESIGNATION A185.
H. CEMENT TO BE I OR I-A AND MEETING ASTM DESIGNATION C-150 AND C-175 RESPECTIVELY.
I. CONCRETE TO DEVELOP 3000 PSI AT 28 DAYS' AGE, CONTAIN MINIMUM OF 5.5BAGS OF CEMENT PER CU. YD. AND MAXIMUM OF 6 GALLONS OF WATER PER94 POUND BAG OF CEMENT, AND CONFORM TO ASTM DESIGNATION C-94. 14DAYS MINIMUM DRYING TIME BEFORE TRANSFORMER IS SET.
J. SEAL ALL OPENINGS AROUND CONDUITS WITH GROUT (SAKRETE): CAP ALL SPARE CONDUITS TO PREVENT ENTRY OF RODENTS AND ANIMALS INTO TRANSFORMER COMPARTMENT.
K. IF CONDUIT EXTENDS INTO BUILDING, IT MUST BE SEALED (PER NEC) AT BUILDING END TO PREVENT GAS FROM ENTERING BUILDING THROUGH THE CONDUIT.
L. WHERE DAMAGE TO TRANSFORMER BY VEHICLES IS POSSIBLE, TRANSFORMER SHALL BE PROTECTED BY APPROPRIATE BARRIER BOLLARDS.

3 UTILITY TRANSFORMER PAD (WEST PENN POWER)
NOT TO SCALE

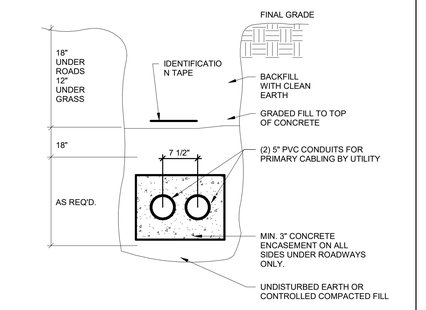


NOTES:
1. COORDINATE EXACT REQUIREMENTS OF CONCRETE PAD WITH EMERGENCY GENERATOR MANUFACTURER PRIOR TO INSTALLATION
2.GENERATOR PAD DIMENSION SHALL BE 12" GREATER IN LENGTH AND WIDTH OF GENERATOR BEING PROVIDED.
3. GENERATOR PAD THICKNESS SHALL BE SUCH THAT TOTAL PAD WEIGHT IS 1.5 TIMES WEIGHT OF GENERATOR AND ENCLOSURE

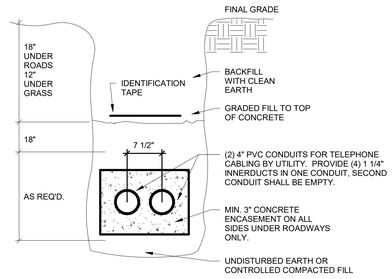
4 GENERATOR PAD
NOT TO SCALE



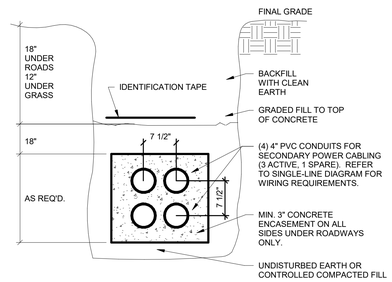
5 TRENCH DETAIL - PRIMARY POWER/TELEPHONE
NOT TO SCALE



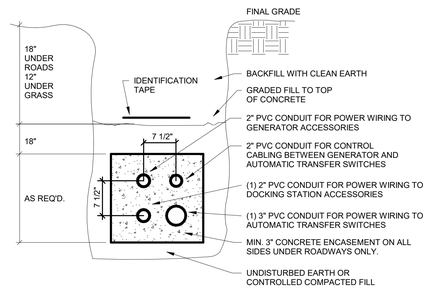
6 TRENCH DETAIL - PRIMARY POWER
NOT TO SCALE



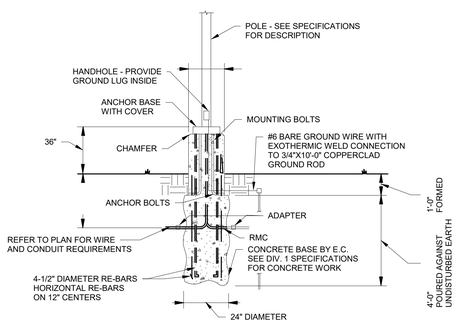
7 TRENCH DETAIL - TELECOMMUNICATIONS
NOT TO SCALE



8 TRENCH DETAIL - SECONDARY POWER
NOT TO SCALE

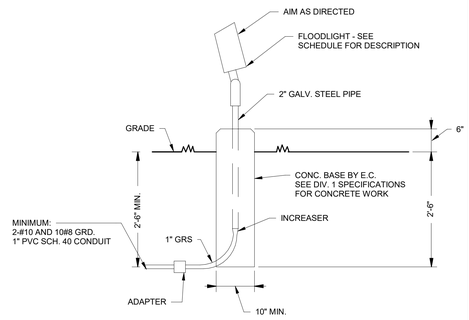


9 TRENCH DETAIL - EMERGENCY POWER
NOT TO SCALE



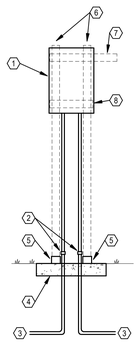
NOTES:
1. REFER TO SPECIFICATION SECTION 265100 - LIGHTING FIXTURES FOR MORE DETAIL

10 TYPICAL DETAIL OF LIGHT POLE - 36" BASE
NOT TO SCALE



NOTES:
1. REFER TO SPECIFICATION SECTION 265100.
2. THE EXACT LOCATION OF THESE FIXTURES SHALL BE AS DIRECTED, UNLESS DIMENSIONED ON PLAN.

11 DETAIL OF TYPICAL STANCHION-MOUNTED SITE LIGHT FIXTURE
NOT TO SCALE



GENERAL NOTES - BUS ENGINE WARMER PEDESTAL MOUNTING DETAIL
A. COORDINATE ENTIRE INSTALLATION WITH SITE CONTRACTOR.
B. CONTRACTOR TO PROVIDE MOCK-UP OF ONE INSTALLATION FOR OWNER APPROVAL PRIOR TO INSTALLATION OF REMAINING UNITS.
C. EACH PEDESTAL LOCATION HAS TWO POWER CENTERS MOUNTED ON IT, ONE ON THE FRONT AND ONE ON THE BACK, IN ORDER TO PROVIDE FOUR DEDICATED CIRCUIT RECEPTACLES FOR FOUR BUSES.

CODED NOTES - BUS ENGINE WARMER PEDESTAL MOUNTING DETAIL
1. PROVIDE TWO 125A, 120/240V, UNMETERED, SURFACE-MOUNTED POWER CENTERS WITH TWO 20A/1P CIRCUIT BREAKERS FEEDING TWO GFCI-TYPE DUPLEX RECEPTACLES AND LOOP FEED LUGS IN CORROSION-RESISTANT HOUSING WITH IN-USE COVER. POWER CENTERS SHALL BE MIDWEST ELECTRIC PRODUCTS MODEL NO. U011CTL010 OR EQUAL BY TALON METERING (MODEL NO. TL-7) OR EATON. MOUNT POWER CENTERS AT 60" ABOVE GRADE TO TOP OF BOX. MOUNT ONE POWER CENTER ON FRONT OF UNISTRUT SUPPORT AND MOUNT SECOND METER SECOND ON BACK OF UNISTRUT SUPPORT. PROVIDE 2" LIQUID-TIGHT CONDUIT FOR LOOP BETWEEN BOXES.
2. TRANSITION PVC CONDUIT FROM BELOW GRADE TO LIQUIDTIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO POWER CENTER.
3. PROVIDE 2" PVC CONDUIT FOR LOOP FEED TO ADDITIONAL RECEPTACLE BOXES ON SAME CIRCUIT AS SHOWN ON SITE PLAN.
4. PROVIDE CONCRETE PAD, MINIMUM 6" DEPTH BELOW GRADE AND 2" ABOVE GRADE.
5. PROVIDE UNISTRUT POST BASE SUPPORT FITTING, MODEL P2073A WITH DEFENDER FINISH, SECURED TO CONCRETE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE BACK-TO-BACK FRAMING STRUT SECURED TO CONCRETE PAD, UNISTRUT P1001T WITH DEFENDER FINISH.
7. PROVIDE FRAMING STRUT MOUNTED HORIZONTALLY TO SUPPORT POWER CENTER AT TOP OF BOX, UNISTRUT P1000T WITH DEFENDER FINISH. STRUT SHALL EXTEND A MINIMUM OF 9" BEYOND EDGE OF BOX ON RIGHT SIDE (WHEN FACING BOX) TO ALLOW A LOCATION FOR HANGING AN EXTENSION CORD. TYPICAL FOR TWO BOX LOCATIONS, ONE MOUNTED ON FRONT OF VERTICAL STRUT AND ONE MOUNTED ON REAR OF VERTICAL STRUT.
8. PROVIDE FRAMING STRUT MOUNTED HORIZONTALLY TO SUPPORT POWER CENTER AT BOTTOM OF BOX, UNISTRUT P1000T WITH DEFENDER FINISH. STRUT SHALL EXTEND A MINIMUM OF 9" BEYOND EDGE OF BOX ON RIGHT TYPICAL FOR TWO BOX LOCATIONS, ONE MOUNTED ON FRONT OF VERTICAL STRUT AND ONE MOUNTED ON REAR OF VERTICAL STRUT.

12 BUS ENGINE WARMER PEDESTAL MOUNTING DETAIL
NOT TO SCALE

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Project Number: 2024077

COMMONWEALTH OF PENNSYLVANIA
STEFFANIE DAKO
ENGINEER
STATE COLLEGE, PA
10/31/2025

REVISIONS
4 10/31/2025 Addendum 4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
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SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD
MCDONALD, PA 15057

ELECTRICAL SITE DETAILS

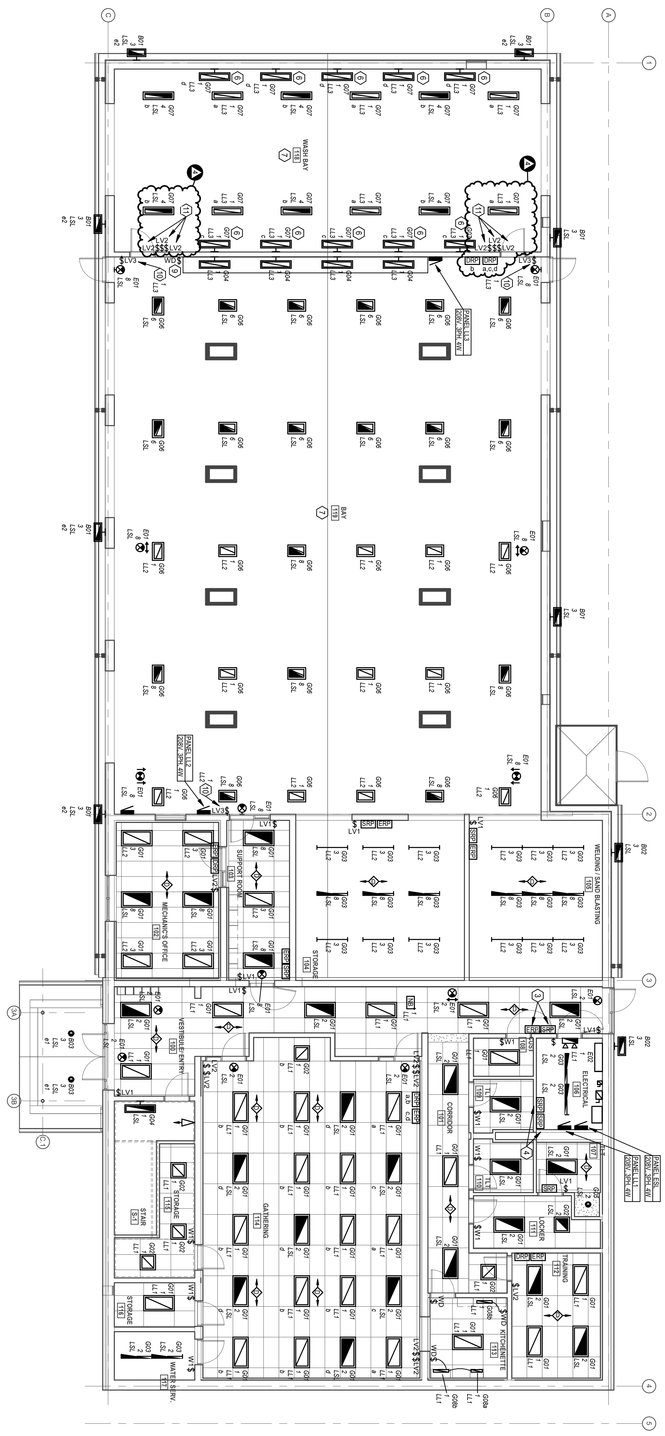
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Issue Date OCTOBER 1, 2025

E003

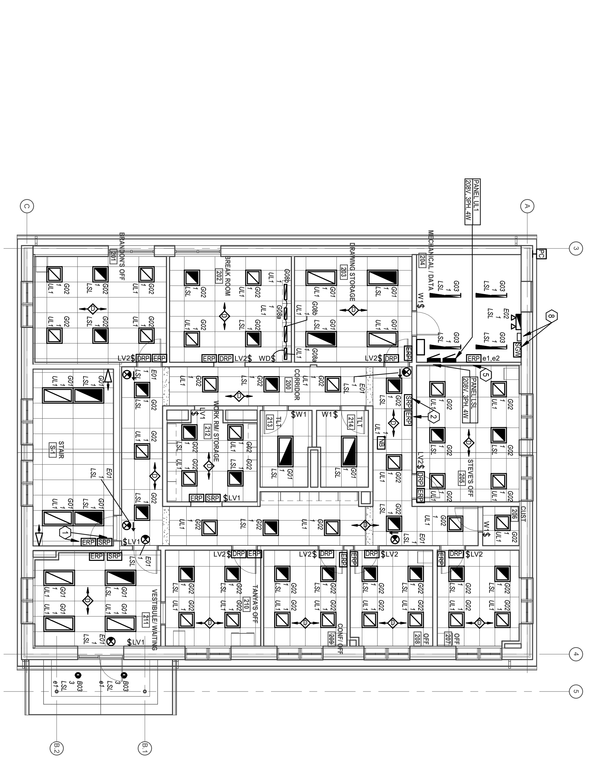
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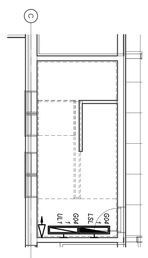
1 E101 LOWER LEVEL - LIGHTING PLAN
SCALE: 1/8" = 1'-0"



2 E101 UPPER LEVEL - LIGHTING PLAN
SCALE: 1/8" = 1'-0"



3 E101 STAIR LANDING
SCALE: 1/8" = 1'-0"



GENERAL NOTES - LIGHTING PLANS

A. CIRCUIT ALL TYPE E01 LIGHT FIXTURES (EXIT SIGNS) AND TYPE E02 (EMERGENCY LIGHTING BATTERY PACKS) AHEAD OF ANY LOCAL SWITCHING/CONTROL.

B. LOW VOLTAGE LIGHTING CONTROL CABLING SHALL BE INSTALLED IN CONDUIT IN AREAS THAT HAVE FINISHED CEILINGS. INSTALLED IN CONDUIT IN AREAS THAT DO NOT HAVE FINISHED CEILINGS.

C. WHERE A CEILING IS SCHEDULED TO BE EXPOSED TO STRUCTURE, ALL DEVICES SHALL BE SECURED TO STRUCTURE TO PROVIDE A CLEAN, PLUMB INSTALLATION. COORDINATE WITH ARCHITECT PRIOR TO ANY EXPOSED INSTALLATION ON LOCATIONS AND FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE OR WHERE SUBJECT TO MOISTURE.

CODED NOTES - SHEET E101

1 PROVIDE RELAY PACKS FOR CONTROL OF ALL LIGHTING ON ALL FLOORS IN STAIR. WHEN UNOCCUPIED, LIGHTS SHALL DIM TO 20% OUTPUT. UPON OCCUPANCY (VIA LOCAL SENSORS) OR LOSS OF POWER, LIGHTS SHALL RETURN TO FULL OUTPUT.

2 RELAY PACKS FOR CONTROL OF LIGHTING IN UPPER LEVEL CORRIDORS.

3 RELAY PACKS FOR CONTROL OF LIGHTING IN LOWER LEVEL CORRIDORS.

4 PROVIDE TWO RELAY PACKS FOR CONTROL OF CIRCUIT LL3-1 FEEDING FLAG POLE LIGHTING AND SITE SIGN LIGHTING.

5 PROVIDE RELAY PACK FOR CONTROL OF BUILDING-MOUNTED EXTERIOR LIGHTING.

6 MOUNT LIGHT FIXTURE AT 10'-0" AFF.

7 MECHANICAL EQUIPMENT AND OTHER CEILING-MOUNTED EQUIPMENT. PROVIDE FLEXIBLE CONDUIT FOR FINAL CONNECTION TO EQUIPMENT PIPING.

8 INSTALL LIGHTING CONTROL SYSTEM GATEWAY AND WIRELESS CONTROLLER IN ELECTRICAL ROOM.

9 SWITCH FOR CONTROL OF TYPE G04 LOCATED ALONG THIS WALL.

10 PROVIDE POWER TO WIRELESS CONTROL SWITCH FROM DESIGNATED CIRCUIT.

11 PROVIDE WATERPROOF CLEAR BOX OVER SWITCHES WITH HINGED COVER.

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Issue Date OCTOBER 1, 2025

E101

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NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY

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MCDONALD, PA 15057

LIGHTING PLANS

REVISIONS
4 10/31/2025 Addendum 4

BIDDING SET

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER T STEFFANIE BAKO 10/01/2025

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LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION: GENERAL	COLOR	MOUNTING	LUMEN OUTPUT	COLOR TEMPERATURE	DRIVER TYPE	LOAD	VOLTAGE	MANUFACTURER / MODEL SERIES: REPCO ii	LAFACE & McGOVERN	ARCHITECTURAL LIGHTING SALES	LOCATIONS USED
BUILDING MOUNTED LIGHTING FIXTURES												
B01	BUILDING WALL MOUNT LED FIXTURE WITH DIECAST ALUMINUM HOUSING AND FORWARD THROW DISTRIBUTION. UL LISTED FOR WET LOCATIONS.	CUSTOM COLOR BY ARCHITECT	SURFACE/WALL	LED 4700 LUMENS	4000K	DIMMING 0-10V	37W	120/277	BEACON VIPER WALL VPW-2	LITHONIA DSXW1	MCGRAW EDISON GALLEON WALL GWC	BUILDING PERIMETER
B02	BUILDING WALL MOUNT LED FIXTURE WITH DIECAST ALUMINUM HOUSING AND MEDIUM THROW DISTRIBUTION. UL LISTED FOR WET LOCATIONS.	CUSTOM COLOR BY ARCHITECT	SURFACE/WALL	LED 3000 LUMENS	4000K	DIMMING 0-10V	25W	120/277	BEACON VIPER WALL VPW-1	LITHONIA ARC1	MCGRAW EDISON GEKKO GKO	EGRESS DOORS
B03	6" DIAMETER LED OPEN DOWNLIGHT WITH MATTE DIFFUSE REFLECTOR, PAINTED SELF-FLANGE, AND MEDIUM BEAM DISTRIBUTION. UL LISTED FOR WET LOCATION UNDER CANOPY.	WHITE	RECESSED	LED 1500 LUMEN	4000K	DIMMING 0-10V	18W	120/277	WILLIAMS 6DR	LITHONIA LDN6	PORTFOLIO LD6B	CANOPIES
EMERGENCY LIGHTING FIXTURES												
E01	UNIVERSAL MOUNTED SINGLE OR DOUBLE FACE EXIT SIGN WITH THERMOPLASTIC HOUSING, STENCIL CUT FACEPLATE AND SELF-DIAGNOSTIC TESTING. AC ONLY. PROVIDE DIRECTIONAL ARROWS AS SHOWN ON DRAWINGS.	WHITE FACE, GREEN LETTERS	UNIVERSAL	LED	N/A	STANDARD	<5W	120/277	COMPASS CE	LITHONIA LQM	EXITRONIX VEX	EGRESS PATHS
E02	DUAL LAMP THERMOPLASTIC BATTERY UNIT WITH SELF-DIAGNOSTICS, 6 VOLT NICAD BATTERY, AND TEST SWITCH WITH INDICATOR LIGHT.	WHITE	SURFACE	LED	N/A	STANDARD	10.6W	120/277	COMPASS CU2HL	LITHONIA ELM6L	EXITRONIX NFT-HO	ELECTRIC ROOM
GENERAL LIGHTING FIXTURES												
G01	2'X4' TROFFER WITH WIDE CURVED OPAL LENS WITH TRIM AND CURVED MATTE REFLECTOR.	WHITE	RECESSED	LED 4000 LUMENS	3500K	DIMMING 0-10V	33W	120/277	HE WILLIAMS AP ARCHITECTURAL CURVED PANEL	LITHONIA ENVX	CORELITE INDEPTH CNC CURVE REGRESS	CORRIDORS, OFFICES
G02	2'X2' TROFFER WITH WIDE CURVED OPAL LENS WITH TRIM AND CURVED MATTE REFLECTOR.	WHITE	RECESSED	LED 3000 LUMENS	3500K	DIMMING 0-10V	24W	120/277	HE WILLIAMS AP ARCHITECTURAL CURVED PANEL	LITHONIA ENVX	CORELITE INDEPTH CNC CURVE REGRESS	CORRIDORS, OFFICES
G03	4' LONG STRIP LIGHT FIXTURE WITH STEEL HOUSING AND ROUND DIFFUSE LENS. PROVIDE HANGER CHAINS FOR FIXTURES WITHIN AREAS WITH OPEN CEILING.	WHITE	PENDANT OR SURFACE	LED 5000 LUMENS	3500K	DIMMING 0-10V	32W	120/277	COLUMBIA CSL	LITHONIA CLX	METALUX 4SNX	UTILITY SPACES, STORAGE
G04	4' VANDAL RESISTANT FIXTURE WITH DIFFUSE POLYCARBONATE LENS, ROUND ENDCAPS, AND 8" WIDE ALUMINUM HOUSING.	WHITE	SURFACE OR WALL	LED 5000 LUMENS	3500K	DIMMING 0-10V	50W	120/277	KENALL MILLENIUM STRETCH	LUMINAIRE LIGHTING VPF-84	FAIL-SAFE HVL8	STAIRS, BAY
G05	6" DIAMETER LED DOWNLIGHT WITH NON-CONDUCTIVE SHOWER LIGHT LENS AND PAINTED SELF FLANGE. UL LISTED FOR WET LOCATIONS.	WHITE	RECESSED	LED 1000 LUMEN	3500K	DIMMING 0-10V	11W	120/277	WILLIAMS 6DR-S	GOTHAM EVO6-SH	HALO COMMERCIAL HO6 WITH 170P LENS	SHOWER
G06	PENDANT MOUNTED LED HIGH-BAY FIXTURE WITH STEEL HOUSING AND FROSTED ACRYLIC LENS. PROVIDE FIXTURE WITH EMBEDDED WIRELESS LIGHTING CONTROLS (OCCUPANCY SENSOR, AMBIENT LIGHT SENSOR AND WIRELESS CONTROL MODULE).	WHITE	PENDANT	LED 12000 LUMENS	4000K	DIMMING 0-10V	77W	120/277	WILLIAMS GH	LITHONIA IBG	METALUX OHB	BAYS
G07	4' LONG VANDAL RESISTANT FIXTURE WITH DIFFUSE POLYCARBONATE LENS, ROUND ENDCAPS, 12" WIDE ALUMINUM HOUSING, NATATORIUM FINISH, AND UL LISTED FOR WET LOCATIONS.	WHITE	SURFACE OR WALL	LED 7500 LUMENS	3500K	DIMMING 0-10V	80W	120/277	KENALL MILLENIUM STRETCH	LUMINAIRE LIGHTING VPF-84	FAIL-SAFE HVL12	WASH BAY
G08a	4'-0" LONG UNDERCABINET LIGHT WITH FROSTED ACRYLIC DIFFUSER.	WHITE	SURFACE	LED 1200 LUMENS	4100K	DIMMING 0-10V	11W	120/277	WILLIAMS 1SF	JUNO UPLD	HALO HU30M	KITCHENETTE, BREAK ROOM
G08b	22"-24" LONG UNDERCABINET LIGHT WITH FROSTED ACRYLIC DIFFUSER.	WHITE	SURFACE	LED 1200 LUMENS	4100K	DIMMING 0-10V	11W	120/277	WILLIAMS 1SF	JUNO UPLD	HALO HU30M	KITCHENETTE, BREAK ROOM
SITE LIGHTING FIXTURES												
S01	SINGLE-HEAD, ARM MOUNTED, LOW PROFILE LED FIXTURE WITH DIE-CAST ALUMINUM HOUSING AND TYPE 2 DISTRIBUTION. PROVIDE FIXTURE WITH 7-PIN TWIST LOCK RECEPTACLE AND INTEGRAL MOTION DETECTOR FOR WIRELESS LIGHTING CONTROL.	CUSTOM COLOR BY ARCHITECT	POLE - 22' STRAIGHT ROUND ALUMINUM	LED 4500 LUMENS	4000K	DIMMING 0-10V	123W	120/277	BEACON VIPER VP	LITHONIA DSX1	MCGRAW EDISON GALLEON	PARKING AND DRIVE PATHS
S02	SINGLE-HEAD, ARM MOUNTED, LOW PROFILE LED FIXTURE WITH DIE-CAST ALUMINUM HOUSING AND TYPE 2 DISTRIBUTION. PROVIDE FIXTURE WITH 7-PIN TWIST LOCK RECEPTACLE AND INTEGRAL MOTION DETECTOR FOR WIRELESS LIGHTING CONTROL.	CUSTOM COLOR BY ARCHITECT	POLE - 22' STRAIGHT ROUND ALUMINUM	LED 12000 LUMENS	4000K	DIMMING 0-10V	184W	120/277	BEACON VIPER VP	LITHONIA DSX1	MCGRAW EDISON GALLEON	PARKING AND DRIVE PATHS
S03	SINGLE-HEAD, ARM MOUNTED, LOW PROFILE LED FIXTURE WITH DIE-CAST ALUMINUM HOUSING AND FORWARD THROW DISTRIBUTION. PROVIDE FIXTURE WITH 7-PIN TWIST LOCK RECEPTACLE AND INTEGRAL MOTION DETECTOR FOR WIRELESS LIGHTING CONTROL.	CUSTOM COLOR BY ARCHITECT	POLE - 22' STRAIGHT ROUND ALUMINUM	LED 9000 LUMENS	4000K	DIMMING 0-10V	165W	120/277	BEACON VIPER VP	LITHONIA DSX1	MCGRAW EDISON GALLEON	PARKING AND DRIVE PATHS
S04	DOUBLE-HEAD, ARM MOUNTED, LOW PROFILE LED FIXTURE WITH DIE-CAST ALUMINUM HOUSING AND FORWARD THROW DISTRIBUTION. PROVIDE FIXTURE WITH 7-PIN TWIST LOCK RECEPTACLE AND INTEGRAL MOTION DETECTOR FOR WIRELESS LIGHTING CONTROL.	CUSTOM COLOR BY ARCHITECT	POLE - 27' STRAIGHT ROUND ALUMINUM	LED 8500 LUMENS/ HEAD	4000K	DIMMING 0-10V	272W/HEAD	120/277	BEACON VIPER VP	LITHONIA DSX2	MCGRAW EDISON GALLEON	PARKING AND DRIVE PATHS
S05	FLOOD LIGHT FIXTURE WITH NARROW SPOT DISTRIBUTION AND CUT-OFF VISOR.	GREEN	YOKE/STANCHION MOUNT	LED 8000 LUMENS	4000K	DIMMING 0-10V	47W	120/277	KIM LIGHTING KFL1	HYDREL TPS1-18LED-NSP	VISTA LIGHTING 1057	FLAG POLE
S06	FLOOD LIGHT FIXTURE WITH HORIZONTAL FLOOD DISTRIBUTION AND CUT-OFF VISOR.	GREEN	STANCHION MOUNT	LED 3500 LUMEN	4000K	DIMMING 0-10V	42W	120/277	KIM LIGHTING KFL1	LITHONIA DSXF1	VISTA LIGHTING 1057	SITE SIGN

SYSTEM GATEWAY SG1

TYPICAL NETWORK BRIDGE NB1

TYPICAL LOW VOLTAGE CEILING MOUNT OCCUPANCY SENSOR

LOW VOLTAGE PHOTOCELL CONTROL PC1

TYPICAL LOW VOLTAGE SWITCH - REFER TO LOW VOLTAGE SWITCH DETAILS

TYPICAL STANDARD RELAY PACK RP5

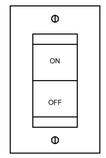
TYPICAL DIMMING EMERGENCY RELAY PACK RP5

TYPICAL 0-10 VOLT DIMMING RELAY PACK RP5

LIGHTING CONTROL DETAIL NOTES:

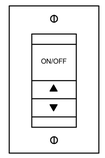
A. ELECTRICAL CONTRACTOR TO PROVIDE & TERMINATE ALL LOW VOLTAGE CABLING AS RECOMMENDED BY SYSTEM MANUFACTURER.
B. ELECTRICAL CONTRACTOR TO CONNECT ALL DEVICES WITH MANUFACTURER-RECOMMENDED LOW VOTAGE CABLING IN A DAISY CHAIN, STARTING WITH THE SYSTEM GATEWAY THEN TO NEXT NEAREST SYSTEM BRIDGE AND SO ON.
C. WHERE CAT 5E/6 CABLING IS USED, ELECTRICAL CONTRACTOR TO TEST ALL CABLE RUNS WITH A CAT 5E/6 METER FOR PROPER TERMINATION OF RJ45 CONNECTORS.
D. WHERE INSTALLED IN SPACES WITHOUT A FINISHED CEILING, ALL CABLING SHALL BE ROUTED IN CONDUIT. CONDUIT CAN STOP WITHIN 6" FROM DEVICE TO ALLOW FOR FINAL CABLE CONNECTION AT DEVICE.
E. MOUNT EACH RELAY DIRECTLY TO JUNCTION BOX ABOVE THE CEILING NEAR THE LOCATION OF THE ASSOCIATED LOW VOLTAGE SWITCH (WHERE APPLICABLE).
F. WHERE FOUR OR MORE RELAY PACKS ARE GROUPED TOGETHER IN ONE LOCATION, MOUNT RELAYS TO A 6" X 6" X 4" DEEP JUNCTION BOX ABOVE ACCESSIBLE CEILING.
G. LABEL EACH RELAY PACK WITH CONTROL ZONE AS NOTED ON DRAWINGS USING PERMANENT MARKER.
H. EACH SYSTEM GATEWAY AND NETWORK BRIDGE REQUIRE A DEDICATED 120 OR 277V CIRCUIT FOR POWER SUPPLY TRANSFORMERS.
I. PROVIDE NETWORK BRIDGE(S) WHERE SHOWN ON DRAWING AND WHERE REQUIRED BY MANUFACTURER FOR PROPER INSTALLATION.
J. REFER TO MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS FOR EXACT ROUGH-IN REQUIREMENTS AND CONNECTION REQUIREMENTS.
K. REFER TO SPECIFICATION SECTION 26 0923 ADDITIONAL REQUIREMENTS.
L. THE SYSTEM MANUFACTURER SHALL VISIT SITE AND COMMISSION EACH DEVICE TO PROVIDE PROPER SET-UP OF SYSTEM. EC SHALL INCLUDE THE MANUFACTURER'S SITE VISIT IN THE BIDDING.
M. OCCUPANCY SENSORS CONNECTED TO SYSTEM SHALL BE SET FOR VACANCY MODE, UNO, EXCEPT ALL SENSORS IN CORRIDORS WILL BE PROGRAMMED FOR INSTANT ON OPERATION.
N. WHERE EMERGENCY RELAY PACK IS SHOWN ADJACENT TO A STANDARD RELAY PACK (I.E. CORRIDORS, ETC.), CAP THE PURPLE AND GRAY 0-10V LEADS ON EMERGENCY PACK.
O. THE CEILING MOUNTED OCCUPANCY SENSORS IN ALL COMMON CORRIDORS SHALL NOT SHUTOFF LIGHTING DURING THE HOURS OF 6:00AM TO 4:00PM. AFTER 4:00PM, THE OCCUPANCY SENSORS SHALL PROVIDE ON/OFF CONTROL OF CORRIDOR LIGHTING WITH TIME ADJUSTMENT IN SENSOR SET TO 15 MINUTES. THE OCCUPANCY SENSORS IN THE CORRIDORS SHALL BE TIED TO THE DESIGNATED RELAY PACK AS SHOWN ON THE FLOOR PLAN AND THE RELAY PACK SHALL BE NETWORKED TO THE BUILDING LIGHTING CONTROL SYSTEM. THE EMERGENCY RELAY PACK SHALL WORK IN CONJUNCTION WITH THE NORMAL POWER (STANDARD) RELAY PACK SO THAT THE EMERGENCY LIGHT FIXTURES IN A SECTION OF CORRIDOR OPERATE IN THE SAME MANNER AS THE NORMAL POWER LIGHT FIXTURES. IF A POWER OUTAGE OCCURS, THE EMERGENCY RELAY PACK WILL ENERGIZE THE LIGHT FIXTURES CONNECTED TO THE NORMAL/EMERGENCY POWER.
P. THE BUILDING MOUNTED LIGHT FIXTURES ON NORMAL/EMERGENCY POWER SHALL TURN ON AND OFF WITH PHOTOCELL ONLY.
Q. UNLESS NOTED OTHERWISE, THE PARKING AREA AND ENTRY DRIVE LIGHT FIXTURES SHALL TURN ON BY PHOTOCELL AT DUSK AND TURN OFF BY PHOTOCELL AT DAWN.

1 LIGHTING CONTROL DETAILS
NOT TO SCALE



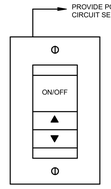
"SLV1"

LOW VOLTAGE SWITCH NOTES:
1. 'ON' AND 'OFF' SHALL CONTROL ALL RELAYS IN ROOM.



"SLV2"

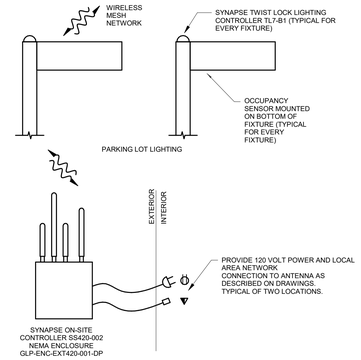
LOW VOLTAGE SWITCH NOTES:
1. 'ON/OFF' SHALL CONTROL ALL RELAYS IN ROOM.
2. 'UP ARROW' AND 'DOWN ARROW' SHALL RAISE /LOWER LIGHTS TURNED ON IN ACTIVE SCENE.



"SLV3"

LOW VOLTAGE SWITCH NOTES:
1. 'ON/OFF' SHALL CONTROL ALL RELAYS IN ROOM.
2. 'UP ARROW' AND 'DOWN ARROW' SHALL RAISE /LOWER LIGHTS TURNED ON IN ACTIVE SCENE.
3. SWITCH SHALL UTILIZE WIRELESS CONTROL.

2 LOW VOLTAGE SWITCH DETAILS
NOT TO SCALE



GENERAL NOTES:
A. CONTROLLER REQUIRES 120 VOLT CIRCUITING FOR POWER SUPPLY.
B. SYNAPSE DIMMING NODE RATED FOR 120 TO 480V WITH 0-10V DIMMING.
C. LIGHT FIXTURES SHALL BE PROGRAMMED TO DIM DURING NON-BUSINESS HOURS AND COME TO FULL BRIGHT UPON ACTIVATION OF INDIVIDUAL FIXTURE MOTION SENSOR.

3 SITE LIGHTING WIRELESS CONTROL DETAIL
NOT TO SCALE

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Project Number: 2024077

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — T. STEFFANIE EKAO — 10/31/2025

REVISIONS
4 10/31/2025 Addendum 4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA 15057 3680 OLD OAKDALE RD
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT
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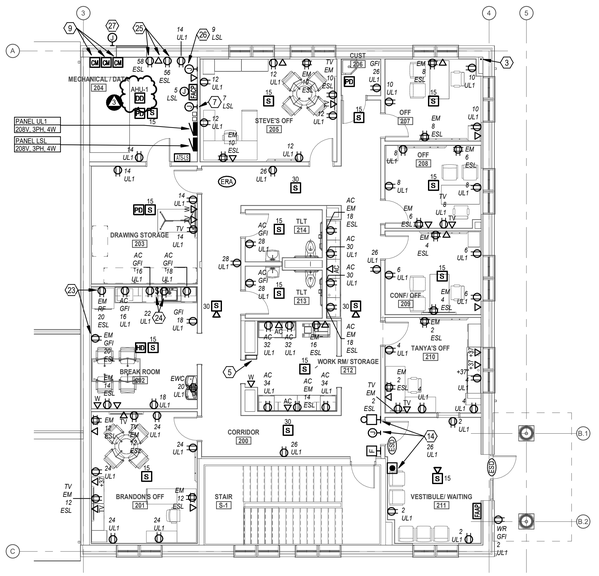
LIGHTING DETAILS & SCHEDULES

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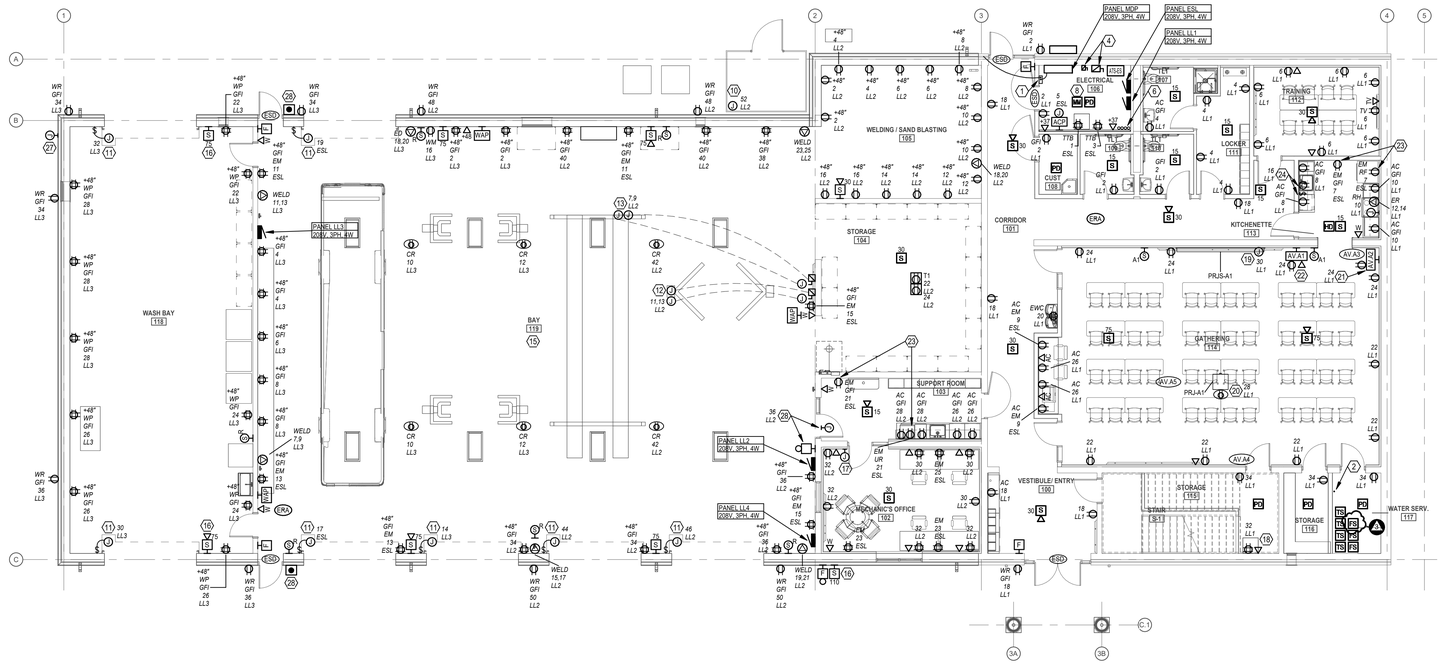
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2 E201 UPPER LEVEL - POWER & SYSTEMS PLAN
SCALE: 1/8" = 1'-0"



1 E201 LOWER LEVEL - POWER & SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES - POWER & SYSTEMS PLAN

A. PROVIDE LABEL ON BACK OF FACEPLATE OF ALL ELECTRICAL DEVICES INDICATING PANELBOARD OF ORIGIN AND CIRCUIT NUMBER.
B. WHERE A CEILING IS SCHEDULED TO BE EXPOSED TO STRUCTURE, ALL CABLING/WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT AND DEVICES SHALL BE SECURED TO STRUCTURE TO PROVIDE A CLEAN, ORGANIZED APPEARANCE. EC TO PROVIDE PHYSICAL PROTECTION ON ANY EXPOSED DEVICES TO ALLOW FOR PAINTING OF EXPOSED STRUCTURE AND DECKING.
C. WHERE A CEILING IS SCHEDULED TO BE EXPOSED TO STRUCTURE, MOUNT FIRE ALARM STROBES/HORNS TO BOTTOM OF JOIST.
D. FOR ALL DEVICES FED FROM EMERGENCY PANELS, PROVIDE A RED DEVICE AND PROVIDE THE LABEL 'EMERGENCY POWER' ON FACEPLATE.
E. WHERE RECEPTACLES ARE BEING INSTALLED DIRECTLY ADJACENT TO TECHNOLOGY AND/OR AV WALL PLATES, MOUNT CENTER OF ALL DEVICES AT SAME ELEVATION AS INDICATED ON ELECTRICAL RECEPTACLE.
F. WHERE WIRELESS ACCESS POINTS AND/OR CAMERAS ARE WALL MOUNTED, INSTALL AT 12'-0" AFF UNO. PROVIDE 1" CONDUIT SLEEVE THROUGH WALL AND STUBBED INTO NEAREST ACCESSIBLE CEILING. WHERE LOCATED ON EXTERIOR WALL, SLOPE CONDUIT TOWARDS THE OUTSIDE TO AVOID WATER RUNNING INTO BUILDING THROUGH CONDUIT.
A ALL CONDUIT MOUNTED ON EXTERIOR WALLS SHALL BE RIGID METAL CONDUIT AND IN LOCATIONS SUBJECT TO PHYSICAL DAMAGE (SCHEDULE 80 PVC, LIQUIDTIGHT FLEXIBLE METAL CONDUIT, ETC.)

CODED NOTES - SHEET E201

1 PROVIDE COMMON GROUNDING BAR AND SERVICE GROUND CONNECTION TO BUILDING STEEL IN ACCORDANCE WITH DETAIL 4/E204.
2 PROVIDE SERVICE GROUND CONNECTION AT WATER SERVICE ENTRANCE IN ACCORDANCE WITH DETAIL 4/E204.
3 PROVIDE SERVICE GROUND CONNECTION AT GAS SERVICE ENTRANCE IN ACCORDANCE WITH DETAIL 4/E204.
4 PROVIDE WIREWAY AND DISCONNECT SWITCHES TO FEED ATS-LS AND ATS-ES. REFER TO SINGLE-LINE DIAGRAM ON SHEET E203 FOR ADDITIONAL INFORMATION.
5 LOCATION OF GENERATOR ANNUNCIATOR PANEL.
6 STUB (2) 4" CONDUITS FOR TELECOMMUNICATIONS UTILITY CABLING AND (2) 4" CONDUITS FOR SITE LOW VOLTAGE CABLING INTO ELECTRICAL 106.
7 PROVIDE CELLULAR DIALER FOR NEW FIRE ALARM SYSTEM MOUNTED ON WALL BESIDE FIRE ALARM CONTROL PANEL. PROVIDE POWER TO UNIT FROM DESIGNATED CIRCUIT.
8 PROVIDE FIRE ALARM CONNECTION AT SECURITY PANEL FOR DOOR RELEASE UPON ACTIVATION OF FIRE ALARM SYSTEM. COORDINATE EXACT CONNECTION REQUIREMENTS WITH OWNER.
9 PROVIDE FIRE ALARM CONNECTION TO BUILDING AUTOMATION SYSTEM. COORDINATION CONNECTION REQUIREMENTS WITH BUILDING AUTOMATION SYSTEM INSTALLER.
10 PROVIDE POWER TO AIR COMPRESSOR ENCLOSURE FOR LIGHT FIXTURE AND RECEPTACLE. LIGHT FIXTURE AND RECEPTACLE PROVIDED INTEGRAL WITH ENCLOSURE. ROUTE 2-#10 AND 1-#10 GROUND IN 1" CONDUIT FROM DESIGNATED PANELBOARD TO POWER CONNECTION POINT AT ENCLOSURE. COORDINATE EXACT POWER CONNECTION LOCATION AND CONNECTION REQUIREMENTS WITH INSTALLING CONTRACTOR.
11 PROVIDE POWER TO GARAGE DOOR FROM DESIGNATED CIRCUIT. INSTALL CONTROL SWITCH, FURNISHED WITH DOOR, AND INSTALL CONTROL WIRING AS RECOMMENDED BY DOOR MANUFACTURER. COORDINATE WITH INSTALLING CONTRACTOR.
12 PROVIDE POWER TO 2-POST LIFT FROM 60A/2P CIRCUIT BREAKER IN DESIGNATED PANELBOARD. PROVIDE 60A DISCONNECT SWITCH MOUNTED ON WALL BESIDE PANEL AT 48" AFF AND ROUTE CIRCUITING (2-#4 AND 1#10 GROUND IN 1-1/2" CONDUIT) THROUGH DISCONNECT SWITCH, BELOW FLOOR SLAB TO LIFT MOTOR. PROVIDE SECOND 1-1/2" CONDUIT ROUTED BELOW FLOOR SLAB AND STUBBED AT MOTOR LOCATION AND AT 3" AFF BELOW DISCONNECT SWITCH FOR FUTURE USE. PROVIDE PULL STRING IN CONDUIT. COORDINATE EXACT LOCATIONS, FUSE SIZE, AND FINAL CONNECTION REQUIREMENTS WITH INSTALLING CONTRACTOR.
13 PROVIDE POWER TO 4-POST LIFT FROM 60A/2P CIRCUIT BREAKER IN DESIGNATED PANELBOARD. PROVIDE 60A DISCONNECT SWITCH MOUNTED ON WALL BESIDE PANEL AT 48" AFF AND ROUTE CIRCUITING (2-#4 AND 1#10 GROUND IN 1-1/2" CONDUIT) THROUGH DISCONNECT SWITCH, BELOW FLOOR SLAB TO LIFT MOTOR. PROVIDE SECOND 1-1/2" CONDUIT ROUTED BELOW FLOOR SLAB AND STUBBED AT MOTOR LOCATION AND AT 3" AFF BELOW DISCONNECT SWITCH FOR FUTURE USE. PROVIDE PULL STRING IN CONDUIT. COORDINATE EXACT LOCATIONS, FUSE SIZE, AND FINAL CONNECTION REQUIREMENTS WITH INSTALLING CONTRACTOR.
14 PROVIDE WALL-MOUNTED DOOR CHIME AND PUSHBUTTON KIT, HONEYWELL MODEL RCW110KB OR EQUIVALENT, FOR UPPER LEVEL. PROVIDE 4" SQUARE JUNCTION BOX MOUNTED ON WALL ABOVE THE ACCESSIBLE CEILING FOR DOOR CHIME TRANSFORMER AND PROVIDE POWER CONNECTION TO TRANSFORMER. MOUNT CHIME AT 6'-0" AFF ABOVE CORRIDOR SIDE OF DOOR. MOUNT PUSHBUTTON AT 4'-0" AFF BESIDE DOOR AT VESTIBULE SIDE. PROVIDE ALL ACCESSORIES AND WIRING AS REQUIRED FOR A COMPLETE INSTALLATION.
15 COORDINATE EXACT LOCATION OF ALL CORD REELS IN FIELD TO AVOID CONFLICTS WITH LIGHTING, HVAC, SPRINKLERS, ETC.
16 PROVIDE WEATHERPROOF FIRE ALARM DEVICE AT THIS LOCATION.
17 PROVIDE TWO-GANG JUNCTION BOX RECESSED IN WALL AT 18"AFF. PROVIDE SPEAKER CABLING FROM THIS LOCATION TO EACH OF THE TYPE 'R' SPEAKERS SHOWN IN BAY 119 AND WASH BAY 118 (TOTAL OF 6 RUNS). PROVIDE 6' COIL OF CABLING AT EACH END FOR FINAL TERMINATION BY OWNER'S TWO-WAY RADIO SYSTEM INSTALLER.
18 RECEPTACLE AND DATA JACK FOR GATHERING ROOM AV SYSTEM RACK. COORDINATE EXACT LOCATION IN FIELD. REFER TO DETAIL 1/E205 FOR ADDITIONAL INFORMATION.
19 PROVIDE POWER TO RECESSED PROJECTION SCREEN FROM DESIGNATED CIRCUIT. SCREEN TO BE CONTROLLED THROUGH AV SYSTEM CONTROL PANEL. REFER TO DETAIL 1/E205 FOR ADDITIONAL INFORMATION.
20 PROVIDE HOSPITAL-GRADE RECEPTACLE MOUNTED IN FACE OF CEILING TILE FOR POWER TO CEILING-MOUNTED PROJECTOR. SUPPORT RECEPTACLE FROM STRUCTURE ABOVE. REFER TO DETAIL 1/E205 FOR ADDITIONAL INFORMATION.
21 PROVIDE TWO-GANG JUNCTION BOX AT THIS LOCATION. PROVIDE MOBILE DEVICE STATION WITH DUPLEX RECEPTACLE, USB-A, USB-C, WIRELESS CHARGING, AND DEVICE HOLDER, HUBBELL/BRYANT USBB1528AC OR EQUAL.
22 PROVIDE POWER TO AV DEVICE FACEPLATE FROM SAME CIRCUIT FEEDING RECEPTACLE.
23 CIRCUIT RECEPTACLE DOWNSTREAM OF GFCI PROTECTION IN ADJACENT RECEPTACLE.
24 PROVIDE SPLIT SWITCHED RECEPTACLE UNDER SINK FOR POWER TO GARBAGE DISPOSAL AND DISHWASHER. PROVIDE A 12/2 SO TYPE CORD WITH 20A RATED PLUG CONNECTED TO GARBAGE DISPOSAL, FURNISHED BY PC, AND PLUG INTO TOP RECEPTACLE. PROVIDE SWITCH ABOVE COUNTER ADJACENT TO SINK TO CONTROL TOP RECEPTACLE AND LABEL SWITCH 'GARBAGE DISPOSAL'. BOTTOM RECEPTACLE SHALL BE UNSWITCHED FOR CONSTANT POWER TO DISHWASHER.
25 PROVIDE RECEPTACLES AND DATA JACK AT 48" AFF FOR CONNECTION TO LIGHTING CONTROL SYSTEM GATEWAY AND WIRELESS EXTERIOR LIGHTING CONTROLLER.
26 PROVIDE VHF/UHF CHANNELIZED DIGITAL REPEATER AND ASSOCIATED EQUIPMENT FOR BI-DIRECTIONAL AMPLIFICATION (BDA) SYSTEM. PROVIDE POWER FROM DESIGNATED CIRCUIT. PROVIDE BDA SYSTEM WITH ALL ASSOCIATED ANTENNAS, CABLING, COUPLERS, ETC. FOR FULL BUILDING COVERAGE IN ACCORDANCE WITH SPECIFICATION SECTION 26 1901 AND DETAIL 6/E204. PROVIDE OUTDOOR UHF YAGI ANTENNA MOUNTED ON EXTERIOR WALL. PROVIDE FIVE FIRE ALARM CONTROL MODULES FOR SYSTEM MONITORING.
27 LOCATION OF ANTENNA FOR LOCAL TWO-WAY RADIO SYSTEM ANTENNA BY OWNER'S VENDOR/INSTALLER. PROVIDE 1" CONDUIT SLEEVE THROUGH WALL (SLOPE CONDUIT TOWARDS THE OUTSIDE OF BUILDING) FOR CABLING BY OWNER'S VENDOR. PROVIDE #6AWG GROUND WIRE CONNECTED TO BUILDING COUNTERPOISE LOOP SHOWN ON SHEET E002 AT ANTENNA LOCATION FOR FINAL CONNECTION TO ANTENNA BY OWNER'S INSTALLER. COORDINATE EXACT LOCATIONS IN FIELD.
28 PROVIDE WALL-MOUNTED DOOR CHIME AND PUSHBUTTON KIT, HONEYWELL MODEL RCW110KB OR EQUIVALENT, FOR LOWER LEVEL. PROVIDE 4" SQUARE JUNCTION BOX MOUNTED ON WALL ABOVE THE ACCESSIBLE CEILING FOR DOOR CHIME TRANSFORMER AND PROVIDE POWER CONNECTION TO TRANSFORMER. MOUNT CHIME AT 8'-0" AFF IN BAY 119. MOUNT ASSOCIATED PUSHBUTTONS AT 4'-0" AFF BESIDE MAN DOORS INTO BAY 119. PROVIDE ALL ACCESSORIES AND WIRING AS REQUIRED FOR A COMPLETE INSTALLATION.

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Project Number: 2024077

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — STEFFANIE EAKO — 10/07/2025

REVISIONS		
3	10/27/2025	Addendum 3
4	10/31/2025	Addendum 4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA 15057
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT 3680 OLD OAKDALE RD
MCDONALD, PA 15057

POWER, FIRE ALARM, AV & DATA ROUGH-IN PLANS

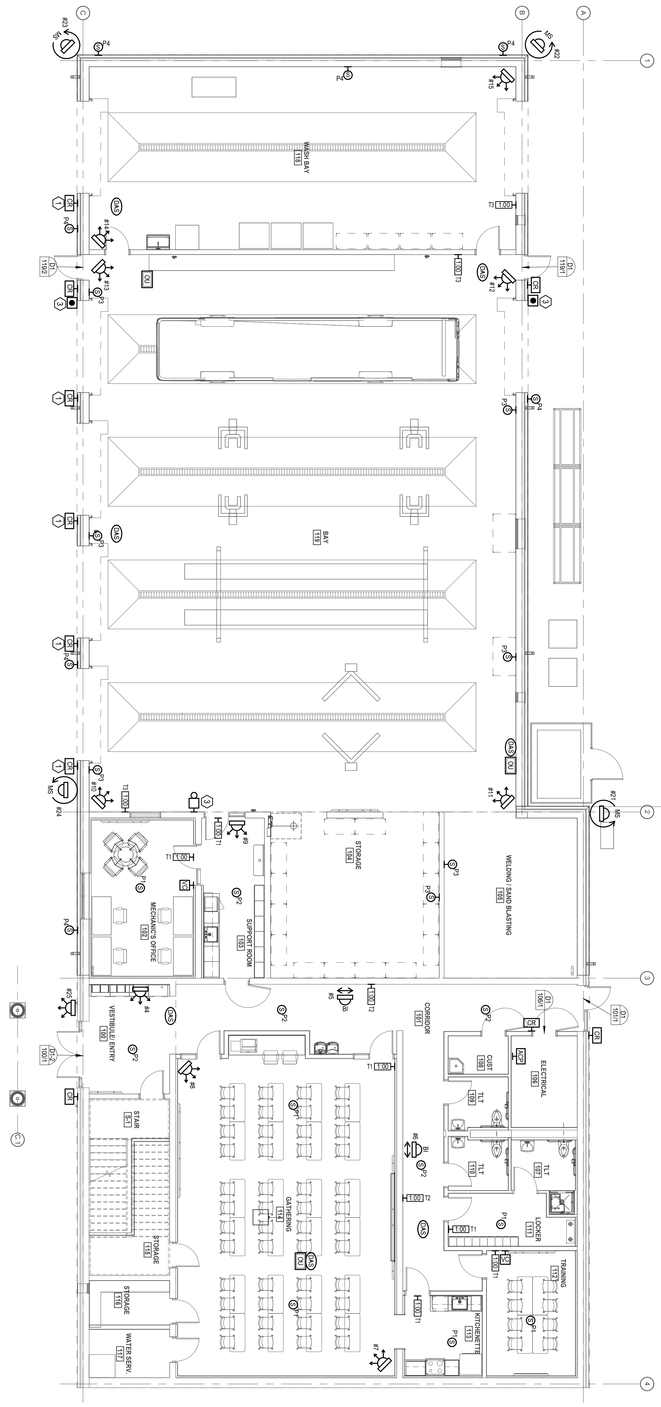
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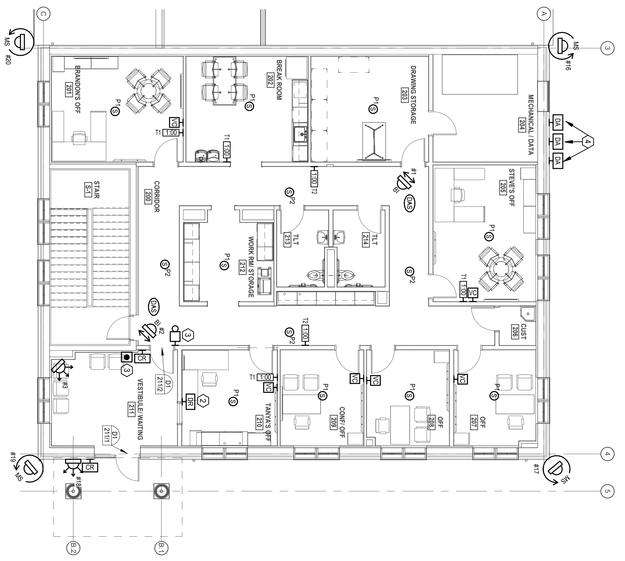
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1 E202 LOWER LEVEL - TECHNOLOGY PLAN
SCALE: 1/8" = 1'-0"



2 E202 UPPER LEVEL - TECHNOLOGY PLAN
SCALE: 1/8" = 1'-0"



GENERAL NOTES - PAGING, SECURITY, & CELLULAR ANTENNA PLANS

A. REFER TO SITE PLAN ON SHEET E001 FOR ADDITIONAL ACCESS CONTROL AND CAMERA REQUIREMENTS.
B. REFER TO DETAILS 3/E206, 3/E206, AND 4/E206 FOR CAMERA INSTALLATION REQUIREMENTS.
C. PROVIDE CONDUIT AND CABLING FOR CELLULAR ANTENNA SYSTEM AS SHOWN ON THIS SHEET. FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE SCHEDULE 80 PVC, LIQUIDTIGHT

CODED NOTES - SHEET E202

1 CARD READER FOR CONTROL OF ELECTRIC COILING DOOR. PROVIDE CONNECTION TO MOTOR CONTROLLER AND TO ACCESS CONTROL SYSTEM AS REQUIRED. COORDINATION OF DOOR CONTROLLER WITH DOOR INSTALLER.
2 PROVIDE DOOR RELEASE BUTTON, SECURITRON MODEL RBE/AR, MOUNTED ABOVE THE DOOR FRAME. COORDINATE WITH DOOR INSTALLER. ROUTE CONDUIT AND CABLING BACK TO ACCESS CONTROL PANEL IN ELECTRICAL 100 AND PROVIDE ASSOCIATED CABLING
3 DOORBELL SYSTEM AS DESCRIBED ON SHEET E001.
4 PROVIDE CELLULAR ANTENNA AT HIGHEST POINT AVAILABLE. COORDINATE EXACT LOCATION AND AIMING IN FIELD IN ORDER TO PROVIDE BEST AVAILABLE RECEPTION. REFER TO DETAIL 5/E206 FOR ADDITIONAL REQUIREMENTS.

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E202

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PAGING, SECURITY & CELLULAR ANTENNA PLANS

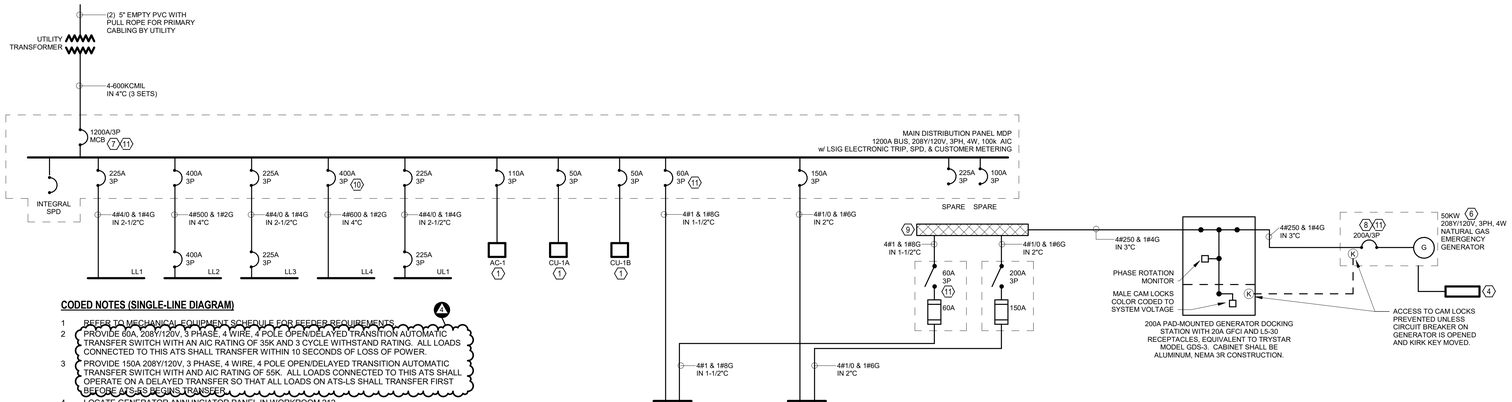
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4 10/31/2025 Addendum 4

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER T STEFFANIE BAKO 10/31/2025

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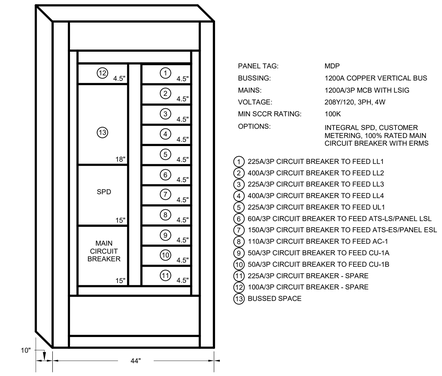
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CODED NOTES (SINGLE-LINE DIAGRAM)

1. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR FEEDER REQUIREMENTS.
2. PROVIDE 60A, 208Y/120V, 3 PHASE, 4 WIRE, 4 POLE OPEN/DELAYED TRANSITION AUTOMATIC TRANSFER SWITCH WITH AN AIC RATING OF 35K AND 3 CYCLE WITHSTAND RATING. ALL LOADS CONNECTED TO THIS ATS SHALL TRANSFER WITHIN 10 SECONDS OF LOSS OF POWER.
3. PROVIDE 150A 208Y/120V, 3 PHASE, 4 WIRE, 4 POLE OPEN/DELAYED TRANSITION AUTOMATIC TRANSFER SWITCH WITH AND AIC RATING OF 55K. ALL LOADS CONNECTED TO THIS ATS SHALL OPERATE ON A DELAYED TRANSFER SO THAT ALL LOADS ON ATS-LS SHALL TRANSFER FIRST BEFORE ATS-ES BEGINS TRANSFER.
4. LOCATE GENERATOR ANNUNCIATOR PANEL IN WORKROOM 212.
5. PROVIDE LOW VOLTAGE CONTROL WIRING IN 3/4" CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO EMERGENCY GENERATOR CONTROL PANEL FOR START-UP SIGNAL. COORDINATE CABLING REQUIREMENTS WITH EMERGENCY GENERATOR MANUFACTURER.
6. PROVIDE A BOND BETWEEN THE NEUTRAL AND GROUND BUS IN THE GENERATOR.
7. PROVIDE 100% RATED CIRCUIT BREAKER WITH LSIG PROTECTION AND ERMS.
8. PROVIDE CIRCUIT BREAKERS INTEGRAL TO GENERATOR AS SHOWN.
9. PROVIDE A 4'-0" X 8" X 8" WIREWAY ON WALL AT 18" AFF TO BOTTOM TO SPLICE INCOMING CONDUCTORS FROM GENERATOR FEEDING AUTOMATIC TRANSFER SWITCHES. SPLICE CONDUCTORS IN WIREWAY USING INSULATED MECHANICAL LUG KITS, BURNDY OR EQUIVALENT. ROUTE THE 3" RIGID METAL CONDUIT THROUGH WALL FROM GENERATOR DOCKING STATION CABINET INTO VERTICAL WIREWAY TO ROUTE CONDUCTORS.
10. PROVIDE 100% RATED CIRCUIT BREAKER.
11. ALL BREAKERS, FUSES, ETC. IN THE LIFE SAFETY EMERGENCY BRANCH ARE REQUIRED TO SELECTIVELY COORDINATE IN ACCORDANCE WITH NFPA 99. PROVIDE ELECTRONIC TRIP BREAKER(S) IF REQUIRED TO MEET SELECTIVE COORDINATION REQUIREMENTS.

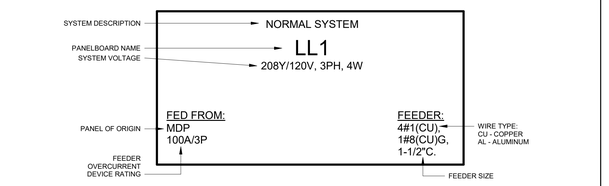
1 SINGLE-LINE DIAGRAM
NOT TO SCALE



PANEL TAG: MDP
BUSSING: 1200A COPPER VERTICAL BUS
MAINS: 1200A/3P MCB WITH LSIG
VOLTAGE: 208Y/120, 3PH, 4W
MIN SCCR RATING: 100K
OPTIONS: INTEGRAL SPD, CUSTOMER METERING, 100% RATED MAIN CIRCUIT BREAKER WITH ERMS

1. 225A/3P CIRCUIT BREAKER TO FEED LL1
2. 400A/3P CIRCUIT BREAKER TO FEED LL2
3. 225A/3P CIRCUIT BREAKER TO FEED LL3
4. 400A/3P CIRCUIT BREAKER TO FEED LL4
5. 225A/3P CIRCUIT BREAKER TO FEED UL1
6. 60A/3P CIRCUIT BREAKER TO FEED ATS-LS/PANEL LSL
7. 150A/3P CIRCUIT BREAKER TO FEED ATS-ES/PANEL ESL
8. 110A/3P CIRCUIT BREAKER TO FEED AC-1
9. 50A/3P CIRCUIT BREAKER TO FEED CU-1A
10. 50A/3P CIRCUIT BREAKER TO FEED CU-1B
11. 225A/3P CIRCUIT BREAKER - SPARE
12. 100A/3P CIRCUIT BREAKER - SPARE
13. BUSSED SPACE

3 DISTRIBUTION PANEL MDP FRONT ELEVATION
NOT TO SCALE



NOTES:
A. NAMEPLATE SHALL BE 5" WIDE BY 2-1/2" HIGH.
B. 'EQUIPMENT NAME' SHALL BE 1/4" TALL.
C. ALL OTHER TEXT SHALL BE 1/8" TALL
D. WHERE PANELBOARD IS LOCATED IN AN ELECTRICAL/MECHANICAL ROOM, INSTALL NAMEPLATE ON FACE OF PANELBOARD AND SECURE NAMEPLATE TO EQUIPMENT WITH TWO SHEET METAL SCREWS.
E. WHERE PANELBOARD IS LOCATED IN AN OCCUPIED SPACE OR CORRIDOR, INSTALL NAMEPLATE ON INSIDE OF DOOR AND SECURE NAMEPLATE TO EQUIPMENT WITH DOUBLE-SIDED TAPE. PROVIDE SECOND NAMEPLATE ON FACE OF PANELBOARD WITH PANELBOARD NAME ONLY SECURED WITH TWO METAL SCREWS. SECOND NAMEPLATE SHALL BE 3/4" HIGH WITH 1/2" TALL TEXT.

2 NAMEPLATE DETAIL - PANELBOARDS
NOT TO SCALE

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 225A COPPER
SIZE/TYPE MAIN: 225 A MLO

PANEL TAG: LL1
LOCATION: ELECTRICAL 106
FED FROM: MDP

MIN. SCCR: 55K
MOUNTING: SURFACE
OPTIONS: INTEGRAL SPD

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
LIGHTING TRAINING 112	20 A	1	1	923 / 900			2	1	20 A	RECEPTACLES - ELECTRICAL 106
LIGHTING - SITE SIGN AND FLAGPOLE	20 A	1	3		262 / 900		4	1	20 A	RECEPTACLES - LOCKER 111
SPARE	20 A	1	5			0 / 1440	6	1	20 A	RECEPTACLES - TRAINING 112
SPARE	20 A	1	7	0 / 360			8	1	20 A	AC RECEPTACLES - KITCHENETTE 113
SPARE	20 A	2	9		0 / 860		10	1	20 A	AC RECEPTACLES, HOOD - KITCHENETTE 113
			11			0 / 4250	12	2	50 A	OVEN/RANGE- KITCHENETTE 113
VAV-11 - CORRIDOR 101	20 A	1	13	1000 / 4250			14			
VAV-12 - LOCKER 111	20 A	1	15		1000 / 1500		16	1	20 A	DISPOSAL, DISHWASHER - KITCHENETTE 113
VAV-13 - KITCHENETTE 113	30 A	1	17			2500 / 1080	18	1	20 A	RECEPTACLES - CORRIDOR 101
VAV-14 - GATHERING 114	30 A	2	19	2000 / 500			20	1	20 A	EWC - CORRIDOR 101
			21		2000 / 900		22	1	20 A	RECEPTACLES - GATHERING 114
EWH-1 - CORRIDOR 101	30 A	2	23			2000 / 900	24	1	20 A	RECEPTACLES - GATHERING 114
			25	2000 / 360			26	1	20 A	AC RECEPTACLES - GATHERING 114
ECUH-1 - VESTIBULE/ ENTRY 100	30 A	2	27		2000 / 1000		28	1	20 A	PROJECTOR - GATHERING 114
			29			2000 / 700	30	1	20 A	PROJECTION SCREEN - GATHERING 114
ERCP-9, ERCP-10, EF-8 - STOR, WATER SERV	20 A	1	31	1546 / 1000			32	1	20 A	AV RACK - STORAGE 115
EWH-2 - WATER SERV. 117	20 A	1	33		1500 / 540		34	1	20 A	RECEPTACLES - STORAGE 115 - 117
SPARE	20 A	1	35			0 / 500	36	1	20 A	GENERATOR BATTERY CHARGER
SPARE	20 A	1	37	0 / 750			38	2	20 A	GENERATOR COOLANT HEATER
SPARE	20 A	1	39		0 / 750		40			
SPARE	20 A	1	41			0 / 500	42	1	20 A	GENERATOR ENCLOSURE LOUVERS
SPARE	20 A	1	43	0 / 1000			44	1	20 A	DOCKING STATION RECEPTACLE
SPARE	20 A	1	45		0 / 2000		46	1	30 A	DOCKING STATION RECEPTACLE 30A
SPARE	20 A	1	47			0 / 0	48	1	20 A	SPARE
SPARE	20 A	1	49	0 / 0			50	1	20 A	SPARE
SPARE	20 A	1	51		0 / 0		52	1	20 A	SPARE
SPARE	30 A	1	53			0 / 0	54	1	20 A	SPARE
				CONNECTED LOAD	16589 VA	15212 VA	15870 VA	TOTAL (KW)		47671 VA
							TOTAL CONNECTED LOAD (AMPS)			132 A

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 400A COPPER
SIZE/TYPE MAIN: 400 A MCB

PANEL TAG: LL2
LOCATION: BAY 119
FED FROM: MDP

MIN. SCCR: 35K
MOUNTING: SURFACE
OPTIONS: INTEGRAL SPD

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
LIGHTING BAY 119	20 A	1	1	924 / 360			2	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
LIGHTING WELDING / SAND BLASTING 105	20 A	1	3		549 / 360		4	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
SPARE	20 A	1	5			0 / 360	6	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
4-POST BUS LIFT - BAY 119	60 A	2	7	2925 / 360			8	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
			9		2925 / 360		10	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
2-POST VAN LIFT - BAY 119	60 A	2	11			2880 / 360	12	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
			13	2880 / 360			14	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
WELDER (SOUTH) - BAY 119	50 A	2	15		4000 / 360		16	1	20 A	RECEPTACLES - WELDING / SAND BLASTING 105
			17			4000 / 4000	18			
WELDER (SOUTHEAST) - BAY 119	50 A	2	19	4000 / 4000			20	2	50 A	WELDER - WELDING / SAND BLASTING 105
			21		4000 / 180		22	1	20 A	FLOORBOX - STORAGE 104
WELDER (NORTHEAST) - BAY 119	50 A	2	23			4000 / 180	24	1	20 A	FLOORBOX - STORAGE 104
			25	4000 / 360			26	1	20 A	AC RECEPTACLES - SUPPORT ROOM 103
SPARE	50 A	2	27		0 / 360		28	1	20 A	AC RECEPTACLES - SUPPORT ROOM 103
			29			0 / 900	30	1	20 A	RECEPTACLES - MECHANIC'S OFFICE 102
SPARE	30 A	1	31	0 / 1080			32	1	20 A	RECEPTACLES - MECHANIC'S OFFICE 102
SPARE	30 A	1	33		0 / 720		34	1	20 A	RECEPTACLES (SOUTH) - BAY 119
SPARE	30 A	1	35			0 / 820	36	1	20 A	RECEPTACLES (SOUTHEAST) - BAY 119
VAV-15 - SUPPORT ROOM 103	20 A	2	37	1500 / 360			38	1	20 A	RECEPTACLES (NORTH) - BAY 119
			39		1500 / 720		40	1	20 A	RECEPTACLES (NORTH) - BAY 119
ERCP-1, ERCP-2 - SHOP 104	20 A	1	41			1500 / 360	42	1	20 A	CORD REELS - BAY 119
EUH-1 - WELDING / SAND BLASTING 105	20 A	2	43	1500 / 1200			44	1	20 A	GARAGE DOOR OPENER (BAY 3) - BAY 119
			45		1500 / 1200		46	1	20 A	GARAGE DOOR OPENER (BAY 4) - BAY 119
EF-4, EF-5 - WELDING / SAND BLASTING 105	20 A	1	47			730 / 360	48	1	20 A	RECEPTACLES - EXTERIOR NORTHEAST
AD-1 - BAY 119	30 A	1	49	850 / 360			50	1	20 A	RECEPTACLES - EXTERIOR SOUTHEAST
SPARE	20 A	2	51		0 / 700		52	1	20 A	AIR COMPRESSOR ENCLOSURE
			53			0 / 0	54	1	20 A	SPARE
SPARE	20 A	3	55	0 / 0			56	1	20 A	SPARE
			57		0 / 0		58	1	20 A	SPARE
			59			0 / 0	60	1	20 A	SPARE
SPARE	20 A	1	61	0 / 0			62	1	20 A	SPARE
SPARE	20 A	1	63		0 / 0		64	1	20 A	SPARE
SPARE	20 A	1	65			0 / 0	66	1	20 A	SPARE
SPARE	20 A	1	67	0 / 0			68	1	20 A	SPARE
SPARE	20 A	1	69		0 / 0		70	1	20 A	SPARE
SPARE	20 A	1	71			0 / 0	72	1	20 A	SPARE
				CONNECTED LOAD	27019 VA	19434 VA	20450 VA	TOTAL (KW)		66903 VA
							TOTAL CONNECTED LOAD (AMPS)			186 A

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 225A COPPER
SIZE/TYPE MAIN: 225 A MCB

PANEL TAG: LL3
LOCATION: BAY 119
FED FROM: MDP

MIN. SCCR: 22K
MOUNTING: SURFACE
OPTIONS: INTEGRAL SPD

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
LIGHTING BUS WASH 118	20 A	1	1	1480 / 720			2	1	20 A	RECEPTACLES (NORTHWEST) - BAY 119
SPARE	20 A	1	3		0 / 720		4	1	20 A	RECEPTACLES (WEST) - BAY 119
SPARE	20 A	1	5			0 / 360	6	1	20 A	RECEPTACLES (WEST) - BAY 119
WELDER (SOUTHWEST) - BAY 119	50 A	2	7	4000 / 720			8	1	20 A	RECEPTACLES (WEST) - BAY 119
			9		4000 / 360		10	1	20 A	CORD REELS (BAY 1) - BAY 119
WELDER (NORTHWEST) - BAY 119	50 A	2	11			4000 / 360	12	1	20 A	CORD REELS (BAY 2) - BAY 119
			13	4000 / 1200			14	1	20 A	GARAGE DOOR OPENER (BAY 2) - BAY 119
SPARE	30 A	1	15		0 / 500		16	1	20 A	WASHING MACHINE - BAY 119
SPARE	30 A	1	17			0 / 2800	18	2	30 A	ELECTRIC DRYER - BAY 119
HWPH-1 - WASH BAY 118	60 A	3	19	3867 / 2800			20			
			21		3867 / 720		22	1	20 A	RECEPTACLES - BUS WASH 118
			23			3867 / 720	24	1	20 A	RECEPTACLES - BUS WASH 118
MAU-1 BAY 119	20 A	3	25	467 / 1080			26	1	20 A	RECEPTACLES - BUS WASH 118
			27		467 / 1080		28	1	20 A	RECEPTACLES - BUS WASH 118
			29			467 / 1200	30	1	20 A	GARAGE DOOR (FRONT) - BUS WASH 118
EF-3 BAY 119	15 A	2	31	900 / 1200			32	1	20 A	GARAGE DOOR (REAR) - BUS WASH 118
			33		900 / 540		34	1	20 A	RECEPTACLES - EXTERIOR NORTHWEST
EF-1, EF-2 - WASH BAY 118	20 A	1	35			730 / 360	36	1	20 A	RECEPTACLES - EXTERIOR SOUTHWEST
SPARE	20 A	1	37	0 / 500			38	1	20 A	FUELING STATION DISPENSER - GAS
SPARE	20 A	1	39		0 / 750		40	2	20 A	FUELING STATION SUBMERSIBLE PUMP - GAS
SPARE	20 A	1	41			0 / 750	42			
SPARE	20 A	1	43	0 / 500			44	1	20 A	FUELING STATION DISPENSER - DIESEL
SPARE	20 A	1	45		0 / 750		46	2	20 A	FUELING STATION SUBMERSIBLE PUMP - DIESEL
SPARE	20 A	1	47			0 / 750	48			
SPARE	20 A	1	49	0 / 0			50	1	20 A	SPARE
SPARE	20 A	1	51		0 / 0		52	1	20 A	SPARE
SPARE	20 A	1	53			0 / 0	54	1	20 A	SPARE
				CONNECTED LOAD	23433 VA	14653 VA	16363 VA	TOTAL (KW)		54450 VA
							TOTAL CONNECTED LOAD (AMPS)			151 A

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 400A COPPER
SIZE/TYPE MAIN: 400 A MLO

PANEL TAG: LL4
LOCATION: BAY 119
FED FROM: MDP

MIN. SCCR: 35K
MOUNTING: SURFACE
OPTIONS:

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
			1	9000 / 12000			2			
BUS CHARGING PEDESTALS	125 A	2	3		9000 / 12000		4	2	125 A	BUS CHARGING PEDESTALS
			5			9000 / 12000	6			
BUS CHARGING PEDESTALS	125 A	2	7	9000 / 12000			8	2	125 A	BUS CHARGING PEDESTALS
			9		9000 / 0		10			
BUS CHARGING PEDESTALS	125 A	2	11			9000 / 0	12	2	125 A	SPARE
			13	12000 / 0			14			
BUS CHARGING PEDESTALS	125 A	2	15		12000 / 0		16	2	20 A	SPARE
SPARE	20 A	1	17			0 / 0	18			
SPARE	20 A	1	19	0 / 0			20	2	20 A	SPARE
SPARE	20 A	1	21		0 / 0		22	1	--	SPACE
SPARE	20 A	1	23			0 / 0	24	1	--	SPACE
SPARE	20 A	1	25	0 / 0			26	1	--	SPACE
SPARE	20 A	1	27		0 / 0		28	1	--	SPACE
SPARE	20 A	1	29			0 / 0	30	1	--	SPACE
SPARE	20 A	1	31	0 / 0			32	1	--	SPACE
SPARE	20 A	1	33		0 / 0		34	1	--	SPACE
SPARE	20 A	1	35			0 / 0	36	1	--	SPACE
SPARE	20 A	1	37	0 / 0			38	1	--	SPACE
SPARE	20 A	1	39		0 / 0		40	1	--	SPACE
SPARE	20 A	1	41			0 / 0	42	1	--	SPACE
				CONNECTED LOAD	54000 VA	42000 VA	30000 VA	TOTAL (KW)		126000 VA
							TOTAL CONNECTED LOAD (AMPS)			350 A

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 100A COPPER
SIZE/TYPE MAIN: 60 A MCB

PANEL TAG: LSL
LOCATION: MECHANICAL / DATA 204
FED FROM: MDP

MIN. SCCR: 35K
MOUNTING: SURFACE
OPTIONS: INTEGRAL SPD

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
EMERGENCY LIGHTING - UPPER LEVEL	20 A	1	1	1028 / 787			2	1	20 A	EMERGENCY LIGHTING - LOWER LEVEL
EMERGENCY LIGHTING - EXTERIOR EXT	20 A	1	3		381 / 480		4	1	20 A	EMERGENCY LIGHTING - BUS WASH
FIRE ALARM PANEL - MECHANICAL / DATA 204	20 A	1	5			1000 / 924	6	1	20 A	EMERGENCY LIGHTING - BAY 119
CELL DIALER - MECHANICAL / DATA 204	20 A	1	7	1000 / 826			8	1	20 A	EMERGENCY LIGHTING - BAY 119, WORK AREAS
EMERGENCY RADIO SYSTEM - MECH / DATA 204	20 A	1	9		1000 / 0		10	1	20 A	SPARE
SPARE	20 A	1	11			0 / 0	12	1	20 A	SPARE
SPACE	--	1	13	0 / 0			14	1	--	SPACE
SPACE	--	1	15		0 / 0		16	1	--	SPACE
SPACE	--	1	17			0 / 0	18	1	--	SPACE
				CONNECTED LOAD	3641 VA	1861 VA	1924 VA	TOTAL (KW)		7426 VA
							TOTAL CONNECTED LOAD (AMPS)			21 A

PANELBOARD SCHEDULE

VOLTAGE: 120/208 Wye, 3PH, 4W
SIZE/TYPE BUSSING: 225A COPPER
SIZE/TYPE MAIN: 150 A MCB

PANEL TAG: ESL
LOCATION: ELECTRICAL 106
FED FROM: MDP

MIN. SCCR: 42K
MOUNTING: SURFACE
OPTIONS: INTEGRAL SPD

LOAD DESCRIPTION	RATING	NO. OF POLES	POS. NO.	A (VA)	B (VA)	C (VA)	POS. NO.	NO. OF POLES	RATING	LOAD DESCRIPTION
TTB RECEPTACLE - ELECTRICAL 106	20 A	1	1	360 / 900			2	1	20 A	RECEPTACLES - TANYA'S OFFICE 210
TTB RECEPTACLE - ELECTRICAL 106	20 A	1	3		360 / 720		4	1	20 A	RECEPTACLES - OFFICE 209
ACCESS CONTROL PANEL ELECTRICAL 106	20 A	1	5			500 / 720	6	1	20 A	RECEPTACLES - CONF/ OFFICE 208
RECEPTACLES, REFRIG. - KITCHENETTE 113	20 A	1	7	360 / 720			8	1	20 A	RECEPTACLES - OFFICE 207
AC RECEPTACLES - GATHERING 114	20 A	1	9		360 / 900		10	1	20 A	RECEPTACLES - STEVE'S OFFICE 205
RECEPTACLES - BAY 119	20 A	1	11			720 / 1080	12	1	20 A	RECEPTACLES - BRANDON'S OFFICE 201
RECEPTACLES - BAY 119	20 A	1	13	720 / 360			14	1	20 A	RECEPTACLES - BREAK RM 202, WORK RM 212
RECEPTACLES - BAY 119	20 A	1	15		720 / 180		16	1	20 A	COPIER - WORK RM/ STORAGE 212
GARAGE DOOR (BAY 1 FRONT) - BAY 119	20 A	1	17			1200 / 360	18	1	20 A	AC RECEPTACLES - CORRIDOR 200
GARAGE DOOR (BAY 1 REAR) - BAY 119	20 A	1	19	1200 / 360			20	1	20 A	RECEPTACLES, REFRIG. - BREAK ROOM 202
RECEPTACLE, REFRIG. - SUPPORT ROOM 103	20 A	1	21		360 / 2500		22			
RECEPTACLES - MECHANIC'S OFFICE 102	20 A	1	23			720 / 2500	24	3	30 A	AHU-1 MECHANICAL / DATA 204
RECEPTACLES - MECHANIC'S OFFICE 102	20 A	1	25	360 / 2500			26			
SFC-1 / CU-2 - ELECTRICAL 106	20 A	2	27		1425 / 1200		28	1	20 A	SITE GATE - EXTERIOR
			29			1425 / 1200	30	1	20 A	SITE GATE - EXTERIOR
DWH-1, RP-1 - WATER SERV. 117	20 A	1	31	900 / 373			32	2	20 A	LIGHTING - EXTERIOR ENTRY DRIVE
DWH-2, RP-2 - WASH BAY 118	20 A	1	33		900 / 373		34			
GIH-1, GIH-2, GIH-3, GIH-4 - BAY 119	20 A	1	35			300 / 420	36	2	20 A	LIGHTING - EXTERIOR ENTRY DRIVE
GIH-5, GIH-6 - BAY 119	20 A	1	37	100 / 420			38			
VP-1 - BAY 119	20 A	3	39		300 / 553		40	2	20 A	LIGHTING - EXTERIOR FUEL PUMPS
			41			300 / 553	42			
			43	300 / 736			44	2	20 A	LIGHTING EXTERIOR BUS LOT
SPARE CIRCUIT FOR BAS CONTROLLER	20 A	1	45		0 / 736		46			
SPARE CIRCUIT FOR BAS CONTROLLER	20 A	1	47			0 / 552	48	2	20 A	LIGHTING EXTERIOR BUS LOT
SPARE	20 A	1	49	0 / 552			50			
SPARE	20 A	1	51		0 / 462		52	2	20 A	LIGHTING EXTERIOR BUS LOT
SPARE	20 A	1	53			0 / 462	54			
SPARE	20 A	1	55	0 / 180			56	1	20 A	LIGHTING CONTROL GATEWAY - MECH/DATA 204
SPARE	20 A	1	57		0 / 180		58	1	20 A	WIRELESS LTG CONTROL - MECH/DATA 204
SPARE	20 A	1	59			0 / 0	60	1	--	SPACE
SPARE	20 A	1	61	0 / 0			62	1	--	SPACE
SPARE	20 A	1	63		0 / 0		64	1	--	SPACE
SPARE	20 A	1	65			0 / 0	66	1	--	SPACE
SPARE	20 A	1	67	0 / 0			68	1	--	SPACE
SPARE	20 A	1	69		0 / 0		70	1	--	SPACE
SPARE	20 A	1	71			0 / 0	72	1	--	SPACE
				CONNECTED LOAD	11401 VA	12228 VA	13012 VA	TOTAL (KW)		36640 VA
							TOTAL CONNECTED LOAD (AMPS)			102 A

DRAW COLLECTIVE
470 Washington Road, Pittsburgh, PA 15228
412.561.7117 www.DRAWcollective.com

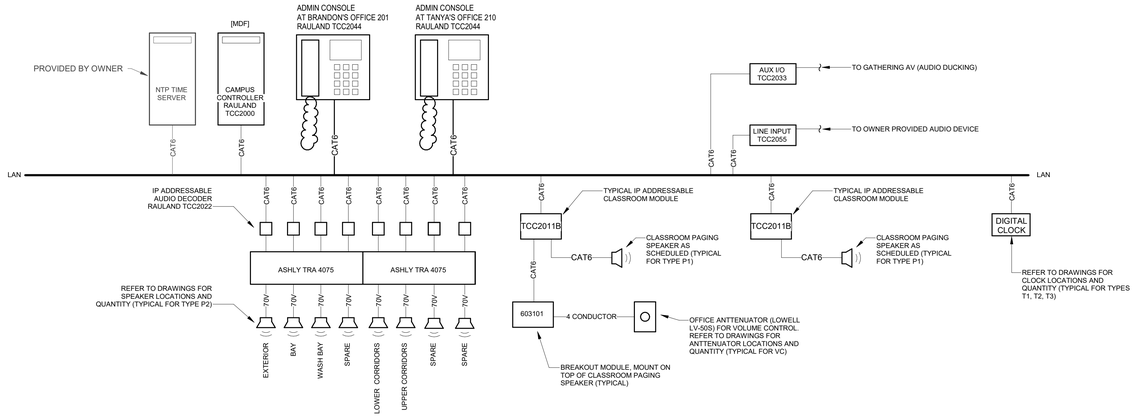
TOWER ENGINEERING
115 Evergreen Heights Drive, Suite 400, Pittsburgh, Pennsylvania 15229
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Project Number: 2024077

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL ENGINEER T. STEFFANIE BAKO 079722 EXPIRES: 09/30/2025

REVISIONS		
4	10/31/2025	Addendum 4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA 15057 3680 OLD OAKDALE RD
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT
MCDONALD, PA 15057



GENERAL NOTES: (THIS DETAIL)

A. THIS RISER IS A REPRESENTATION AND IS NOT INTENDED FOR INSTALLATION. SYSTEM SUPPLIER SHALL PROVIDE INSTALLATION DRAWINGS AND WIRING DIAGRAMS TO SHOW THE EXACT SYSTEM REQUIREMENTS.

B. SYSTEM SUPPLIER SHALL SUPERVISE INSTALLATION, PROGRAM AND TEST SYSTEM AND INSTRUCT OWNER ON SYSTEM OPERATION.

C. ALL WIRING SHALL BE VERIFIED WITH THE SYSTEM SUPPLIER PRIOR TO BID AND SHALL BE PLENUM RATED CABLE.

D. ALL CONTROL CABINETS SHALL BE GROUNDED PER N.E.C. REQUIREMENTS AND PER SPECIFICATIONS.

E. REFER TO SPECIFICATION 275120 FOR ADDITIONAL DETAILS AND REQUIREMENTS.

F. PROVIDE A DRY CONTACT SIGNAL FROM THE ACCESS CONTROL SYSTEM TO THE PAGING SYSTEM.

G. PROVIDE EQUIPMENT, MISCELLANIOUS CABLING AND PROGRAMMING REQUIRED TO TIE THE CONDUCTOR PAGING SYSTEM INTO THE OWNER'S PHONE SYSTEM. THIS COMMUNICATION SHALL BE ONE WAY AND WILL ALLOW AN ALL PAGE TO BE MADE FROM ANY PHONE, GIVEN THE PROPER CREDENTIALS ARE PROVIDED.

H. ALL DEVICES IN MDF AND IDF'S SHALL BE CONNECTED TO UPS POWER. ALL DEVICES INSTALLED W/O UPS POWER THROUGHOUT THE BUIDLING SHALL UTALIZE A POE EXTRACTOR TO PROVIDE UNINTERUPTED POWER.

I. REFER TO AV DETAILS FOR ADDITIONAL CONNECTION REQUIREMENTS BETWEEN PAGING SYSTEM AND AV SYSTEMS.

OPERATIONAL NOTES: (THIS DETAIL)

A. REFER TO SPECIFICATION 275120 FOR ADDITIONAL DETAILS AND REQUIREMENTS.

② PAGING & EMERGENCY NOTIFICATION SYSTEM (RAULAND TCU)
NOT TO SCALE

PROJECTOR SCHEDULE

TAG	BASIS OF DESIGN MODEL	BASIS OF DESIGN MFG	BRIGHTNESS (LUMENS)	RESOLUTION H	RESOLUTION V	ASPECT RATIO	CONTRAST RATIO	IMAGE SIZE	PROJECTION DISTANCE	PROJECTION SURFACE	LENS	MOUNTING NOTES
PRJ-1	PT-FRZ60U	PANASONIC	6000 lm	1920	1200	16:10	20,000:1	13' - 4"	16' - 6"	PRJS-1	Flexible 2.0x zoom lens (1.46 – 2.94:1) with V/H Lens-Shift	CEILING MOUNT

PROJECTOR SCREEN SCHEDULE

TAG	LOCATION NAME	LOCATION NUMBER	BASIS OF DESIGN MFG	BASIS OF DESIGN MODEL	IMAGE HEIGHT	IMAGE WIDTH	IMAGE DIAGONAL	DESCRIPTION
PRJS-A1	GATHERING	114	DRAPER	142032	88"	140"	165"	165" DIAGONAL 16:10 CEILING RECESSED PROJECTOR SCREEN WITH MATT WHITE XT1000E SURFACE MATERIAL

SPEAKER SCHEDULE

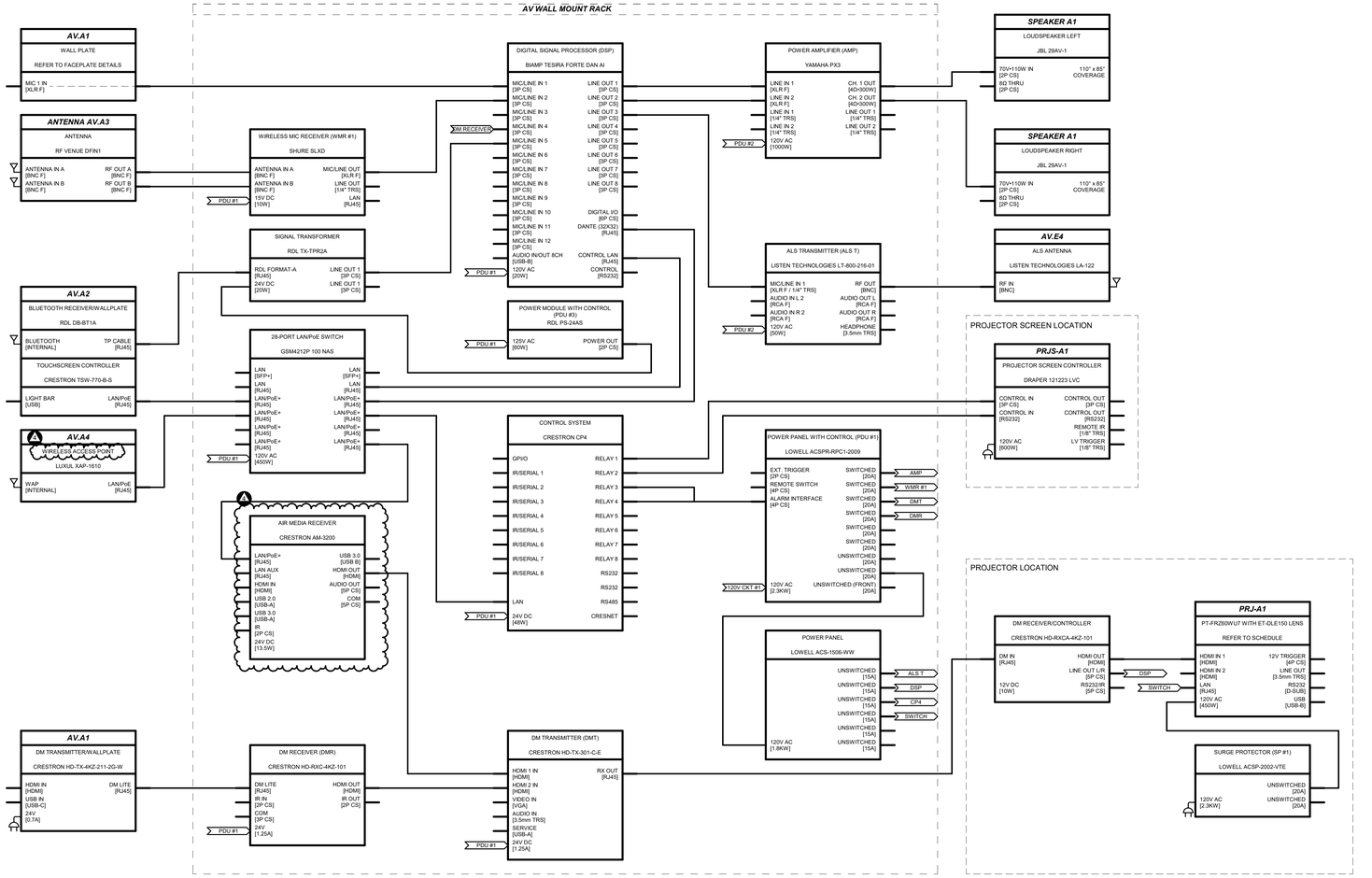
TAG	BASIS OF DESIGN MFG	BASIS OF DESIGN MODEL	DESCRIPTION
A1	JBL	CONTROL 29AV-1	GATHERING ROOM AV SPEAKER
P1	QUAM	BAFKIT1X2S8RJ	1X2 8 OHM DROP-IN SPEAKER WITH MOUNTING PLATE, RJ45, AND CLASSROOM IP MODULE
P2	QUAM	SYSTEM 5	1X2 DROP-IN CEILING SPEAKER WITH 25/70V TRANSFORMER
P3	QUAM	SYSTEM 2	PAGING 1-WAY 70V SPEAKER, SURFACE WALL MOUNT WITH IP MODULE
P4	QUAM	SYSTEM 6VPS	PAGING 1-WAY 70V SPEAKER, SURFACE WALL MOUNT, HORN WITH STAINLESS STEEL BACKBOX
R	N/A	N/A	LOCAL TWO-WAY RADIO SYSTEM AMPLIFICATION SPEAKER, FURNISHED AND INSTALLED BY OWNER

CLOCK SCHEDULE

TAG	MFG	MODEL	DESCRIPTION	TYPICAL LOCATION	MOUNT
T1	RAULAND	TCC3011S	SMALL, ONE LINE SIANGLE-FACE DIGITAL MESSAGE BOARD IN RECESSED MOUNTING BOX	OFFICE/ GATHERING	WALL
T2	RAULAND	(2)TCC3011S, TCC300DFM	TWO SMALL, ONE LINE DIGITAL MESSAGE BOARDS MOUNTED IN DUAL FACE MOUNTING BOX	CORRIDORS	WALL/CEILING
T3	RAULAND	TCC3012L	LARGE, TWO-LINE DIGITAL MESSAGE BOARD IN RECESSED MOUNTING BOX	BAY	WALL



③ WALLPLATES AND CONDUITS EC
NOT TO SCALE



① AV SYSTEM 'A' GATHERING ROOM
NOT TO SCALE

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL T. STEFFANIE BAKO ENGINEER 10/31/2025

REVISIONS
3 10/27/2025 Addendum 3
4 10/31/2025 Addendum 4

BIDDING SET

NEW DISTRICT MAINTENANCE & BUS DEPOT FACILITY
3600 OLD OAKDALE RD MCDONALD, PA 15057 3680 OLD OAKDALE RD
SOUTH FAYETTE TOWNSHIP SCHOOL DISTRICT
MCDONALD, PA 15057

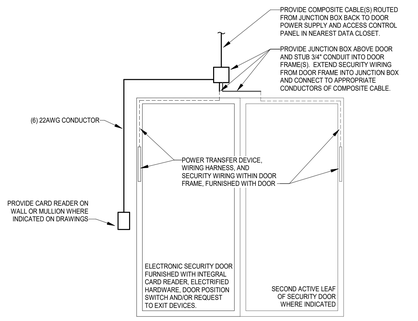
PAGING & AV DETAILS & SCHEDULES

Proj No. 24-S49-01B
Issue Date OCTOBER 1, 2025

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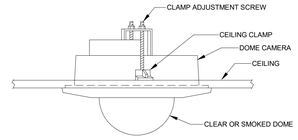


TYPICAL SECURITY DOOR WIRING DIAGRAM

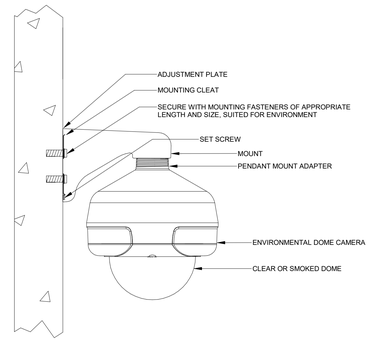
DOOR TYPE	FUNCTIONAL DESCRIPTION	INSTALLATION REQUIREMENTS
D1/D1-2	INTERIOR OR EXTERIOR DOOR WITH: • ELECTRIC STRIKE/ELECTRONIC LATCH RETRACTION • CARD READER (WHERE INDICATED) • DOOR POSITION SWITCH • REQUEST TO EXIT DEVICE • AUDIBLE ALARM (WHERE INDICATED)	PROVIDE COMPOSITE CABLE AND CONNECTION TO DOOR CONTACTS, CARD READER, AND ELECTRONICS PROVIDED WITH DOOR. REFER TO DRAWINGS FOR REMOTE RELEASE OF DOOR AND/OR PROGRAMMING REQUIREMENTS. REFER TO DRAWINGS FOR CARD READER LOCATIONS.

GENERAL NOTES:
A. FOR DOOR TYPES WITH DESIGNATION Dx-2, PROVIDE TWO COMPOSITE CABLES AND ASSOCIATED CONNECTIONS FOR TWO ACTIVE LEAVES.
B. UNLESS NOTED OTHERWISE ON DRAWINGS, DOORS SHALL BE NORMALLY LOCKED. DOORS SHALL BE UNLOCKED BASED ON TIME SCHEDULE, CARD READER.
C. COORDINATE PROGRAMMING OF ALL DEVICES WITH OWNER.
D. INSTALLING CONTRACTOR TO PARTICIPATE IN A COORDINATION MEETING WITH DOOR SUPPLIER AND DOOR HARDWARE SUPPLIER PRIOR TO START OF WORK.
E. COMPOSITE CABLES TO BE 16 CONDUCTOR (#18-3PAIR, #16-4C, #18-6C) SHIELDED, PLENUM RATED, ACCESS CONTROL CABLE.

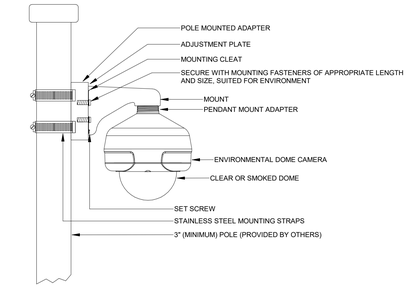
1 TYPICAL SECURITY DOOR DETAIL
NOT TO SCALE



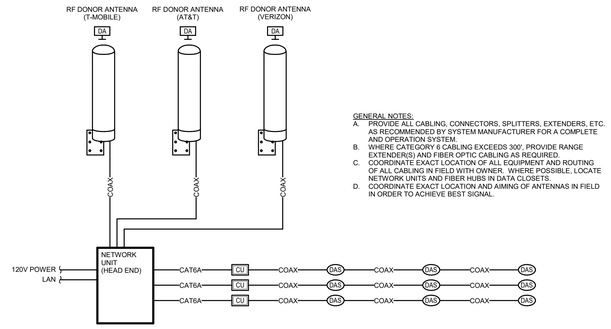
2 CAMERA MOUNT DETAIL - CEILING DOME
NOT TO SCALE



3 CAMERA MOUNT DETAIL - WALL DOME
NOT TO SCALE



4 CAMERA MOUNT DETAIL - POLE
NOT TO SCALE



GENERAL NOTES:
A. PROVIDE ALL CABLING, CONNECTORS, SPLITTERS, EXTENDERS, ETC. AS RECOMMENDED BY SYSTEM MANUFACTURER FOR A COMPLETE AND OPERATION SYSTEM.
B. WHERE CATEGORY 6 CABLING EXCEEDS 300', PROVIDE RANGE EXTENDER(S) AND FIBER OPTIC CABLING AS REQUIRED.
C. COORDINATE EXACT LOCATION OF ALL EQUIPMENT AND ROUTING OF ALL CABLING IN FIELD WITH OWNER. WHERE POSSIBLE, LOCATE NETWORK UNITS AND FIBER HUBS IN DATA CLOSETS.
D. COORDINATE EXACT LOCATION AND AIMING OF ANTENNAS IN FIELD IN ORDER TO ACHIEVE BEST SIGNAL.

5 CELLULAR DISTRIBUTED ANTENNA SYSTEM RISER DIAGRAM (CEL-FI QUATRA 2000)
NOT TO SCALE

CAMERA LOCATION SCHEDULE

CAMERA #	LOCATION NAME	LOCATION NUMBER	MANUFACTURER	MODEL	DESCRIPTION	MOUNTING NOTES
1	CORRIDOR	200	AVIGILON	10.0C-H5DH-D01-IR	BI-DIRECTIONAL, WDR, HALLWAY MODE, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
2	CORRIDOR	200	AVIGILON	10.0C-H5DH-D01-IR	BI-DIRECTIONAL, WDR, HALLWAY MODE, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
3	VESTIBULE/ WAITING	211	AVIGILON	4.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
4	VESTIBULE/ ENTRY	100	AVIGILON	4.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
5	CORRIDOR	101	AVIGILON	10.0C-H5DH-D01-IR	BI-DIRECTIONAL, WDR, HALLWAY MODE, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
6	CORRIDOR	101	AVIGILON	10.0C-H5DH-D01-IR	BI-DIRECTIONAL, WDR, HALLWAY MODE, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
7	GATHERING	114	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
8	GATHERING	114	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
9	SUPPORT ROOM	103	AVIGILON	4.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	MOUNT IN CEILING, REFER TO DETAIL 2/3206
10	BAY	119	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
11	BAY	119	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
12	BAY	119	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
13	BAY	119	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
14	BUS WASH	118	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
15	BUS WASH	118	AVIGILON	8.0-H6A-D1-IR	INTERIOR, WDR, FIXED LENS	WALL MOUNT, REFER TO DETAIL 3/E206
16	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
17	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
18	EXTERIOR	EXT	AVIGILON	8.0C-H6A-DO1-IR	8.0 MEGA-PIXEL OUTDOOR	WALL MOUNT, REFER TO DETAIL 3/E206
19	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
20	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
21	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
22	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
23	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
24	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS WITH IR RING, WALL MOUNT, AND CORNER MOUNT	WALL MOUNT, REFER TO DETAIL 3/E206
25	EXTERIOR	EXT	AVIGILON	8.0C-H6A-DO1-IR	8.0 MEGA-PIXEL OUTDOOR	WALL MOUNT, REFER TO DETAIL 3/E206
26	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS	POLE MOUNT, REFER TO DETAIL 4/E206
27	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS	POLE MOUNT, REFER TO DETAIL 4/E206
28	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS	POLE MOUNT, REFER TO DETAIL 4/E206
29	EXTERIOR	EXT	AVIGILON	24C-H5A-3MH-DP1	MULTISENSOR, WDR, IK10, IP66, AI ANALYTICS	POLE MOUNT, REFER TO DETAIL 4/E206

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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL ENGINEER
T. STEFFANIE EKAO
ENGINEER
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MCDONALD, PA 15057

SECURITY & CELLULAR ANTENNA SYSTEM DETAILS & SCHEDULES

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