ALLEGHENY COUNTY SANITARY AUTHORITY

December 15, 2020

CONTRACT NO. 1729 G, E, H, P

EAST HEADWORKS

ADDENDUM NO. 1

All bidders bidding Contract No. 1729 G, E, H, P shall read and take note of this Addendum No. 1. The Contract Documents for **Contract No. 1729 G, E, H, P – East Headworks** are hereby revised and/or clarified as stated below.

Acknowledgement of Contract No. 1729 G, E, H, P; Addendum No. 1

The Acknowledgement attached to Addendum No. 1 is to be signed and returned immediately via email to Dustin Copenhaver at Dustin.Copenhaver@alcosan.org and acknowledged with the Bidder's Proposal.

Kimberly Kennedy, P.E.
Director – Engineering and Construction

ACKNOWLEDGEMENT OF

CONTRACT NO. 1729 G, E, H, P – EAST HEADWORKS

ADDENDUM NUMBER 1

FIRM NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

DECEMBER 15, 2020

CONTRACT NO. 1729 G, E, H, P

EAST HEADWORKS

ADDENDUM NO. 1

DECEMBER 15, 2020

CONTRACT NO. 1729 G, E, H, P

EAST HEADWORKS

ADDENDUM NO. 1

A. Contract Documents – Volume 1

1. Replace Table of Contents with

    a) VOLUME 2 – DIVISION 01 – DIVISION 22
    b) VOLUME 3 – DIVISION 23 – DIVISION 46

2. Article 2

    a) Page Article 2 – 12, 2.15 C.4.b, DELETE two instances of "Shall be paid under force account" and REPLACE with "Payment will be as described in specifications 31 21 00 and 31 23 00."

B. Contract Specifications – Volume 2

1. Submittals (Section 01 33 00)

    a) Page 01 33 00 – 6, Section 1.6.A.1, REPLACE zip code 15108 with "15223."

2. Construction Facilities, Temporary Controls and Utilities (Section 01 50 00)

    a) Page 01 50 00 – 3, Section 1.6.A.3, DELETE the final sentence of item 1.6.A.3 "Payment for this work will be by force account." and REPLACE with "Payment will be as described in specifications 31 21 00 and 31 23 00."

3. Maintenance of Plant Operations (Section 01 52 00)

    a) Page 01 52 00 – 9, Section 1.7, ADD item 1.7.P stating the following:

    "P. Reference Electrical System Upgrade Contract 1739 for the following elements of work requiring coordination:

1. There is an electrical ductbank that will be partially demolished and/or abandoned near the South Overflow Structure as part of the East Headworks work. This work cannot begin until Contract 1739 work to re-feed power to Building 510 is completed and electrical cables within that ductbank are de-energized.
2. In the Northeast corner of the work, new electrical ductbanks are being installed as part of Contract 1739 to re-feed power to the Annex Building. This work needs to be completed before excavation work and ductbank demolition can be done in this area for the East Headworks project. The ductbanks to be installed under Contract 1739 are shown in the East Headworks drawings for reference and are to be supported by the East Headworks contractor as work in this area is performed.
3. An electrical ductbank is located south of and near or within the excavation area for the new south pipe gallery tunnel. This ductbank will not be de-energized until the Annex Building power is re-fed as part of Contract 1739.
4. Target date for completion of work described in paragraphs 1, 2, and 3 is September 2021."

b) Page 01 52 00 – 13, Section 1.9.F.2, DELETE item 1.9.F.2 and REPLACE with the following: "Maximum Shutdown Duration: reference Article 4, page 4-7G, item 3 for shutdown duration requirements related to this construction element."

c) Page 01 52 00 – 14, Section 1.9.G.2, DELETE item 1.9.G.2 and REPLACE with the following: "Maximum Shutdown Duration: reference Article 4, page 4-7G, item 3 for shutdown duration requirements related to this construction element."

d) Page 01 52 00 – 14, Section 1.9.G.4.b, ADD the following to the end of the paragraph: "Restore any damage done to concrete conduit resulting from bulkhead installation and removal to previous condition."

4. Manufacturer Acceptance of Conditions (Section 01 71 16)

a) Page 01 71 16 – 10, Attachment 2, DELETE item Attachment 2, 41 42 13.13 Bridge Cranes, Operations, Sessions "2" and REPLACE with "5."

5. Cast-in-Place Concrete (Section 03 30 00)

a) Page 03 30 00 – 7, Section 2.2.B., DELETE paragraph 2.2.B.1 and REPLACE with the following: "Portland Cement: ASTM C150/C150M, Type I/II. Type III is only permitted for concrete work that must be performed during the shutdown to expedite the work."

6. Construction Facilities, Temporary Controls and Utilities (01 50 00)

    a) Page 01 50 00 – 3, Section 1.6 A.5 – DELETE this section and REPLACE with "Each Prime Contractor shall obtain and pay for the City of Pittsburgh Building Permit required for execution of the Contractor's Work. The Owner will pay an initial payment for plan review for the General Contractor. This payment is $46,779.00. This amount will be credited toward the Building Permit amount."

C. Contract Specifications – Volume 3

1. LED Interior Lighting (Section 26 51 19)

    a) DELETE this specification in its entirety and REPLACE with the attached specification.

2. LED Exterior Lighting (Section 26 56 19)

    b) DELETE this specification in its entirety and REPLACE with the attached specification.

3. Earthwork, Excavation, Trenching, and Backfilling (Section 31 21 00)

    a) Page 31 21 00 – 9, Section 1.7.C.2, DELETE "2 feet below finished grade." and REPLACE with "4 feet below finished grade."

    b) Page 31 21 00 – 9, Section 1.7.C.3, DELETE "2 feet below finished grade." and REPLACE with "4 feet below finished grade."

4. Augered Pressure Grouted Piles (Section 31 63 16)

    a) Page 31 63 16 – 8, Section 3.5, DELETE paragraph A and REPLACE with the following:

    "Static pile load tests shall be performed at the 15 locations designated on the Drawings. The test piles shall be loaded to twice the design load capacity. The pile load tests shall be performed by the Contractor. The Foundation Designer shall monitor the load tests, and review and interpret the test results for design compliance. The load test results shall be accepted by the Foundation Designer prior to the installation of production piles. If the pile fails a load test, the Foundation Designer shall determine the requirements for any needed re-design."

D. Contract Drawings

2. Drawing G-13

    a) DELETE Laydown and Storage Note No. 2 and REPLACE with the following, "2. CONTRACTOR TO PHASE CONSTRUCTION WITHIN ROADWAYS TO ALLOW CONTINUOUS ACCESS TO THE EXTENT PRACTICAL FOR NORMAL PLANT OPERATIONS. REFER TO SPECIFICATION 01 52 00, PARAGRAPH 1.7.N, FOR SPECIFIC OWNER ACCESS REQUIREMENTS.

    b) DELETE Laydown and Storage Note No. 4 and REPLACE with the following, "4. TEMPORARY ROAD CLOSURES THAT RESTRICT ACCESS FOR NORMAL PLANT OPERATIONS SHALL BE CAREFULLY COORDINATED WITH THE CONSTRUCTION MANAGER TO MINIMIZE DOWN TIME."

3. Drawing 530-A-17

    a) DELETE this drawing and REPLACE with the attached drawing 530-A-17.

4. Drawing 530-A-18

    a) DELETE this drawing and REPLACE with the attached drawing 530-A-18.

5. Drawing 530-A-19

    a) DELETE this drawing and REPLACE with the attached drawing 530-A-19.

6. Drawing 530-A-20

    a) DELETE this drawing and REPLACE with the attached drawing 530-A-20.

7. Drawing 530-A-45

    a) DELETE this drawing and REPLACE with the attached drawing 530-A-45.

8. Drawings 500-SDM-12

    a) DELETE SHEET KEYNOTES – DEMOLITION, Note 7 and REPLACE with the following:

    "REMOVE EXISTING SHIP STAIRS AT EXISTING SIPHON PIPING ASSEMBILIES. REMOVE AND REINSTALL EXISTING PLATFORM FRAMING TO ACCOMMODATE RAISED PLATFORM ELEVATION.

TYPICAL AT 4 LOCATIONS NOT DEPICTED ON PLAN. COORDINATE LOCATIONS AND FINAL PLATFORM ELEVATION WITH PROCESS MECHANICAL DRAWINGS."

9. Drawings 500-S-13

    a) DELETE SHEET KEYNOTES, Note 16 and REPLACE with the following:

    "DESIGN AND PROVIDE METAL GRATING SHIP STAIRS (DELEGATED DESIGN) TO REPLACE DEMOLISHED STAIRS AT SIPHON PIPING ASSEMBLIES. TYPICAL AT 4 LOCATIONS NOT DEPICTED ON PLAN. SHIP STAIRS MUST ACCOMMODATE ELEVATION OF RAISED PLATFORMS. THE LOCATION OF THE SHIP STAIR'S BASE CONNECTION TO THE FLOOR MUST REMAIN UNCHANGED FROM THE EXISTING LOCATIONS, RESULTING IN SHIP STAIRS THAT ARE STEEPER THAN THE EXISTING STAIRS. COORDINATE WITH DEMOLITION DRAWINGS AND PROCESS MECHANICAL DRAWINGS."

10. Drawing 530-M-31 (occurs twice in set)

    a) DELETE both 530-M-31 drawings and REPLACE with the attached drawing 530-M-30 and 530-M-31.

11. Drawing 530-ES-09

    a) DELETE this drawing and REPLACE with the attached drawing 530-ES-09.

12. Drawing 530-ELP-06

    a) DELETE this drawing and REPLACE with the attached drawing 530-ELP-06.

13. Drawing 530-ELP-09

    a) DELETE this drawing and REPLACE with the attached drawing 530-ELP-09.

14. Drawing 530-ELP-10

    a) DELETE this drawing and REPLACE with the attached drawing 530-ELP-10.

15. Drawing 530-ELP-11

    a) DELETE this drawing and REPLACE with the attached drawing 530-ELP-11.

16. Drawing I-04, FIBER OPTIC SITE PLAN (1 of 3)

    REPLACE text in the matchline reference at EX. PIPE GALLERY TUNNEL (723) with the following: "MATCHLINE I-05 PARTIAL PLAN B"

17. Drawing I-5

    a) DELETE this drawing and REPLACE with the attached drawing I-5.

18. Drawing I-6

    a) DELETE this drawing and REPLACE with the attached drawing I-6.

E. Questions

(No Items)

F. Clarifications

(No Items)

Attachments:

Specifications:

Section 26 51 19 – LED Interior Lighting

Section 26 56 19 – LED Exterior Lighting

Drawings:

530-A-17
530-A-18
530-A-19
530-A-20
530-A-45
530-M-30
530-M-31
530-ES-09
530-ELP-06
530-ELP-09
530-ELP-10
530-ELP-11
I-05

Drawings Continued:

I-06

Pre-Bid Documents:

1729 Pre-Bid Agenda
1729 Pre-Bid Meeting Minutes
1729 Pre-Bid Attendees
1729 Pre-Bid Power Point

*** * * * END OF ADDENDUM NO. 1 * * * ***

SECTION 26 51 19 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Cylinder.
2. Downlight.
3. Highbay, linear.
4. Highbay, nonlinear.
5. Linear industrial.
6. Lowbay.
7. Recessed, linear.
8. Strip light.
9. Surface mount, linear.
10. Surface mount, nonlinear.
11. Suspended, linear.
12. Suspended, nonlinear.
13. Materials.
14. Luminaire support.

B. Related Requirements:

1. Section 260923 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description and dimensions of luminaires.
4. Include emergency lighting units, including batteries and chargers.
5. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.
6. Photometric data and adjustment factors based on laboratory tests, complying with IES "Lighting Measurements Testing and Calculation Guides" for each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project IES LM-79 and IES LM-80.
    a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
    b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Sustainable Design Submittals:

1. Specification sheets/cut sheet, photometric report, instruction manual.

D. Samples: For each luminaire and for each color and texture with standard factory-applied finish.

E. Samples for Initial Selection: For each type of luminaire with custom factory-applied finishes.

1. Include Samples of luminaires and accessories involving color and finish selection.

F. Samples for Verification: For each type of luminaire.

1. Include Samples of luminaires and accessories to verify finish selection.

G. Product Schedule: For luminaires and lamps. As indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.
2. Suspended ceiling components.
3. Partitions and millwork that penetrate the ceiling or extend to within 12 inches (300 mm) of the plane of the luminaires.
4. Structural members to which equipment and luminaires will be attached.
5. Initial access modules for acoustical tile, including size and locations.
6. Items penetrating finished ceiling, including the following:
    a. Other luminaires.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.
    f. Ceiling-mounted projectors.
7. Moldings.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Seismic Qualification Data: For luminaires, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For each type of luminaire.

E. Product Test Reports: For each type of luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.

F. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
2. Diffusers and Lenses: One for every 100 of each type and rating installed. Furnish at least one of each type.
3. Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

1.8 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications:

1. Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
2. Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.

B. Provide luminaires from a single manufacturer for each luminaire type.

C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

D. Mockups: For interior luminaires in room or module mockups, complete with power and control connections.

1. Obtain Architect's approval of luminaires in mockups before starting installations.
2. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.10 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance:

1. Luminaires shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
2. Luminaires and lamps shall be labeled vibration and shock resistant.
3. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified and the luminaire will be fully operational during and after the seismic event."

B. Ambient Temperature: 41 to 104 deg F (5 to 40 deg C) or 5 to 104 deg F (Minus 15 to plus 40 deg C).

1. Relative Humidity: Zero to 95 percent.

C. Altitude: Sea level to 1000 feet (300 m)

2.2 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:
   a. "USE ONLY" and include specific lamp type.
   b. Lamp diameter, shape, size, wattage, and coating.
   c. CCT and CRI.

C. Recessed luminaires shall comply with NEMA LE 4.

D. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.

E. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

F. California Title 24 compliant.

2.3 CYLINDER .

A. See lighting schedule on the contract drawings.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 1000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 80 . CCT of 3000 K, 3500K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized powder-coat painted finish.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass or Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. With integral mounting provisions.

H. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.4 DOWNLIGHT.

A. See lighting schedule on the contract drawings

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 1000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 80. CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 to 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear, anodized or powder-coat painted finish.
3. Universal mounting bracket.
4. Integral junction box with conduit fittings.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Fixed lens.
2. Medium light distribution.
3. Prismatic glass or Diffuse glass or Clear glass or Prismatic acrylic.
4. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
5. Glass: Annealed crystal glass unless otherwise indicated.
6. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.
4. Recessed luminaires shall comply with NEMA LE 4.

2.5 HIGHBAY, LINEAR.

A. Lithonia, Cooper or Acuity.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 1000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 80. CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass or Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.6 HIGHBAY, NONLINEAR.

A. Lithonia, Cooper or Acuity.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 1000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 80. CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.

7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. Universal mounting bracket.
4. Integral junction box with conduit fittings.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Diffuse glass or Clear glass or Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.7 LINEAR INDUSTRIAL.

A. Lithonia, Coronet

B. Lamp:

1. Minimum 5,000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 80. CCT of 3000 K, 3500K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

C. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.

D. Housing and Heat Sink Rating:

1. Class 1, Division 2 Group(s) A,B, C and D.
2. NEMA 4X.
3. IP 54.
4. IP 66.
5. Marine and wet locations.
6. CSA C22.2 No 137.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Tempered Fresnel glass or Prismatic glass, Clear glass.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. With integral mounting provisions.

H. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.

2.8 LOWBAY

A. Lithonia or Copper.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac:

1. Minimum 5,000 or 10,000 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of minimum 70 or 80 . CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

C. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.

D. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

E. Diffusers and Globes:

1. Tempered Fresnel glass or Prismatic glass or Clear glass .
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

F. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.9 RECESSED, LINEAR.

A. Lithonia, Day-Brite or Copper.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 3,000 lm.
2. Minimum allowable efficacy of 85 lm/W.
3. CRI of minimum 70 or 80. CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Aanodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Tempered Fresnel glass or Prismatic glass or Clear glass .
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.
4. NEMA LE 4.

2.10 STRIP LIGHT.

A. Lithonia, Ecosense, Copper or Coronet.

B. Nominal Operating Voltage: 120 V ac or 277 V ac or 24 V dc.

C. Lamp:

1. Minimum 750 lm.
2. Minimum allowable efficacy of 75 or 80 lm/W.
3. CRI of minimum 70or 80. CCT of 3000 K, 3500K or 4100 K .
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping of luminaire without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass or Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.11 SURFACE MOUNT, LINEAR.

A. Lithonia, Coronet, Day-Brite or Copper.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac.

C. Lamp:

1. Minimum 750 lm.
2. Minimum allowable efficacy of 75or 80 lm/W.
3. CRI of minimum 70 or 80 . CCT of 3000 K or4100 K .
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.

4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.12 SURFACE MOUNT, NONLINEAR

A. Lithonia, Coronet, Day-Brite or Copper.

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac

C. Lamp:

1. Minimum 750lm.
2. Minimum allowable efficacy of 75 or 80 lm/W.
3. CRI of minimum 70 or 80. CCT of 3000 K or 4100 K .
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass or Prismatic acrylic .
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.

3. UL Listing: Listed for damp location.

2.13 SUSPENDED, LINEAR

A. Lithonia, Coronet, Day-Brite or Cooper

B. Nominal Operating Voltage: 120 V ac or 240 V ac or 277 V ac .

C. Lamp:

1. Minimum 3,000 lm.
2. Minimum allowable efficacy of 85 lm/W.
3. CRI of minimum 70 or 80 . CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000 or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass or Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.14 SUSPENDED, NONLINEAR

A. Lithonia, Coronet, Day-Brite or Cooper

B. Nominal Operating Voltage: 120 V ac or 240 V ac or277 V ac.

C. Lamp:

1. Minimum 3,000 lm.
2. Minimum allowable efficacy of 85 lm/W.
3. CRI of minimum 70 80. CCT of 3000 K or 4100 K.
4. Rated lamp life of 35,000or 50,000 hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
   a. Bulb shape complying with ANSI C78.79.
   b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized or powder-coat painted finish.
3. Universal mounting bracket.
4. Integral junction box with conduit fittings.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Prismatic glass or Clear glass Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch (3.175-mm) minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.15 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging.

B. Steel:

1. ASTM A36/A36M for carbon structural steel.
2. ASTM A568/A568M for sheet steel.

C. Stainless Steel:

1. Manufacturer's standard grade.
2. Manufacturer's standard type, ASTM A240/240M.

D. Galvanized Steel: ASTM A653/A653M.

E. Aluminum: ASTM B209.

2.16 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.17 LUMINAIRE SUPPORT

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A641/A641M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm).

D. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.

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

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

3.3 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Provide support for luminaire without causing deflection of ceiling or wall.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

E. Flush-Mounted Luminaires:

1. Secured to outlet box.
2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
3. Trim ring flush with finished surface.

F. Wall-Mounted Luminaires:

1. Attached to structural members in walls or Attached to a minimum 20 gauge backing plate attached to wall structural members or Attached using through bolts and backing plates on either side of wall as required.
2. Do not attach luminaires directly to gypsum board.

G. Suspended Luminaires:

1. Ceiling Mount:

    a. Two 5/32-inch- (4-mm-) diameter aircraft cable supports adjustable to 10 feet (3 m) or less in length.
    b. Pendant mount Four-point pendant mount with 5/32-inch- (4-mm-) diameter aircraft cable supports adjustable to 10 feet (3 m) or less in length.
    c. Hook mount.

2. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
3. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.

4. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and tubing or rod support for suspension for each unit length of luminaire chassis, including one at each end.
5. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire to the luminaire opening using approved fasteners in a minimum of four locations, spaced near corners of luminaire.
3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

3.6 STARTUP SERVICE

A. Comply with requirements for startup specified in Section 260943.16 "Addressable-Luminaire Lighting Controls."

B. Comply with requirements for startup specified in Section 260943.23 "Relay-Based Lighting Controls."

3.7 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied

conditions. Make up to two visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.

1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION

SECTION 26 56 19 - LED EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Luminaire-mounted photoelectric relays.
2. Luminaire types.
3. Materials.
4. Finishes.
5. Luminaire support components.

B. Related Requirements:

1. Section 260923 "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.
2. Section 260943.16 "Addressable-Luminaire Lighting Controls" and Section 260943.23 "Relay-Based Lighting Controls" for manual or programmable control systems with low-voltage control wiring or data communication circuits.
3. Section 265613 "Lighting Poles and Standards" for poles and standards used to support exterior lighting equipment.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color rendering index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. Lumen: Measured output of lamp and luminaire, or both.

F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of luminaire.

1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description and dimensions of luminaire.
4. Lamps, include life, output (lumens, CCT, and CRI), and energy-efficiency data.
5. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project.

    a. Manufacturer's Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.
    b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

6. Wiring diagrams for power, control, and signal wiring.
7. Photoelectric relays.
8. Means of attaching luminaires to supports and indication that the attachment is suitable for components involved.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Sustainable Design Submittals:

1. Submit cut sheets calculations for review.

D. Samples: For each luminaire and for each color and texture indicated with factory-applied finish.

E. Product Schedule: For luminaires and lamps**.**

F. Delegated-Design Submittal: For luminaire supports.

1. Include design calculations for luminaire supports and seismic restraints.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.
2. Structural members to which equipment and luminaires will be attached.
3. Underground utilities and structures.
4. Existing underground utilities and structures.
5. Above-grade utilities and structures.
6. Existing above-grade utilities and structures.
7. Building features.
8. Vertical and horizontal information.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Seismic Qualification Data: For luminaires, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For each type of the following:

1. Luminaire.
2. Photoelectric relay.

E. Product Test Reports: For each luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.

F. Source quality-control reports.

G. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires **and photoelectric relays** to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project. Use ANSI and manufacturers' codes.
2. Provide a list of all photoelectric relay types used on Project; use manufacturers' codes.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
2. Glass, Acrylic, and Plastic Lenses, Covers, and Other Optical Parts: One for every 100 of each type and rating installed. Furnish at least one of each type.

3. Diffusers and Lenses: One for every 100 of each type and rating installed. Furnish at least one of each type.
4. Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

1.8 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications:

1. Luminaire manufacturers' laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
2. Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products and complying with applicable IES testing standards.

B. Provide luminaires from a single manufacturer for each luminaire type.

C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

D. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

E. Mockups: For exterior luminaires, complete with power and control connections.

1. Obtain Architect's approval of luminaires in mockups before starting installations.
2. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering prior to shipping.

1.10 FIELD CONDITIONS

A. Verify existing and proposed utility structures prior to the start of work associated with luminaire installation.

B. Mark locations of exterior luminaires for approval by Architect prior to the start of luminaire installation.

1.11 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

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

a. Structural failures, including luminaire support components.
b. Faulty operation of luminaires and accessories.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: **2** year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance:

1. Luminaires shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.
2. Luminaires and lamps shall be labeled vibration and shock resistant.
3. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified **and the luminaire will be fully operational during and after the seismic event**."

2.2 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

D. UL Compliance: Comply with UL 1598 and listed for wet location.

E. Lamp base complying with ANSI C81.6 or IEC 60061-1.

F. Bulb shape complying with ANSI C79.1.

G. CRI of minimum 80. CCT of 3500K, 4100 K.

H. L70 lamp life of 35,000 to 50,000 hours.

I. Lamps dimmable from 100 percent to 0 percent of maximum light output.

J. Internal driver.

K. Nominal Operating Voltage: **120 V ac or 277 V ac**.

L. In-line Fusing: On the primary for each luminaire.

M. Lamp Rating: Lamp marked for **outdoor use**.

N. Source Limitations:

1. Obtain luminaires from single source from a single manufacturer.
2. For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.3 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

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

1. Atlas Lighting Products.
2. Current Lighting Solutions, LLC (Current, powered by GE).
3. Deco Lighting.
4. Eaton.
5. Lithonia Lighting; Acuity Brands Lighting, Inc.
6. Schneider Electric USA, Inc.
7. Siemens Industry, Inc. (Building Technologies Division).
8. Signify North America Corporation (formerly Philips Lighting).

B. Comply with UL 773 or UL 773A.

C. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay. Relay shall have directional lens in front of photocell to prevent artificial light sources from causing false turnoff.

1. Relay with locking-type receptacle shall comply with ANSI C136.10.
2. Adjustable window slide for adjusting on-off set points.

2.4 LUMINAIRE TYPES

A. Area and Site:

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

a. Atlas Lighting Products.
b. Deco Lighting.
c. Eaton (Lighting).
d. H.E. Williams.

e. Insight Lighting .
f. Kim Lighting; Hubbell Incorporated, Lighting.
g. Lithonia Lighting; Acuity Brands Lighting, Inc.
h. Performance Lighting.

2. Luminaire Shape: Round or Square or Hexagonal or as specified.
3. Mounting: Pole or Building with extruded-aluminum or stainless-steel rectangular or round arm, 13 inches (330 mm) in length.
4. Luminaire-Mounting Height: As indicated
5. Distribution: Type I, type II, Type III, Type IV or Type V As indicated.
6. Diffusers and Globes: Tempered Fresnel glass or Clear glass or Clear, UV-stabilized acrylic
7. Housings:

a. Extruded-aluminum housing and heat sink.
b. Clear or anodized or powder-coat finish.

B. Roadway:

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

a. Current Lighting Solutions, LLC (Current, powered by GE).
b. Eaton (Lighting).
c. Kim Lighting; Hubbell Incorporated, Lighting.
d. Lithonia Lighting; Acuity Brands Lighting, Inc.
e. OSRAM SYLVANIA.
f. Signify North America Corporation (formerly Philips Lighting).

2. Luminaire-Mounting Height: As indicated
3. Mounting Type: Arm.
4. Distribution: Type I, Type II, Type III, Type IV, or Type V.
5. Diffusers and Globes: Tempered Fresnel glass, Clear glass, Clear, UV-stabilized acrylic or clear polycarbonate.
6. Housings:

a. Extruded-aluminum housing and heat sink.
b. Clear, anodized or powder-coat finish.

2.5 MATERIALS

A. Metal Parts: Free of burrs and sharp corners and edges.

B. Sheet Metal Components: Corrosion-resistant aluminum or Stainless steel. Form and support to prevent warping and sagging.

C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during

relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.

D. Diffusers and Globes:

1. Acrylic Diffusers: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
2. Glass: Annealed crystal glass unless otherwise indicated.
3. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.

E. Lens and Refractor Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

F. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

G. Housings:

1. Rigidly formed, weather- and light-tight enclosure that will not warp, sag, or deform in use.
2. Provide filter/breather for enclosed luminaires.

H. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:

a. "USE ONLY" and include specific lamp type.
b. Lamp diameter, shape, size, wattage and coating.
c. CCT and CRI for all luminaires.

2.6 FINISHES

A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

C. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20 requirements; and seal aluminum surfaces with clear, hard-coat wax.
3. Class I, Clear-Anodic Finish: AA-M32C22A41 (Mechanical Finish: Medium satin; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
4. Class I, Color-Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: Medium satin; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker), complying with AAMA 611.

    a. Color: Light bronze, Medium bronze, Dark bronze or Black.

D. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

    a. Color:

        1) As selected from manufacturer's standard catalog of colors.

2.7 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Examine roughing-in for luminaire electrical conduit to verify actual locations of conduit connections before luminaire installation.

C. Examine walls and roofs, for suitable conditions where luminaires will be installed.

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

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is substantially complete, clean luminaires used for temporary lighting and install new lamps.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Comply with NECA 1.

B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Install lamps in each luminaire.

D. Fasten luminaire to structural support.

E. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Support luminaires without causing deflection of finished surface.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

F. Wall-Mounted Luminaire Support:

1. Attached to a minimum 1/8 inch (3 mm) backing plate attached to wall structural members.

G. Wiring Method: Install cables in raceways. Conceal raceways and cables.

H. Install luminaires level, plumb, and square with finished grade unless otherwise indicated or Install luminaires at height and aiming angle as indicated on Drawings.

I. Coordinate layout and installation of luminaires with other construction.

J. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

K. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

3.4 INSTALLATION OF BOLLARD LUMINAIRES

A. Align units for optimum directional alignment of light distribution.

1. Install on concrete base with top 4 inches (100 mm) above finished grade or surface at luminaire location. Cast conduit into base, and shape base to match shape of bollard base.

Finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Section 033000 "Cast-in-Place Concrete."

3.5 INSTALLATION OF INDIVIDUAL GROUND-MOUNTED LUMINAIRES

A. Aim as indicated on Drawings.

B. Install on concrete base with top 4 inches (100 mm) above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Section 033000 "Cast-in-Place Concrete."

3.6 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Section 260533 "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch- (0.254-mm-) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.7 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.8 FIELD QUALITY CONTROL

A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Verify operation of photoelectric controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IES testing guide(s):

   a. IES LM-5.
   b. IES LM-50.
   c. IES LM-52.
   d. IES LM-64.
   e. IES LM-72.

2. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

D. Luminaire will be considered defective if it does not pass tests and inspections.

E. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.9 DEMONSTRATION

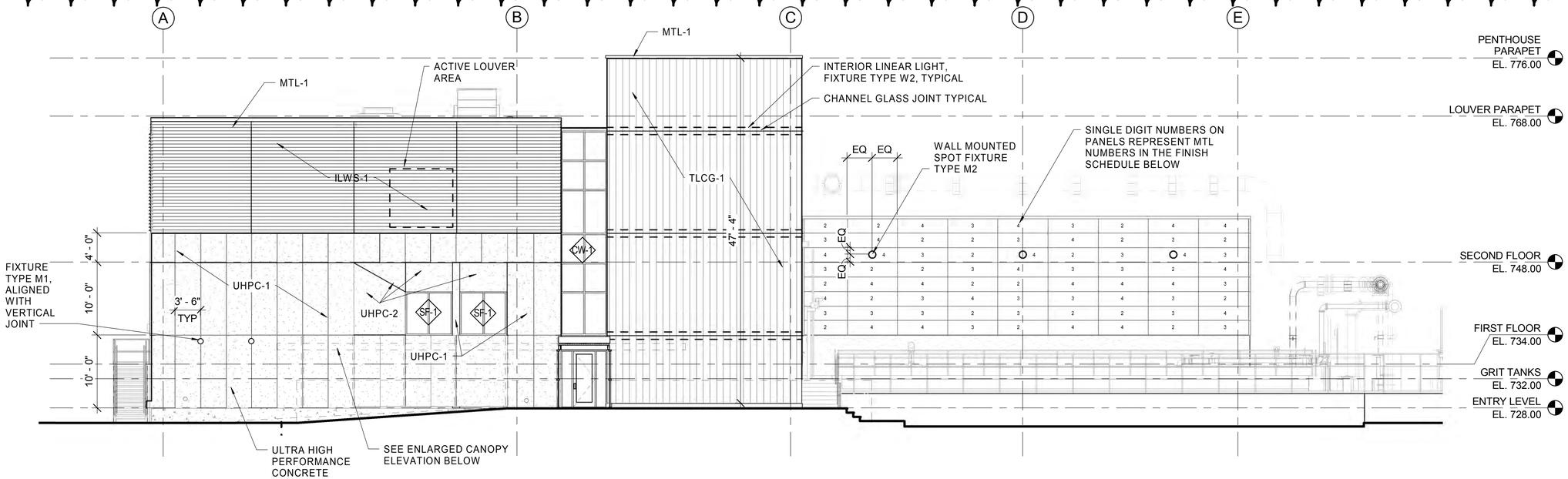
A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain luminaires and photocell relays.

3.10 ADJUSTING

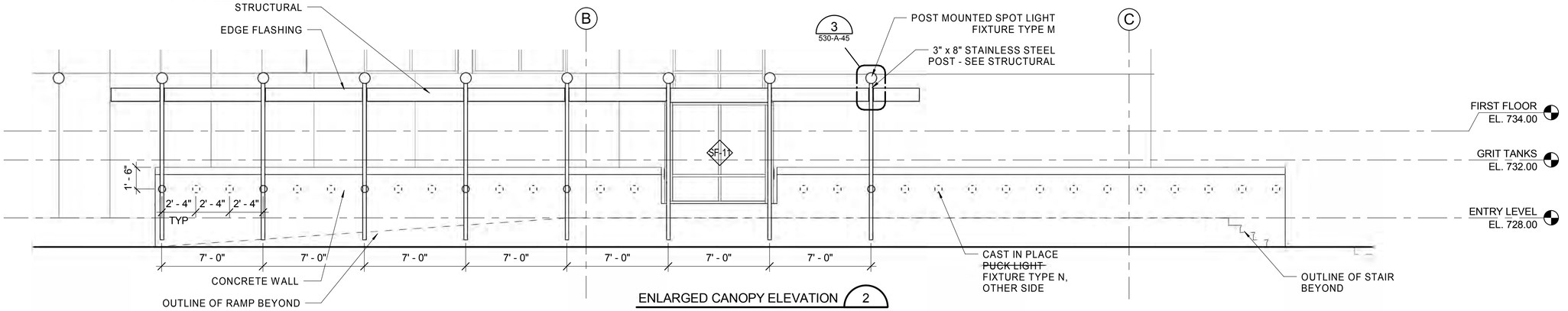
A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to **two** visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.

1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION



EAST ELEVATION 1
SCALE: 1/8" = 1'-0" 530-A-06



ENLARGED CANOPY ELEVATION 2
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

1. UHPC PANEL SUPPORT RAILS AND SUBGIRT SYSTEMS TO HAVE MATTE BLACK FINISH.

ARCHITECTURAL - EXTERIOR FINISH LIST

NAME	MATERIAL	FINISH
ILWS-1	INTEGRATED LOUVER WALL SYSTEM	CENTRIA #9946 "SILVERSMITH"
MTL-1	VERTICAL REVEAL PANELS, COPING, CURTAINWALL, STOREFRONT MULLIONS, OTHER METAL FABRICATIONS AS NOTED	CENTRIA #9946 "SILVERSMITH"
MTL-2	3" INSULATED METAL PANEL 24" WIDE	CENTRIA VERSACOR ELITE PF COATING 439EZ7833M "ELITE LIME"
MTL-3	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR ULTRA-COOL SUNSTORM COATING BN8L102B "BLUE"
MTL-4	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR VARI-COOL COATING 865X13 "KALEIDOSCOPE"
MTL-5	3" INSULATED METAL PANEL 12" WIDE	CENTRIA #9946 "SILVERSMITH"
TLCG-1	TRANSLUCENT LINEAR CHANNEL GLASS SYSTEM	GLASS AS SPECIFIED
UHPC-1	ULTRA HIGH PERFORMANCE CONCRETE PANEL	KORSA TEXTURE: ROUGH 2, AGGREGATE: #A02, COLOR: "CUSTOM WHITE", FINISH: MEDIABLAST, SEALER: MICROSEAL
UHPC-2	ULTRA HIGH PERFORMANCE CONCRETE PANEL	TEXTURE: SMOOTH, COLOR: "BONE 78", FINISH: MEDIABLAST, SEALER: MICROSEAL

1 LIGHTING REVISIONS

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

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

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ALLEGHENY COUNTY SANITARY AUTHORITY
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EAST HEADWORKS

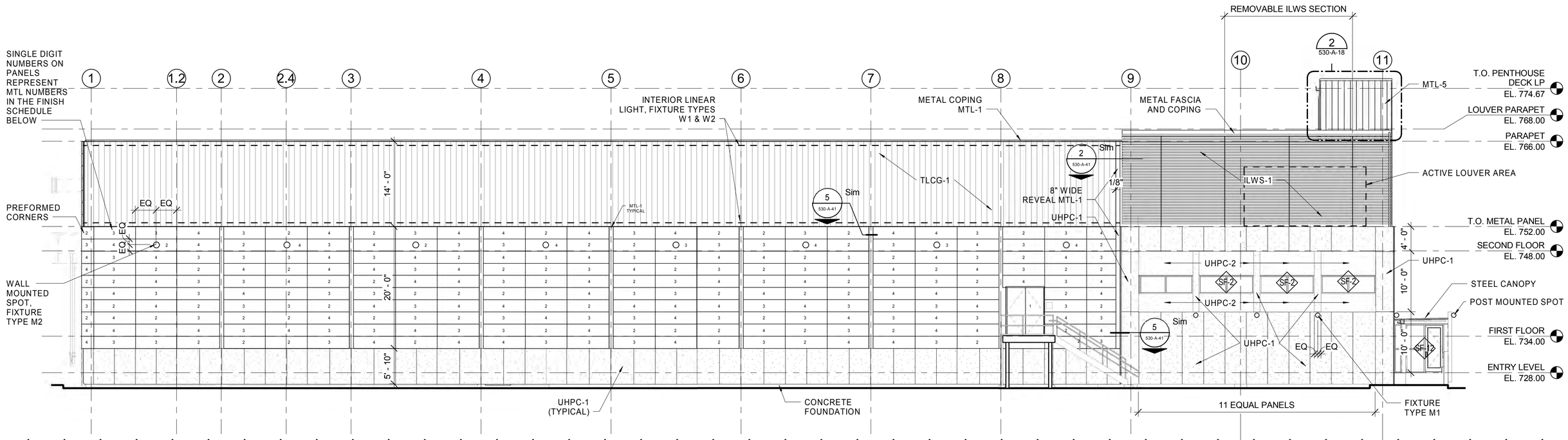
530-A-17
EAST HEADWORKS
EAST ELEVATION

Contract: 1729
CAD File Name: 530-A-17.DGN
Date: OCTOBER 2020
Sheet: 82 of 645

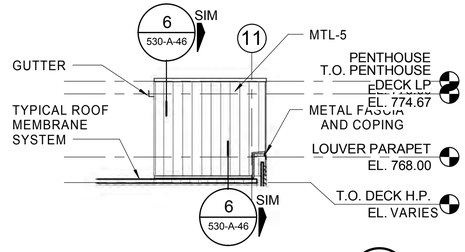
GENERAL SHEET NOTES

1. UHPC PANEL SUPPORT RAILS AND SUBGIRT SYSTEMS TO HAVE MATTE BLACK FINISH.

1 LIGHTING REVISIONS



SOUTH ELEVATION 1
SCALE: 1/8" = 1'-0" 530-A-06



STAIR TOWER SOUTH ELEVATION 2
SCALE: 1/8" = 1'-0" 530-A-15

ARCHITECTURAL - EXTERIOR FINISH LIST

NAME	MATERIAL	FINISH
ILWS-1	INTEGRATED LOUVER WALL SYSTEM	CENTRIA #9946 "SILVERSMITH"
MTL-1	VERTICAL REVEAL PANELS, COPING, CURTAINWALL, STOREFRONT MULLIONS, OTHER METAL FABRICATIONS AS NOTED	CENTRIA #9946 "SILVERSMITH"
MTL-2	3" INSULATED METAL PANEL 24" WIDE	CENTRIA VERSACOR ELITE PF COATING 439EZ7833M "ELITE LIME"
MTL-3	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR ULTRA-COOL SUNSTORM COATING BN8L102B "BLUE"
MTL-4	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR VARI-COOL COATING 865X13 "KALEIDOSCOPE"
MTL-5	3" INSULATED METAL PANEL 12" WIDE	CENTRIA #9946 "SILVERSMITH"
TLCG-1	TRANSLUCENT LINEAR CHANNEL GLASS SYSTEM	GLASS AS SPECIFIED
UHPC-1	ULTRA HIGH PERFORMANCE CONCRETE PANEL	KORSA TEXTURE: ROUGH 2, AGGREGATE: #A02, COLOR: "CUSTOM WHITE", FINISH: MEDIABLAST, SEALER: MICROSEAL
UHPC-2	ULTRA HIGH PERFORMANCE CONCRETE PANEL	TEXTURE: SMOOTH, COLOR: "BONE 78", FINISH: MEDIABLAST, SEALER: MICROSEAL

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

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530-A-18
EAST HEADWORKS
SOUTH ELEVATION

Contract: 1729
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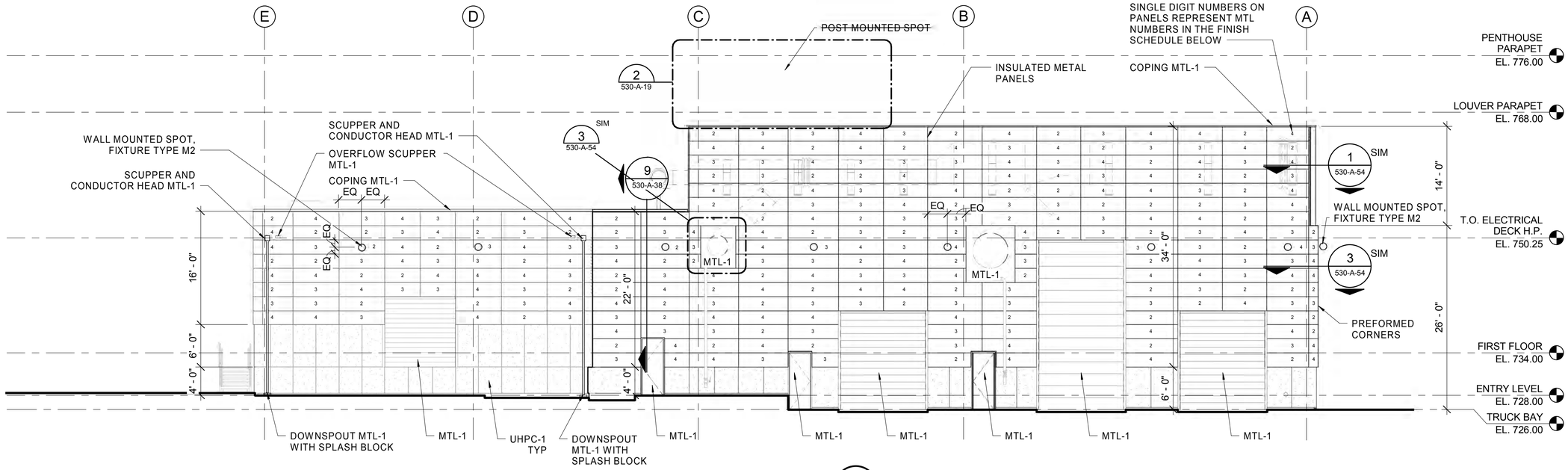
Date: OCTOBER 2020
Sheet: 83 of 645

GENERAL SHEET NOTES

1. UHPC PANEL SUPPORT RAILS AND SUBGIRT SYSTEMS TO HAVE MATTE BLACK FINISH.

1 LIGHTING REVISIONS



WEST ELEVATION 1
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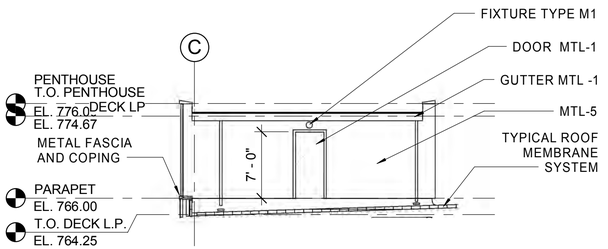

STAIR TOWER WEST ELEVATION 2
SCALE: 1/8" = 1'-0" 530-A-15

ARCHITECTURAL - EXTERIOR FINISH LIST

NAME	MATERIAL	FINISH
ILWS-1	INTEGRATED LOUVER WALL SYSTEM	CENTRIA #9946 "SILVERSMITH"
MTL-1	VERTICAL REVEAL PANELS, COPING, CURTAINWALL, STOREFRONT MULLIONS, OTHER METAL FABRICATIONS AS NOTED	CENTRIA #9946 "SILVERSMITH"
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MTL-3	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR ULTRA-COOL SUNSTORM COATING BN8L102B "BLUE"
MTL-4	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR VARI-COOL COATING 865X13 "KALEIDOSCOPE"
MTL-5	3" INSULATED METAL PANEL 12" WIDE	CENTRIA #9946 "SILVERSMITH"
TLCG-1	TRANSLUCENT LINEAR CHANNEL GLASS SYSTEM	GLASS AS SPECIFIED
UHPC-1	ULTRA HIGH PERFORMANCE CONCRETE PANEL	KORSA TEXTURE: ROUGH 2, AGGREGATE: #A02, COLOR: "CUSTOM WHITE", FINISH: MEDIABLAST, SEALER: MICROSEAL
UHPC-2	ULTRA HIGH PERFORMANCE CONCRETE PANEL	TEXTURE: SMOOTH, COLOR: "BONE 78", FINISH: MEDIABLAST, SEALER: MICROSEAL

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

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530-A-19
EAST HEADWORKS
WEST ELEVATION

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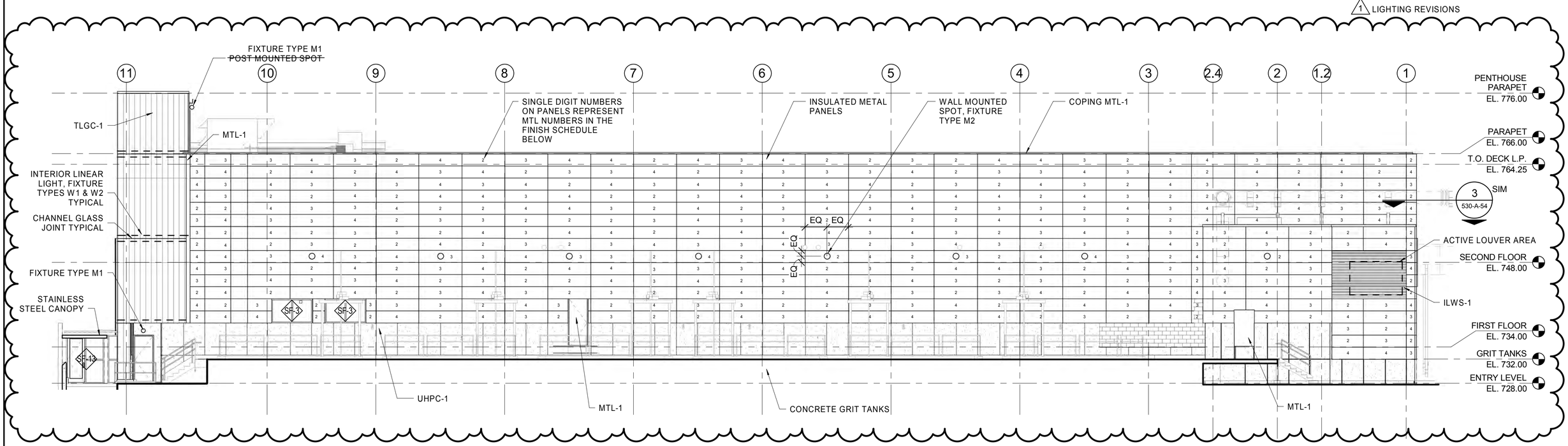
Date: OCTOBER 2020
Sheet: 84 of 645

GENERAL SHEET NOTES

1. UHPC PANEL SUPPORT RAILS AND SUBGIRT SYSTEMS TO HAVE MATTE BLACK FINISH.

1 LIGHTING REVISIONS



NORTH ELEVATION 1
SCALE: 1/8" = 1'-0" 530-A-06

ARCHITECTURAL - EXTERIOR FINISH LIST

NAME	MATERIAL	FINISH
ILWS-1	INTEGRATED LOUVER WALL SYSTEM	CENTRIA #9946 "SILVERSMITH"
MTL-1	VERTICAL REVEAL PANELS, COPING, CURTAINWALL, STOREFRONT MULLIONS, OTHER METAL FABRICATIONS AS NOTED	CENTRIA #9946 "SILVERSMITH"
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MTL-4	3" INSULATED METAL PANEL 24" WIDE	PPG DURANAR VARI-COOL COATING 865X13 "KALEIDOSCOPE"
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TLCG-1	TRANSLUCENT LINEAR CHANNEL GLASS SYSTEM	GLASS AS SPECIFIED
UHPC-1	ULTRA HIGH PERFORMANCE CONCRETE PANEL	KORSA TEXTURE: ROUGH 2, AGGREGATE: #A02, COLOR: "CUSTOM WHITE", FINISH: MEDIABLAST, SEALER: MICROSEAL
UHPC-2	ULTRA HIGH PERFORMANCE CONCRETE PANEL	TEXTURE: SMOOTH, COLOR: "BONE 78", FINISH: MEDIABLAST, SEALER: MICROSEAL

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

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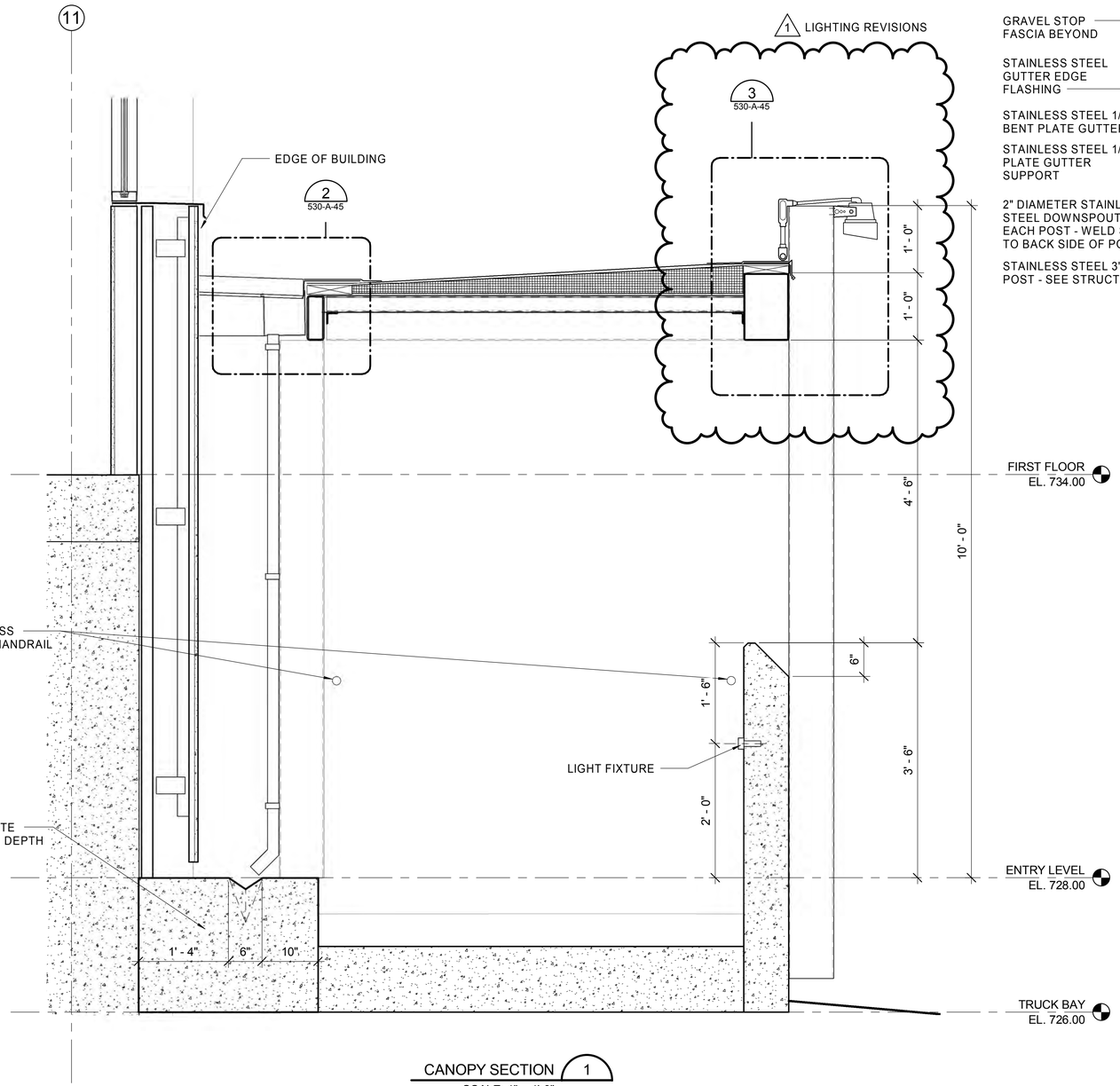
ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
EAST HEADWORKS

530-A-20
EAST HEADWORKS
NORTH ELEVATION

Contract: 1729
CAD File Name: 530-A-20.DGN
Date: OCTOBER 2020
Sheet: 85 of 645



CANOPY SECTION 1
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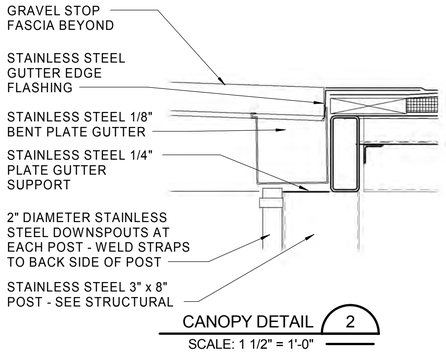

CANOPY DETAIL 2
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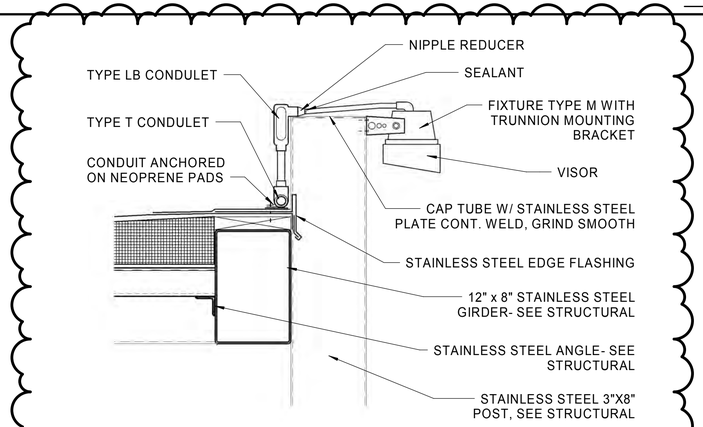

CANOPY DETAIL 3
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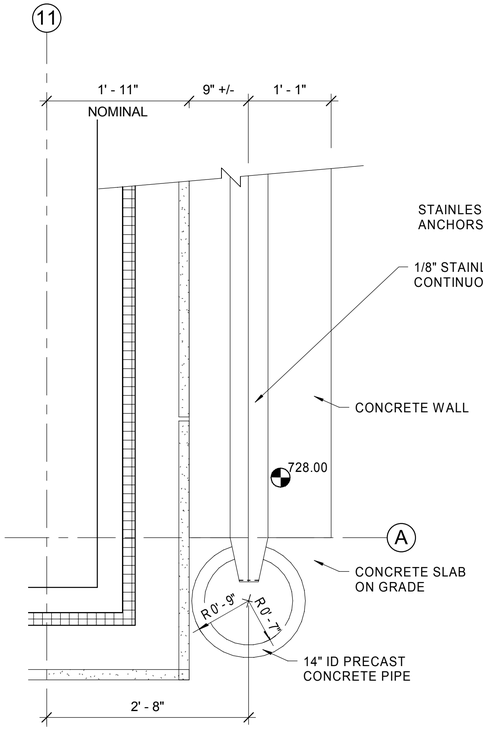
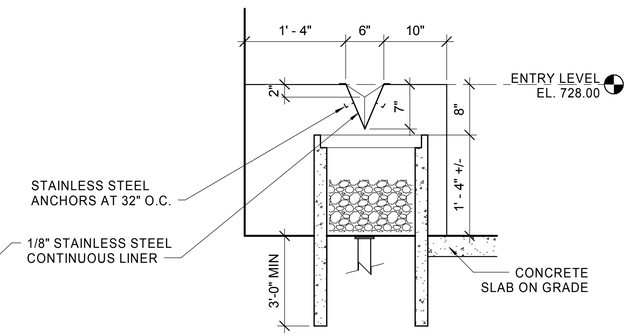
1 LIGHTING REVISIONS



CONCRETE RUNNEL PLAN 4
SCALE: 1" = 1'-0"



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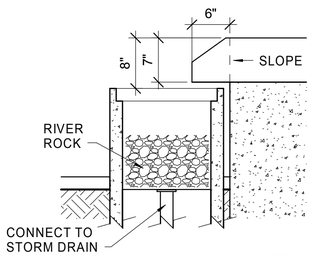

RUNNEL SECTION 6
SCALE: 1" = 1'-0"

0 6" 1' 2'
SCALE: 1" = 1'-0"

0 3" 6" 1' 2'
SCALE: 1 1/2" = 1'-0"

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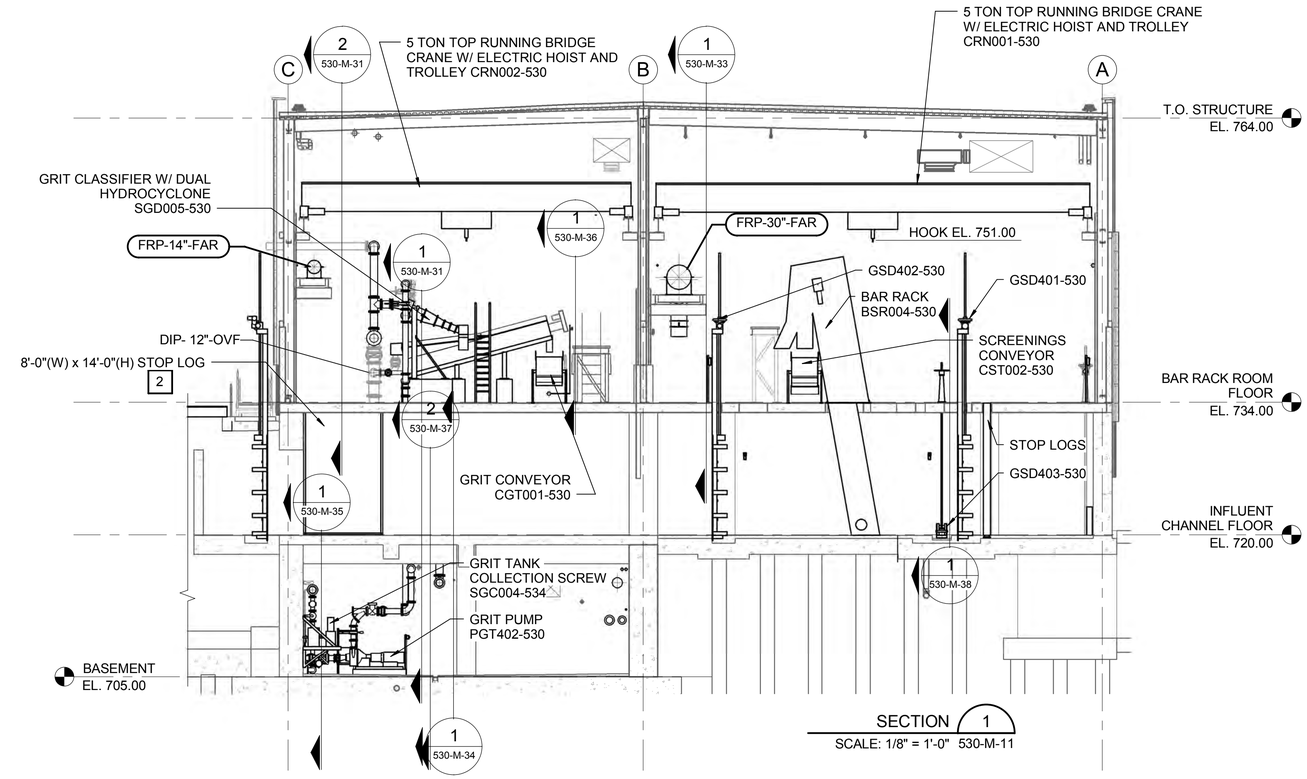
530-A-45
EAST HEADWORKS
CANOPY SECTION

Contract:	1729
CAD File Name:	530-A-45.DGN
Date:	OCTOBER 2020
Sheet:	110 of 645



SECTION 1
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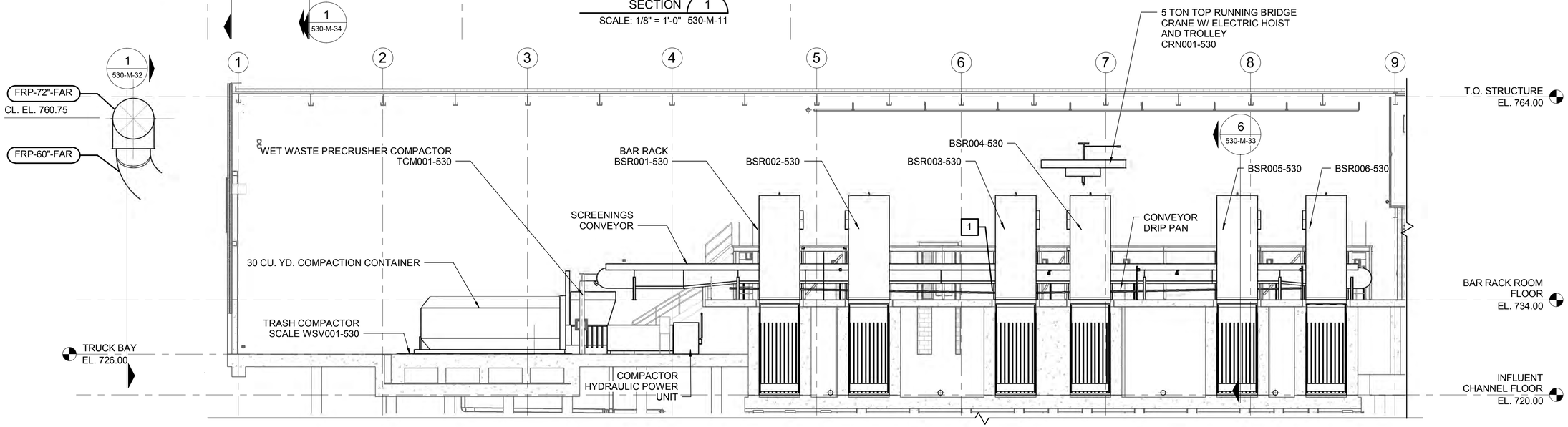

SECTION 2
SCALE: 1/8" = 1'-0" 530-M-13

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

GENERAL SHEET NOTES

1. SEE DRAWINGS G-08 & M-01 FOR PROCESS MECHANICAL GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.

X SHEET KEYNOTES

1. PROVIDE A DRAIN AT THE LOW POINT OF DRIP PAN ASSEMBLY. THE DRAIN SHALL BE PIPING TO THE NEAREST FLOOR DRAIN.
2. STOP LOGS SHALL BE MULTIPLE SECTION CONSTRUCTION TO ENSURE OPERATION OF STOP LOGS IS PERMITTED AROUND THE ODOR CONTROL DUCTWORK.

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Drawn by:	LAQ
Checked by:	DRN

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER DAVID R. NIXSON No. PE077201
12/11/2020

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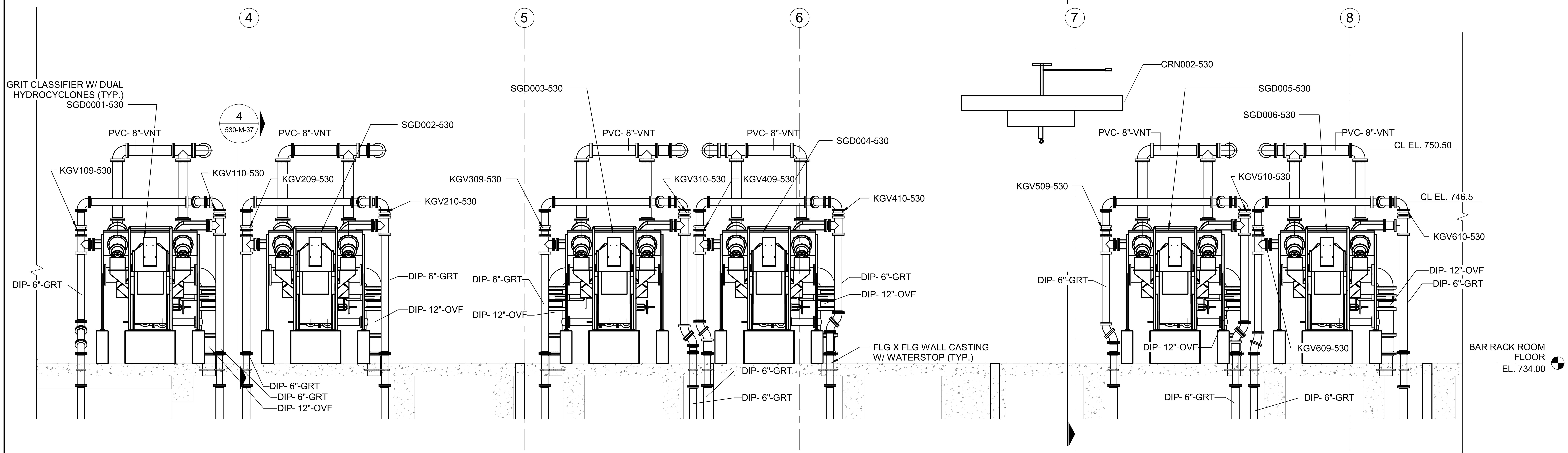
ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
EAST HEADWORKS

530-M-30
EAST HEADWORKS
SECTIONS

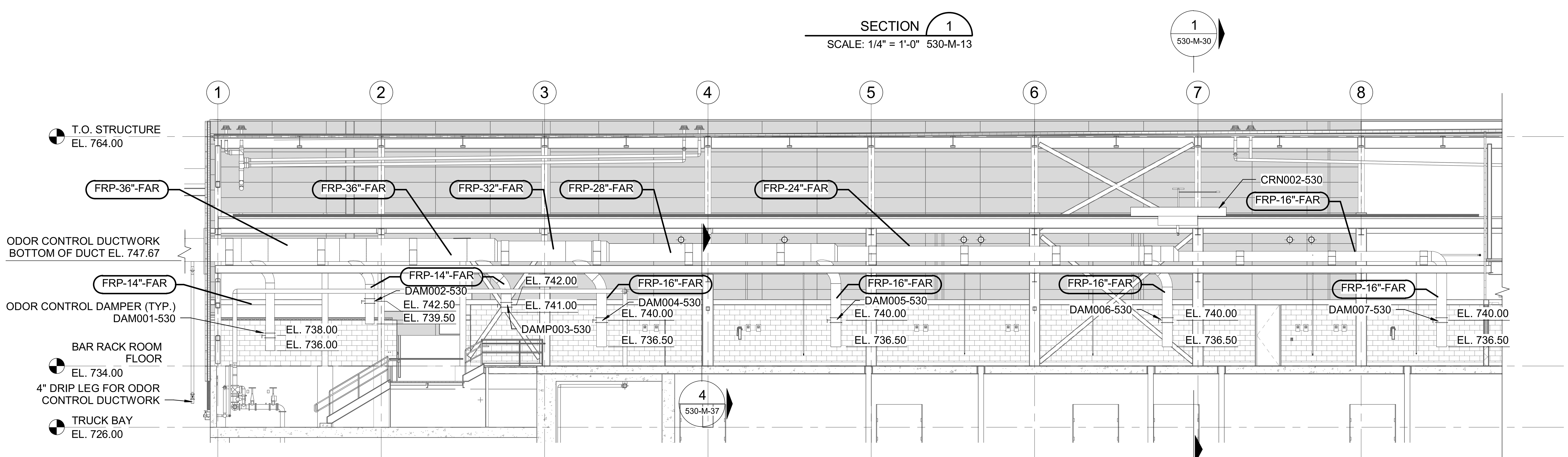
Contract:	1729
CAD File Name:	530-M-30.DGN
Date:	OCTOBER 2020
Sheet:	380 of 645

GENERAL SHEET NOTES

1. SEE DRAWINGS G-08 & M-01 FOR PROCESS MECHANICAL GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.



SECTION 1
SCALE: 1/4" = 1'-0" 530-M-13



SECTION 2
SCALE: 1/8" = 1'-0" 530-M-13

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

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

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
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530-M-31
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Contract: 1729
CAD File Name: 530-M-31.DGN
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ELECTRICAL - LIGHTING FIXTURE SCHEDULE

LABEL	DESCRIPTION	ELECTRICAL DATA						MOUNTING	MANUFACTURER (OR APPROVED EQUAL)	CATALOG NUMBER (OR APPROVED EQUAL)	
		TYPE	CRI	TEMP COLOR	LUMEN PACKAGE	MAX WATTAGE	VOLTAGE				
A	15"Wx44"Lx6.5"D SOLID ALUMINUM CHANNEL, ACRYLIC LED LIGHTING FIXTURE	LED	80	4000 K	22000 lm	166 W	120 V	CEILING ON ROD HANGER	LITHONIA	IBE L48 22000LM ATC MD MVOLT GZ10 40K DWH	
A1	15"Wx44"Lx6.5"D SOLID ALUMINUM CHANNEL, ACRYLIC LED LIGHTING FIXTURE WITH EMERGENCY BATTERY BACKUP	LED	80	4000 K	22000 lm	166 W	120 V	CEILING ON ROD HANGER	LITHONIA	IBE L48 22000LM ATC MD MVOLT GZ10 40K DWH E15WCP	
B	16" DIAMETER DIE-CAST ALUMINUM HOUSING WITH 16" CLEAR TEMPERED GLASS LENS, IP-65 RATED LED LIGHTING FIXTURE	LED	80	4000 K	31423 lm	218 W	120 V	CEILING ON ROD HANGER	LITHONIA	JEBL 30L 40k 80CRI WH 120-277VOLT	
C	15.35"Wx24"Lx17.28"D DIE-CAST ALUMINUM HOUSING WITH CORRO FREE EPOXY POWDER COAT, HEAT AND IMPACT REISTANCE GLASS LENS, LED LIGHTING FIXTURE. LUMINAIRE IS RATED FOR A VOLTAGE RANGE OF 120V-277VAC 50/60HZ. SUITABLE FOR NEC CLASS I, DIV. 2 USE	LED	70	5000 K	26531 lm	263 W	120 V	CEILING ON ROD HANGER	EATON / CROUSE-HINDS	VMV25L 2A/ UNV1	1
D	2'x4' LED LIGTHING FIXTURE IN STEEL HOUSING WITH LENSE	LED	80	3500 K	4789 lm	37 W	120 V	CEILING	DAY-BRITE	2CAXG48L835-4-DS-UNV-SWZDT	
D1	2'x4' LED LIGTHING FIXTURE IN STEEL HOUSING WITH LENSE AND EMERGENCY BATTERY BACKUP	LED	80	3500 K	4789 lm	37 W	120 V	CEILING	DAY-BRITE	2CAXG48L835-4-DS-UNV-SWZDT-EMPOE	
E1	EMERGENCY LIGHTING FIXTURE IN 5VA FLAME RATED, IMPACT AND SCRATCH RESISTANT HOUSING WITH TWO LED LAMPS-SP2200L LS AND 90 MINUTES BATTERY POWER, IP-66 RATED	LED	73	5000 K	2200 lm	22 W	120 V	WALL	LITHONIA	EXTL SP2200L M6 UVOLT LTP SDRT EHO	
E2	EMERGENCY LIGHTING FIXTURE SUITABLE FOR CLASS 1 DIVISION 2 LOCATION WITH BATTERY POWER AND 6 LED LAMP HEADS	LED	70	5000 K	714 lm	28 W	120 V	WALL	EATON / CROUSE-HINDS	N2LPSM212222 LED 120 277 VAC 60Hz	1
F	2'x2' LED LIGTHING FIXTURE IN STEEL HOUSING WITH LENSE	LED	80	3500 K	3793 lm	30 W	120 V	CEILING	DAY-BRITE	2CAXG38L835-2-DS-UNV-SWZDT	
F1	2'x2' LED LIGTHING FIXTURE IN STEEL HOUSING WITH LENSE AND EMERGENCY BATTERY BACKUP	LED	80	3500 K	3793 lm	30 W	120 V	CEILING	DAY-BRITE	2CAXG38L835-2-DS-UNV-SWZDT-EMPOE	
G	2' STRIP LED WITH GASKETED COVER FOR WET LOCATION, IP-66 RATED	LED	80	4000 K	4000 lm	35 W	120 V	CEILING	LITHONIA	DMW2 L24 4000LM ACL MD MVOLT GZ10 40K 80CRI WITH DMW2WLF FITTINGS	
H	7"x52" LIGTHING FIXTURE IN 5VA FIBERGLASS HOUSING WITH POURE-IN-PLACE GASKET, ACRYLIC LENSE AND LED LAMPS, IP-65 RATED	LED	80	4000 K	10000 lm	80 W	120 V	CEILING	LITHONIA	FEM L48 10000LM LPACL MD MVOLT GZ10 40K 80CRI	
H1	7"x52" LIGTHING FIXTURE IN 5VA FIBERGLASS HOUSING WITH POURE-IN-PLACE GASKET, ACRYLIC LENSE AND LED LAMPS, WITH EMERGENCY BATTERY BACKUP, IP-65 RATED	LED	80	4000 K	10000 lm	80 W	120 V	CEILING	LITHONIA	FEM L48 10000LM LPACL MD MVOLT GZ10 40K 80CRI E15WCP	
I	7"x52" LIGTHING FIXTURE IN 5VA FIBERGLASS HOUSING WITH POURE-IN-PLACE GASKET, ACRYLIC LENSE AND LED LAMPS, IP-65 RATED	LED	80	4000 K	6000 lm	45 W	120 V	CEILING /TOP OF TUNNEL	LITHONIA	FEM L48 6000LM LPACL MD MVOLT GZ10 40K 80CRI	
I1	7"x52" LIGTHING FIXTURE IN 5VA FIBERGLASS HOUSING WITH POURE-IN-PLACE GASKET, ACRYLIC LENSE AND LED LAMPS, IP-65 RATED, WITH EMERGENCY BATTERY BACKUP	LED	80	4000 K	6000 lm	45 W	120 V	CEILING /TOP OF TUNNEL	LITHONIA	FEM L48 6000LM LPACL MD MVOLT GZ10 40K 80CRI E15WCP	
J	37"X8" CEAG XLIN LINEAR LED LIGHTING FIXTURE IN GLASSFIBRE REINFORCED POLYESTER ENCLOSURE, TOUGHTENED CLEAR GLASS LENS, IP67 RATED FOR HAZARDOUS LOCATION APPLICATIONS	LED	70	5000 K	8120 lm	67 W	120 V	CEILING	EATON	XLIN 7L-2 GC S7	
J1	30'X8" CEAG XLIN LINEAR LED LIGHTING FIXTURE IN GLASSFIBRE REINFORCED POLYESTER ENCLOSURE, TOUGHTENED CLEAR GLASS LENS, IP67 RATED FOR HAZARDOUS LOCATION APPLICATIONS	LED	70	4000 K	2750 lm	22 W	120 V	CEILING	EATON	XLIN 3L-1 GC S7	1
K	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM WITH STEEL END CAPS.	LED	90	3500 K	2760 lm	29 W	120 V	CEILING SURFACE	CORONET	LS1 LED SQ 4 35 LTG1 UNV DB W SM	
K1	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM WITH STEEL END CAPS WITH EMERGENCY PACK.	LED	90	3500 K	2760 lm	29 W	120 V	CEILING SURFACE	CORONET	LS1 LED SQ 4 35 LTG1 UNV DB W SM EM 120V	
L	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM STEEL END CAPS LED.	LED	90	3500 K	2760 lm	29 W	120 V	CEILING CABLE HANG	CORONET	LS1 LED SQ 4 35 LTG1 UNV DB W AC	
L1	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM STEEL END CAPS LED WITH EMERGENCY PACK.	LED	90	3500 K	2760 lm	29 W	120 V	CEILING CABLE HANG	CORONET	LS1 LED SQ 4 35 LTG1 UNV DB W AC EM 120V	
M	FACADE/ACCENT SPOT LIGTH IN HEAVY DUTY DIE CAST ALUMINUM HOUSING, IP66 WET LOCATION RATED.	LED	----	3500 K	814 lm	15 W	120 V	TUNNION	INSIGHT LIGHTING	5SP-15-35K-OK TR UNV NO TN VS WC	
M1	FACADE/ACCENT SPOT LIGTH IN HEAVY DUTY DIE CAST ALUMINUM HOUSING, IP66 WET LOCATION RATED WITH 12" ARM.	LED	----	3500 K	814 lm	15 W	120 V	EXTERIOR WALL	INSIGHT LIGHTING	5SP-15-35K-OK EXA-X UNV NO TN	
M2	SPOT LIGHTING HEAVY DUTY DIE CAST ALUMINUM HOUSING WITH TEMPER GLASS. IP66 RATED. WITH EXTENDED ARM AND CABLE ASSEMBLY.	LED	----	3500 K	13883 lm	200 W	120 V	EXTENDED ARM	INSIGHT LIGHTING	PS17 MO 35K 60 EXA-X UNV NO TN VS WC	
N	WALL MOUNT LED LIGHTING FIXTURE. MULTI-STEP POWER COAT PAINTING WITH ANODIZED ALUMINUM HOUSING. STAINLESS STEEL EXTERNAL HARDWARE WITH CUSTOM MOLDED ANTI-AGING GASKETS. IP65 RATED.	LED	80	3000 K	64 lm	2 W	120 V	WALL	PERFORMANCE LIGHTING	ALU ROUND FULL 077279	
O	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM STEEL END CAPS LED.	LED	90	3500 K	5520 lm	58 W	120 V	CEILING CABLE HANG	CORONET	LS1 LED SQ 8 35 LTG1 UNV DB W AC	
O1	LINEAR LUMINAIRE WITH SQUARE LENSE. EXTRUDED ALUMINUM STEEL END CAPS LED WITH EMERGENCY PACK.	LED	90	3500 K	5520 lm	58 W	120 V	CEILING CABLE HANG	CORONET	LS1 LED SQ 8 35 LTG1 UNV DB W AC EM 120V	
P1	COBRAHEAD ROADWAY LUMINAIRE IN A HEAVYDUTY DIE-CAST ALUMINUM HOUSING AND DOOR 3G VIBRATION AND IP-66 RATED WITH HIGH EFFICIENCY ACCU LED OPTICS. POLE: 25' LONG SHAFT AND 8' ARM CONSTRUCTED OF EXTRUDE TUBE OF 6063 ALUMIMUM ALLOY PER ASTM B221. HAPCO RTA25D8B4T18 GC OR EQUAL.	LED	70	5000 K	30700 lm	280 W	120 V	POLE TOP	EATON	ARCH-L AF72 280 D U T2U 7050 4 AP	
P2	POLE AND FIXTURE COMBO. FIXTURE IS COMPRISE OF HEAVY DUTY SINGLE-PIECE OF DIE-CAST ALUMINUM HOUSING WITH DIE-CAST ALUMINUM DOOR AND LED OPTICS. IP-66 AND 3G VIBRATION RATED. 25' POLE SHAFT IN ONE-PIECE ASTM A500 GRADE B STEEL. ASTM A366 STEEL BASE COVER AND ASTM A576 ANCHOR BOLTS.	LED	70	4000 K	20000 lm	163 W	120 V	POLE TOP	EATON	PFPR-V1-C60-T3-25	
W1	WALL WASHER EXTRUDED ALUMINUM POLY LENSE SWIVEL WITH DIMMER CONTROL AND CABLE ASSEMBLY. W 1.6"X H 2" X L 12"	LED	80	3500 K	785 lm	10 W	120 V	WALL OR CEILING	ECOSENSE TROV	L50-I-12-10-WHITE-80-MULT-40X60	
W2	WALL WASHER EXTRUDED ALUMINUM POLY LENSE SWIVEL WITH DIMMER CONTROL AND CABLE ASSEMBLY. W 1.6"X H 2" X L 48"	LED	80	3500 K	3140 lm	40 W	120 V	WALL OR CEILING	ECOSENSE TROV	L50-I-48-10-WHITE-80-MULT-40X60	1
X1	COMBINATION EMERGENCY LIGHT AND EXIT SIGN IN FLAME-RETARDANT THERMO PLASTIC HOUSING WITH 2-LED LAMPS AND 90 MINUTES BATTERY POWER	LED	----	----	----	4 W	120 V	WALL OR CEILING	LITHONIA	ECR LED M6 120/277VOLT	
X2	LED EXIT SIGN IN DIE CAST ALUMINUM HOUSING WITH POLYCARBONATE FACEPLATE IN NEAM 4X RATED ENCLOSURE. WITH 90 MINUTES NICKEL CADMIUM BATTERY	LED	----	----	----	5 W	120 V	WALL OR CEILING	LITHONIA	LVS W 1(OR 2)R 120/277 EL N UM 4X SD	
X3	LED EXIT SIGN CERTIFIED FOR USE AT CLASS I DIVISION 2 LOCATIONS IN DIE CAST ALUMINUM HOUSING WITH POLYCARBONATE LENSE. SELF-POWERED WITH NICKEL CADIUM BATTERY	LED	----	----	----	1 W	120 V	WALL OR CEILING	EATON / CROUSE-HINDS	UX7 1 SD HAZ 120 VAC 60Hz	

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12/11/2020

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WASTEWATER TREATMENT PLANT
EAST HEADWORKS

530-ES-09
EAST HEADWORKS
LIGHTING FIXTURE SCHEDULE

Contract: 1729
CAD File Name: 530-ES-09.DGN
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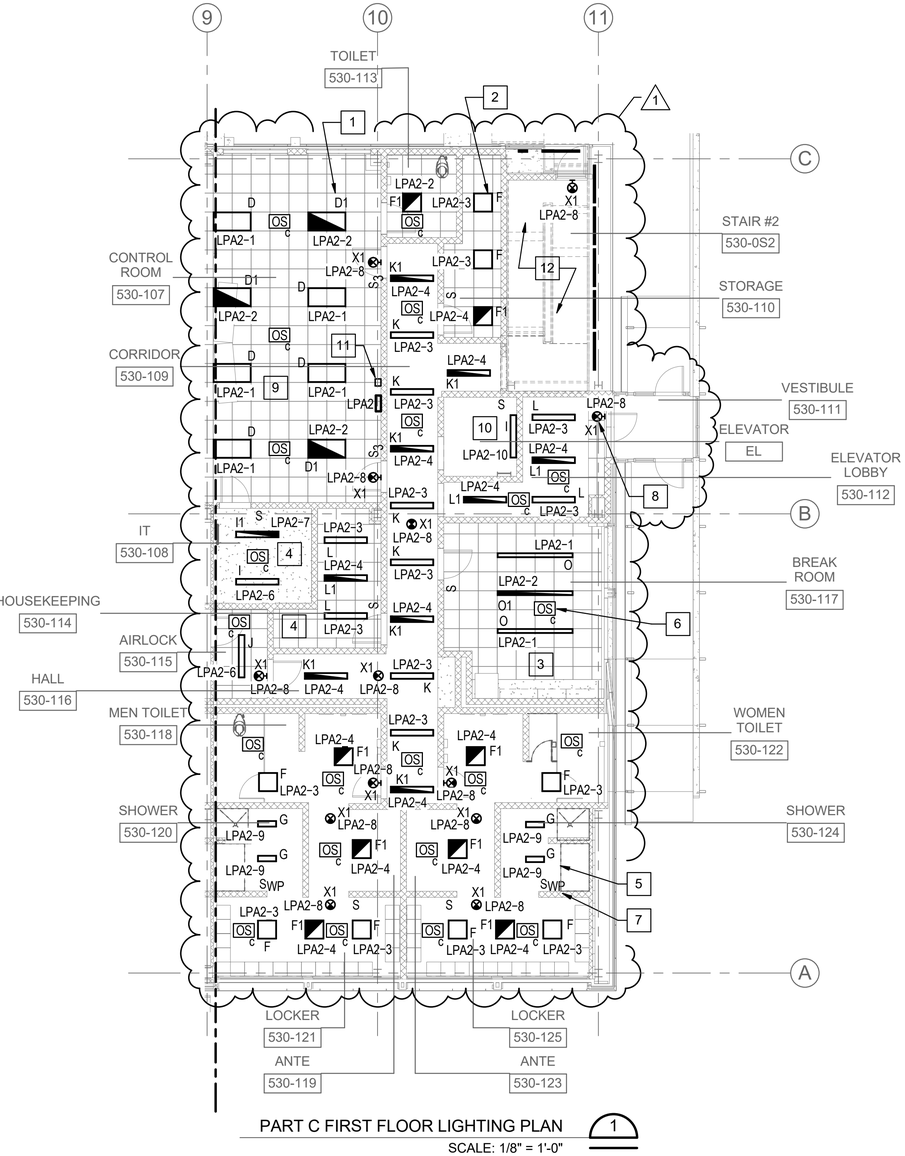


PART C FIRST FLOOR LIGHTING PLAN (1)

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

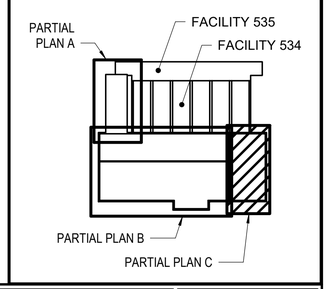
GENERAL SHEET NOTES

1. REFER TO DRAWING E-01 FOR LEGEND AND E-02 FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE LIGHTING FIXTURE SCHEDULE ON DRAWING 530-ES-06.
3. REFER TO PANEL SCHEDULES ON 530-ES-02.

SHEET KEYNOTES

1. PROVIDE 2'x4' LIGHTING FIXTURE CEILING MOUNTED (TYPICAL)
2. PROVIDE 2'x2' LIGHTING FIXTURE CEILING MOUNTED (TYPICAL)
3. PROVIDE 8' LIGHTING FIXTURE CEILING SURFACE MOUNTED (TYPICAL OF 3)
4. PROVIDE 4' LIGHTING FIXTURE MOUNTED ON CEILING SURFACE (TYPICAL)
5. PROVIDE 2' ENCLOSED LIGHTING FIXTURE. CEILING MOUNTED WITH STAINLESS STEEL HARDWARE.
6. PROVIDE OCCUPANCY SENSORS, FOR LIGHTS FIXTURES. EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL NOT BE SWITCHED.
7. PROVIDE WEATHER PROOF WALL SWITCH FOR LIGHT IN THE SHOWER ROOM (TYPICAL OF 2)
8. PROVIDE EXIT SIGNS, WALL OR CEILING MOUNTED.
9. PROVIDE HOMERUN CIRCUITS (2#12 AWG + GND IN 3/4" CONDUIT) TO PANEL LPA2.
10. MOUNT THIS FIXTURE AND IT'S CONTROL SWITCH AT TOP OF ELEVATOR SHAFT.
11. PROVIDE LIGHTING CONTACTOR, WALL MOUNTED.
12. SEE DRAWING 530-ELP-10 FOR TYPE W2 FIXTURES AT THE STAIRS.

KEY PLAN



0 4' 8' 16'

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

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530-ELP-06
EAST HEADWORKS
FIRST FLOOR - LIGHTING PLAN AREA - C

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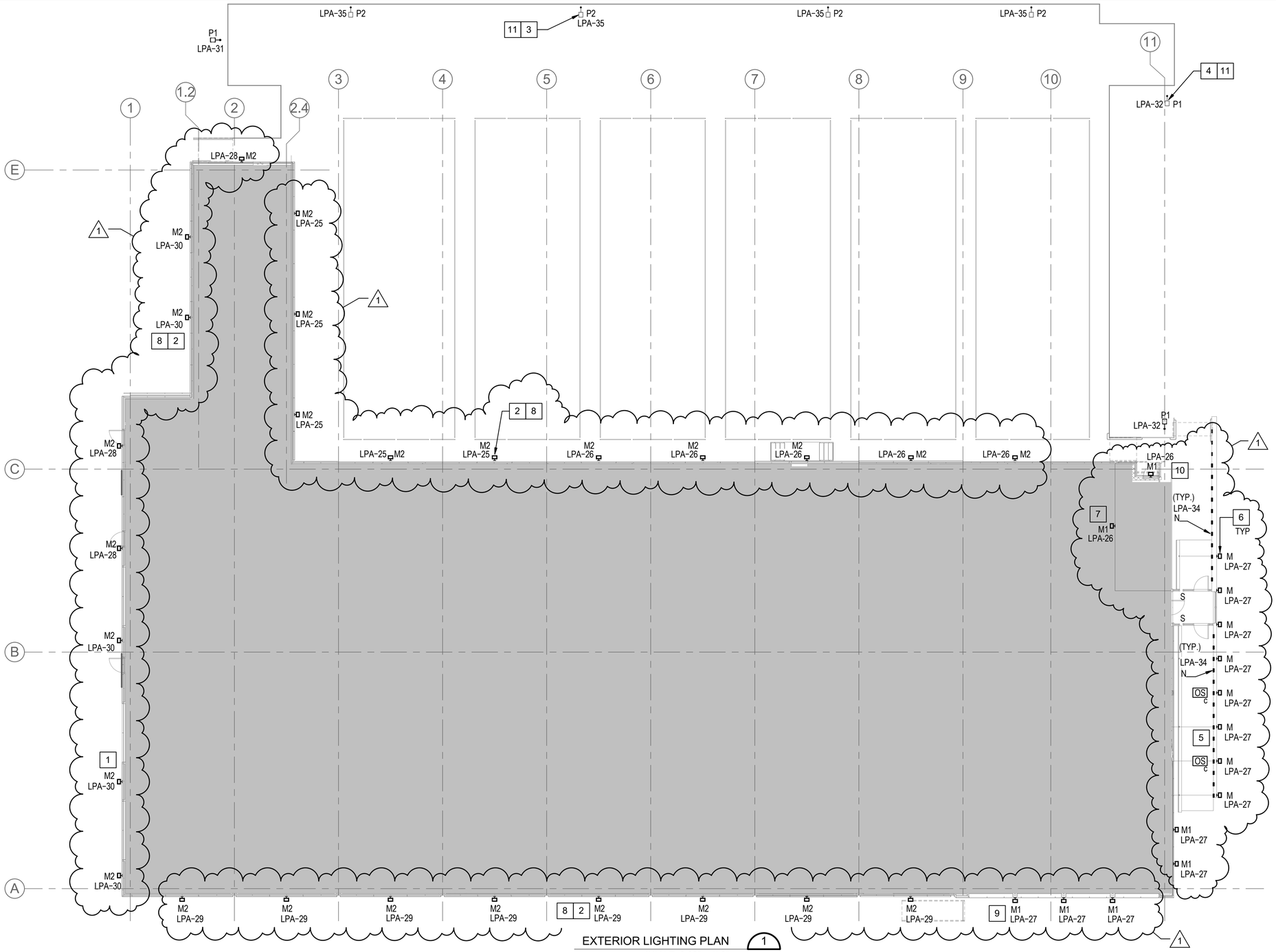

EXTERIOR LIGHTING PLAN (1)

SCALE: 3/32" = 1'-0"

N

GENERAL SHEET NOTES

1. REFER TO DRAWING E-01 FOR LEGEND AND E-02 FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE LIGHTING FIXTURE SCHEDULE ON DRAWING 530-ES-06.
3. REFER TO PANEL SCHEDULES ON 530-ES-02.
4. REFER TO ARCHITECTURAL ELEVATION DRAWINGS (SHEETS 530-A-17 THROUGH 530-A-20) FOR FIXTURE HEIGHT AND LOCATIONS, TYPICAL. CONFIRM LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.

SHEET KEYNOTES

1. INSTALL LIGHTING FIXTURE NEAR ROLL UP DOOR NOT TO EXCESS 19'-0" ABOVE GROUND. THESE LIGHTS WILL BE CONTROLLED BY PHOTOCELL AND AN EXPLOSION PROOF SWITCH ON THE WALL BEHIND THE DOOR.
2. INSTALL LIGHTING FIXTURES (TYPE M2) AT MINIMUM 20'-0" ABOVE GROUND. TYPICAL FOR LIGHTS ON THE WALLS AROUND THE BUILDING. RUN CONDUITS ON THE INSIDE OF THE BUILDING. THESE LIGHTS WILL BE CONTROLLED BY PHOTOCELL AND A MASTER HAND-OFF-AUTO SWITCH IN THE ELECTRICAL ROOM.
3. PROVIDE POLE AND LIGHT FIXTURE COMBO. INSTALL THE 25 FEET POLE ON THE NORTH END OF THE GRIT TANK. RUN CONDUIT TO THE LIGHTS ALONG STRUCTURAL SUPPORT MEMBER UNDER GROUND. CONTROLLED THE SAME WAY AS THE GENERAL EXTERIOR WALL FIXTURES. COORDINATE WITH STRUCTURAL / CIVIL FOR MOUNTING OF THE POLE BASE ON THE CONCRETE SLABS.
4. INSTALL ROADWAY STYLE LIGHTING FIXTURE ON A 25' TALL ALUMINUM POLE. SEE DETAILS ON DRAWING 530-ELD-01 (TYPICAL OF 3). CONTROLLED THE SAME AS THE GENERAL WALL MOUNTED FIXTURES.
5. INSTALL LIGHTING TYPE N RECESSED ON EAST WALL OF THE CANOPY. CONTROLLED BY LOW TEMPERATURE SENSORS AND A SWITCH AT THE ENTRANCE. RUN CONDUIT CONSEALED UNDER SLAB AND UP THE WALL. SEE DRAWING 530-A-45 FOR DETAILS.
6. INSTALL LIGHTING FIXTURE TYPE M ON THE CANOPY STRUCTURE. RUN CONDUIT IN WALL AND UNDER SLAB. CONTROLLED BY PHOTOCELL. SEE ARCHITECTURAL DRAWING FOR MOUNTING DETAILS.
7. LIGHTING FIXTURE ABOVE DOOR ON ROOF TOP STRUCTURE.
8. PROVIDE HOMERUN CIRCUITS (2#10 AWG + GND IN 3/4" CONDUIT) TO PANEL LPA IN THE ELECTRICAL ROOM. RUN CONDUIT INSIDE THE BUILDING, UNLESS OTHERWISE NOTED.
9. INSTALL LIGHTING FIXTURE M1 BELOW THE GLASS PANELS (TYPICAL OF 3)
10. INSTALL LIGHTING FIXTURE TYPE M1 ABOVE PERSONAL DOOR.
11. PROVIDE HOMERUN CIRCUITS (2#8 AWG + GND IN 1" CONDUIT) TO PANEL LPA IN THE ELECTRICAL ROOM TO THE POLE LIGHTS. RUN CONDUITS UNERGROUND.
12. ~~PROVIDE EXPLOSION PROOF SWITCH AT THIS LOCATION.~~

0 4' 8' 12' 20'

SCALE: 3/32" = 1'-0"

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530-ELP-09
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EXTERIOR LIGHTING PLAN

Contract: 1729
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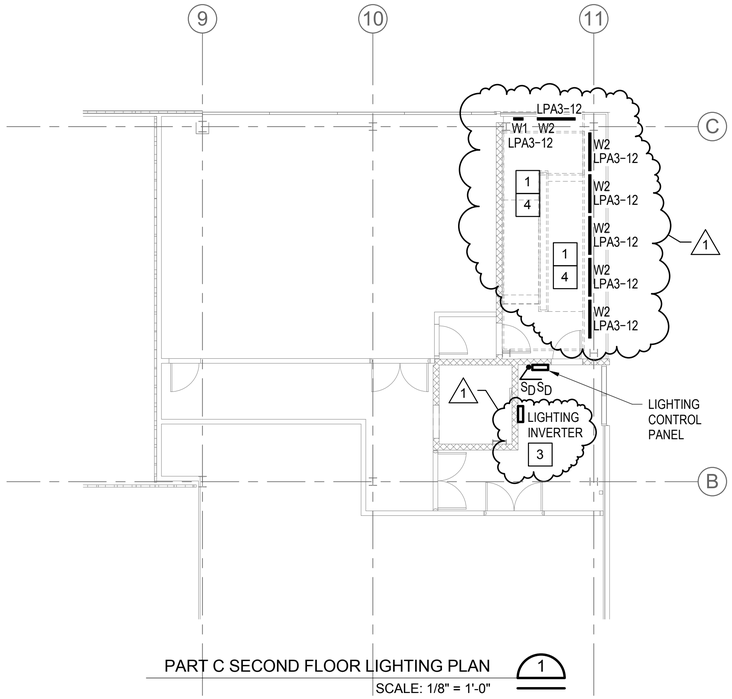
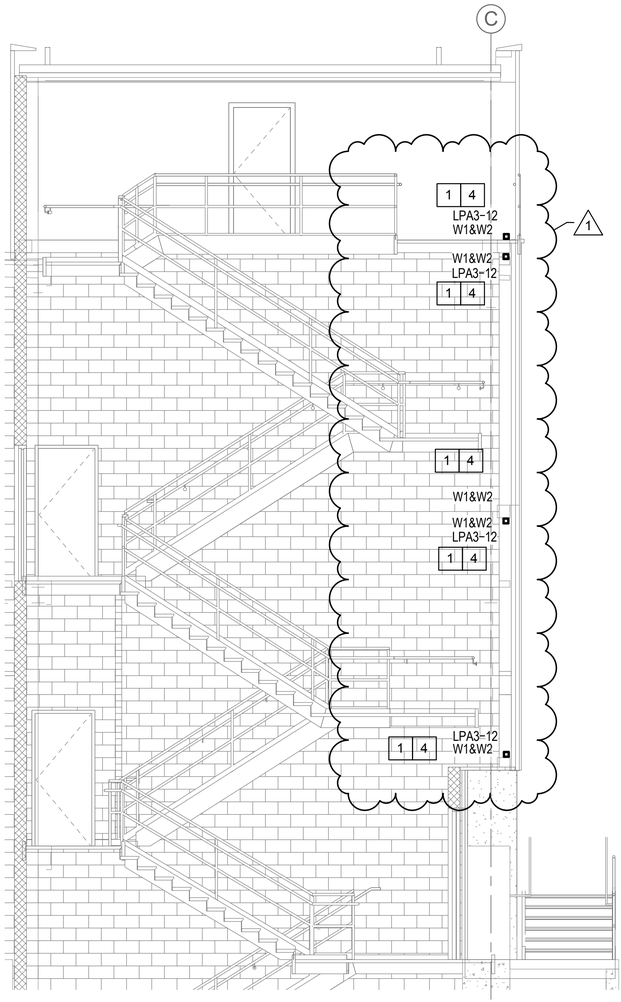
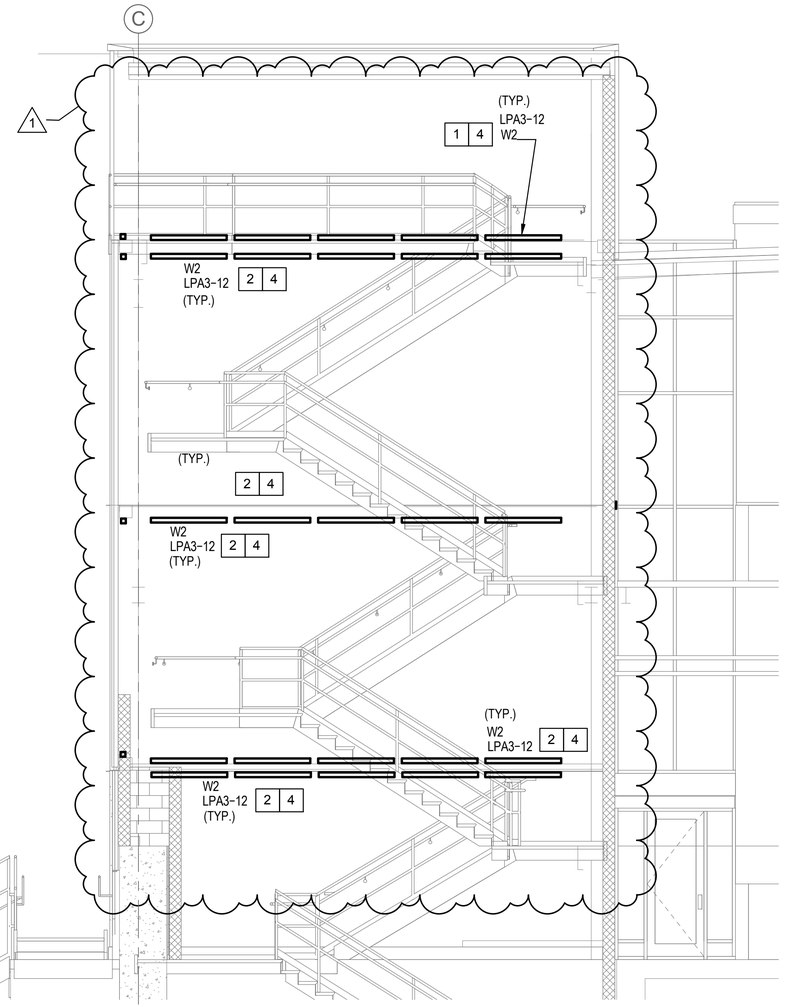


PART C SECOND FLOOR LIGHTING PLAN 1
SCALE: 1/8" = 1'-0"



SECTION 1 2
SCALE: 1/4" = 1'-0"



SECTION 2 3
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO DRAWING E-01 FOR LEGEND AND E-02 FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE LIGHTING FIXTURE SCHEDULE ON DRAWING 530-ES-06.
3. REFER TO PANEL SCHEDULES ON 530-ES-02.
4. SEE ARCHITECTURAL DRAWING FOR LIGHTING FIXTURE MOUNTING DETAILS.

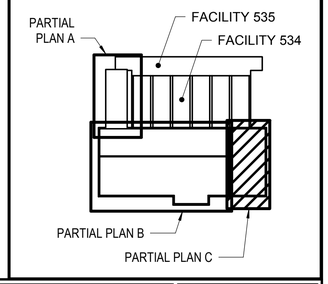
SHEET KEYNOTES

1. PROVIDE LINEAR WALL WASHER LIGHTING FIXTURE TYPE W1 AND W2. CEILING MOUNTED TO LIGHT UP THE INSIDE OF THE GLASS WALL PANEL.
2. PROVIDE LINEAR WALL WASHER LIGHTING FIXTURE SAME AS NOTE 1. MOUNT LIGHTING FIXTURE ON STRUCTURAL MEMBER TO THE WALL/BUILDING.
3. PROVIDE 2100VA LIGHTING INVERTER. DUAL-LITE DSL 2100 120/120 - 120 15 2 OR EQUAL.
4. PROVIDE HOME RUN CIRCUITS (2 #10 AWG + GND IN 3/4" CONDUIT) TO PANEL LPA3 VIA THE LIGHTING INVERTER.

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

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

KEY PLAN



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Designed by:	
	V.E.
Drawn by:	
	JC
Checked by:	
	RL

REVISION

REV No.	DATE	DESCRIPTION	APPV
0	10/28/20	ISSUED FOR BIDS	
1	12/11/20	ADDENDUM NO.1	

Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, MD 21231

VETERANS ENGINEERING
A SPIRIT TO SERVE

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DEBDAS GHOSAL
ENGINEER
No.34918-E
12/11/2020

alcosan
allegheny county sanitary authority

ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810
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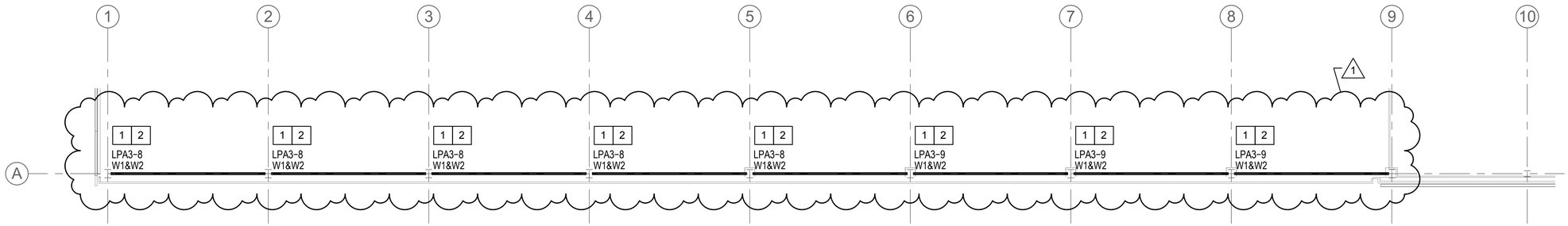
ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
EAST HEADWORKS

530-ELP-10
EAST HEADWORKS
LIGHTING AT GLASS

Contract:	
	1729
CAD File Name:	
	530-ELP-10.DGN
Date:	
	OCTOBER 2020
Sheet:	
	574 of 645



PART B SECOND FLOOR LIGHTING PLAN (1)

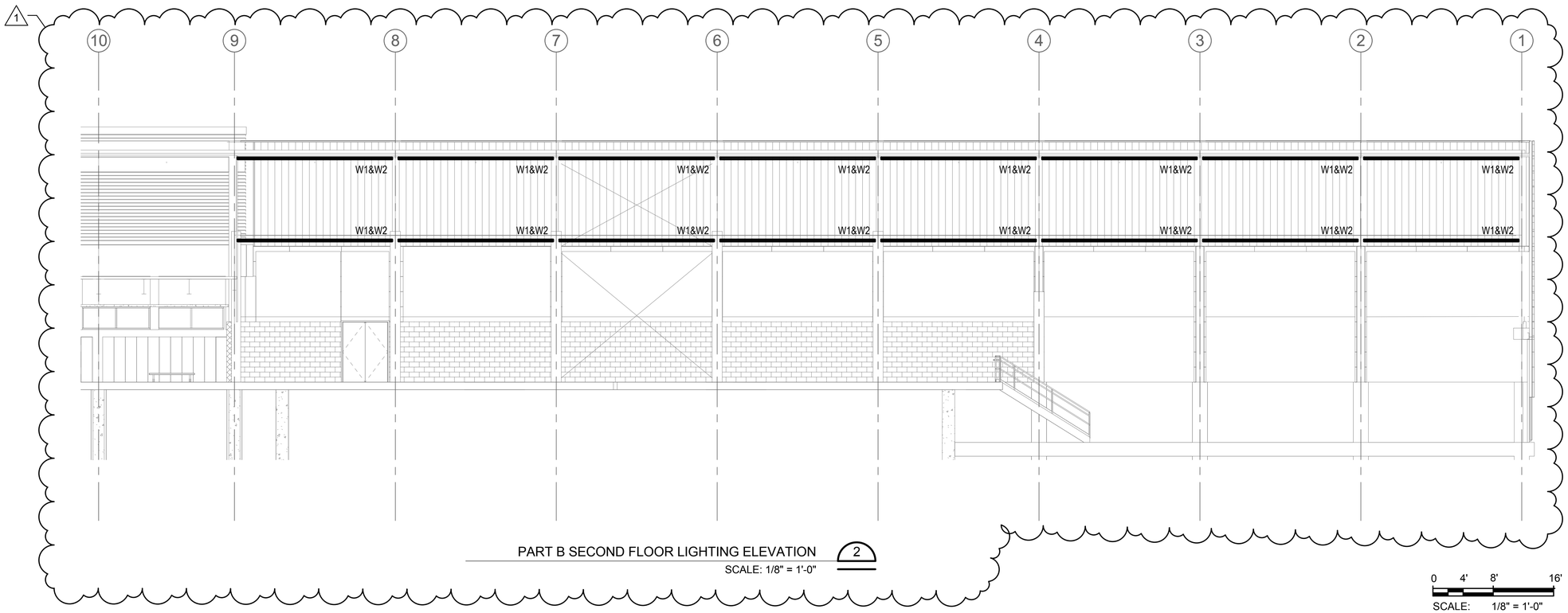
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO DRAWING E-01 FOR LEGEND AND E-02 FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE LIGHTING FIXTURE SCHEDULE ON DRAWING 530-ES-06.
3. REFER TO PANEL SCHEDULES ON 530-ES-02.
4. SEE ARCHITECTURAL DRAWING FOR MOUNTING DETAILS.

SHEET KEYNOTES

1. PROVIDE LINEAR WALL WASHER LIGHTING FIXTURE TYPE W1 & W2. CEILING OR WALL MOUNTED TO LIGHT UP THE INSIDE OF CHANNEL GLASS. DIMMER SHALL BE PROVIDED TO ENSURE LIGHTING LEVEL IS EVEN LIGHTING ON THE GLASS SURFACES ACROSS THE ENTIRE SOUTH WALL OF THE BUILDING. TYPICAL FOR ALL.
2. PROVIDE HOME RUN CIRCUITS (2 #10 AWG + GND IN 3/4" CONDUIT) TO PANEL LPA3.



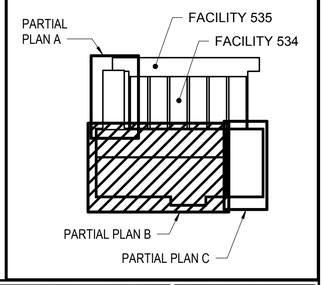
PART B SECOND FLOOR LIGHTING ELEVATION (2)

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

0 4' 8' 16'

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

KEY PLAN



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Designed by:	V.E.
Drawn by:	JC
Checked by:	RL

REVISION

REV No.	DATE	DESCRIPTION	APPV
0	10/28/20	ISSUED FOR BIDS	
1	12/11/20	ADDENDUM NO.1	

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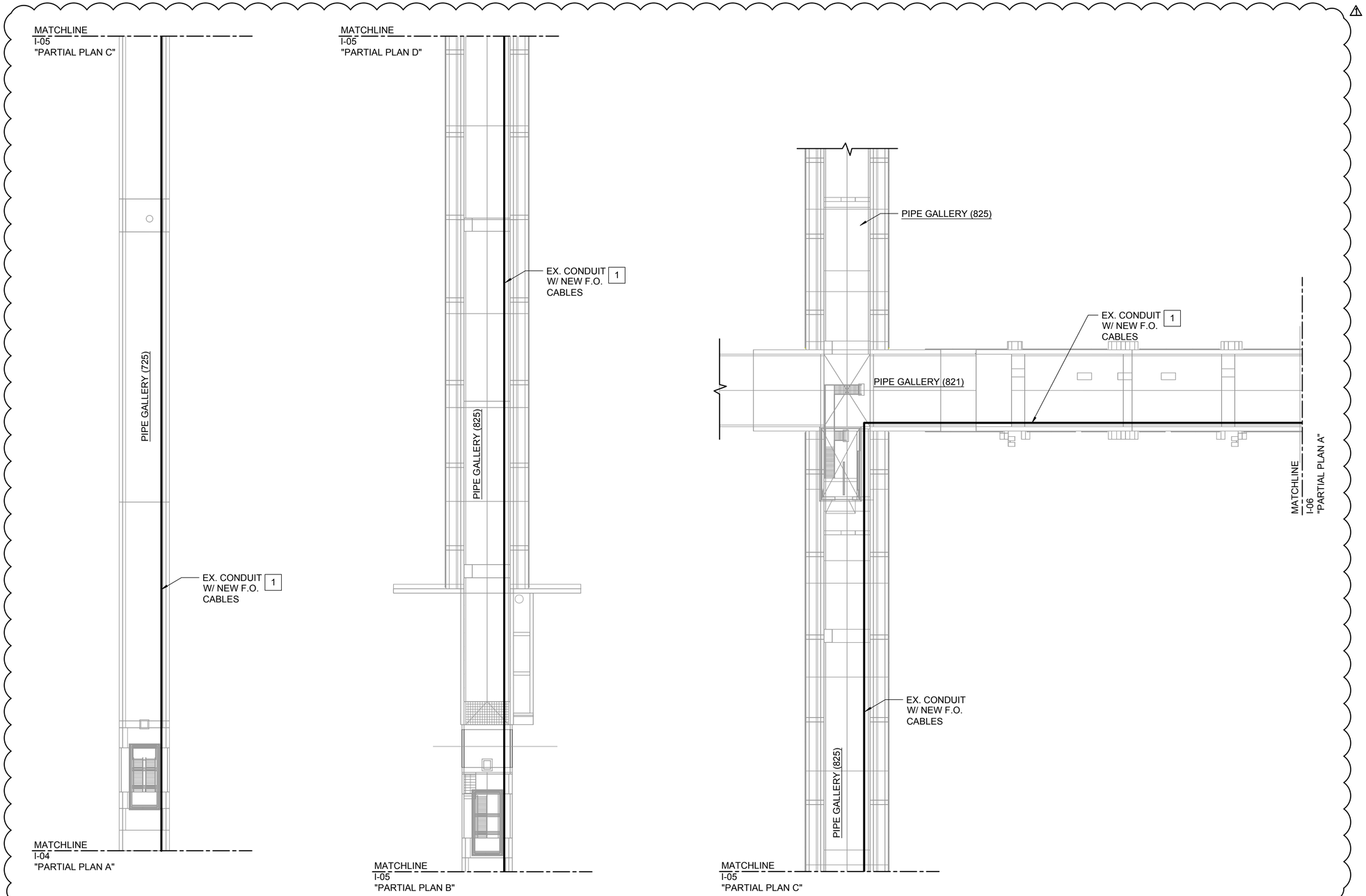
ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
EAST HEADWORKS

530-ELP-11
EAST HEADWORKS
LIGHTING AT GLASS

Contract:	1729
CAD File Name:	530-ELP-11.DGN
Date:	OCTOBER 2020
Sheet:	575 of 645



FIBER OPTIC SITE PARTIAL PLAN B (1)
SCALE: 1/16" = 1'-0"

FIBER OPTIC SITE PARTIAL PLAN C (2)
SCALE: 1/16" = 1'-0"

FIBER OPTIC SITE PARTIAL PLAN D (3)
SCALE: 1/16" = 1'-0"

0 8' 16' 32'
SCALE: 1/16" = 1'-0"

N

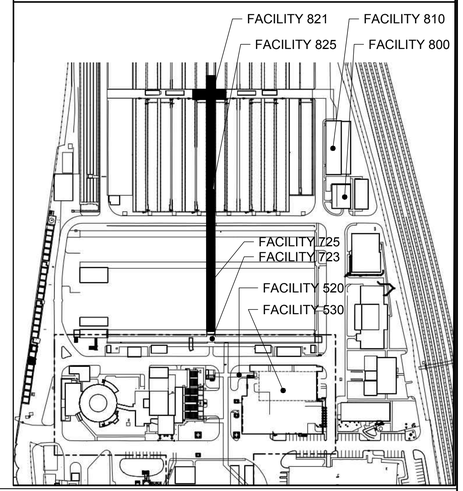
GENERAL SHEET NOTES

1. SEE INSTRUMENTATION LEGEND AND GENERAL NOTES AND ABBREVIATIONS SHEETS FOR DETAILS.
2. FIBER OPTIC SITE PLAN SHOWN TO PORTRAY THE PATHWAY REQUIRED FOR ROUTING NEW FIBER FROM THE EAST HEADWORKS IT SEVER RACK TO THE EX. BUILDING 802 PATCH PANEL. NOT ALL DETAILS AND EQUIPMENT ASSOCIATED WITH OTHER DISCIPLINES ARE SHOWN ON THESE PLANS FOR CLARITY. CONTRACTOR SHALL COORDINATE FIBER OPTIC SITE PLAN ROUTING WITH OTHER DISCIPLINES DRAWINGS AND EXISTING ALCOSAN SITE AS-BUILTS SUCH AS NOT TO INTERFERE WITH OTHER WORK.
3. FIBER OPTIC SHOWN SHALL BE ROUTED WITHOUT SPLICE. FIBER SHALL BE ROUTED AS TO NOT EXCEED FIBER MFG. MAX. BEND RADIUS.
4. NOT ALL EX. FIBER OPTIC CONDUIT OR PULLBOXES SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING EXISTING SITE CONDITIONS AND COORDINATING WITH EXISTING PLANT AS-BUILT DRAWINGS.

X SHEET KEYNOTES

1. CONTINUE TO RUN (2) NEW 6-STRAND MULTIMODE F.O. CABLES THROUGH EX. CONDUIT AND PULLBOXES AS SHOWN.

KEY PLAN



Designed by: JJN	REVISION			
Drawn by: JJN	REV No.	DATE	DESCRIPTION	APPV
Checked by: PWG	0	10/28/20	ISSUED FOR BIDS	
	1	12/11/20	ADDENDUM NO. 1	

Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, MD 21231

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PADRAIC WILLIAM GRAY PE086857 12/11/2020

ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

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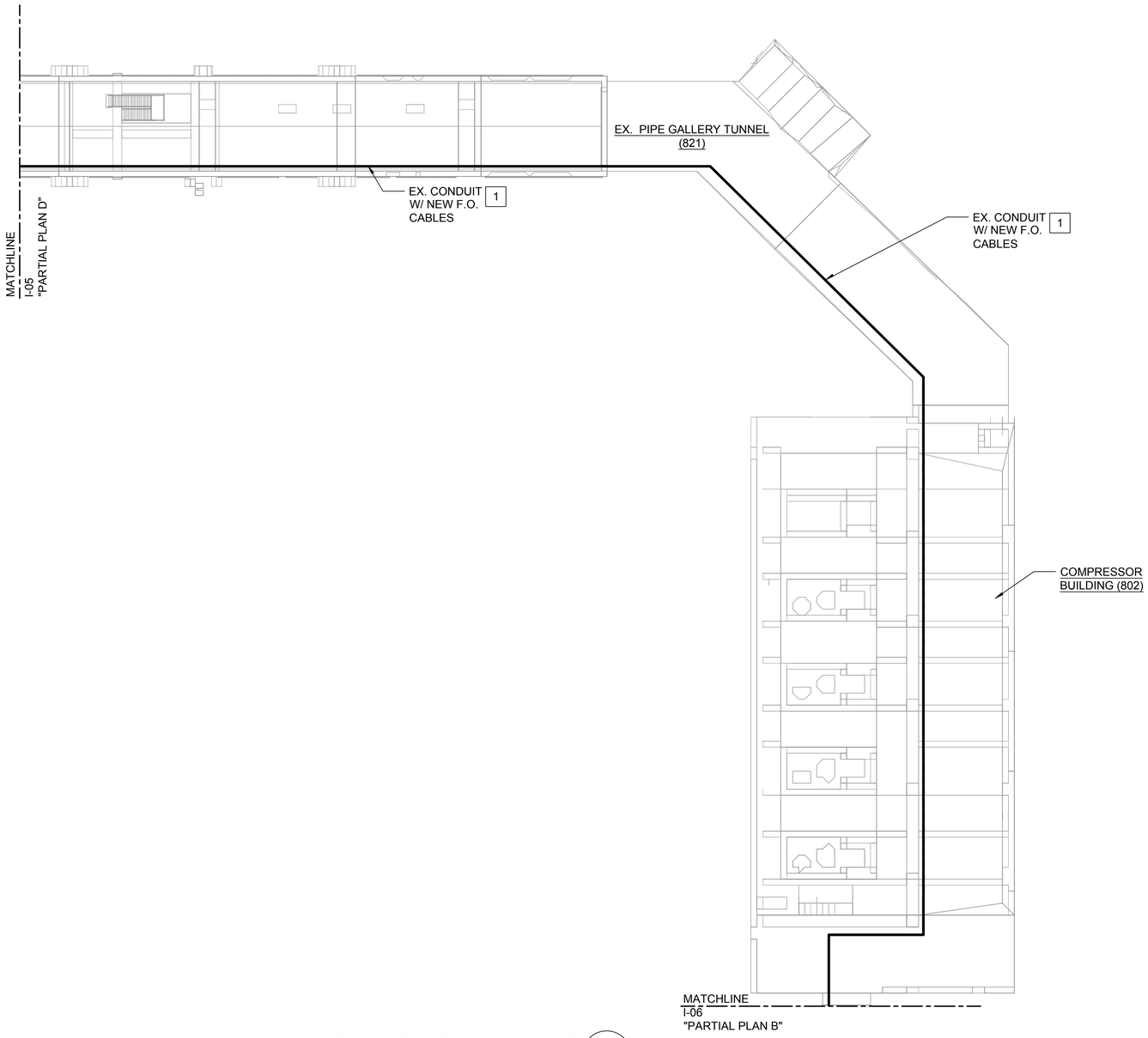
ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
EAST HEADWORKS

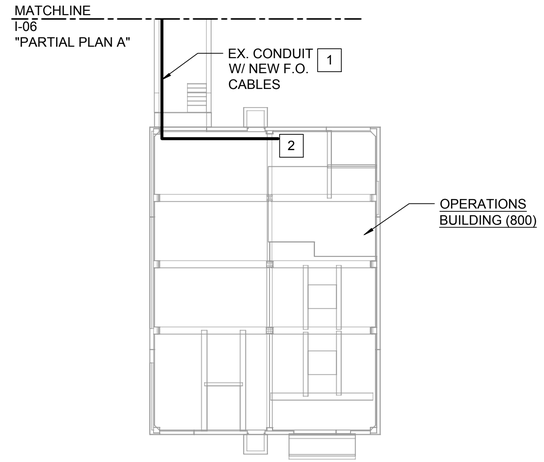
I-05
FIBER OPTIC SITE PLAN (2 OF 3)

Contract: 1729
CAD File Name: 14430000I-05
Date: OCTOBER 2020
Sheet: 606 OF 645



FIBER OPTIC SITE PARTIAL PLAN E 1

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

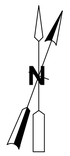


FIBER OPTIC SITE PARTIAL PLAN F 2

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

0 8' 16' 32'

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



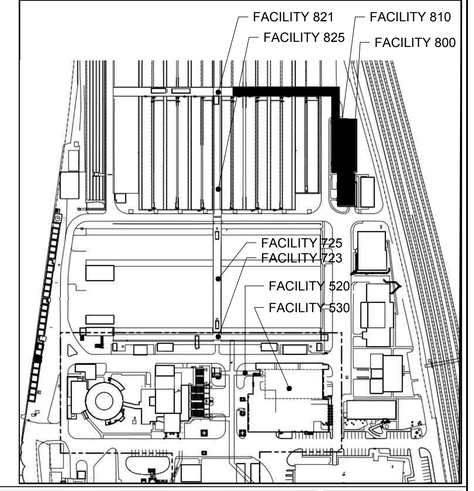
GENERAL SHEET NOTES

1. SEE INSTRUMENTATION LEGEND AND GENERAL NOTES AND ABBREVIATIONS SHEETS FOR DETAILS.
2. FIBER OPTIC SITE PLAN SHOWN TO PORTRAY THE PATHWAY REQUIRED FOR ROUTING NEW FIBER FROM THE EAST HEADWORKS IT SEVER RACK TO THE EX. BUILDING 802 PATCH PANEL. NOT ALL DETAILS AND EQUIPMENT ASSOCIATED WITH OTHER DISCIPLINES ARE SHOWN ON THESE PLANS FOR CLARITY. CONTRACTOR SHALL COORDINATE FIBER OPTIC SITE PLAN ROUTING WITH OTHER DISCIPLINES DRAWINGS AND EXISTING ALCOSAN SITE AS-BUILTS SUCH AS NOT TO INTERFERE WITH OTHER WORK.
3. FIBER OPTIC SHOWN SHALL BE ROUTED WITHOUT SPLICE. FIBER SHALL BE ROUTED AS TO NOT EXCEED FIBER MFG. MAX. BEND RADIUS.
4. NOT ALL EX. FIBER OPTIC CONDUIT OR PULLBOXES SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING EXISTING SITE CONDITIONS AND COORDINATING WITH EXISTING PLANT AS-BUILT DRAWINGS.

X SHEET KEYNOTES

1. CONTINUE TO RUN (2) NEW 6-STRAND MULTIMODE F.O. CABLES THROUGH EX. CONDUIT AND PULLBOXES AS SHOWN.
2. ROUTE CONDUIT THROUGH EX. F.O. PULLBOX IN BUILDING 800 TO BUILDING 802 ABOVE. TERMINATE (2) STRANDS OF EACH 6-STRAND F.O. CABLE AT EX. FIBER OPTIC PATCH PANEL IN BUILDING 802. CONTRACTOR SHALL COORDINATE FINAL TERMINATION POINTS WITH OWNER.

KEY PLAN



Designed by:	REVISION			
JJN	REV No.	DATE	DESCRIPTION	APPV
Drawn by:	0	10/28/20	ISSUED FOR BIDS	
JJN	1	12/11/20	ADDENDUM NO. 1	
Checked by:				
PWG				

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WASTEWATER TREATMENT PLANT
EAST HEADWORKS

I-06
FIBER OPTIC SITE PLAN (3 OF 3)

Contract: 1729
CAD File Name: 14430000I-06
Date: OCTOBER 2020
Sheet: 607 OF 645

CONTRACTS 1729 G, E, P, H
EAST HEADWORKS
PRE-BID MEETING AGENDA

WEDNESDAY December 9, 2020 @ 11:00 AM
VIRTUAL MICROSOFT TEAMS MEETING

JOHN FINDLEY/DUSTIN COPENHAVER – ALCOSAN PROJECT MANAGER
BRAD ZOOK – CONSTRUCTION MANAGER

INTRODUCTION

a. Attendees joining via email will be noted in attendee list. Any call-in attendees that wish to be added to the list should send email to CM following meeting.
b. Opening comments from Construction Manager.
c. Contractors must purchase bid documents from ALCOSAN to submit bids and receive addendum information.
d. Encourage a target goal of WBE/MBE participation. (10% to 25% of contract value).
e. Presentation of Contract Scope by WRA.

BID DOCUMENTS

1. Legal Notice

a. Bid security 10% of bid price by certified check or bid bond.
b. All bids to be submitted to Alcosan Engineering Department clerks (2nd floor of the O&M Building) on or before bid opening date and time. If the bid package is sent to ALCOSAN by land courier (UPS, FedEx, etc.), allow enough time for delivery to the clerks.
c. Bid opening on **Wednesday February 17th, 2021** at **11:00 AM** sharp!
d. Anticipation of award at the **February 25th, 2021** ALCOSAN Board meeting.
e. All questions about contract documents shall be submitted to Brad Zook email to Bradley.Zook@mbakerintl.com in writing. Any questions by phone or in-person are considered informal and without legal or binding effect on the contract or to the Owner.
f. The last day for questions is Close of Business **February 5th, 2021**. Responses will be distributed as addenda, as soon as possible, as deemed applicable.
g. Pre-bid meeting is not mandatory for bidders.

2. Bidding Documents [Article One]

a. Bid Form - fill in TOTAL BASE BID on page 1-4. This is sum of Lump Sum Work (8.1) and Extended Amount for Unit Price Work (8.2). There are no alternates bid. All bids submitted with all bid forms complete and signed by authorized representative of the Company. Only the bid forms need to be submitted (Article 1 → pages 1-1 through 1-23 (G) or 1-21 (E, P, H) and Solicitation and Commitment Statement pages 1 of 4 through 4 of 4), not the entire book.
b. Acknowledge all Addenda received and made part of the Bid Documents page 1-2. (Art. 2.16)
c. Provide a contact for your company in the space designated on page 1-5 for receipt of any communications necessary for the bid evaluation.
d. Bid Bond - Certified check or Bid Bond. (Art. 2.19)
e. MBE/WBE lower-tier subcontractor participation counts towards 10%-25% (2.25)
f. Project Labor Agreement (2.33) Primes to sign and submit Letter of Assent with bid. Subs sign before working on project.
g. Use of Model (2.34) – "facilitate sequencing of the work in preparing bid"

3. **Information for Bidders [Article Two]**
   a. Submission of Bids (2.04); Sealed Bid to be submitted to ALCOSAN Engineering Department on or before bid opening date and late bids (anything received after 11:00 AM) will be treated as "non-responsive" and returned to the Bidder unopened.
   b. Award Contract Execution and Notice to Proceed (2.07); Intend to award Contract 1729 at the February 25th, 2021 Board Meeting. Contract execution typically requires 6 weeks to process paperwork (including bonds and certificates of insurance). Anticipate a Notice to Proceed to be issued in mid April 2021.
   c. Bidders to Investigate (2.13); Bidders may coordinate additional site visits through the Construction Manager Resident Engineer Brad Zook at 412-269-6461 (Office) or Bradley.Zook@mbakerintl.com.
   d. Tax Exemptions (2.18) See Article 3.21 and Exhibit D.
   e. Bid Security / Contract Execution (2.20)
   f. Alterations of Bids and Documents (2.22)
   g. Qualifications and Experience of Bidders (2.24)
   h. MBE & WBE Participation (2.25)
   i. Project Labor Agreement and Letter of Assent (Prime and Subs) (2.34)

4. **Contract Provisions [Article Three]**
   a. Project Coordination (3.7 & 3.27)
   b. Retainage; (3.35): 10% to start. Reduced to 5% at 50% completion.
   c. Bonds (3.55); Performance Bond and Labor and Material Payment Bond to be provided prior to the execution of the Contract Agreement by Owner in the amount (100%) of the Contract Sum. Also, Maintenance Bond (100% of Contract sum) required upon final acceptance of the completed work.
   d. Compliance with Health (COVID-19), Safety, and Environmental Laws (3.72); requires a project-specific written safety program, tailored specifically for the work on this Contract 1729 to be submitted to the Construction Manager prior to performing any work on-site.
   e. Working hours (3.74); Normally for an 8-hour period between 7:00 AM to 5:00 PM, Monday through Friday. Work performed after hours, during ALCOSAN holidays and weekends shall be overseen by the Construction Manager, ALCOSAN and FDC staff as required, at the sole expense of the Contractor.
   f. Pennsylvania Prevailing Wage Rates (3.75); Minimum wage rates as set forth by the PA Prevailing Wage Act. (See Article 7 Volume 1 of 3)
   g. Compliance to the Buy American (3.76)
   h. Compliance to the PA Steel Products Procurement Act/Trade Practices Act (3.77/3.78)

5. **Contract Agreement [Article Four]**
   a. Contract Milestones:

Construction Milestone	Contract Time Calendar Days	Notes
Substantial Completion of Contract	1,260 days	From Notice to Proceed
Final Completion of Contract	1,305 days	From Notice to Proceed

b. Liquidated Damages

Construction Milestone	Liquidated Damages / Calendar Day
Substantial completion of Contract	$2,000/calendar day
Final Completion of Contract	$1,000/calendar day

c. West Headworks Bypassing – MAINTENANCE OF PLANT OPERATIONS (MOPO)

MOPO	Contract Time Calendar Days	Liquidated Damages	Bonus
01 52 00 1.9.F	14 days	$15,000 / day	$15,000 / day
01 52 00 1.9.G	5 days	$15,000 / day	$15,000 / day

6. **Bonds, Certificates and Statements [Article Five]**
   a. Performance Bond (At beginning of contract)
   b. Labor and Material Payment Bond (At beginning of contract)
   c. Contractor's Certificate of Satisfaction (At completion of contract)
   d. Maintenance Bond (At completion of contract)
7. **Project Specifications [Article 6)**
   a. Summary of Work 01 11 00 – Summarized by the FDC
8. **Prevailing Minimum Wage Determination [Article 7]**
9. **Contract Drawings**
   a. 645 Drawings
10. **Open Discussion / Questions / Site Tour Requests-submit**

♦♦ ♦ ♦ ♦ ♦ END OF AGENDA ♦ ♦ ♦ ♦ ♦

Allegheny County Sanitary Authority
Contract 1729 – East Headworks
PRE-BID MEETING MINUTES

Subject:	Pre-Bid Meeting Minutes
Date:	December 9, 2020
Time:	11:00 AM
Project:	**New East Headworks**
Location:	Microsoft Teams - Virtual Meeting

PURPOSE OF MEETING: To provide Bidders a venue to collectively hear the specifics about the project scope, schedule, and cost.

ATTENDEES: See Attached

A. INTRODUCTION

a. Attendees joining via email will be noted in attendee list. Any call-in attendees that wish to be added to the list should send email to CM following meeting.
b. Opening comments were provided from Construction Manager, Brad Zook.
c. Contractors must purchase bid documents from ALCOSAN to submit bids and receive addendum information.
d. Encourage a target goal of WBE/MBE participation. (10% to 25% of contract value).
e. Presentation of Contract Scope by WRA.

B. BID DOCUMENTS

1. **Legal Notice**

a. The Bid Security will be 10% of bid price, by certified check or bid bond.
b. All bids shall be submitted to ALCOSAN's Engineering Department clerks (2nd floor of the O&M Building) on or before the bid opening date and time. If the bid package is sent to ALCOSAN by land courier (UPS, FedEx, etc.), allow enough time for delivery to the clerks.
c. The Bid Opening will be held on **Wednesday February 17, 2021** at **11:00 AM** sharp!
d. Anticipation of award will be announced at the **February 25, 2021** ALCOSAN Board Meeting.
e. All questions about contract documents shall be submitted to Brad Zook in writing, via email only, at Bradley.Zook@mbakerintl.com. *Any questions by phone or in-person are considered informal and without legal or binding effect on the contract or to the Owner*.
f. The last day for questions will be on **February 5, 2021, close of business**. Responses will be distributed as addenda, as soon as possible, as deemed applicable.
g. This Pre-Bid Meeting is not mandatory for bidders.

2. **Bidding Documents [Article 1]**

a. Bid Form - fill in TOTAL BASE BID on page 1-4. This will be the sum of Lump Sum Work (8.1) and Extended Amount for Unit Price Work (8.2). There are no alternate bids. All bid forms submitted must be complete and signed by an authorized representative of the Company. Only the bid forms need to be submitted (Article 1 → pages 1-1 through 1-23 (G) or 1-21 (E, P, H) and Solicitation and Commitment Statement pages 1 of 4 through 4 of 4), not the entire book.

b. Bidder must Acknowledge all Addenda received and made part of the Bid Documents, page 1-2. (Art. 2.16)
c. Bidder must provide a contact for your company in the space designated on page 1-5 for receipt of any communications necessary for the bid evaluation.
d. Bid Bond – must be in the form of a Certified Check or Bid Bond. (Art. 2.19)
e. MBE/WBE lower-tier subcontractor participation counts towards 10%-25% (Art. 2.25)
g. Project Labor Agreement (Art. 2.33) – Primes to sign and submit Letter of Assent with bid. Subcontractors will be required to sign before working on the project.

3. **Information for Bidders [Article 2]**

a. Submission of Bids (2.04); Sealed Bids must be submitted to ALCOSAN Engineering Department on or before bid opening date. Late bids (anything received after 11:00 AM) will be treated as "non-responsive" and returned to the Bidder unopened.
b. Award Contract Execution and Notice to Proceed (2.07); ALCOSAN intends to award Contract 1729 G, E, H, and P at the February 25, 2021 Board Meeting. Contract execution typically requires 6 weeks to process paperwork (including bonds and certificates of insurance). Anticipate a Notice to Proceed to be issued in mid-April 2021.
c. Bidders to Investigate (2.13); Bidders may coordinate additional site visits through the Construction Manager Resident Engineer, Brad Zook, at 412-269-6461 (Office) or Bradley.Zook@mbakerintl.com.
d. Tax Exemptions (2.18) See Article 3.21 and Exhibit D.
e. Withdrawal or Modification of Bids (2.20); Bidders to review and acknowledge requirements established by ALCOSAN regarding.
f. Alterations of Bids and Documents (2.22); No alteration, erasure, addition or omission of required information, or any change of the Contract Documents is permitted, except in accordance with the provisions of Section 2.11 hereof entitled, "Questions Regarding Contract Documents/Errors."
g. Qualifications and Experience of Bidders (2.24); Each Bidder and its subcontractor must be regularly engaged in, and have at least Five (5) years' experience in, the installation of the particular type(s) of construction, systems and equipment required for this contract. Completion of the Contractor's Experience Questionnaire in the Bid Documents is a mandatory.
h. MBE & WBE Participation (2.25); The goal of the Authority is that Ten to Twenty-five Percent (10% to 25%) of all dollars relating to its contracts be awarded to minority or women's business enterprises.
i. Project Labor Agreement and Letter of Assent (Prime and Subs) (2.33); The Bidder shall, when submitting their bid, acknowledge that it will abide by the Project Labor Agreement by signing and submitting a Letter of Assent in the format given in Attachment A.

4. **Contract Provisions [Article 3]**

a. Project Coordination (3.7 & 3.27); It shall be the Contractor's responsibility to coordinate all Work furnished under this Contract with the Construction Manager and with the Other Contractors to make sure that all Work performance guarantees are achieved and that the Work is properly constructed, assembled, installed and configured for reliable and continuous operation.
b. Retainage; (3.35): 10% will be withheld at each Pay request, to start. The amount retained will be reduced to 5% at 50% completion.
c. Bonds (3.55); A Performance Bond and Labor and a Material Payment Bond are to be provided

prior to the execution of the Contract Agreement by Owner in the amount (100%) of the Contract Sum. Also, a Maintenance Bond (100% of Contract sum) will be required upon final acceptance of the completed work.

d. Compliance with Health (COVID-19), Safety, and Environmental Laws (3.72); Contractors will be required to submit a project-specific written safety program, tailored specifically for the work on this Contract 1729, to be submitted to the Construction Manager. This program must be approved by CM and ALCOSAN prior to performing any work on-site.

e. Working hours (3.74); Normally for an 8-hour period between 7:00 AM to 5:00 PM, Monday through Friday. Work performed after hours, during ALCOSAN holidays and weekends shall be overseen by the Construction Manager, ALCOSAN and FDC staff as required, at the sole expense of the Contractor.

f. Pennsylvania Prevailing Wage Rates (3.75); Minimum wage rates as set forth by the PA Prevailing Wage Act. (See Article 7 Volume 1 of 3)

g. Compliance to the Buy American (3.76); It is the desire of the Owner that items supplied under this Contract shall be manufactured and assembled in the United States of America and utilize American materials to the maximum practical extent, consistent with the needs of this Contract and the availability of products and components of American manufacture.

h. Compliance to the PA Steel Products Procurement Act/Trade Practices Act (3.77/3.78); The Contractor agrees to comply with the Pennsylvania Steel Products Procurement Act and shall submit with its Bid a signed copy of the Certificate of Compliance with the Pennsylvania Steel Products Procurement Act. The Contractor also agrees to comply with the Trade Practices Act and shall not use or permit to be used in the Work any aluminum or steel products made in a foreign country which discriminates against aluminum or steel products manufactured in Pennsylvania.

5. **Contract Agreement [Article 4]**

a. Contract Milestones:

Construction Milestones	Contract Time (Calendar Days)	Notes
Substantial Completion of Contract	1,260 days	From Notice to Proceed
Final Completion of Contract	1,305 days	From Notice to Proceed

b. Liquidated Damages:

Construction Milestone	Liquidated Damages
Substantial Completion of Contract	$2,000/calendar day
Final Completion of Contract	$1,000/calendar day

c. West Headworks Bypassing – MAINTENANCE OF PLANT OPERATIONS (MOPO):

MOPO	Contract Time (Calendar Days)	Liquidated Damages	Bonus
01 52 00 1.9.F	14 days	$15,000/day	$15,000/day
01 52 00 1.9.G	5 days	$15,000/day	$15,000/day

6. **Bonds, Certificates and Statements [Article 5]**

a. Performance Bond to be provided at beginning of contract.

b. Labor and Material Payment Bond to be provided at beginning of contract.

c. Contractor's Certificate of Satisfaction to be provided at completion of contract.
d. Maintenance Bond to be provided at completion of contract.

7. **Project Specifications [Article 6]**
   a. Summary of Work 01 11 00 – Summarized by the Final Design Consultant (FDC).
   b. PMIS 01 33 16 – ALCOSAN will require contractors to utilize eBuilder for processing of contract documentation.
   c. Maintenance of Plant Operations (MOPO) 01 52 00 – Describes contractor requirements pertaining to the continual operation of ALCOSAN facilities during particular project requirements.

8. **Prevailing Minimum Wage Determination [Article 7]**
   a. See list in contract documents; Commonwealth of Pennsylvania Department of Labor & Industry

9. **Contract Drawings**
   a. There are a total of 645 drawings.

C. OPEN DISCUSSION / QUESTIONS / SITE TOUR REQUESTS

1. **Questions**
   a. What is ALCOSAN's expectation regarding limits of available space for construction outside of those areas delineated as laydown areas on drawing sheet G-13? Answer – This question will be addressed via addendum.
   b. Will a BIM Model be provided? Answer – This question will be addressed via addendum.
   c. What is the Engineer's Estimate for the project? Answer - The total construction cost of the project is estimated to be $105 million to $127 million.

2. **Site Tour Requests**
   a. Requests must be submitted in writing to the Construction Manager Resident Engineer, Brad Zook, at 412-269-6461 (Office) or Bradley.Zook@mbakerintl.com.

Any additions, deletions or corrections to these minutes should be forwarded to Bradley Zook (Bradley.Zook@mbakerintl.com) within five (5) days of receipt. Otherwise, these minutes will be approved as written.

Prepared by: Brad Zook

1729 EAST HEADWORKS ATTENDEE LIST 12/9/2020

	Name	email	Company
1	Brad Zook	bradley.zook@mbakerintl.com	Michael Baker International
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37	Jack Leukhardt	jackl@swankco.com	Swank
38	David DeChicchis	ddechicchis@mascaroconstruction.com	Mascaro
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46	Wayne Chang	wchang@wrallp.com	WRA

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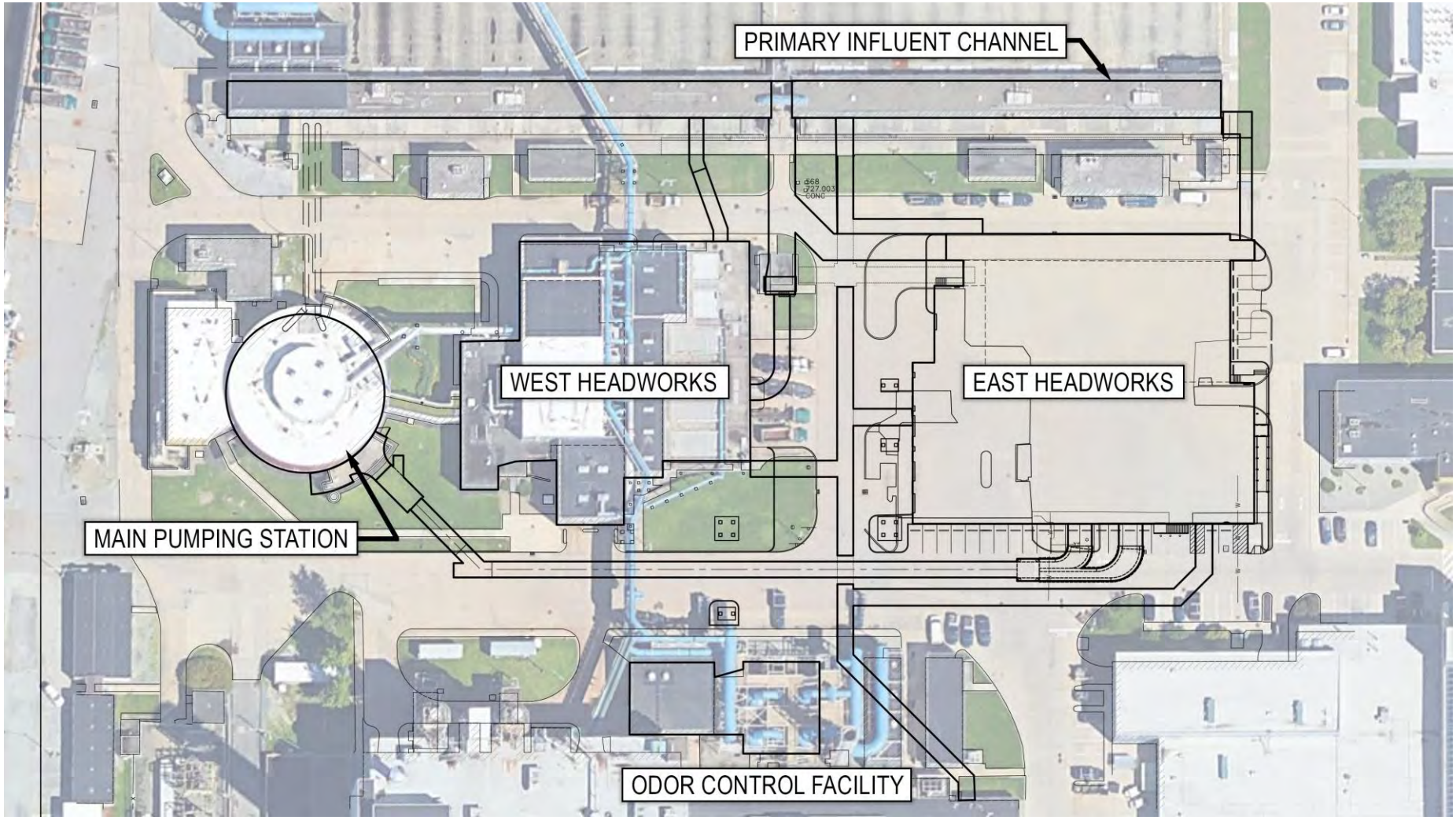
86	Ellen Walkama	walkama.ellen@us.sika.com	Sika

Contract 1729 East Headworks Pre-Bid Meeting

December 9, 2020

East Headworks Overview



Major Project Elements

- Main Pump Station Modifications
- 120-inch Influent Conduit
- East Headworks Building
  - Bar Racks
  - Grit Removal Tanks
  - Grit Pumps
  - Grit Classifiers
  - Screening and Grit Conveyance Systems
  - Plant Drain
- West Headworks Building
  - Retrofit of Screening Conveyance System
  - New Sampling Pumps, Grinders, and Samplers
- Odor Control Facility
  - Addition of Third Odor Control Train
  - Replacement of Odor Control Fans and Pumps
- Pipe Gallery Reconstruction and Pipe Re-routing

Existing Site

Demolition of Previous O&M Building View from Southeast

Current Site View from Northwest

Current Site View from South

Existing Site

Current Site View from West

East West Road View from West near Main Pump Station

Existing Main Pump Station

Main Pump Station View from East

Breezeway View from South

Main Pump Station Pump Siphons

Existing Headworks

Existing Screenings Conveyor View form Northwest

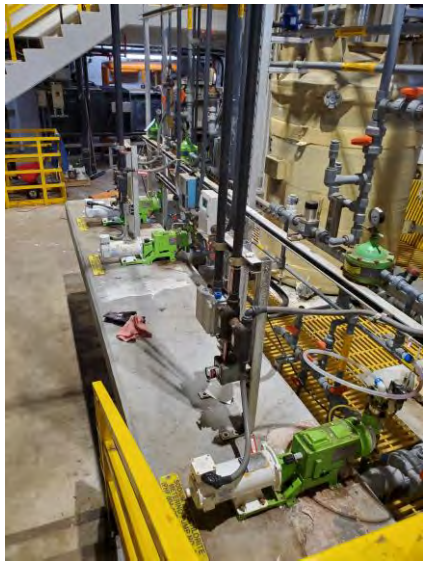
Existing Sampler

Existing Grinder and Sample Pump

Existing Odor Control System

Odor Control View from North

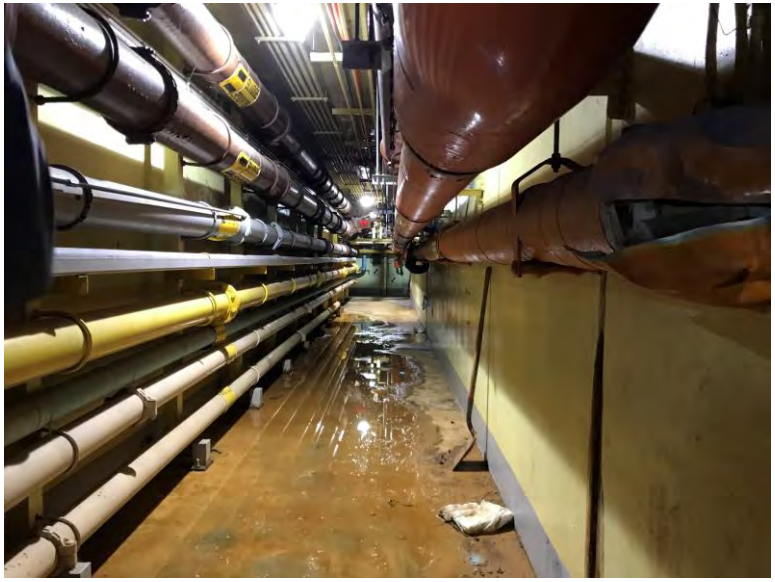
Odor Control Fans View from South



Odor Control Chemical Pumps

Odor Control 3rd Train Pad View from West

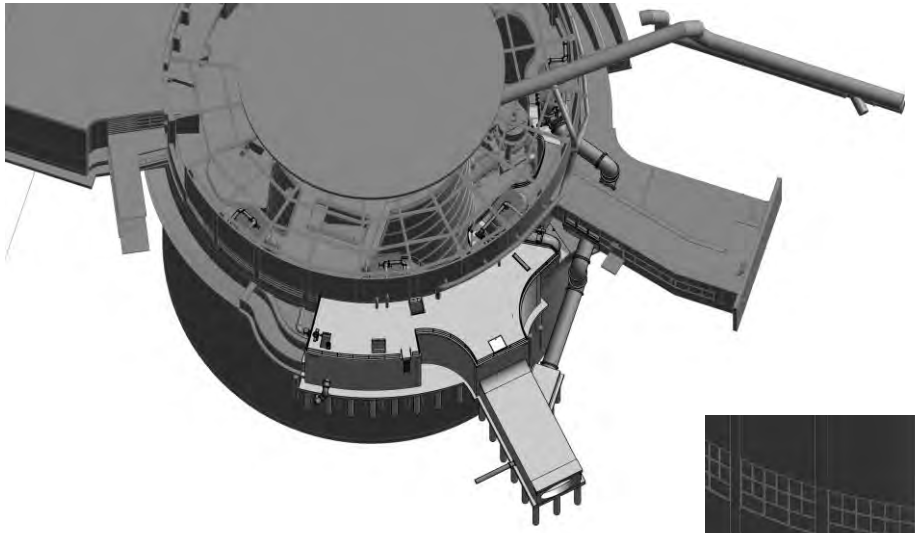
Existing Pipe Gallery

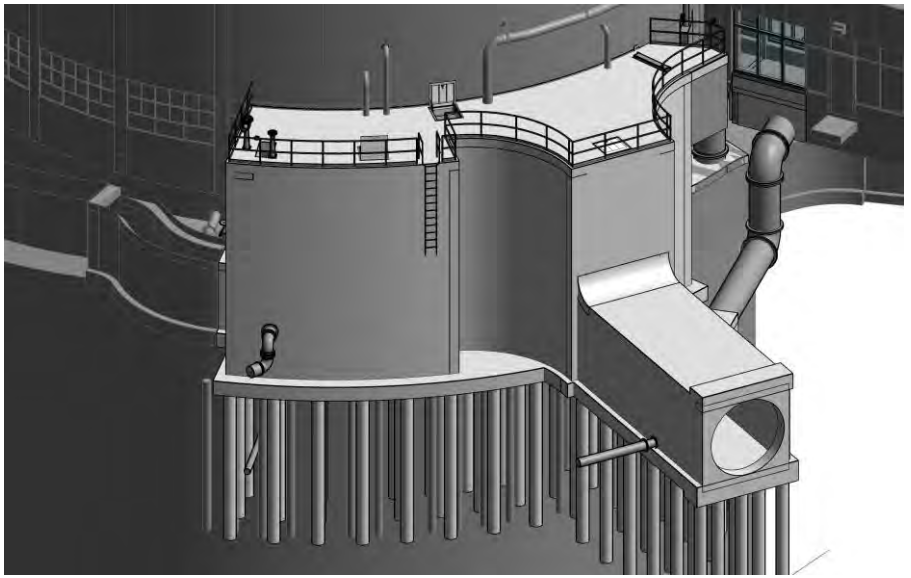


Typical Pipe Gallery View

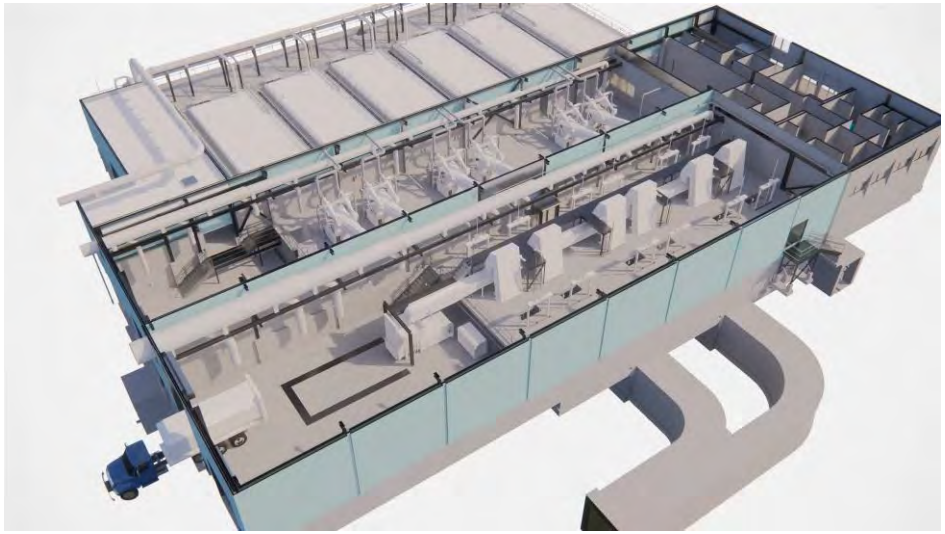
Typical Pipe Gallery View

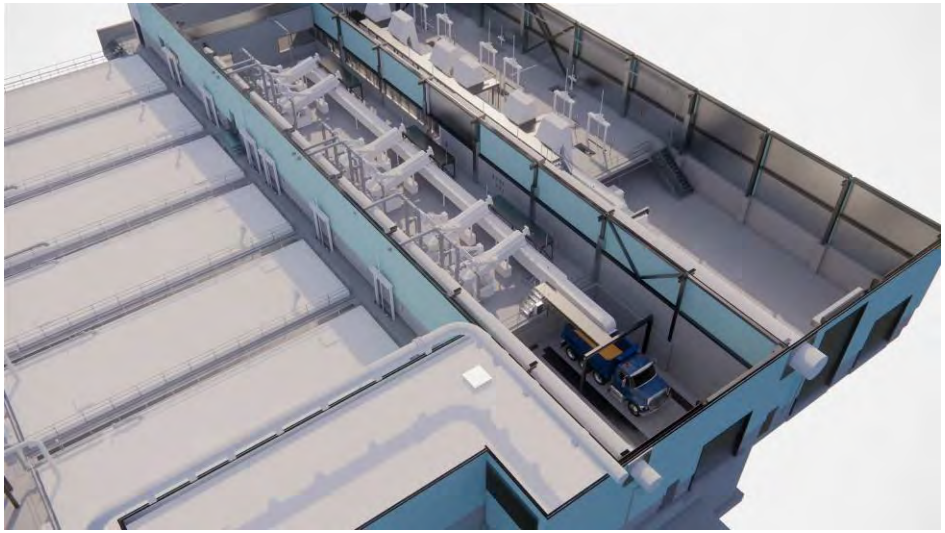
Main Pump Station Area



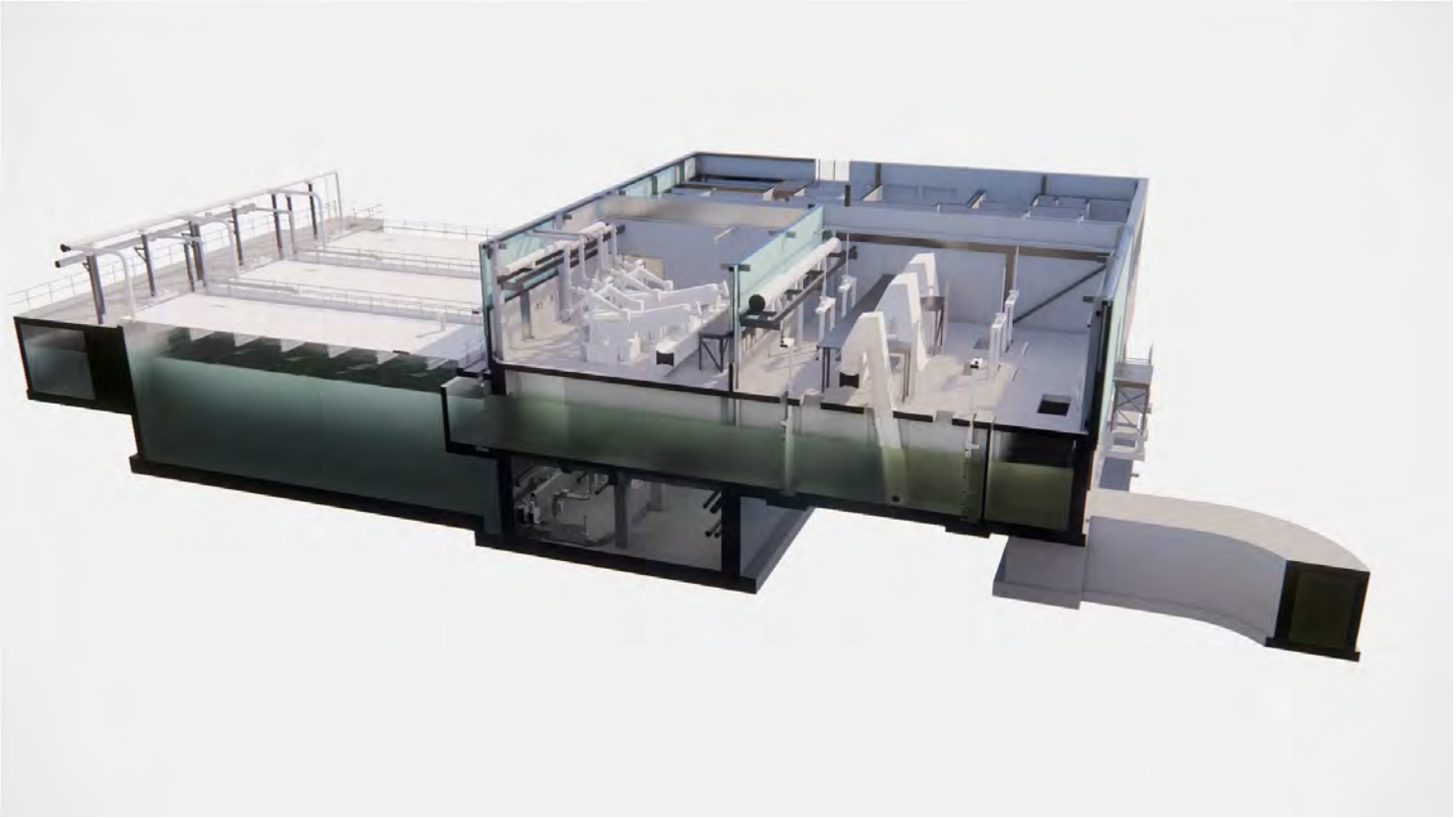


East Headworks Process Area

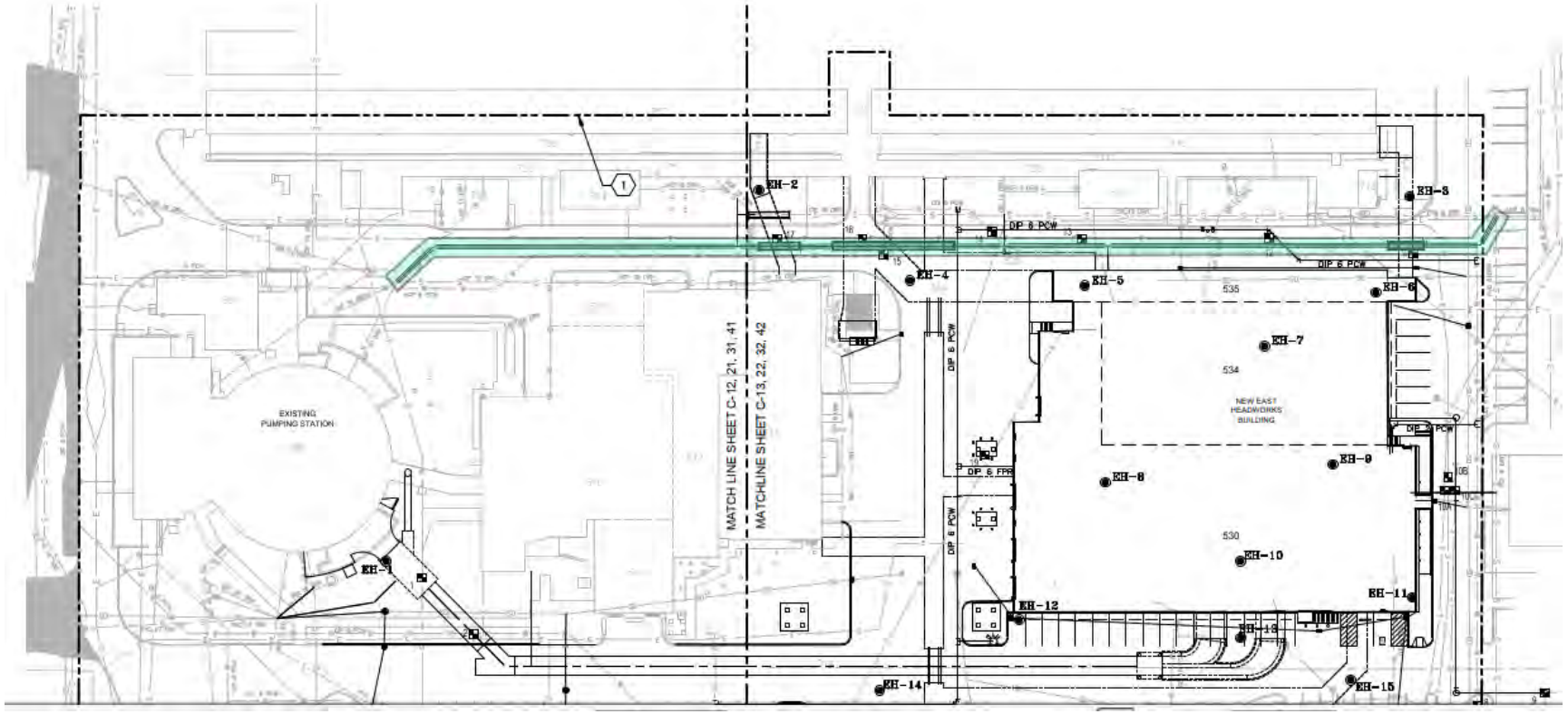




East Headworks Process Area



Plant Drain


EXISTING PUMPING STATION
MATCH LINE SHEET C-12, 21, 31, 41
MATCHLINE SHEET C-13, 22, 32, 42
NEW EAST HEADWORKS BUILDING
DIP 8 PCW
DIP 8 FPR
EH-1
EH-2
EH-3
EH-4
EH-5
EH-6
EH-7
EH-8
EH-9
EH-10
EH-11
EH-12
EH-13
EH-14
EH-15
535
534
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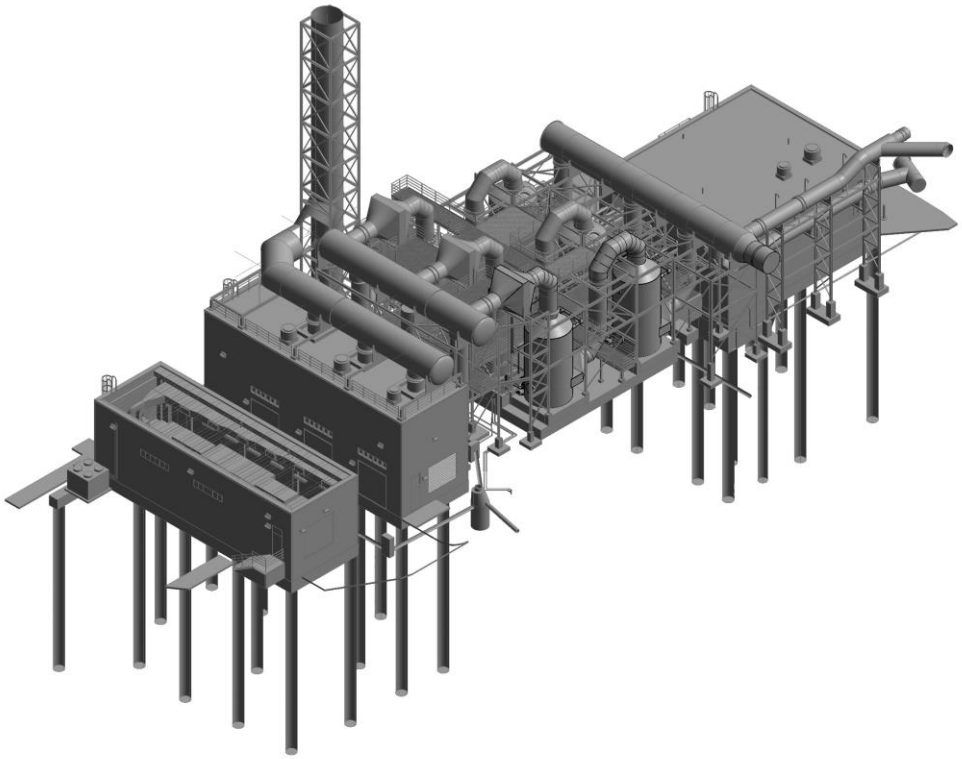
Odor Control Area

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