ADDENDUM ACKNOWLEDGMENT

ADDENDUM NO. 2 **Dated: *3/15/23***

NOTICE

It is the sole responsibility of the bidder to ensure that it has received any and all Addenda and the Philadelphia Redevelopment Authority may in their sole discretion reject any bid for which all Addenda have not been executed and returned.

PROPOSAL FOR

Project No.: 16449E-01-03
Description: Murphy Recreation Center

IS AMENDED AS FOLLOWS:

1. **Amendments will be posted in https://phdcphila.org/rfps-rfqs-sales/construction-rfps/ Each Bidder shall acknowledge/sign all Amendments issued, and shall include with their proposal submission.**

2. **Attached are the Answers and/or Clarifications to questions submitted by prospective sellers.**

3. **Contract Document Revisions:**
   a. **129300 – Site Furnishings**
   b. **321813 – Synthetic Turf**
   c. **A-100**
   d. **CS0001 – Cover Sheet**
   e. **CS0501 – Site Demolition Plan**
   f. **CS1001 – Site Plan**
   g. **CS1701 – PCSM Utility Plan**
   h. **CS6001 – Site Details**
   i. **CS6002 – Site Details**
   j. **CS6004 – Site Details**
   k. **CS6008 - Site Details**
   l. **Murphy Recreation Geotech Report**

Bidder must acknowledge receipt of Addenda in their proposal submission.

Name of Firm:_____

Signature of Authorized Agent:_____

Date:_____

Murphy Recreation Center RFP
Questions/RFIs:

Responses provided by Pennoni Associates and Kelly Maiello Architects on 3/14/23.

1. Section 312319, 1.7, B, references a geotechnical report. Can you provide this report?
   The geotechnical report is included in this Addendum 2 as Attachment A.
2. There will be up to 10,000 cy of exported soil on this project. Has any soil analytical testing be done to confirm this soil is not contaminated? If not, will the contractor be responsible for this testing?
   The contractor is responsible for testing the export soil.
3. Section 321813, 2.1, D describes a permeable polypropylene drainage base for the turf field. Could you provide a specific manufacturer on this product?
   The manufacturer shall be the same as the turf manufacturer or approved by turf manufacturer.
4. One of our artificial turf vendors is telling us that a 2.5" pile height with a 2" infill over a pad would be too soft and bouncy for the intended use. Typically a 2" pile height and 1.5" infill would be used when there is a pad under the turf. Please confirm the required pile height and infill depth
   Specifications and plan detail have been updated to require a 2" pile height with 1.5" infill height. Please refer to Addendum #1 to include alternates for infill material.
5. Can you confirm that the pointing work identified on Sheet A-100 is limited to below the existing steel grating?
   On the south wall (building wall) and east wall (near door) repointing is limited to below the existing grating. On the north (sidewalk) and west (gym steps) wall, pointing is full height of these walls from floor to coping. On the north wall, the grating is approximately flush with the coping, on the west wall, the coping is approximately 30" above the grating. See photo 6 and 7 on A-100 and details 2 and 3 on S-101 for additional information.
6. Section 01230 identifies an alternate for a rubberized flooring in the exercise room. This appears to be copied from another project. Is this alternate applicable to this bid?
   Disregard, no work is being done in the exercise room.
7. Can you provide a make and model of the proposed player's benches?
   Players' benches are to be 105 Series, 8' long bench, with steel framing members powder coated black. Planks shall be Kiln-dried Douglas Fir 4"x4" nominal wood slats, as manufactured by DuMor Inc. Support posts shall be embedded. Site plan, detail, and Specifications have been updated to reflect.
   Item 14 on the bid form is for a water line and yard hydrant. This work is not shown on the drawings. Please identify where the water line and yard hydrant go a where it gets tied in to the existing water.
   There is no proposed water line or yard hydrant for the project. Item 14 of the Bid Form can be left blank.
8. Sheet CS1701 identifies 24" square yard drains however the detail on Sheet CS6001 is for 18" round Nyloplast drains. What type of yard drain is required?
   The yard drains are to be 24" square. The site detail has been updated to match the utility plan.
9. Sheet CS1001 identifies 2 trash receptacles. Detail 5 on Sheet CS6007 shows a trash receptacles at each bleacher pad that are not shown on Sheet CS1001. Please confirm the total number of trash receptacles required.
   The correct quantity is six (6) trash receptacles. Two (2) receptacles at the basketball court and one receptacle per bleacher pad on the turf field. The site plan has been updated accordingly.
10. Sheet CS1701 shows 27 lf of 18" HDPE pipe tying into the existing City sewer. PWD will require this pipe to be either vitrified clay or reinforced concrete pipe. Please confirm which type of pipe we are to include in our bid for this 27' lateral?
    The connection to the existing City sewer will be 27' of 18" RCP. The utility plan has been updated accordingly.
11. The erosion & sediment control plans and details show sandbags all along the silt sock. This is a unusual detail. Typically the sock is staked in place and there is no need for sandbags. Are the sandbags really necessary and do all contractors have to include them in their bids?
    Sandbags are to be used to brace the silt sock where staking is not feasible such as sidewalk improvement area. The interval spacing should be the same as the manufacturer recommends for stakes.
12. Notes 5, 6, 7 & 8 on Sheet A-100 reference other prime contractors on the job. Are these notes relevant to this project?
    Not multiple prime contractors. The general contractor shall coordinate all work among subcontractors. Subcontractors should be aware of the work of other subs and coordinate work as needed.

SECTION 12 93 00 SITE FURNISHINGS

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. Trash receptacle
2. Combination football/soccer goalpost
3. Football goalpost pads
4. Ball Control Netting
5. Team Benches

1.3 ACTION SUBMITTALS

A. Product Data: Manufacturer's standard product literature for each type of product, including shop drawings, installation instructions, and maintenance instructions.

B. Samples: For each exposed product and for each color and texture specified.

C. Product Schedule: For site furnishings. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For site furnishings.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For site furnishings to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 TRASH RECEPTACLE

A. Products: Subject to compliance with requirements, provide the following or approved equal.

1. Trash Receptacle
a. Style: Model #158-32SH

b. Materials: Steel Receptacle and Shield, Plastic Liner
c. Finish: Powdercoat Textured Charcoal
d. Size: 32 Gallon.
e. Installation: Surface Mount expansion anchor bolts, size ½"x3-¾", as provided by manufacturer
f. Manufacturer: Dumor Inc. 138 Industrial Circle, Mifflintown, PA 17059 Dumor.com

2.2 COMBINATION FOOTBALL/SOCCER GOALPOST AND PADS

A. Combination football/soccer goalposts shall be minimally 30' uprights, white finish, on minimum four (4) pneumatic wheels, including wind flags atop each upright, meeting NFHS requirements for soccer and footall, as manufactured by one of the following:

1. Aluminum Athletic Equipment
1000 Enterprise Drive
Royersford, PA 19468
aaesports.com

2. KwikGoal Ltd.
140 Pacific Dr.
Quakertown, PA 18951
kwikgoal.com

B. Football goalpost pads shall be 6' high, 6" inside diameter, Royal Blue color as provided by one of the following:

1. Aluminum Athletic Equipment
1000 Enterprise Drive
Royersford, PA 19468
aaesports.com

2. Sports Edge
P.O. Box 837
259 Murdock Road
Troutman, NC 28166

Quantity: Four (4)

2.3 BALL CONTROL NETTING SYSTEM

A. 40' Model # **MBS-40** (40' high system, straight post):

B. Posts: Straight Post 8"O.D. x .188" wall x 45'-8"lg., 40'-8" out of ground, 6061T6 aluminum extrusion with pre-drilled holes for mounting hardware, 8.625" O.D. x .148"

wall x 78"lg. 6061T6 aluminum ground sleeve with a stop-bolt at 60". Typical spacing between posts 20' maximum. Provide heavy duty sleeve caps.

C. Net: 40' high, #AAE420, 1-1/2"sq. (45mm) black UV-treated HTTP knotless net, 360# tensile strength, ¼" MFP rope border all 4 sides, pre-attached sewn in 3/16"dia. galvanized clear coated cable.

D. Hardware: All stainless steel, galvanized and brass hardware, pulley system for raising/lowering net, 5/16" braided rope with pre-attached hardware, a cleat for rope tie-off, and a clamp with snap at bottom of post to secure net.

E. Recommended Footing Specification: 36" diameter x 84" depth, bell bottom of hole, 6" compacted crushed stone at bottom, 4,000lbs. mix concrete. Installation by contractor, consult local codes.

F. As manufactured by:

1. Aluminum Athletic Equipment
   1000 Enterprise Drive
   Royersford, PA 19468
   aaesports.com

2.4 BALL CONTROL NETTING SYSTEM INTEGRATED WITH FENCES

A. Model # **MBS-20/IF** (20' high system, straight post):

B. Posts: Straight Post 4"O.D. x .226" wall x 24'-0"lg., 20' out of ground, 6061T6 aluminum extrusion with pre-drilled holes for mounting hardware, 4.35" O.D. x .100" wall x 56"lg. 6061T6 aluminum ground sleeve with a stop-bolt at 40". Typical spacing between posts maximum 20'. Provide heavy duty sleeve caps.

C. Net: 96" fence height (net attaches top rail of fence), #AAE420, 1-1/2"sq. (45mm) black UV-treated HTTP knotless net, 360 lbs. tensile strength, ¼" MFP rope border all 4 sides and 6" offset border overlap, pre-attached sewn in 3/16"dia. galvanized clear coated top cable.

D. Hardware: All stainless steel, galvanized hardware, pulley system for raising/lowering net, UV-treated 5/16" braided rope with pre-attached hardware, a cleat for rope tie-off, an eyebolt at bottom of post to secure net.

E. Recommended Footing Specification: 30" diameter x 56" depth, bell bottom of hole, 6" compacted crushed stone at bottom, 4,000lbs. mix concrete. Installation by contractor, consult local codes.

F. As manufactured by:

1. Aluminum Athletic Equipment
   1000 Enterprise Drive

Royersford, PA 19468
aaesports.com

2.5 TEAM BENCHES

A. MODEL # 105 (8’ LONG, BACKLESS)

B. SEAT: FOUR (4) 4”X4” NOMINAL SLATS, 8’ LONG, KILN-DRIED DOUGLAS FIR

C. SUPPORTS: 2-7/8” O.D. STEEL PIPE, GALVANIZED, PAINTED COLOR: BLACK. POST EMBEDDED IN CONCRETE FOOTING

D. HARDWARE: ALL STAINLESS STEEL, GALVANIZED HARDWARE

E. RECOMMENDED FOOTING SPECIFICATIONS: 36” DEEP X 12” DIA.

F. As manufactured by:

1. DuMor Site Furnishings
dumor.com

Quantity: Sixteen (16)

2.6 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.

B. Verify that substrates are stable and capable of supporting the weight of items covered under this section.

C. Verify the substrates have been adequately prepared to securely anchor those items that will be surface mounted.

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

2.7 INSTALLATION, GENERAL

A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.

B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.

C. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.

D. It is the responsibility of the installer to ensure that all base materials into which the furnishings will be installed can support the rack and will not be damaged by any required installation procedures.

END OF SECTION 12 93 00

SECTION 321813 - SYNTHETIC TURF

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, tools and equipment necessary to install all synthetic turf as indicated on the plans and as specified herein and other related specifications. The installation of all new materials shall be performed in strict accordance with the manufacturer's installation instructions and in accordance with all approved shop drawings.

B. Related Sections:

1. Division 31 Section "Earth Moving"
2. Division 33 Section "Storm Drainage"

1.2 REFERENCES

A. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition

B. ASTM – American Society for Testing and Materials.

1.3 SUBMITTALS

A. Submittals shall be provided to Architect, Engineer, and Owner for approval.

B. Shop Drawings:

1. Field layout including all line packages, logos, and lettering.
2. Roll/ Seaming Marking Plan
3. Show installation methods and construction indicating field-verified conditions, clearances, measurements, terminations, drainage including any details of construction that deviate from the plans and specifications.
4. Football turf system (2.25" turf system)
5. Subdrainage system layout and details.
6. Plan drawing showing location of permeability testing of aggregate base.

C. Product Data:

1. Submit manufacturer's catalog cuts, material safety data sheets (MSDS), brochures, specifications; preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
2. Submit fiber manufacturer's name, type of fiber and composition of fiber.
3. Submit data in sufficient detail to indicate compliance with the contract documents.
4. Submit manufacturer's instructions for installation.
5. Submit manufacturer's instructions for maintenance for the proper care and preventative maintenance of the synthetic turf system, including painting and markings.
6. Submit product data sheets for the following:
   a) Permeable Liner

b) Subdrain System and all standard fittings
c) Collector Drain.
d) Permeable Stone Aggregate Base Course

D. Samples:
1. Submit one 12x12 inch (minimum) loose carpet sample without infill. Loose sample should demonstrate seaming and include an inlaid line.
2. Submit a sample of sand infill and a sample of selected infill and a sample of the final sand/selected infill mixture, including ratio by volume and by weight equivalent per square foot and method of installation. Sample of each shall represent the exact quantity per square foot. Particle size gradation charts must also be included.
3. Underlayment: One 12x12 inch (minimum) piece of permeable resilient polypropylene drainage layer.

E. Product Certification:
1. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
2. Submit test results indicating compliance with Reference Standards.
3. Submit certificates certifying that all materials used in the permeable aggregate base course work are as specified; submit all sieve gradations etc.

F. Project Record Documents: Record actual locations of seams, drains and other pertinent information in accordance with Division 1 Specifications Series, General Requirements.

G. List of existing installations: Submit list including respective owner's representative and telephone number.

H. Warranties: Per section 1.12, Submit warranty and ensure that forms have been completed in Owner's name and registered with approved manufacturer.

I. Submit a written "Certification of Acceptance of the Base Construction" from the manufacturer of the infill turf system prior to installation of the synthetic turf system.

J. Testing Certification: Submit certified copies of independent (third-party) laboratory reports on ASTM testing:
1. Pile Height, Face Weight & Total Fabric Weight, ASTM D5848.
2. Primary & Secondary Backing Weights, ASTM D5848.
3. Tuft Bind, ASTM D1335.
4. Grab Tear Strength, ASTM D1682 or D5034.
5. Shock Attenuation, ASTM F1936
6. Water Permeability, ASTM D4491
7. Lead Content, ASTM F2765

K. Prior to Final Acceptance, the Contractor shall submit to the Owner:
1. Three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventive maintenance of the turf system, including painting and markings.
2. Project Record Documents: Record actual locations of seams, drains or other pertinent information.
3. Warranty: Submit Manufacturer Warranty and ensure that forms have been completed in Owner's name and registered with Manufacturer and Insurance

Carrier. Submit information confirming that 3rd Party Insurance Policy, non-cancelable and pre-paid, is in effect covering this installation, and underwritten by a Best "A++" Rated Insurance Carrier. Insurance carrier must confirm that the policy is in force and premiums paid. (See Section 1.12)

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The Turf Contractor and/or the Turf Manufacturer:

1. Must be experienced in the manufacture and installation of this type of tall pile synthetic infill turf systems as outlined below:

a) A minimum of twenty-five (25) multi-purpose fields installed of 65,000 square feet or more in the United States, using the specified fiber.

2. Approved turf manufacturer must be one of the following, or equal approved by the Philadelphia Dept. of Parks and Recreation.

a)	Sprinturf	www.sprinturf.com
b)	A-Turf	www.aturf.com
c)	AstroTurf	www.astroturf.com
d)	Shaw Sports Turf	www.shawsportsturf.com
e)	Field Turf	www.fieldturf.com

B. Turf Contractor/ Installer Qualifications: Company specializing in performing the work of this section.

1. The Synthetic Turf Contractor shall have experience of twenty-five (25) acceptable installations (minimum 65,000 sq.ft.) of fields that are at least eight years old. Submit a list of all applicable installations with the bid, including dates of install, owner contact info and phone numbers with the bid.
2. The designated Supervisory Personnel on the project must be certified, in writing by the Turf Manufacturer, as competent in the installation of this material, including sewing seams and proper installation of the infill mixture with a minimum of 5 years of experience in turf installations.
3. Installer shall be certified by the manufacturer and licensed.
4. The Manufacturer shall have a representative visit the site to certify, in writing, the installation and Warranty compliance.

C. Prior to the beginning of installation of synthetic turf, the installer shall inspect the sub-base. The installer will accept the sub-base in writing when the base contractor provides test results for compaction, planarity and permeability that are in compliance with the synthetic turf manufacturer's recommendations.

D. Pre-Installation Conference: Conduct conference at project site at time to be determined by Architect. Review methods and procedures related to installation including, but not limited to, the following:

1. Inspect and discuss existing conditions and preparatory work performed under other contracts.

2. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Architect.

E. The Turf Contractor shall provide the necessary testing data to the owner that the finished field meets the required initial shock attenuation, as per ASTM F1936.

1. Shall provide third party certification confirming minimum requirement of 9 lbs. tuft bind.

F. The Owner reserves the right to reject and/ or refuse acceptance of any or all aspects of the synthetic turf installation if it fails to meet the requirements of this specification section.

1.5 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to project site in wrapped condition.

B. Store materials/ products in a safe and secure place, under cover and elevated above grade.

C. Deliver and store components with labels intact and legible.

D. Protect from damage during delivery, storage, handling and installation. Protect from damage by other trades.

E. Inspect all delivered materials and products to ensure they are undamaged and in good condition.

F. Comply with manufacturer's recommendations.

1.6 EXISTING CONDTIONS

A. The contractor shall review and accept existing conditions prior to bidding. The contractor shall again review and accept existing conditions prior to beginning the installation.

B. The contractor shall protect all existing conditions that are not part of the scope of work and repair any damage to existing conditions that occurs during this scope of work.

1.7 SUBDRAINAGE

A. Provide subdrainage system to collect drain-through stormwater and conduct it to dispersal area(s) or manholes as indicated on the drawings

1.8 SUBGRADE VERIFICATION

A. Prior to any permeable aggregate base course construction, check the subgrade for accuracy, uniform bearing strength and crown (slope) toward the subdrainage system as required on the drawings. Verify that all subdrains, utilities, etc. have been properly installed and shall fill and tamp any traces of utility trenches. Maintain all subgrades in a satisfactory condition until superimposed construction is placed. Do not place base on a frozen or muddy subgrade.

3.1 1.9 GRADE CONTROL

A. Establish and maintain the required lines and grades. Provide crown or cross slope as indicated. Adjust the tops of utility/communication structures to be flush with proposed finish turf grades or as appropriate.

B. Subgrade for aggregate base must be established by dual plane laser grading equipment; coordinate with EARTH MOVING section.

3.2 1.10 BASE COURSE THICKNESS

A. Provide the thickness of the stone aggregate course as indicated on the drawings. The thickness indicated is the minimum at any point.

1.11 SEQUENCING AND SCHEDULING

A. Coordinate the Work with installation of work of related trades as the Work proceeds.

B. Sequence the Work in order to prevent deterioration of installed system.

1.12 WARRANTIES

A. The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf for a minimum period of eight (8) years from the date of substantial completion. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of nature beyond the control of the Owner or the manufacturer. The warranty shall be fully third party insured; pre-paid for the entire 8 year term and be non-prorated. The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. A rated carrier and must reflect the following values:

1. Must provide full coverage for eight (8) years from the date of Substantial Completion.
2. Must warrant materials and workmanship, including but not limited to, gravel base stability, drainage rates, seaming materials and adhesives.
3. No maximum per claim coverage amount.
4. Minimum of twenty-five-million dollar ($25,000,000) annual aggregate, and a per incident limit of no less than $1 million per claim. The third party insurer must have an AM Best rating of A++ or better.
5. Must warrant that the finished and accepted playing field elevation shall not vary by more than 0.1’ due to instability of the gravel foundation (unrelated to existing, pre- developed subgrade soil conditions) or drainage system and that the field drainage rates will remain at or above design capacity for the life of the warranty.
6. Must cover full 100% replacement value of total square footage installed, minimum of $7.00 per sq. ft. (in case of complete product failure, which will

include removal and disposal of the existing surface) The warranty shall include all necessary materials, labor, transportation costs, dumping fees, etc to complete any repairs under such warranty.

7. Must have a provision to either make a cash refund or repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
8. Must be a warranty from a single source covering workmanship and all self-manufactured or procured materials of the turf, turf system, base, and drainage.
9. Warrant that the yarn used to make the grass-like tufts will maintain its UV stability and tensile strength such that the strength of the fiber when measured in accordance with ASTM D-2256 will not decrease by more than 50% during the warranty period due to breakdown of UV stability.
10. Policies that include self insurance or self retention clauses shall not be considered.
11. Sample policy must be provided at time of bid to prove that policy is in force. A letter from an agent or a sample Certificate of Insurance will not be acceptable.

B. The warranty coverage shall not place limits on the amount of the field's usage.

C. The synthetic turf system must maintain a G-max of less than 120 for the life of the Warranty as per ASTM F1936. The manufacturer's warranty shall include annual G-Max Testing.

D. Permeable Resilient Polypropylene Drainage Base

1. Sports field underlayment panels shall be warranted by the manufacturer against warping, cracking, shattering, splitting or deteriorating. They shall not displace turf, deform, buckle from heat or moisture, or form gaps in cold or dry conditions that can be seen through the turf, under normal and proper use. They shall be free from defects in material and workmanship for a period of twenty (20) years after date of installation.
2. The Panels shall not compress by more than ten percent (10%) during the Warranty Period unless they are subjected to stress loads in excess of those that ordinarily occur during use for athletic performance [35 pounds per square inch].

1.13 MAINTENANCE SERVICE

A. Contractor shall train the Owner's facility maintenance staff in the use of the turf manufacturer's recommended maintenance equipment.

B. Manufacturer must provide maintenance guidelines and a maintenance video to the facility maintenance staff.

1.14 TESTING

A. Turf Manufacturer shall be responsible to provide independent laboratory G-max testing (ASTM 355, 1936 method) at substantial completion, to verify that the shock attenuation properties of the field meet the requirements set forth in this specification.

1. The field must maintain an ASTM F1936 G-max of less than 120 for the life of the Warranty.

2. In addition to testing at time of completion, the Turf Manufacturer shall be responsible for annual Gmax testing as described above at its own cost. If at anytime the G-max ranges reach unacceptable levels, it is the responsibility of the Turf Manufacturer (or its 3rd party warranty) to bring the field back into the required ranges at no cost to the Owner.

B. Turf Manufacturer shall be responsible to provide independent laboratory Lead Content testing prior to substantial completion and final acceptance by Owner.

1. Two representative samples of fiber(s) and locations on the field shall be tested by the test methods below. The total lead content measured shall be less than 300 mg/ kg (ppm). Sample locations shall be chosen by the Owner.

a. The testing shall be conducted by an independent environmental laboratory accredited for heavy metal testing in solid and hazardous waste.

b. Prepare samples as outlined in EPA Method 3052 with the temperature modified from 180 +/- 5 deg C to 210 +/- 10 deg C.

c. Analyze prepared samples for lead using inductively coupled plasma- atomic emission spectrometry (AAS) as outlined in Test Method E 1613.

d. Report total lead content as mg/kg (ppm).

C. Turf Manufacturer shall be responsible to provide independent drainage testing of <u>installed</u> field gravel base and turf carpet with infill prior to substantial completion and final acceptance by Owner. The combined tests shall prove installed artificial turf system's drainage capability shall allow water flow through the system at a rate of not less than 10 inches per hour.

1. ASTM test WK22081- Test Methods for Vertical Permeability of Synthetic Turf Sports Field Base Stone and System by Nonconfined Area Flood Test Method. This test does not require special equipment and can be done in the field to test the vertical permeability before the synthetic turf is installed and after installation of the base is complete. This method does not require the application of a head and more accurately mimics rainwater conditions..

2. ASTM F1551 -Water Permeability of Synthetic Turf Systems and Permeable Bases. Test will provide permeability of synthetic turf carpet with infill.

3. Provide written report of permeability of base, and carpet with infill over base. Report shall include inches per hour rate.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The component materials of the synthetic turf system consist of:

1. A carpet made of dual filament polyethylene fibers (spinneret, extruded) tufted into a backing. All backing must meet the drainage requirements

below.

2. All proposed synthetic turf systems shall be a 50/50 blend of arched monofilament yarn, having a 230 to 300 micron thickness and a nominal filament width of 1.5mm inter-tufted with a 100 micron parallel fibrillated slit film yarn. Turf carpet shall have a minimum stitch (tufting) gauge of 1/4" and a maximum stitch gauge of 1/2". All fibers shall be polyethylene or co-polymer fiber tufted into a permeable backing system, and coated with a secondary backing of high-grade polyurethane.

3. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus, mildew, ultraviolet light and heat degradation, and shall have the basic characteristics of flow-through drainage, allowing free movement of surface runoff through the synthetic turf fabric where such water may flow to the existing base and into the field drainage system.

4. The finished playing surface shall appear as mowed grass ~~(except for the baseball infield, which shall appear as shorter, red-clay-colored grass blades)~~ with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use. The pitcher's mound, batter's boxes, and basepaths shall include removable turf sections to allow for replacement and repair of worn or damaged sections.

5. Glue, thread, paint, seaming fabric and other materials may be used to install and mark the artificial turf. All adhesives used in bonding the system together shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultraviolet rays at any location upon installation.

6. Field shall consist of a line package with the following four (4) sports:

   a. Football
   b. Soccer
   c. Baseball
   d. Softball

B. The installed artificial grass fabric system shall have the following specified properties:

Standard	Property	Specification
ASTM D1577	Fiber Denier	>10000 nominal
ASTM D3218	Yarn Thickness	>100 microns (slit); >230 microns (mono)
ASTM D2256	Yarn Breaking Strength	>8 lbs. (slit); >25lbs (mono)
ASTM D5793	Stitch Gauge	min. 1/4"- max 1/2"
ASTM D418/D5848	Pile Height	2" min.
ASTM D5848	Pile Weight	min. 44 oz. / square
yard ASTM D5848	Primary Backing	min. 6 oz. / square yard
ASTM D5848	Secondary Backing	min. 20 oz. / square
yard ASTM D5848	Total Weight	min. 70 oz. / square
yard ASTM D1335	Tuft Bind (without infill)	min. 9 lbs.

ASTM D1682/D5034	Grab Tear (width)	200 lbs. force
ASTM D1682/D5034	Grab Tear (length)	200 lbs. force
ASTM F1015	Relative Abrasiveness Index	<25
ASTM D4491	Carpet Permeability	>30 inches / hour
ASTM F355/F1936	Impact Attenuation, Gmax	90 min. – 120 max. at installation; 90 min. – 120 max. over field life (including pad beneath)

C. The Carpet shall consist of fibers tufted into a primary backing with a secondary coating.

1. Synthetic turf shall be loose-laid across the field, stretched, and attached to the perimeter edge detail. Synthetic turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed except as needed for inlaid fabric striping or to accommodate programmed cut-outs.

2. All seams shall be flat, tight, and permanent with no separation or fraying. Edges of all panels must be cut and discarded prior to being joined together. Inlaid markings shall be adhered to seaming tape with a high strength polyurethane adhesive applied per the Synthetic Turf Manufacturer's standard procedures for outdoor applications. All main fabric seams shall be transverse to the field direction (i.e. run perpendicularly across the field).

3. Porous Backing:
   a. Primary backing shall be double-layered polypropylene fabric treated with UV inhibitors.
   b. The secondary backing shall consist of an application of porous, heat- activated urethane to permanently lock the fiber tufts in place.

   Perforated Backing:
   a. The primary backing shall consist of two layers of woven fabric and one layer of non-woven fabric.
   b. The secondary backing of high-grade polyurethane shall be applied to the primary backing at a minimum of 20 oz./yd. Secondary backing adds resistance to water degradation and strengthens grip on fibers.
   c. The entire backing shall be coated with holes perforated throughout the backing at a minimum 3" interval to allow for drainage. Partially coated materials shall not be acceptable.
   d. Hole spacing must allow for water drainage of a minimum of 30" an hour. The 30" per hour must account for infill blockage. Turf manufacturer must submit product data for hole spacing and hole size for rate of permeability.

D. The Infill materials shall be as approved by the Manufacturer and as per the following specifications: The Infill shall consist of a resilient granular system, comprised of selected/graded dust-free silica sand or mineral aggregate and rubber granules. The infill may be a homogeneous mixture of sand and rubber or installed as a layered system per the manufacturer. The silica sand component of the infill shall represent 50% of the total infill, by weight. Total infill amount shall be approx. 10.0 lbs. per square foot but not be less than 9.0 lbs. per square foot (depending on manufacturer stitch gauge) to achieve a +/-
2.000 inch infill depth.

1. Rubber: The rubber shall be dust and contaminant free. Recycled tires shall not be used. The clean, uniformly sized particles shall be consistent in shape and particle size distribution.
2. Sand: Silica Sand shall be whole and not conglomerated or grounded. The shape of the sand particles shall be rounded or sub-angular so as to minimize abrasion to field users and synthetic turf fibers. Size of sand shall be per manufacturer based on selected infill and based on performance of sports specified herein.
3. The particles shall resist abrasion in high traffic and excessive wear applications and provide stability to artificial sports turf applications.
4. The particles shall be structurally pure and consistently uniform in size distribution for predictable performance.
5. ADD ALTERNATE BID ITEM: Provide eco-friendly infill in lieu of rubber/sand. This shall include any modifications necessary to the turf assembly necessary to accommodate the alternative infill material, such as underlayment or other components. Specific infill alternatives by manufacturer are as follows:

a.	Sprinturf	Greenplay Organic Fill
b.	A-Turf	Ecore A-R
c.	AstroTurf	Brockfill or Supernatural
d.	Shaw Sports Turf	Natural Play
e.	Field Turf	Pure Select Olive

E. Permeable Polypropylene Drainage Base:

1. Athletic field synthetic underlayment, a molded polypropylene base composite material designed specifically for use with synthetic infill turf.
2. Underlayment shall ensure safety of the playing surface (impact attenuation/shoe traction) and high capacity subsurface drainage of the installed playing field.
3. Shall be composed of expanded Polypropylene edge interlocking panels with molded Impact-absorbing pistons and bi-directional channel drainage system
4. Description: The specified material must have both impact absorption and drainage properties that meet the following performance requirements.

Standard	Property	Specification
FIFA 1 and 2 Star		Meets requirements with approved synthetic infilled turf
	Density	3.63 lbs. / cubic ft. (58.2 grams / liter)
EN12616	Vertical drainage	200” per hour

	Surface contact	50% minimum with synthetic turf backing
ISO 8295	Friction coefficient	movement of artificial turf over 50mm distance 8.92N maximum force
ASTM D4716	Lateral drainage	0.00583 m2/sec @ 0.5% slope
ISO 4897	Thermal stability	not to exceed 3mm per 30 degree C change
ISO 8301, EN 12664/7	Thermal resistance (R Value)	minimum 0.6
ISO 1798	Tensile strength	min 700 Kpa or 110 psi
ASTM F355	G-Max; system test under infill turf	120G maximum average
EN 14809	Shock Absorption	60-70%
EN14809	Vertical Deformation	<4mm
ISO 1856C	Compression set - 25% strain, 22hrs, 23°C after 24 hrs.	9% (0.083 “)
	Repeated impact compression resistance	7.45kg/cm2 or 106psi, repeated load, 10,000 cycles system test with infill turf; not to exceed 3%
ASTM G22-76/G21-96	Bacteria and Fungi resistance	Pass
ESSM 105d/1997	Environmental testing-ground water protection	Pass
ASTM F925	Chemical Resistance to the following: Gasoline, Brake Fluid, Chlorine, Underbody coating, Transmission Fluid, Motor Oil, Zinc Chloride, Tar and Oil Solvents, Windshield Washer Fluid, Kerosene, Ethylene and Propylene Glycols	no change to material

5. Material shall be 100% recyclable; recycling for energy not acceptable.

6. Material shall be manufactured in an ISO-9000 certified facility.

F. Aggregate Base Course

1. To guarantee structural stability it is important that both gradations meet the following criteria:
   100% Fragmentation
   $D_{60}/D_{10} > 5$
   $1 < D^2_{30}/D_{10}/D_{60} < 3$

2. To guarantee separation between finishing stone and base stone, it is important that the gradations meet the following criteria:

   $D_{85\ \text{FINISHING COURSE}} / D_{15\ \text{BASE COURSE}} > 2$
   $3 < D_{50\ \text{BASE COURSE}} / D_{50\ \text{FINISHING COURSE}} < 6$

3. To guarantee proper drainage both stones should meet the following criteria when saturated and compacted to 95% Proctor:
   Permeability > 10 in/hr (7x10-3 cm/sec)
   Porosity > 25%
   "Dx" is the size of the sieve (in mm) that lets pass x% of the stone. For example: D60 is the size of the sieve that lets 60% of the stone pass. These sizes, for calculation purposes, may be obtained by interpolation on a semi-log graph of the sieve analysis.

4. Aggregate Base shall be AASHTO #57 Stone to be used.

5. Leveling Layer (AKA D85 or Finish Stone):

   a. Product resulting from the artificial crushing of rocks, boulders or large cobblestones, substantially all faces of which have resulted from the crushing operation. Material shall consist of sound, tough, durable, angular stones, free from soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces, limestone, marble, mud, dirt, organic matter, or other deleterious material. The presence of soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces, feldspar, limestone, marble, mud, dirt, organic matter, or other deleterious material will be cause for rejection at Engineer's discretion.

   b. Testing and evaluation of material by the testing laboratory shall evaluate material composition for the presents of feldspar or micaceous materials and note same on testing report. Material may be rejected due to the presence of feldspar or micaceous materials.

   c. Test for Resistance to Abrasion, ASTM C131. Materials shall show a loss on abrasion of not more than 20%. C. Soundness, ASTM C88. Coarse aggregate shall not have a loss of more than 15% at the end of five cycles.

6. Stone Gradation Specifications:

Sieves	AVG % PASSING #57 Base Layer	Leveling Layer (AKA Finish Stone or D85 Stone)
1½" or 38mm	100	-
1" or 25mm	95 +/-5	-
¾ or 19mm	-	-
½" or 12.5mm	43 +/-17	100
3/8" or 9.5mm	-	85-100
¼" or 6.3mm		75-95
US #4 or 4.76mm	Max. 7	60-85
US #8 or 2.38mm	Max. 3	35-70
US #16 or 1.19mm	-	10-45
US #30 or .595mm	-	5-15
US # 40 or .420mm	-	0-10
US #100 or .149mm	-	0-5
US #200 or .074mm	-	0-2

2.2 PERFORATED UNDERDRAIN

A. Basis-of-Design Product: Subject to compliance with requirements, provide 4" horizontal perforated geotextile-wrapped underdrain system.

B. Product Requirements:

1. The underdrain system shall be of flexible, prefabricated, rounded, perforated composite product. Nominal Size: 4 inches high by approximately 3/8 inches thick. The underdrain system shall be made of a high-density polyethylene. The underdrain piping shall be constructed using corrugated pipes that define and provide the flow channels and structural integrity of the drain. The geotextile shall function only as a filter. The collection system pipes shall conform to the following physical property requirements:

Thickness, inches	ASTM D-1777	0.8
Flow Rate, gpm/ft	ASTM D-4716	30
Compressive Strength, psf	ASTM D-1621 (modified sand method)	6000

2. The collection system shall be wrapped with a non-woven geotextile and shall be a non-woven needle-punched construction and consist of long-chain polymeric fibers composed of polypropylene, polyethylene or polyamide. The fibers shall be oriented

into a multi-directional stable network whereby they retain their positions relative with each other and allow the passage of water as specified. The fabric shall be free of any chemical treatment or coating, which reduces permeability and shall be inert to chemicals commonly found in soil. The geotextile shall conform to the following minimum average roll values

Weight	ASTM D-3776	4.0
Tensile Strength	ASTM D-4632	120
Elongation %	ASTM D-4632	50
Puncture, lb	ASTM D-751	50
Mullen Burst, psi	ASTM D-3786	225
Trapezoidal Tear, lb	ASTM D-4533	42
Coefficient of Permeability	ASTM D-4491	.1 cm/sec
Flow Rate, gpm/ft2	ASTM D-4491	95
Permittivity, 1/sec	ASTM D-4491	1.8
Apparent Opening Size	ASTM D-4751	70 Max. US Std Sieve Opening
Seam Strength, lb/ft	ASTM D-4595	100
Fungus	ASTM G-21	No growth
UV Resistance after 500 Hrs	ASTM-D4355	70% minimum

4. The fittings used with the collection system shall be of a "snap together" design. In no case shall any product be joined without the use of the manufacturer's connector designed specifically for the purpose.

2.3 COLLECTOR DRAIN PIPE SYSTEM

A. The Contractor shall provide the Owner the following materials:

1. AASHTO M 252, Type CP; smooth interior, corrugated exterior double-wall, for coupled joints.
2. Couplings: Manufacturer's standard, band type.
3. Filter Fabric: Nonwoven, needle-punched Geotextile.

2.4 ADDITIONAL MATERIAL

A. The Contractor shall provide the Owner the following materials:

1. Turf fabric two hundred square feet (200) to be used for emergency repairs of turf. Owner to set forth min size requirements during submittal phase.
2. All usable remnants of new material shall become the property of the Owner and may satisfy the 200 square feet requirement.
3. In-fill material as required to fill two hundred square feet (200). This material may not be used by the Contractor as top dressing as required to maintain depth and Gmax values during the warranty period.

2.5 FIELD MAINTENANCE EQUIPMENT

A. The following field maintenance equipment shall be provided to the Owner, in a fully operational and assembled state, with proper manuals, instruction to the Owner’s maintenance staff prior to final acceptance of the project.

1. Four-wheel utility vehicle, equal to John Deere TX 4x2 or equivalent.

https://www.deere.com/en/gator-utility-vehicles/traditional-gators/tx-4x2-utility-vehicle/

2. Snow plow compatible with and for attachment to the Four-Wheel Utility Vehicle. Equal to the Meyer Utility Vehicle 6' Drive Pro Angling Snow Plow with Rec Hitch:

   https://www.meyerproducts.com/snow-plows/contractor-off-road-plows/utility-vehicle-snow-plow

3. Field sweeper device for use on an infill synthetic turf system, to be attached to the Four-Wheel Utility Vehicle. Equal to the Greens Groomer LitterKat Synthetic Turf Sweeper:

   http://www.greensgroomer.com/LitterKat.html

4. Field groomer device for use on an infill synthetic turf system, to be attached to the Four-Wheel Utility Vehicle. Equal to the Greens Groomer Integrated Synthetic Sports Turf Groomer, Model No. 926

GreensGroomer - Integrated Synthetic Sports Turf Groomer

PART 3 - EXECUTION

3.3 GENERAL

A. The installation shall be performed in full compliance with approved shop drawings.

B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer/manufacturer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.

C. The designated Supervisory personnel on the project must be certified, in writing by the turf Manufacturer, as competent in the installation of this material, including sewing seams and proper installation of the Infill mixture.

D. Manufacturer of Pad shall provide supervision for pad installation. Pad Manufacturer must approve pad installation prior to installation of synthetic turf carpet.

3.4 SUBGRADE

A. Subgrade for installation of permeable aggregate base course and synthetic turf as required in the Earthwork section of these specifications and as set by the approved drawings.

B. Proof roll subgrade in accordance with the Earthwork specifications and correct unacceptable subgrade as specified.

C. Examine surfaces and areas for suitable conditions where subdrainage systems are to be installed.

D. Locate and mark existing utilities, underground structures, and aboveground obstructions before beginning installation and avoid disruption and damage of services

3.5 INSTALLATION OF PERMEABLE LINER

A. Verify that surface elevations of finished subgrade conform to elevations shown on Drawings prior to underdrain system construction and that the subgrade surface is uniform and free of depressions, voids, and irregularities. Install permeable liner in accordance with liner manufacturer's written recommendations.

1. Overlap joints a minimum of eight inches. Overlap all laps in direction the stone aggregate is to be spread.
2. Securely bond joints in accordance with the liner manufacturer's recommendations. Joint bonding may be delayed until aggregate placement is completed to minimize joint stress.
3. Place a suitable amount of ballast on liner to prevent movement by wind. Form ballast to not damage liner.
4. Do not permit direct loading on the fabric by traffic.
5. Repair punctured or torn fabric by overlapping additional fabric and jointing in accordance with manufacturer's recommendations.
6. Completely cover collector drain trench with liner.

3.6 PERMEABLE AGGREGATE BASE COURSE

A. Moisture Content: Provide aggregate that contains 3.5% to 4.0% moisture content to ensure that fines do not migrate and to facilitate proper compaction. Ensure that aggregate leaving the source plant meets this requirement and is required to apply water to aggregate on site to attain and maintain this minimum moisture content.

B. Placement: Prior to aggregate placement, remove any excess or contaminated backfill from the drainage trenches or subgrade. Provide a subgrade surface free of standing water prior to aggregate placement.

1. Place the aggregate in a minimum two (2) lifts, each three (3") in compacted depth.
2. Spread each layer uniformly with equipment that will not cause perceptible separation in gradation (segregation of the aggregates), preferably by a self-propelled paving machine.
3. Should a separation of the materials or particles occur during any stage of the spreading or stockpiling, immediately remove and dispose of segregated material and correct or change handling procedures to prevent any further separation.
4. Utilize a laser plane control system for the grading of the permeable aggregate to ensure accuracy in the grade tolerances.

C. Compaction

1. Compact each layer to a minimum density of not less than 95% of maximum dry density as determined by ASTM 0698 and measured using a nuclear method.
2. Proof roll and mark "soft spots" for additional compaction. Use static tandem drum-type roller of not less than five (5) tons weight.

D. Surface Tolerance

1. Do not deviate from the tolerance of the finished surface (tolerance-to-grade) from designated compacted grade. Do not deviate more than 1/8" in 10' (any direction) when placed under a 10 foot long straight edge. This tolerance is required over the entire field.
2. Mark areas that deviate with spray paint and correct with 1/4" limestone or similar chips and rolled tight to achieve density. Perform remedial actions by hand.

3.7 SUBDRAIN INSTALLATION

A. Inspect delivered subdrain piping. Do not use damaged subdrains in the work.

B. Install as detailed on drawing and per manufacturer's written instructions.

C. All ends/joints of any open geotextile fabric must be completely taped closed with 2" wide (minimum) duct tape or the underdrain manufacturer's PVC tape to prevent any soil fines from entering the drain system. Tape all joints at:

1. Ends of perforated drain.
2. End of drain at collector/header pipe.
3. End of drain at fittings.
4. Any tear, rip or damage to the geotextile fabric.
5. Any additional openings of the geotextile fabric

3.8 COLLECTION DRAIN INSTALLATION

A. Install collector drain pipe where shown and as detailed on the drawings. Provide watertight connections at existing inlets/manholes/cleanouts and/or piping.

3.9 TESTING OF INSTALLED AGGREGATE DRAINAGE LAYER

A. The permeability of the installed aggregate must be field tested by a third party geotechnical service/testing agency prior to installation of the turf system. Test samples must be taken at one sample minimum per 10,000 SF of surface area. Final in-place aggregate must have a percolation rate of not less than 20" per hour.

B. All test results must be delivered in writing to the Owner, Contractor and Owner's Representative/Project Engineer. If any areas do not meet the minimum infiltration requirements, the Contractor is responsible for corrective action to improve the infiltration rate including the restoring the stone base to required grade, cross-section and density.

C. When the Contractor has confirmed that the aggregate base is in compliance with all requirements (planarity and elevation verified by a licensed Surveyor and compaction, gradient, and permeability verified by the specified tests) the Contractor to notify the Owner's Representative/Project Engineer to schedule a final inspection by the Synthetic Turf System Installer. During this inspection, the Contractor shall make available an orbital laser system for checking grades. Any deficiencies uncovered during this inspection must be remedied to the satisfaction of the Synthetic Turf System Installer before the aggregate base will be considered acceptable.

3.10 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Test drain piping and entire drainage system with water to ensure free flow before backfilling.
2. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

B. Collector drain piping will be considered defective if it does not pass tests and inspections

3.11 EXAMINATION

A. Verify that all sub-base, drainage and leveling is complete prior to installation of synthetic turf.

B. The surface to receive the synthetic turf must be inspected by the Installer, and prior to the beginning of installation, the Installer must accept the sub-base in writing. The acceptance will depend on the base contractor providing the installer with test results indicating that compaction, planarity and permeability are in compliance with the synthetic turf manufacturer's specifications. The surface must be perfectly clean as installation commences and shall be maintained in that condition throughout the process. Acceptance shall be for tolerance to grade (1/4 inch in 10 feet in all directions).

C. The compaction of the aggregate base shall be 95%, according to the Modified Proctor procedure (ASTM D1557), and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 1/4" from design grade. All must be verified by means of ASTM testing and surveys to the satisfaction of the turf contractor and Owner.

3.12 INSTALLATION OF TURF SYSTEM

A. Install in accordance with Manufacturer's instructions. The Turf Contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted, in writing, by the onsite representative of the Manufacturer/Installer, and submitted to the Engineer, Architect, and Owner, verifying that the changes do not in any way affect the warranty or performance of the system. Infill materials shall be approved by the Manufacturer and installed in accordance with the Manufacturer's standard procedures.

B. The carpet rolls are to be installed directly over the properly prepared aggregate base. Extreme care should be taken to avoid disturbing the aggregate base, both in regard to compaction and planarity. It is suggested that a 2.5 ton static roller be placed on site and made available to repair and properly compact any disturbed areas of the aggregate base.

C. The rolls of turf shall be rolled out a minimum of six hours (4 hours if mostly sunny) prior to starting seaming procedures to allow for carpet to expand and relax.

   A. All visible wrinkles shall be stretch out before seaming. If wrinkles cannot be stretched properly, material shall either be removed or allowed to sit long enough to be stretched.
   B. Seams shall be flat, tight and permanent with no separation or fraying.

D. The full width rolls shall be laid out across the field. Turf shall be of sufficient length

to permit full cross-field installation (from end to end or side to side). No “head” or cross seams will be allowed. Utilizing standard state of the art sewing procedures, each roll shall be attached to the next.

E. This is basically a sewn installation. Gluing of fabric rolls shall not be acceptable. Minimal gluing will be permitted and only to repair problem areas, corner completions, and install logos as required by the specifications. All seams shall be sewn using double bagger stitches and polyester thread. Seams shall be flat, tight, and permanent with no separation or fraying.

F. Infill materials shall be applied in thin lifts. The turf shall be brushed as the mixture is applied. The mix shall be uniform and even in thickness to assure proper playing characteristics. The Infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional.

G. Synthetic turf shall be attached to the perimeter edge, both glued and nailed, in accordance with the Manufacturer’s standard procedures and construction details provided in the Bid Documents.

3.13 SYNTHETIC BASE

A. Job Conditions:

a. Base Acceptance: The Owner and Contractor must jointly approve the base before synthetic drainage underlayment can begin.

b. Do not install surface in temperatures above 90 degrees Fahrenheit.

B. Product Requirements:

a. Obtain and install the product in accordance with written installation instructions from the manufacturer.

b. Use only new materials manufactured and shipped for the specific installation. No used, recycled or refurbished materials are to be installed.

c. Product to be shipped as flat panels on prepackaged pallets. Pallets to be wrapped with heavy-duty barrier for protection from moisture and UV exposure. Do not stack pallets.

C. Installation:

a. Place surface directly onto geotextiles.

b. Install panels perpendicular to the sidelines, in accordance with manufacturer’s instructions. When trimming for the edges of the field, panels must be within 3mm (1/8 inch) of the curb in height and distance.

c. Panels shall be fitted together as tightly as possible. Panels are to be overlapped and fit together against the four soft protrusions molded along the overlapping edge of the panels. Panels may have gaps not greater than 3mm (0.125 inch) maximum.

d. Seams should be mechanically fastened by hand without use of additional materials, glue, fasteners or secondary processes and

equipment.

D. Turf carpet installation shall begin within 7 days after underlayment installation to avoid prolonged exposure to sun.

3.14 UTILITY COVERS/LIDS

A. Cover all manhole covers/lids and/or any additional utility boxes within the area of the synthetic turf with turf system and infill.

3.15 CLEAN UP AND PROTECTION OF THE SITE

A. Protect installed turf from subsequent construction operations.

B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.

C. All usable remnants of new material shall become the property of the Owner.

D. The Contractor shall keep the area clean throughout the project and clear of debris.

E. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

F. Contractor shall be fully responsible for any damages outside the Limits of Disturbance.

END OF SECTION 321813

GENERAL NOTES

1. VERIFY ALL SITE CONDITIONS, DIMENSIONS AND DETAILS PRIOR TO CONSTRUCTION. NOTIFY THE ARCHITECT AND CITY OF DISCREPANCIES THAT WOULD INTERFERE WITH THE SATISFACTORY COMPLETION OF THE WORK. OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK.

2. DO NOT SCALE DRAWINGS. DRAWINGS ARE DIAGRAMMATIC. THE WORK INDICATED ON THE DRAWINGS SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE THE WORK.

3. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, COORDINATION WITH OTHER TRADES, MEANS OF INSTALLATION AND WORK TO BE PERFORMED BY ITS SUBCONTRACTORS.

4. VERIFY ALL FINAL EQUIPMENT LOCATIONS WITH THE ARCHITECT OR THE CITY, INCLUDING, SWITCHES, CONTROLS, RECEPTACLES, HVAC ITEMS, TELEPHONES, DATA AND SECURITY DEVICES.

5. *COORDINATION AMONG SUBCONTRACTORS:* UPON AWARD OF THE CONTRACT, THE GENERAL CONTRACTOR SHALL COORDINATE THE DEMOLITION SCOPE OF WORK WITH ALL SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT. THIS COORDINATION SHALL INCLUDE THE DEMOLITION SCOPE OF WORK DOCUMENTED IN THE CONSTRUCTION DRAWINGS AND ANY AND ALL PROVISIONS AND CONDITIONS DOCUMENTED IN THE TECHNICAL SPECIFICATIONS. THE GENERAL CONTRACTOR IS TO NOTIFY THE ARCHITECT OF ANY DEVIATIONS OR DISCREPANCIES THAT DIFFER FROM THE CONDITIONS AS DOCUMENTED. THE GENERAL CONTRACTOR SHALL COORDINATE ALL WORK AMONG SUBCONTRACTORS. SUBCONTRACTORS SHOULD BE AWARE OF THE WORK OF OTHER SUBS AND COORDINATE WORK AS NEEDED.

6. *MECHANICAL, PLUMBING AND ELECTRICAL DEMOLITION RESPONSIBILITY:* ALL MECHANICAL, ELECTRICAL, PLUMBING, AND INFORMATION TECHNOLOGY DEMOLITION WORK NOTED ON THE DEMOLITION DRAWINGS SHALL BE DISCONNECTED AND REMOVED BY THE APPROPRIATE TRADE DISCIPLINE SUBCONTRACTORS.

7. *DEMOLITION COORDINATION WITH NEW WORK:* COORDINATE REMOVAL OF ALL EXISTING FINISHES AND ITEMS WHICH INTERFERE WITH INSTALLATION OF NEW WORK INCLUDING THOSE NOT SHOWN ON THE ARCHITECTURAL DEMOLITION DRAWINGS WITH NEW WORK FOR ALL TRADES.

8. *GENERAL CONTRACTOR'S SITE ASSESSMENT:* THE GENERAL CONTRACTOR SHALL NOT CONSIDER DEMOLITION AND ALTERATION NOTES TO BE ALL INCLUSIVE. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH AREA AND TO FULFILL THE INTENT OF THE WORK INDICATED BY THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS WITHIN THE CONTRACT LIMITS. WHERE DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE REQUIRED BY FIELD CONDITIONS, THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

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9. *DISCREPANCIES WITHIN DRAWINGS:* ANY DISCREPANCIES WITHIN THE DRAWINGS, SPECIFICATIONS, CODES OR STANDARDS ARE TO BE BROUGHT TO THE ATTENTION OF THE PROFESSIONAL FOR CORRECTIVE ACTION BEFORE PROCEEDING. THE ACCURACY AND COMPLETENESS OF INFORMATION SHOWN ON THE DRAWINGS IS NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND SUBMITTING RECORDS SUMMARIZING AS-BUILT CONDITIONS (HORIZONTAL LOCATIONS AND VERTICAL ELEVATIONS).

10. *HIDDEN CONDITIONS:* CONTRACTOR SHALL NOTIFY DESIGN PROFESSIONAL AT ONCE OF HIDDEN EXISTING CONDITIONS ENCOUNTERED DURING THE COURSE OF THE WORK WHICH MAY REQUIRE DESIGN MODIFICATIONS.

11. *DISPOSITION OF FF&E ITEMS:* PRIOR TO STARTING ANY WORK IN ANY PROJECT PHASES, THE DEMOLITION CONTRACTOR SHALL CONSULT WITH THE OWNER AND ARCHITECT TO CONFIRM THE DISPOSITION OF ALL EXISTING FIXTURES, FURNITURE, FURNISHINGS, CABINETS, MILLWORK, SERVICES AND ANY OTHER EQUIPMENT AND ITEMS TO BE REMOVED PRIOR TO THE START OF DEMOLITION. DEMOLITION CONTRACTOR IS TO REMOVE AND DISPOSE OF EXISTING FURNISHINGS, FIXTURES AND EQUIPMENT THE OWNER IS ABANDONING AND WISHES NOT TO RETAIN.

12. *TEMPORARY CONSTRUCTION AND LIFE SAFETY ACCOMMODATIONS:* DEMOLITION CONTRACTOR TO PROVIDE TEMPORARY BARRIERS, BARRICADES, LIGHTING, FIRE PROTECTION AND CODE COMPLIANT EXITING REQUIREMENTS INCLUDING BUT NOT LIMITED TO LIFE SAFETY SIGNAGE, EXIT SIGNAGE, FIRE ALARM DEVICES ETC. TO PROTECT PERSONNEL AND PROVIDE SAFE PASSAGE FOR OCCUPANTS.

13. *JOB SITE SAFETY:* CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY AND PROTECTION OF WORK AREAS DURING CONSTRUCTION. ALL WORK IS TO BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS. WORK SHALL BE DONE IN ACCORDANCE WITH PROJECT SPECIFICATIONS INCLUDING CURRENT APPLICABLE CONSTRUCTION STANDARDS. WHERE ANY STANDARD SEEMS IN CONFLICT WITH THESE DRAWINGS, NOTIFY THE PROFESSIONAL FOR DIRECTION BEFORE PROCEEDING. THE DEMOLITION DRAWINGS DO NOT INCLUDE THE NECESSARY PRECAUTIONS AND COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT.

14. *TEMPORARY PROTECTION OF EXISTING FEATURES TO REMAIN:* DEMOLITION CONTRACTOR TO PROVIDE TEMPORARY SAFEGUARDS AND PROTECTION AS REQUIRED TO PROTECT EXISTING FINISHES AND CONSTRUCTION THAT ARE TO REMAIN IN PLACE DURING DEMOLITION AND CONSTRUCTION. THE CONTRACTOR SHALL REPLACE AND/OR RESTORE DAMAGED/DISTURBED CONSTRUCTION TO REMAIN THAT WAS DAMAGED BY THE DEMOLITION AND CONSTRUCTION PROCESS, AT NO ADDITIONAL COST TO THE OWNER.

15. *CONCEALED TERMINATIONS FOR MECHANICAL, PLUMBING AND ELECTRICAL DEMOLITION WORK:* DEMOLITION OF MECHANICAL, ELECTRICAL, PLUMBING, AND INFORMATION TECHNOLOGY SYSTEMS IN FINISHED SPACES SHALL BE PERFORMED SUCH THAT ALL EXISTING TERMINATIONS WILL BE CONCEALED BEHIND THE NEW CONSTRUCTION.

16. *CUTTING AND PATCHING:* PATCH DAMAGE TO EXISTING WALLS, COLUMNS, FLOORS AND CEILINGS THAT ARE TO REMAIN AS REQUIRED BY THE TECHNICAL SPECIFICATIONS. REPAIRS SHALL MATCH EXISTING ADJACENT SURFACES, MATERIALS AND FINISHES.

17. *CODE RELATED REPAIR WORK AND APPROVAL:* HOLES IN FIRE, SMOKE AND ACOUSTICALLY RATED WALLS RESULTING FROM DEMOLITION OR REMOVALS SHALL BE REPAIRED IN A MANNER CONSISTENT WITH THE ADJACENT FIRE RATED CONSTRUCTION AND SHALL BE CONSIDERED COMPLETED ONLY WHEN VIEWED AS ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

18. *ASBESTOS:* IF THE CONTRACTOR ENCOUNTERS MATERIAL SUSPECTED TO BE ASBESTOS OR OTHER HAZARDOUS SUBSTANCE, THEY WILL NOTIFY THE OWNER'S REPRESENTATIVE BEFORE DISTURBING. OWNER WILL TEST, ENCAPSULATE, OR REMOVE ANY SUCH MATERIALS.

19. *DEBRIS:* CONTRACTOR SHALL REMOVE ALL ITEMS IDENTIFIED FOR REMOVAL ON THE DRAWINGS. ALL DEBRIS IS TO BE REMOVED FROM THE SITE AND DISPOSED BY THE CONTRACTOR AT AN APPROVED LOCATION.

20. *SUBSTITUTIONS:* ALL SPECIFIED PRODUCTS AND MATERIALS ARE THE BASES OF DESIGN. PRODUCT SUBSTITUTIONS OF THE SAME QUALITY AND PERFORMANCE CHARACTERISTICS MAY BE ACCEPTED IF SUBMITTED TO THE ARCHITECT FOR REVIEW.

21. *BUILDING CODE:* NEW WORK SHALL BE DONE IN ACCORDANCE AND COMPLIANCE WITH THE 2018 INTERNATIONAL CODE COUNCIL'S (ICC) FAMILY OF CODES WITH LOCAL EXCEPTIONS, INCLUDING BUILDING CODE, EXISTING BUILDING CODE AND PLUMBING CODE.

22. *EXISTING BUILDING:* THE EXISTING BUILDING IS A MASONRY STRUCTURE BUILT CIRCA 1949; ORIGINAL AS-BUILT DRAWINGS OF THE BUILDING ARE NOT AVAILABLE. THE BUILDING IS CURRENTLY OCCUPIED AND IN USE. WORK THAT MAY DISRUPT THE DAILY OPERATIONS OF THE FACILITY SHOULD BE COORDINATED WITH THE USERS AND THE CITY BEFORE BEGINNING TO LIMIT DISRUPTIONS.

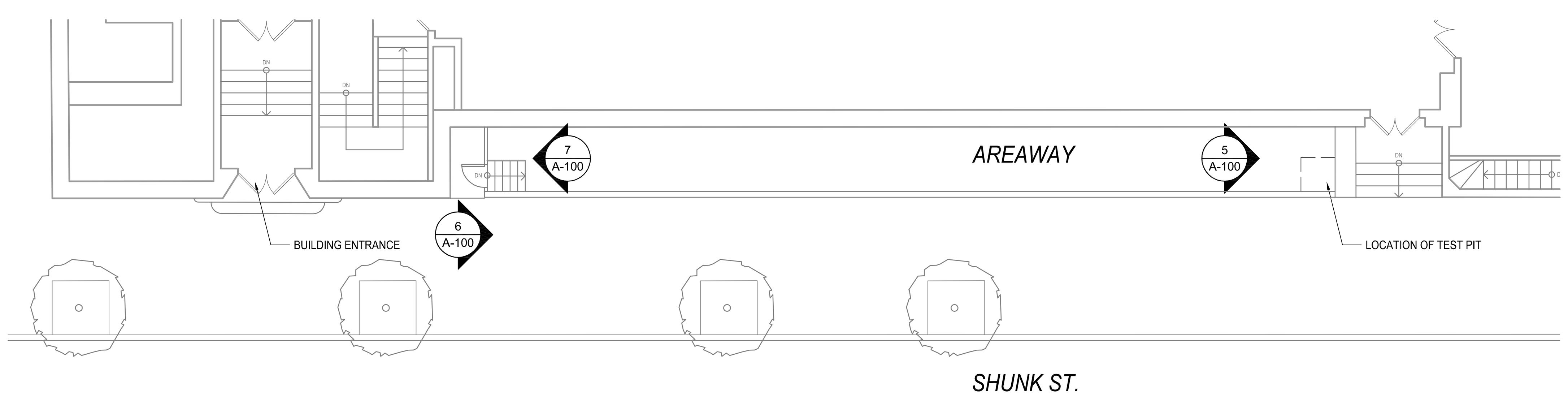
23. *WORK AREA:* THE WORK AREA IS LIMITED TO THE AREAWAY. ACCESS TO THE BUILDING AND USE OF THE ADJACENT SIDEWALK MUST REMAIN OPEN DURING CONSTRUCTION. DUE TO THE LIMITED SPACE ON THE ADJACENT SIDEWALK, LAYDOWN AND STAGING AREAS SHOULD BE LOCATED BEHIND THE BUILDING AND COORDINATED WITH THE GENERAL CONTRACTOR.

24. *AREAWAY GRATING:* THE EXISTING GRATING LOCATED ABOVE THE AREAWAY IS TO REMAIN IN PLACE DURING CONSTRUCTION. IF SECTIONS OF GRATING NEED TO BE REMOVED TO ACCESS THE AREAWAY, THE CONTRACTOR TO COORDINATE REMOVAL AND STORAGE WITH THE OWNER. ANY GRATING REMOVED DURING CONSTRUCTION SHOULD BE REINSTALLED BEFORE PROJECT COMPLETION.
PAINT ALL GRATING, REGARDLESS OF IF IT REMAINED IN PLACE OR WAS REMOVED AND REINSTALLED, WITH A ZINC RICH PRIMER (RUST-OKEYN #7785 ZINC SELE), INTERMEDIATE COAT (LATEX, EXTERIOR, MATCH TOPCOAT) AND A TOPCOAT ("LATEX, EXTERIOR SEMI-GLOSS GLOSS LEVEL 5). PREPARE GRATING BEFORE PAINTING BASED ON PAINT MANUFACTURERS WRITTEN INSTRUCTIONS.

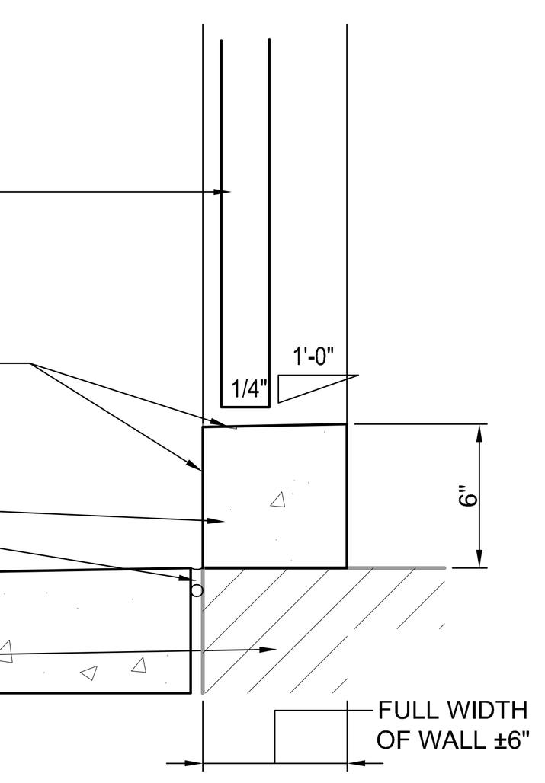
5

25. *DRAINAGE:* THE CONTRACTOR IS TO PROVIDE TEMPORARY DRAINAGE OF THE AREAWAY DURING CONSTRUCTION. DURING CONSTRUCTION, THE CONTRACTOR SHALL PLUG ANY DRAINAGE PIPING THAT IS TO REMAIN TO PREVENT DEBRIS FROM ENTERING. ANY PIPING THAT IS TO REMAIN AND BE REUSED SHOULD BE TESTED BY THE CONTRACTOR TO CONFIRM THAT THERE IS NO BLOCKAGE AND FUNCTIONS PROPERLY. AFTER CONSTRUCTION IS COMPLETE, THE CONTRACTOR SHALL TEST THE NEW AREAWAY DRAINS TO ENSURE THEY ARE UNCLOGGED AND FUNCTION PROPERLY.

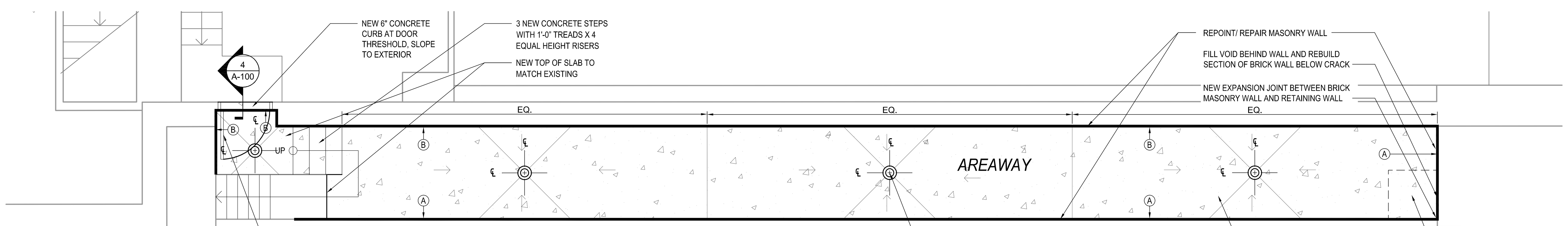
26. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



3 A-100 KEY PLAN
1/8" = 1'-0"
0 2 4 8 16
N



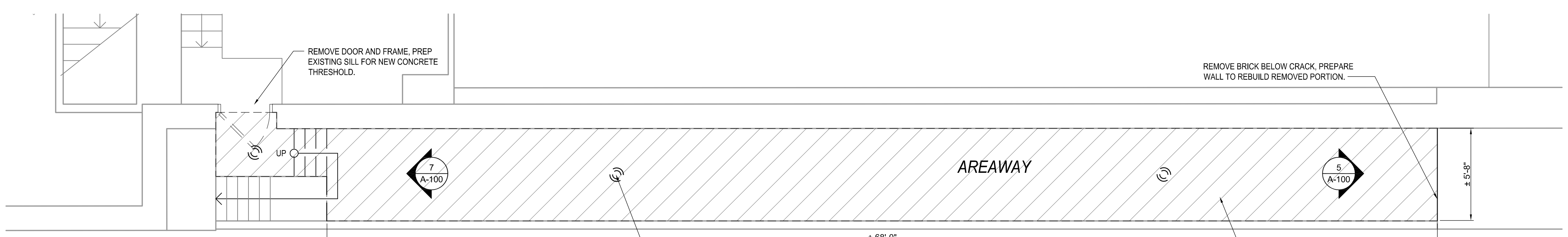
4 A-100 CURB DETAIL
1 1/2" = 1'-0"



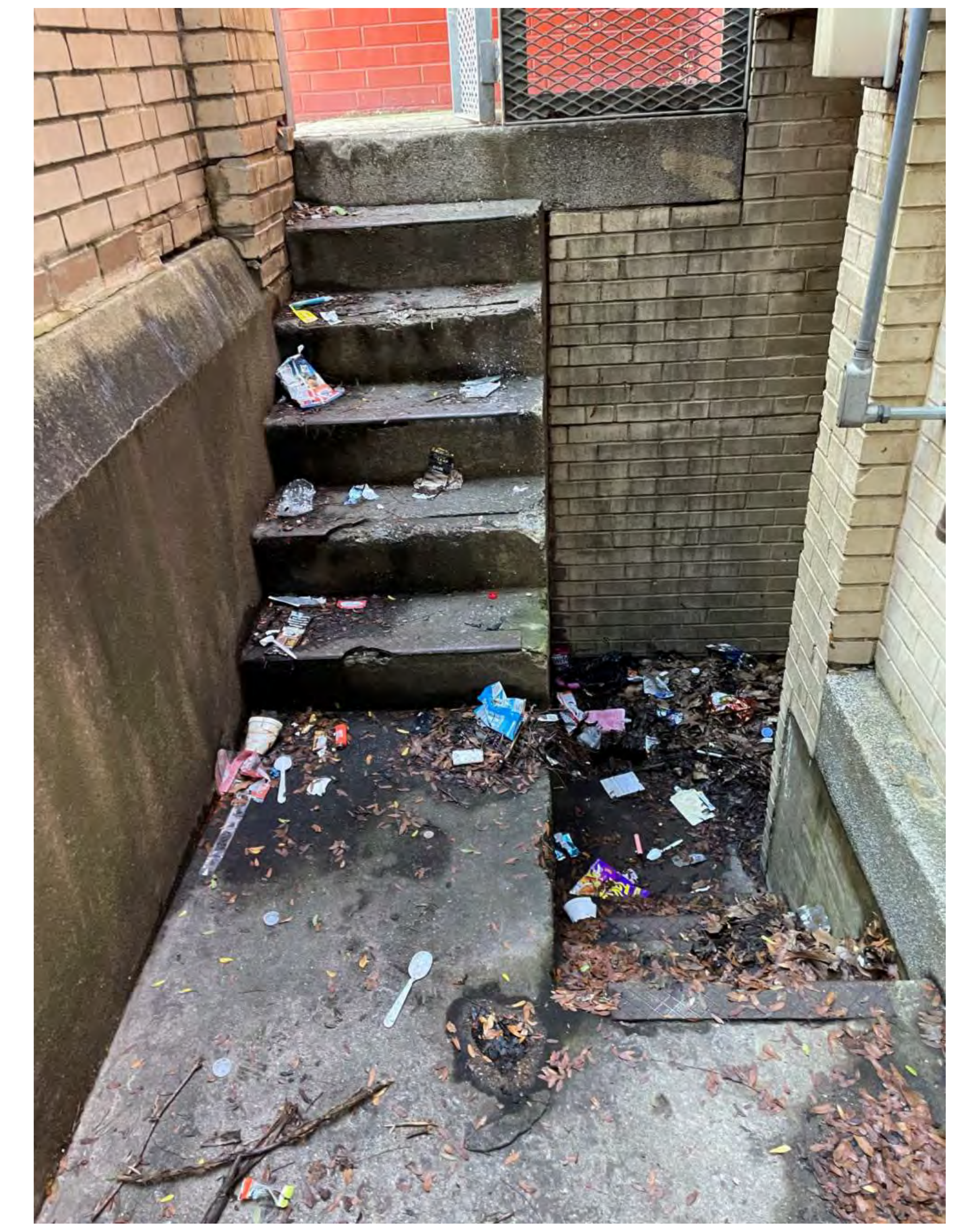
REPOINTING SCHEDULE:
(A) REPOINT BETWEEN FLOOR AND COPING
(B) REPOINT BETWEEN FLOOR AND GRATING

5

2 A-100 PARTIAL BASEMENT PLAN
1/4" = 1'-0"
0 1 2 4 8
N

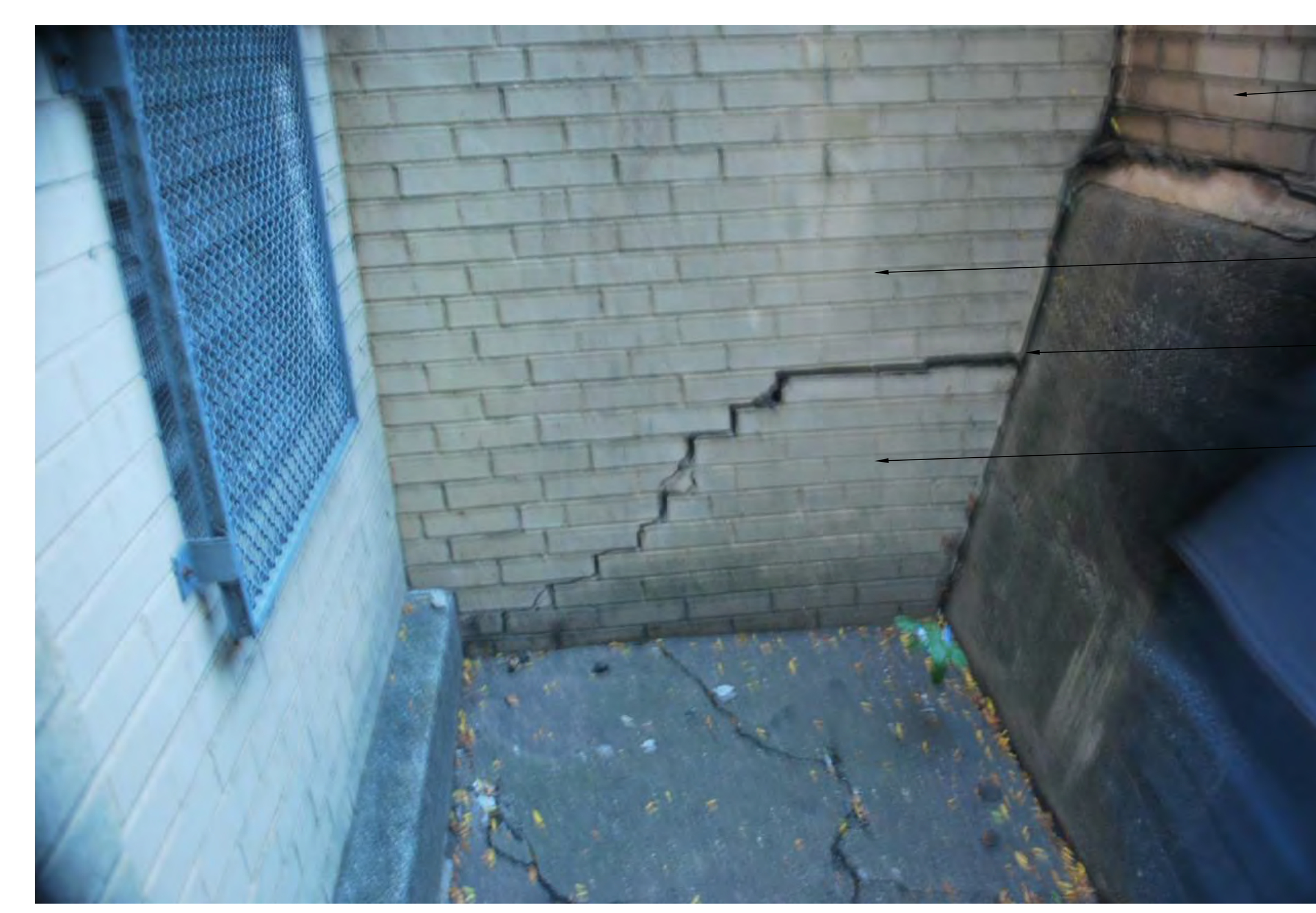


1 A-100 AREAWAY DEMO PLAN
1/4" = 1'-0"
0 1 2 4 8
N



7 A-100 EXISTING AREAWAY STEPS
NTS

6 A-100 EXISTING AREAWAY AT SIDEWALK
NTS



5 A-100 EXISTING WEST AREAWAY WALL
NTS

PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PENDING
ISSUE FOR BID

KMA
KELLY MAIELLO ARCHITECTS
1420 Walnut Street, 15th Floor
Philadelphia, PA 19102
www.kmarchitects.com

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

REGISTERED ARCHITECT PENNSYLVANIA TROY C. LEONARD RA-012392-X

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADLEPHIA, PENNSYLVANIA 19148

ARCHITECTURAL PLAN

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

DATE	NO.	REVISIONS	BY
03/16/2023	5	ADDENDUM #2	
02/24/2023	4	ISSUE FOR BID	VG
12/16/2022	3	90% CONSTRUCTION DOCUMENTS	VG
11/11/2022	2	PCSMP/NPDES SUBMISSION	VG
8/12/2022	1	100% DESIGN DEVELOPMET	VG

PROJECT	
DATE	2/24/2023
DRAWING SCALE	AS NOTED
DRAWN BY	VG
APPROVED BY	VG

A-100

SHEET OF

UTILITY INFORMATION:

REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, ASSIGNED SERIAL NUMBER 20223610621, IN ACCORDANCE WITH PA ACT 287 OF 1974, AS AMENDED BY PA ACT 121 OF 2008, ENTITLED "UNDERGROUND UTILITY LINE PROTECTION LAW". THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA, VIA THE PENNSYLVANIA ONE CALL SYSTEM, A MINIMUM OF 3 WORKING DAYS BEFORE THE START OF EXCAVATION. (800) 242-1776

COMPANY: AT&T
ADDRESS: 1100 3RD AVE
ALTOONA, PA 16602
CONTACT: PAT SUTTON
EMAIL: ps4364@att.com

COMPANY: COMCAST
ADDRESS: 4400 WAYNE AVE
PHILADELPHIA, PA 19140
CONTACT: ROBERT HARVEY
EMAIL: bob_harvey@cable.comcast.com

COMPANY: PECO ENERGY C/O USIC
ADDRESS: 450 S HENDERSON RD SUITE B
KING OF PRUSSIA, PA 19406
CONTACT: NIKKIA SIMPKINS
EMAIL: nikkisimpkins@usicllc.com

COMPANY: PHILADELPHIA CITY WATER DEPARTMENT
ADDRESS: 1101 MARKET STREET
2ND FLOOR JEFFERSON TOWER
PHILADELPHIA, PA 19107
CONTACT: ERIC PONERT
EMAIL: eric.ponert@phila.gov

COMPANY: PHILADELPHIA CITY DEPARTMENT OF STREETS
ADDRESS: 4501 G ST
PHILADELPHIA, PA 19120
CONTACT: NICHOLAS KULP
EMAIL: nicholas.kulp@phila.gov

COMPANY: PHILADELPHIA GAS WORKS
ADDRESS: 800 W MONTGOMERY AVE
PHILADELPHIA, PA 19122
CONTACT: JAMES CUMMINGS
EMAIL: james.cummings@pgworks.com

COMPANY: SOUTHEASTERN PA TRANSPORTATION AUTHORITY
ADDRESS: 1234 MARKET ST 12TH FLOOR
PHILADELPHIA, PA 19107
CONTACT: TYLER LADD
EMAIL: tladd@septa.org

COMPANY: VERIZON BUSINESS FORMERLY MCI
ADDRESS: 700 WESTON PKWY
CARY, NC 27513
CONTACT: VICTOR WOOD
EMAIL: victor.s.wood@verizon.com

MURPHY RECREATION CENTER

ISSUE FOR BID

PHILADELPHIA, PENNSYLVANIA
FEBRUARY 24, 2023

Sheet List Table

SHEET	SHEET TITLE	ISSUED DATE	REVISED DATE
CS0001	COVER SHEET	12/16/2022	3/16/2023
CS0201	EXISTING CONDITIONS PLAN	12/16/2022	2/27/2023
CS0501	SITE DEMOLITION PLAN	12/16/2022	3/16/2023
CS1001	SITE PLAN	12/16/2022	3/16/2023
CS1002	SPORTS STRIPING PLAN	12/16/2022	2/24/2023
CS1501	GRADING PLAN	12/16/2022	2/24/2023
CS1502	SIDEWALK GRADING PLAN	12/16/2022	2/24/2023
CS1701	PCSM UTILITY PLAN	12/16/2022	3/16/2023
CS1702	AREAWAY REPAIR PLAN	12/16/2022	2/24/2023
CS2001	LANDSCAPE PLAN	12/16/2022	2/24/2023
CS6001	SITE DETAILS	12/16/2022	3/16/2023
CS6002	SITE DETAILS	12/16/2022	3/16/2023
CS6003	SITE DETAILS	12/16/2022	2/27/2023
CS6004	SITE DETAILS	12/16/2022	3/16/2023
CS6005	SITE DETAILS	12/16/2022	2/27/2023
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CS6008	SITE DETAILS	2/22/2023	3/16/2023
CS8001	EROSION & SEDIMENT CONTROL PLAN	12/16/2022	2/27/2023
CS8501	EROSION & SEDIMENT CONTROL NOTES	12/16/2022	2/27/2023
CS8502	EROSION & SEDIMENT CONTROL DETAILS	12/16/2022	2/27/2023
CS9001	PRE-CONSTRUCTION DRAINAGE AREA MAP	12/16/2022	2/27/2023
CS9002	POST CONSTRUCTION DRAINAGE AREA MAP	12/16/2022	2/27/2023
CS9003	POST CONSTRUCTION INLET DRAINAGE AREA MAP	12/16/2022	2/27/2023
A-100	ARCHITECTURAL PLANS	12/16/2022	3/16/2023
E-001	ELECTRICAL INDEX SHEET	12/16/2022	2/24/2023
E-002	ELECTRICAL SPECIFICATIONS	12/16/2022	2/24/2023
E-100	ELECTRICAL DEMOLITION SITE PLAN	12/16/2022	2/24/2023
E-200	ELECTRICAL PROPOSED SITE PLAN	12/16/2022	2/24/2023
E-300	ELECTRICAL SCHEDULES	12/16/2022	2/24/2023
E-400	ELECTRICAL DETAILS	12/16/2022	2/24/2023
S-001	STRUCTURAL GENERAL NOTES	2/24/2023	-
S-101	STRUCTURAL PLAN, SECTIONS, AND DETAILS	12/16/2022	2/24/2023

8

PREPARED FOR:
OWNER/DEVELOPER

CITY OF PHILADELPHIA PARKS AND RECREATION

1515 ARCH STREET, 10TH FLOOR
PHILADELPHIA, PENNSYLVANIA 19102

SOILS MAP
Scale 1" = 150'

LOCATION MAP
Scale: 1" = 1000'

USGS MAP
Scale: 1" = 2000'

PREPARED BY:

PENNONI ASSOCIATES INC.

1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000
F 215.222.3588

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20223610621

PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

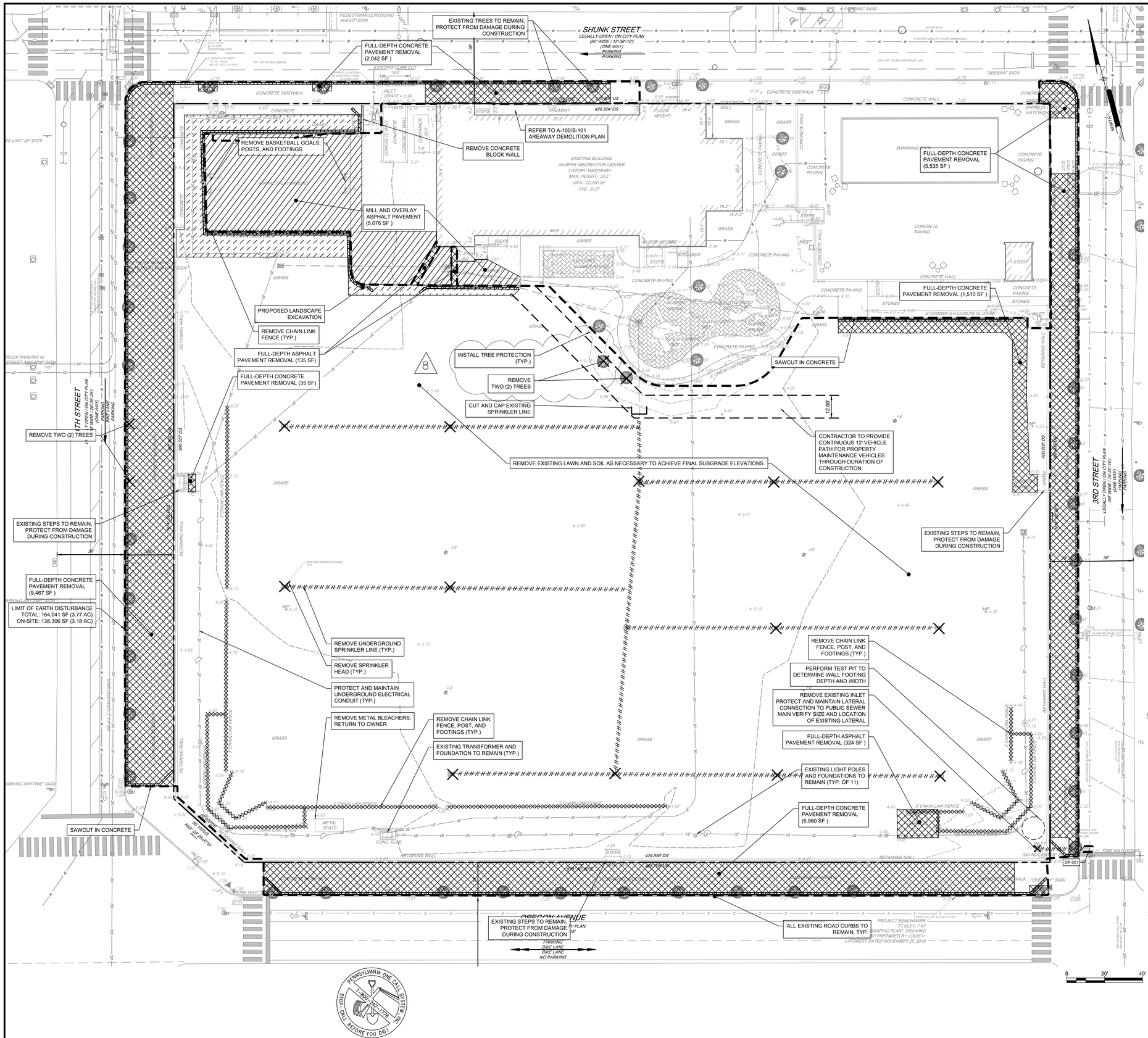
COVER SHEET

CITY OF PHILADELPHIA PARKS AND RECREATION
1515 ARCH STREET, 10TH FLOOR
PHILADELPHIA, PENNSYLVANIA 19102

DATE	NO.	REVISIONS	BY
03/16/2023	8	ADDENDUM #2	SDL
02/27/2023	7	PWD PCSM RESUBMISSION	SDL
02/24/2023	6	PSD SUBMISSION	SDL
02/24/2023	5	ISSUE FOR BID	SDL
01/18/2023	4	PWD PCSM RESUBMISSION	SDL
11/11/2022	3	90% CONSTRUCTION DOCUMENTS	SDL
11/11/2022	2	PCSMP/NPDES SUBMISSION	SDL

PROJECT	KLMLX20001
DATE	8/12/2022
DRAWING SCALE	AS NOTED
DRAWN BY	SDL
APPROVED BY	MJM

CS0001



GENERAL NOTES:

SITE ADDRESS:
300 WEST SHUNK STREET
PHILADELPHIA, PA 19148

OWNER:
CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

DEVELOPER:
REBUILD PHILADELPHIA
1515 ARCH STREET, MEZZANINE LEVEL
PHILADELPHIA, PA 19107

ENGINEER:
PENNONI ASSOCIATES INC.
1900 MARKET STREET, SUITE 300
PHILADELPHIA, PA 19103

DEMOLITION NOTES:

1. DEMOLITION SHALL BE FULLY COORDINATED WITH THE CONSTRUCTION PHASING PLANS.
2. PURSUANT TO THE REQUIREMENTS OF PENNSYLVANIA ACT 287 OF 1974, AS AMENDED BY ACT 121 (OCTOBER 9,2008). THE CONTRACTOR SHALL CONTACT THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, AT LEAST THREE (3) WORKING DAYS PRIOR TO EXCAVATION.
3. DEMOLITION WILL BEGIN UPON RECEIPT OF ALL NECESSARY APPROVALS AND PERMITS FROM ALL APPLICABLE GOVERNMENTAL AGENCIES. ALL WORK SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE AREAS FOR BOTH VEHICULAR AND PEDESTRIAN TRAFFIC BE SAFE, CLEAN, AND ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.
5. CONTRACTOR SHALL CONTACT THE PA ONE CALL SYSTEM (1-800-242-1776) PER ACT 287, AS AMENDED, NOT LESS THAN THREE DAYS NOR MORE THAN TEN WORKING DAYS BEFORE COMMENCING WITH DEMOLITION.
6. CONTRACTOR IS RESPONSIBLE FOR UTILIZING APPLICABLE EROSION CONTROL MEASURES PRIOR TO AND DURING DEMOLITION. THE EROSION AND SEDIMENTATION PLANS ARE TO BE SUBMITTED TO THE PHILADELPHIA WATER DEPARTMENT. REFER TO CS8000 SERIES FOR THIS PROJECT FOR EROSION AND SEDIMENT CONTROL PROCEDURES.
7. THE CONTRACTOR SHALL ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS THAT COULD ADVERSELY IMPACT WATER QUALITY. DEMOLITION WASTES INCLUDE, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIAL, CONCRETE WASTE WATER, SANITARY WASTES, ETC. MEASURES SHOULD BE PLANNED AND IMPLEMENTED FOR HOUSE KEEPING, MATERIAL MANAGEMENT AND LITTER CONTROL WHEREVER POSSIBLE. RECYCLING OF EXCESS MATERIALS IS PREFERRED, RATHER THAN DISPOSAL. DIRECT ALL PUMP DISCHARGES RESULTING FROM DEWATERING OPERATIONS TO A SUITABLE FILTERING DEVICE IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL PLANS.
8. SAFETY DEVICES (I.E. BARRICADES, WARNING TAPE, CHAIN LINK FENCING, ETC.) SHALL BE USED DURING DEMOLITION PROCEDURE TO INSURE THE SAFETY OF THE SURROUNDING PUBLIC. REFER TO SITE LOGISTICS PLAN FOR ADDITIONAL INFORMATION REGARDING LANE CLOSURES, AND CONSTRUCTION ENTRANCES. THE CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF THE SITE LOGISTICS PLAN. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING, PREPARING, AND OBTAINING PERMITS RELATED TO STREET AND SIDEWALK CLOSURES RELATED TO ALL CONSTRUCTION COMPONENTS OF THIS PROJECT.
9. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY AND ALL DEBRIS THAT MAY FALL ON THE ROADWAY AND/OR MAY BE TRACKED ONTO THE ROADWAY.
10. STRUCTURES, PAVEMENT, SUBBASE AND MISCELLANEOUS ITEMS SHALL BE REMOVED IN THEIR ENTIRETY. ALL OPEN EXCAVATION AS A RESULT OF DEMOLITION WORK (I.E. FOUNDATIONS, BASEMENTS, TRENCHES, MANHOLES, INLETS, CLEANOUTS AND STORMWATER PIPING) SHALL BE BACKFILLED TO SURROUNDING GRADE LEVEL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AFTER DEMOLITION IS COMPLETE.
11. SIGNS, POSTS, FIRE HYDRANTS, VAULTS, VALVES, ETC. IN THE WALKWAYS AND STREETS ARE TO BE PROTECTED AND MAINTAINED IN OPERABLE CONDITION THROUGH OUT DEMOLITION AND CONSTRUCTION. PEDESTRIAN STREET LIGHTS, SIGNAGE, AND PARKING METERS SHALL BE REMOVED AND SALVAGED FOR REUSE / INSTALLATION BY CONTRACTOR (IF NECESSARY) AND COORDINATED WITH THE APPROPRIATE AUTHORITIES.
12. STREET LIGHT CONDUITS AND U/G WIRING LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY WILL NOT BE MARKED BY PA ONE-CALL AND A SEPARATE CONTACT MUST BE MADE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY/ALL WORK TO RELOCATE ANY/ALL STREET LIGHTING EQUIPMENT.
13. ALL LINES TO BE ABANDONED SHALL BE SEALED WITH A MINIMUM OF 12-INCH DEEP MASONRY PLUG UNLESS OTHERWISE NOTED OR REQUIRED BY LOCAL UTILITY REQUIREMENTS.
14. CONTRACTOR SHALL DIG TEST PITS AT ALL UTILITY CROSSINGS TO VERIFY THE ELEVATION OF THE EXISTING UTILITY MAINS A MINIMUM OF TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK. THE ENGINEER SHALL BE PROVIDED WITH SURVEYED LOCATIONS AND ELEVATIONS AT PROPOSED TEST PIT. REFER TO PLAN FOR SPECIFIC AREAS OF CONCERN, ALTHOUGH ALL CROSSINGS ARE THE CONTRACTOR'S RESPONSIBILITY.
15. ALL UTILITIES TO BE CAPPED AND REMOVED ARE NOT SHOWN. CONTRACTOR TO CAP AND REMOVE EXISTING UTILITIES WHICH INTERFERE WITH PROPOSED SITE CONSTRUCTION. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM UTILITY OWNERS PRIOR TO REMOVAL OF FACILITIES.
16. CONTRACTOR TO PROTECT AND SUPPORT EXISTING UTILITY STRUCTURES WITHIN THE RIGHT-OF-WAY DURING DEMOLITION AND CONSTRUCTION.
17. EXISTING UTILITIES AND STRUCTURES ARE TO BE PROTECTED AND MAINTAINED UNLESS OTHERWISE NOTED.
18. CONTRACTOR ONLY TO REMOVE ABANDONED UTILITIES ENCOUNTERED DURING EXCAVATION. UTILITIES NOT ENCOUNTERED MAY REMAIN IN PLACE, AND UNAFFECTED, UNLESS NOTED OTHERWISE ON THE PLANS.
19. NO UNSUITABLE MATERIAL IS TO BE USED ON-SITE. REMOVE ANY SUBGRADE THAT CANNOT BE PROPERLY COMPACTED AND THAT IS UNSUITABLE MATERIAL. UNDERCUTTING AND/OR SUBGRADE STABILIZATION MAY BE REQUIRED.
20. ALL MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER.
21. REMOVAL OF ANY FIRE HYDRANT SHALL BE REVIEWED AND APPROVED BY THE LOCAL FIRE OFFICIALS. CONTRACTOR TO COORDINATE HYDRANT REMOVAL AND APPROVAL WITH THE MUNICIPALITY/AUTHORITY AND UTILITY COMPANY. CONTRACTOR TO PROVIDE NEW/TEMPORARY AND OR PERMANENT RELOCATION OF HYDRANTS PER MUNICIPALITY/AUTHORITY REQUIREMENTS.
22. CONTRACTOR WILL BE RESPONSIBLE TO REMOVE ANY UNDERGROUND FOUNDATION OR ABANDONED UTILITY REQUIRED TO FACILITATE THE PROPOSED IMPROVEMENTS.
23. UTILITY REMOVALS/ABANDONMENT SHALL BE IN ACCORDANCE WITH THE FOLLOWING ADDITIONAL SPECIFICATIONS:
    - 23.1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND TO TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES FOR EXACT LOCATION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
    - 23.2. CONTRACTOR TO NOTIFY APPROPRIATE UTILITY COMPANY PRIOR TO INTERRUPTION, RELOCATION, OR REMOVAL/ABANDONMENT OF SUCH UTILITY.
    - 23.3. REMOVAL/ABANDONMENT OF PRIVATE UTILITY COMPANY SERVICES TO BE IN ACCORDANCE WITH EACH RESPECTIVE UTILITY COMPANY STANDARD SPECIFICATIONS OR THE FOLLOWING PROCEDURE, WHICH EVER IS MORE RESTRICTIVE.
    - 23.4. ALL PIPES TO BE ABANDON SHALL BE EITHER EXCAVATED, REMOVED AND THE TRENCH BACKFILLED WITH COURSE AGGREGATE MATERIAL OR ALTERNATE MATERIAL APPROVED BY THE ENVIRONMENTAL ENGINEER OF RECORD OR THE PIPE SHALL BE COMPLETED FILLED WITH FLOWABLE FILL/SAND AND THE ENDS SEALED WITH WATERTIGHT GROUT.
    - 23.5. ALL STRUCTURES TO BE ABANDONED IN-PLACE SHALL HAVE AT MINIMUM THE FIRST 5 FEET BELOW PROPOSED GRADE REMOVED. THE REMAINING STRUCTURE SHALL BE COMPLETELY FILLED WITH FLOWABLE FILL, CAPPED WITH A WATERTIGHT CONCRETE COVER AND SEALED WITH WATERTIGHT GROUT. WHERE SITE GRADING NECESSITATES STRUCTURE REMOVAL, THE ASSOCIATED PIPES SHALL BE FILLED WITH FLOWABLE FILL AND THE ENDS SEALED WITH WATERTIGHT GROUT. THE CONTRACTOR SHALL FIELD VERIFY THE FLOW PATH OF ALL PIPES TO ENSURE THAT PLUGGING PIPES WILL NOT ADVERSELY AFFECT DRAINAGE ON ANY ADJACENT ROADWAY OR PROPERTY.
24. ALL MATERIALS TO BE REMOVED SHALL BE DISPOSED OF AT AN APPROVED WASTE DISPOSAL SITE, OR SHALL BE RECYCLED IN ACCORDANCE WITH PROJECT REQUIREMENTS.
25. REMOVAL AND DISPOSAL OF BITUMINOUS MATERIAL SHALL BE IN COMPLETED IN ACCORDANCE WITH DETAILS AND REGULATIONS OF THE MUNICIPALITY, PADEP, AND PENNDOT, AS APPLICABLE AND IS SUBJECT TO INSPECTION AND APPROVAL AS APPROPRIATE.
26. CONTRACTOR TO COLLECT AND REMOVE ALL TRASH/ DEBRIS ON SITE.

LEGEND

- STORM SEWER MANHOLE
- WATER MANHOLE
- WATER SHUT OFF
- TRAFFIC LIGHTS
- CATCH BASIN/GRATE INLET
- LIGHT STANDARD
- UTILITY POLE
- SIGN POST
- ASPHALT
- RUBBER PAVING
- TREE
- CITY PLAN ELEVATION
- BUILDING DIMENSION
- HYDRANT
- PROPERTY LINES
- BOLLARD
- METAL POLE
- EXISTING WATER SERVICE
- EXISTING SANITARY SEWER
- EXISTING TELECOMMUNICATION SERVICE

- EXISTING PAVEMENT TO BE REMOVED
- PROPOSED MILL AND OVERLAY
- PROPOSED LANDSCAPE EXCAVATION
- EXISTING FENCE/WALL TO BE REMOVED
- SITE FEATURE TO BE REMOVED
- LIMIT OF EARTH DISTURBANCE
- EXISTING UTILITY TO BE REMOVED
- CAP AND CUT EXISTING UTILITY

ISSUE FOR BID
PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20223610621

PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

SITE DEMOLITION PLAN

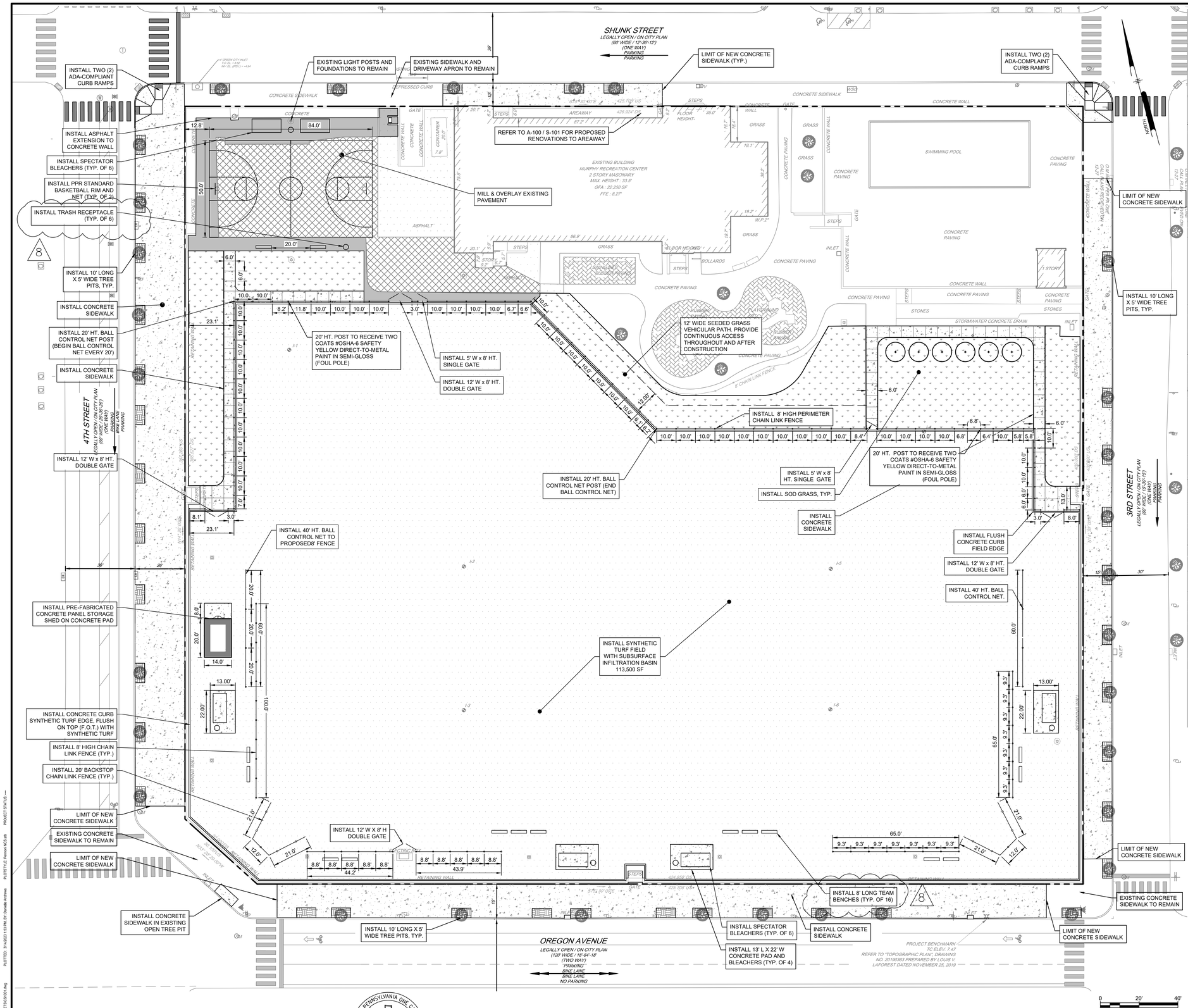
CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

BY	NO.	REVISIONS	DATE
SDL	8	ADDENDUM #2	03/16/2023
SDL	7	PWD PCSM RESUBMISSION	02/27/2023
SDL	6	PSD SUBMISSION	02/24/2023
SDL	5	ISSUE FOR BID	02/24/2023
SDL	4	PWD PCSM RESUBMISSION	01/18/2023
SDL	3	90% CONSTRUCTION DOCUMENTS	12/19/2022
SDL	2	PCSM/NPDES SUBMISSION	11/11/2022

PROJECT	KLMLX20001
DATE	8/12/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDL
APPROVED BY	MJM

CS0501

SHEET 3 OF 24



GENERAL NOTES:

SITE ADDRESS:
900 WEST SHUNK STREET
PHILADELPHIA, PA 19148

OWNER:
CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

DEVELOPER:
REBUILD PHILADELPHIA
1515 ARCH STREET, MEZZANINE LEVEL
PHILADELPHIA, PA 19107

ENGINEER:
PENNONI ASSOCIATES INC.
1900 MARKET STREET, SUITE 300
PHILADELPHIA, PA 19103

NOTES:

1. LOCATION: THE PROJECT IS LOCATED ON A PROPERTY BOUND BY WEST SHUNK STREET TO THE NORTH, SOUTH 3RD STREET TO THE EAST, WEST OREGON AVENUE TO THE SOUTH, AND SOUTH 4TH STREET TO THE WEST.

   OPA ACCOUNT: 781394500

2. THE PROJECT IS LOCATED ENTIRELY WITHIN THE SP-PO-A ACTIVE PARKS AND OPEN SPACE (SPECIAL PURPOSE) ZONE.
3. THE INTENT OF THIS PLAN IS TO DEPICT THE DEVELOPMENT OF EXTERIOR IMPROVEMENTS INCLUDING A NEW ARTIFICIAL TURF MULTI-PURPOSE RECREATION FIELD AND ASSOCIATED AMENITIES SUCH AS AN EQUIPMENT STORAGE SHED, A NEW BASKETBALL COURT, FIELD BLEACHERS, PEDESTRIAN SIDEWALKS AND LANDSCAPING, AS WELL AS THE INSTALLATION OF FOUR ADA RAMPS AND RECONSTRUCTED SIDEWALK.
4. ACCORDING TO THE USDA NRCS CUSTOM SOIL RESOURCE REPORT FOR PHILADELPHIA COUNTY, PENNSYLVANIA, LANDS LOCATED WITHIN THE PROJECT BOUNDARY ARE CLASSIFIED AS URBAN LAND (Ub).
5. THE PWD TRACKING NUMBER FOR THIS PROJECT IS FY21-MURP-6508-01.
6. THE PSD REVIEW NUMBER FOR THIS PROJECT IS .
7. THE SITE WILL BE SERVICED BY A PUBLIC WATER SUPPLY AND PUBLIC SEWER THROUGH THE PHILADELPHIA WATER DEPARTMENT.
8. UTILITY NOTES:
   - 8.1. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING UTILITY RECORDS AVAILABLE AT THE TIME THESE PLANS WERE PREPARED AND FROM SURFACE OBSERVATION OF THE SITE.
   - 8.2. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
   - 8.3. IN ACCORDANCE WITH PA ACT 287 AS OF 1974 AS AMENDED BY ACT 50 OF 2017, THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA VIA THE PENNSYLVANIA ONE CALL SYSTEM, INC. (800-242-1776).
   - 8.4. THE CONTRACTORS SHALL VERIFY LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK.
   - 8.5. IF CONFLICTS ARE FOUND THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.
9. ELEVATIONS ARE BASED ON THE CITY OF PHILADELPHIA VERTICAL DATUM. SITE FEATURES ARE BASED ON THE PA NAVD 83 HORIZONTAL DATUM.
10. ALL BOUNDARY LINES ARE DRAWN IN UNITED STATES MEASURE (US) AND DIMENSIONED IN DISTRICT MEASURE (DS). ALL PROPOSED SITE AND BUILDING DIMENSIONS ARE SHOWN IN UNITED STATES (US) MEASURE UNLESS NOTED PHILADELPHIA DISTRICT STANDARD MEASURE (DS).
11. REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, ASSIGNED SERIAL NUMBER 20223610621 IN ACCORDANCE WITH PA ACT 287 AS OF 1974 AS AMENDED BY ACT 50 OF 2017 ENTITLED "UNDERGROUND UTILITY LINE PROTECTION LAW". (800-242-1776)

REFERENCE:

1. EXISTING SURVEY WAS PREPARED BY LOUIS V. LAFOREST, PLS, DATED NOVEMBER 19, 2019 PER INSTRUCTIONS OF TARA RASHEED, MDO.
2. ALL VALVES, VENTS, MANHOLES, INLETS AND OTHER UTILITY STRUCTURES HAVE BEEN FIELD VERIFIED AND WILL NOT CONFLICT WITH PROPOSED CURB ALIGNMENTS.

FLOOD ZONE INFORMATION:

1. BY GRAPHIC PLOTTING ONLY, BASED UPON THE THE FLOOD INSURANCE RATE MAP, PANEL NO. 177 OF 230, COMMUNITY MAP NUMBER 4207570177G WHICH BEARS AN EFFECTIVE DATE OF JANUARY 17TH, 2007, THE SITE IS LOCATED IN THE FOLLOWING AREAS:

   ZONE AE - BASE FLOOD ELEVATION DETERMINED - 30 FT NGVD 29 (APPROX 24.2 FT CITY DATUM)

   FLOODWAY AREA IN ZONE AE - THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHT

2. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

SITE NOTES:

1. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER.
2. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES OR ERRORS THEY DISCOVER IN THE PLAN.
3. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER OR HIS REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE REJECTED.
4. ALL MATERIALS SHALL BE NEW AND SHALL BE ASBESTOS AND VERMICULITE FREE.
5. SIDEWALK CONSTRUCTION SHOWN IN THESE PLANS SHALL MEET ALL REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF JULY 1991 AS AMENDED, TITLE II, TITLE III, AND ANY STATE, COUNTY, LOCAL OR OTHER APPLICABLE LAWS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PROTECTION OF WORK AREAS DURING CONSTRUCTION.
7. PRIOR TO CONSTRUCTION, CONTRACTOR TO FIELD LOCATE AND RECORD ANY DAMAGE TO EXISTING PAVING, SIDEWALK, CURB, OR STRUCTURES NOT TO BE REMOVED OR REPLACED, ENGINEER TO VERIFY LOCATION AND EXTENT OF DAMAGE.
8. DAMAGE TO EXISTING PAVING, SIDEWALK, CURB, OR STRUCTURES NOT TO BE REPLACED OR REMOVED DURING CONSTRUCTION SHALL BE IMMEDIATELY REPORTED TO ENGINEER, CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGE WORK WITHOUT CHARGE TO THE OWNER.
9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS PRIOR TO START OF WORK.
10. CURB RAMPS TO BE CONSTRUCTED IN ACCORDANCE TO PENNDOT RC-67M AND PHILADELPHIA STREETS DEPARTMENT SPECIFICATIONS.
11. SUBSURFACE DETENTION IS PROPOSED ONSITE. AT GRADE STORMWATER RUNOFF WILL BE CONVEYED TO AND MANAGED BY THE SUBSURFACE DETENTION BASINS.
12. THE PROPOSED STORMWATER DESIGN SHALL COMPLY WITH THE CITY OF PHILADELPHIA STORMWATER REGULATIONS.
13. PROPOSED UTILITY SERVICE AND CONNECTIONS (STORM SEWER) ARE SUBJECT TO FINAL DESIGN AND APPROVAL BY THE CITY OF PHILADELPHIA.
14. NO STORAGE OF TRASH, GARBAGE, REFUSE, EXPLOSIVE OR FLAMMABLE MATERIALS, HAZARDOUS SUBSTANCES, ANIMALS, ANIMAL CARCASSES OR SKINS, OR SIMILAR ITEMS ARE PERMITTED ON SITE.
15. CONTRACTOR TO REFER TO ARCHITECTURAL AND LANDSCAPE PLANS FOR ADDITIONAL DESIGN DETAILS.
16. CONTRACTOR TO MAINTAIN FIRE DEPARTMENT ACCESS TO THE SITE AT ALL TIMES AND EXISTING FIRE HYDRANTS ARE TO REMAIN UNOBSTRUCTED.

LEGEND

STORM SEWER MANHOLE	PROPOSED SYNTHETIC TURF FIELD (SUBSURFACE INFILTRATION)
WATER MANHOLE	PROPOSED CONCRETE
WATER SHUT OFF	PROPOSED MILL & OVERLAY
TRAFFIC LIGHTS	PROPOSED ASPHALT
INLET CATCH BASIN/GRATE INLET	PROPOSED LAWN GRASS
LIGHT STANDARD	PROPOSED EARTHEN FILL
UTILITY POLE	PROPOSED STORAGE SHED
SIGN POST	PROPOSED FENCE
ASPHALT	PROPOSED TREE
RUBBER PAVING	
TREE	
CITY PLAN ELEVATION	
{0.0'} BUILDING DIMENSION	
HYDRANT	
PROPERTY LINES	
BOLLARD	
METAL POLE	
EXISTING WATER SERVICE	
EXISTING SANITARY SEWER	
EXISTING TELECOMMUNICATION SERVICE	

ISSUE FOR BID
PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

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BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20223610621

PENNSYLVANIA ONE CALL SYSTEM INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

SITE PLAN

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

BY	REVISIONS	DATE	NO.
SDL	ADDENDUM #2	03/16/2023	8
SDL	PWD PCSM RESUBMISSION	02/27/2023	7
SDL	PSD SUBMISSION	02/24/2023	6
SDL	ISSUE FOR BID	02/24/2023	5
SDL	PWD PCSM RESUBMISSION	01/18/2023	4
SDL	90% CONSTRUCTION DOCUMENTS	12/16/2022	3
SDL	PCSM/NPDES SUBMISSION	11/11/2022	2

PROJECT	KLMLX20001
DATE	5/30/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDS
APPROVED BY	MJM

CS1001

SHEET 4 OF 24

PROJECT STATUS —
PLOTSTYLE: Pennoni WCS.stb
PLOTTED: 3/14/2023 1:53 PM BY: Danielle Andrews
L:\Accounts\KLMLX\KLX20001 - KMA Murphy Recreation Center\DESIGN_SHEETS\CS1001.dwg

SHUNK STREET
LEGALLY OPEN / ON CITY PLAN
(60' WIDE / 12'-36'-12')
(ONE WAY)
PARKING
PARKING

37 LF OF 12" HDPE @ 0.60%

OUTLET CONTROL STRUCTURE (OCS-1)
RIM 4.45
INV OUT 0.58

DP 003

EXISTING CURB CUT 16.0

I-104
WATER QUALITY INLET WITH 2' X 4' INLET GRATE
DRAIN W/ SNOUT
GRATE 4.00
INV OUT 1.50
SUMP -1.50

UNDERGROUND BASIN 1 (UB-1)
ADS N-12 15" PIPE IN STONE
7.65' X 41.33'X 2.42'
BASIN INV. 0.58
INV OUT 0.58

31 LF OF 12" HDPE @ 0.50%

CO-101 (CLEANOUT)
RIM 5.68
INV OUT 1.03

EXISTING BUILDING
MURPHY RECREATION CENTER
2 STORY MASONARY
MAX. HEIGHT : 33.5'
GFA : 22,250 SF
FFE : 8.27'

SWIMMING POOL

PROPOSED OBSERVATION WELL (TYP. OF 4)

INFILTRATION BASIN 1A (IB-1A)
(TURF FIELD AND INFILTRATION BASIN)
REFER DETAILS ON CS6003
LIMIT OF INFILTRATION BASIN: 24,944 SF

92 LF OF 12" HDPE @ 0.50%

I-101
24" SQUARE (INSIDE) YARD DRAIN W/ SNOUT
GRATE 4.65
INV OUT 1.04
SUMP -1.96

25.00' (TYP.)

COLLECTOR PIPE
525 LF OF 18" HDPE @ 0.50%

I-102
24" SQUARE (INSIDE) YARD DRAIN W/ SNOUT
GRATE 4.03
INV OUT 0.46
SUMP -2.54

COLLECTOR PIPE
204 LF OF 12" HDPE @ 0.50%

4TH STREET
LEGALLY OPEN / ON CITY PLAN
(60' WIDE / 24'-36'-24')
(ONE WAY)
PARKING
BIKE LANE
PARKING

3RD STREET
LEGALLY OPEN / ON CITY PLAN
(60' WIDE / 15'-30'-15')
(ONE WAY)
PARKING
PARKING

SECTION A-A

LIMIT OF EARTH DISTURBANCE
TOTAL: 164,041 SF (3.77 AC)
ON-SITE: 138,306 SF (3.18 AC)

INFILTRATION BASIN 1B (IB-1B)
(TURF FIELD AND INFILTRATION BASIN)
REFER DETAILS ON CS6003
LIMIT OF INFILTRATION BASIN: 72,346 SF

TRANSITION TO SOLID HDPE PIPE "T" SHAPED FITTING TO CONNECT TO COLLECTOR PIPE (TYP.)

4" ADS N-12 PERFORATED HDPE UNDERDRAIN @ 0.00% (TYP.)

LIMIT OF INFILTRATION BED
103,828 SF

INFILTRATION BASIN 1C (IB-1C)
(TURF FIELD AND INFILTRATION BASIN)
REFER DETAILS ON CS6003
LIMIT OF INFILTRATION BASIN: 6,538 SF

I-103
2' X 4' TYPE-M INLET
W/ SNOUT
GRATE 3.75
INV IN -1.60
INV OUT -1.60
SUMP -4.36
(SAFE OVERFLOW DEVICE)

27 LF OF 18" RCP @ 0.50%

WYE CONNECTION TO EXISTING 30"X20" BRICK SEWER
INV IN +/- -1.80 (VIF)

DP 001

DP 002

OREGON AVENUE
LEGALLY OPEN / ON CITY PLAN
(120' WIDE / 18'-84'-18'
(TWO WAY)
PARKING
BIKE LANE
BIKE LANE
NO PARKING

PROJECT BENCHMARK
TC ELEV. 7.47
REFER TO "TOPOGRAPHIC PLAN", DRAWING NO. 20190363 PREPARED BY LOUIS V. LAFOREST DATED NOVEMBER 25, 2019

0 20' 40'

GENERAL NOTES:

SITE ADDRESS:
300 WEST SHUNK STREET
PHILADELPHIA, PA 19148

OWNER:
CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

DEVELOPER:
REBUILD PHILADELPHIA
1515 ARCH STREET, MEZZANINE LEVEL
PHILADELPHIA, PA 19107

ENGINEER:
PENNONI ASSOCIATES INC.
1900 MARKET STREET, SUITE 300
PHILADELPHIA, PA 19103

GENERAL UTILITY NOTES:

1. IN ACCORDANCE WITH PA ACT 287 (1974), AS AMENDED, THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA VIA THE PENNSYLVANIA ONE CALL SYSTEM, INC. (800-242-1776) A MINIMUM OF 3 WORKING DAYS BEFORE THE START OF EXCAVATION.
2. UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATIONS. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATIONS AND DEPTHS OF ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK AND TO TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.
4. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR EXACT LOCATION AND PROTECTION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR.
5. CONTRACTOR MUST APPLY FOR ALL UTILITY CONNECTION APPLICATIONS. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONNECTION FEES FOR CONSTRUCTION.
6. CONTRACTOR MUST OBTAIN ANY REQUIRED UTILITY DETAILS FOR RECONNECTION OF EXISTING SERVICES OR NEW SERVICE AND IS RESPONSIBLE FOR THE CONSTRUCTION OF EACH NEW SERVICE PER THE APPROPRIATE UTILITY COMPANY'S SPECIFICATIONS.
7. THE LOCATION OF THE EXISTING OVERHEAD UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM FIELD OBSERVATION.
8. THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBANCE TO CURBING, PAVING, AND COMPACTED SUB-GRADE.
9. A COPY OF THE EMERGENCY OPERATIONS PLAN WILL BE PROVIDED TO THE MUNICIPALITY BEFORE A CLEAR CERTIFICATE OF OCCUPANCY IS OBTAINED.
10. THE MINIMUM DISTANCE BETWEEN THE PLACEMENT OF TREES, LIGHT POLES, ETC. AND UTILITY SERVICE LINES SHALL BE 10'
11. ALL PROPOSED UTILITIES ARE TO BE INSTALLED UNDERGROUND.
12. IF CONFLICTS ARE FOUND THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.
13. CONTRACTOR IS CAUTIONED TO PROTECT ANY STRUCTURES IMMEDIATELY ADJACENT TO HIS EXCAVATION AREAS. ANY DAMAGE TO STRUCTURE SHALL BE REPAIRED BY CONTRACTOR AT HIS OWN COST.
14. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 12 INCH CLEARANCE BETWEEN PROPOSED AND EXISTING UNDERGROUND UTILITIES AND STRUCTURES. CONTRACTOR TO NOTIFY CONSTRUCTION MANAGER / ENGINEER IMMEDIATELY AFTER UNCOVERING EXISTING UTILITIES IF CLEARANCE CANNOT BE ACHIEVED. NO CHANGES ARE TO BE MADE, WITHOUT THE CONSTRUCTION MANAGER'S / ENGINEER'S APPROVAL.
15. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE. THE ELEVATIONS OF THE EXISTING UTILITIES AT THE TERMINATING CONNECTION POINTS TO THE PROPOSED UTILITIES AND AT PROPOSED UTILITY CROSSINGS MUST BE FIELD CHECKED PRIOR TO CONSTRUCTING THE NEW UTILITIES.
16. THE THICKNESS OF THE ARCHES AND THE CHARACTER AND THE EXTENT OF THE CRADLES OF THE EXISTING SEWERS ARE UNKNOWN.
17. SEAL OPEN ENDS OF SANITARY SEWER WITH VITRIFIED PIPE STOPPERS AND OPEN ENDS OF STORMWATER CONDUITS WITH BRICK BULKHEADS.
18. REMOVE EXISTING PIPE STOPPERS AND BRICK BULKHEADS PRIOR TO CONNECTING TO EXISTING SEWERS OR STORMWATER CONDUITS.
19. WATER MAINS SHALL BE DUCTILE IRON PIPE. ALL WATER MAINS AND APPURTENANCES SHALL MEET THE REQUIREMENTS OF THE CITY OF PHILADELPHIA WATER DEPARTMENT STANDARD SPECIFICATIONS AND THE PHILADELPHIA PLUMBING CODE. ALL FIRE HYDRANT LOCATIONS ARE SUBJECT TO THE APPROVAL OF THE PHILADELPHIA FIRE DEPARTMENT. ALL METERING AND BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY THE CITY OF PHILADELPHIA WATER DEPARTMENT.
20. WATER MAINS SHALL BE POLYETHYLENE COATED AND ALL FITTINGS SHALL BE TAPED AND COATED WITH BITUMASTIC.
21. WATER MAINS SHALL BE INSTALLED AT 4'-0" MINIMUM COVER UNLESS OTHERWISE INDICATED.
22. CONNECTIONS TO EXISTING SEWERS SHALL BE MADE PER PHILADELPHIA WATER DEPARTMENT REQUIREMENTS AND APPROVALS, AND USING APPROVED MATERIALS. APPROVED DIELECTRIC COUPLINGS SHALL BE USED BETWEEN DISSIMILAR MATERIALS.
23. CLEANOUTS & F.A.I. BOXES TO BE PER PHILA PLUMBING CODE AND HIGHWAY LOAD RATED. RIMS TO BE AT GRADE.
24. EXTERIOR STORM AND SANITARY SEWER BUILDING LATERALS LOCATED WITHIN 10' OF BUILDINGS TO BE DUCTILE IRON PIPE INSTALLED IN ACCORDANCE WITH THE PHILADELPHIA PLUMBING CODE.
25. STORM SEWERS SHALL BE DUCTILE IRON PIPE (DIP) WITH MECHANICAL WATER TIGHT JOINTS OR REINFORCED CONCRETE PIPE (RCP) WITH O-RING GASKETED JOINTS UNLESS OTHERWISE NOTED. ALL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH PHILADELPHIA WATER DEPARTMENT STANDARD SPECIFICATIONS.
26. THE CONTRACTOR SHALL PROVIDE O-RING GASKETED JOINTS, CLASS 3 OR CLASS 4 ON ALL STORMWATER RCP JOINTS.
27. ON SITE STORM SEWERS SHALL BE CONNECTED WITH WYE PIPE FITTINGS. CONNECTIONS SHALL NOT BE MADE FROM MANHOLE TO MANHOLE, INLET TO INLET, INLET TO MANHOLE, AND MANHOLE TO INLET.
28. IF UTILITY CONFLICTS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE CONSTRUCTION MANAGER / ENGINEER AND MAKE ARRANGEMENTS WITH THE UTILITY OWNER FOR THE RELOCATION OF THE NECESSARY UTILITIES AT NO COST TO THE OWNER OR THE ENGINEER.
29. MANHOLE RIM AND INLET GRATE ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL ADJUST RIMS TO MATCH FINAL GRADE ADJACENT TO SAME.
30. CLEANOUT CAPS, GRATES, VALVE BOXES, ETC. SHALL HAVE BLACK FINISH TOPS.
31. IF CONFLICTS EXIST BETWEEN PROPOSED SEWERS SHOWN ON SEWER PROFILES AND THOSE SHOWN ON UTILITY PLANS, CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER / ENGINEER IMMEDIATELY.
32. CONTRACTOR IS RESPONSIBLE FOR THE SUPPORT OF ALL EXCAVATIONS AND OF EXISTING UTILITIES WITHIN THE EXCAVATIONS PER OSHA REQUIREMENTS, STATE AND LOCAL CODES, UTILITY COMPANY REQUIREMENTS, ACCEPTED INDUSTRY STANDARDS OR SPECIFIED REQUIREMENTS, WHICHEVER IS MOST STRINGENT.
33. UTILITY TRENCHES TO BE BACKFILLED WITH SAFE CLEAN STRUCTURAL FILL MATERIAL APPROVED BY AND UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
34. CONTRACTOR TO CONFIRM GRATE, RIM, AND JUNCTION BOX ELEVATIONS OF UTILITIES. ADJUST PER PROPOSED GRADE AS NECESSARY
35. CONTRACTOR SHALL CONFIRM SIZE AND MATERIAL OF PROPOSED UTILITY SERVICES AND LOCATION OF APPROVED SERVICE CONNECTIONS WITH MEP. CONNECTIONS BETWEEN BUILDING UTILITY LATERALS AND BUILDING UTILITY SERVICES TO BE COORDINATED WITH THE MEP. CONTRACTOR SHALL ALSO COORDINATE THE LOCATION OF ANY PROPOSED UTILITY EQUIPMENT WITH MEP. ALL UTILITIES TO BE IN ACCORDANCE WITH MEP.
36. CONTRACTOR TO CONSTRUCT MANHOLE AND INLET STRUCTURES IN ACCORDANCE WITH LATEST EDITION OF PHILADELPHIA STREETS DEPARTMENT, PHILADELPHIA WATER DEPARTMENT, AND PENNDOT PUBLICATION 72M STANDARDS FOR ROADWAY CONSTRUCTION.
37. CONTRACTOR SHALL CONFIRM THE LOCATION, SIZE, AND INVERTS OF EXISTING STORM AND SANITARY SEWER AT PROPOSED TIE-IN LOCATIONS AND NOTIFY THE ENGINEER IF CONDITIONS VARY.
38. SANITARY SEWER CONSTRUCTION MUST CONFORM TO PHILADELPHIA WATER DEPARTMENT SEWER REGULATIONS, STANDARDS, AND SPECIFICATIONS.
39. LOW PRESSURE AIR TESTING REQUIRED FOR SANITARY SEWER SYSTEMS. THIS TEST, AT A MINIMUM, MUST MEET ALL REQUIREMENTS AS OUTLINED IN ASTM C-828-80 OR CURRENT REVISION.
40. STORM DRAINAGE PIPE SHALL BE LAID ON SMOOTH CONTINUOUS GRADES WITH NO VISIBLE BENDS AT JOINTS.
41. UTILITY CONNECTION AND UTILITY COMPANY DETAILS FOR RECONNECTION AND NEW SERVICE WERE NOT PROVIDED BY THE UTILITY COMPANIES. CONTRACTOR MUST OBTAIN ANY UTILITY DETAILS FOR RECONNECTION OF EXISTING SERVICES OR NEW SERVICE AND IS RESPONSIBLE FOR THE CONSTRUCTION OF EACH NEW SERVICE PER THE APPROPRIATE UTILITY COMPANIES SPECIFICATIONS.
42. ALL PIPE LENGTHS AND DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE.
43. CONTRACTOR SHALL EXCAVATE ONLY ENOUGH TRENCH FOR WHICH PIPE CAN BE INSTALLED AND TRENCH BACKFILLED BY THE END OF EACH WORK DAY.
44. EXISTING UTILITY LATERALS FOR THE PREVIOUS USE ARE NOT TO BE REUSED UNLESS NOTED ON THE PLANS.
45. RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY SEWER NOR ONTO ADJACENT PROPERTIES.
46. WATER MAINS SHALL BE DUCTILE IRON PIPE. ALL WATER MAINS AND APPURTENANCES SHALL MEET THE REQUIREMENTS OF THE CITY OF PHILADELPHIA STANDARD SPECIFICATIONS. WATER MAINS ARE TO BE INSTALLED AT 4'-0" MINIMUM COVER UNLESS OTHERWISE INDICATED.
47. CONTRACTOR SHALL CONFIRM LOCATION OF EXISTING WATER MAIN AND COORDINATE SERVICE CONNECTIONS WITH THE PHILADELPHIA WATER DEPARTMENT
48. WATER LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE PHILADELPHIA WATER DEPARTMENT STANDARDS AND SPECIFICATIONS. CONTACT THE PHILADELPHIA WATER DEPARTMENT BEFORE TAPPING EXISTING WATER MAIN. WATER LINE SHALL HAVE BEDDING CONSISTENT WITH THE PHILADELPHIA WATER DEPARTMENT'S REQUIREMENTS AND SPECIFICATIONS.
49. DOMESTIC AND FIRE WATER METERING AND BACKFLOW PREVENTION DEVICES ARE TO BE INSTALLED WITHIN THE BUILDING AND APPROVED BY THE CITY OF PHILADELPHIA WATER DEPARTMENT.
50. FINAL LOCATIONS OF HOSE BIBBS AND ROUTING OF SERVICE PIPING SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AND IN ACCORDANCE WITH THE MEP PLANS.
51. ELECTRICAL TRANSFORMERS, PAD SIZES, AND LOCATIONS TO BE COORDINATED WITH THE UTILITY COMPANY, OWNER/DEVELOPER, AND ARCHITECT.
52. CONTRACTOR TO COORDINATE WITH CLIENT AND THIRD-PARTY SECURITY CAMERA COMPANY FOR FUTURE INSTALLATION OF SECURITY CAMERA SYSTEM ON-SITE.

LEGEND

- STORM SEWER MANHOLE
- WATER MANHOLE
- WATER SHUT OFF
- TRAFFIC LIGHTS
- CATCH BASIN/GRATE INLET
- LIGHT STANDARD
- UTILITY POLE
- SIGN POST
- ASPHALT
- RUBBER PAVING
- TREE
- CITY PLAN ELEVATION
- BUILDING DIMENSION
- HYDRANT
- PROPERTY LINES
- BOLLARD
- METAL POLE
- EXISTING WATER SERVICE
- EXISTING SANITARY SEWER
- EXISTING TELECOMMUNICATION SERVICE
- PROPOSED SYNTHETIC TURF FIELD (SUBSURFACE INFILTRATION)
- PROPOSED CONCRETE
- PROPOSED LAWN GRASS
- PROPOSED STORAGE SHED
- PROPOSED MILL & OVERLAY
- PROPOSED ASPHALT
- LIMIT OF EARTH DISTURBANCE
- PROPOSED CONTOUR
- PROPOSED TREE
- PROPOSED PERFORATED HDPE UNDERDRAIN
- PROPOSED STORM SEWER
- PROPOSED INLET
- PROPOSED INFILTRATION BASIN

ISSUE FOR BID
PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20223610621

PENNSYLVANIA ONE CALL SYSTEM INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

PCSM UTILITY PLAN

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

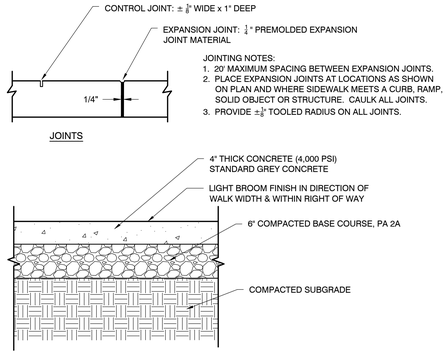
NO	REVISIONS	DATE	BY
8	ADDENDUM #2	03/16/2023	SDL
7	PWD PCSM RESUBMISSION	02/27/2023	SDL
6	PSD SUBMISSION	02/24/2023	SDL
5	ISSUE FOR BID	02/24/2023	SDL
4	PWD PCSM RESUBMISSION	01/18/2023	SDL
3	90% CONSTRUCTION DOCUMENTS	12/16/2022	SDL
2	PCSM/NPDES SUBMISSION	11/11/2022	SDL

PROJECT	KLMLX20001
DATE	5/30/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDS
APPROVED BY	MJM

CS1701

SHEET 8 OF 24

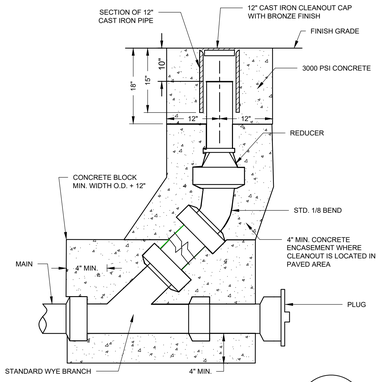
U:\Accounts\KLMLX\KLMLX20001 - KMA Murphy Recreation Center\DESIGN_SHEETS\CS1701.dwg PLOTTED: 3/13/2023 9:58 AM, BY: Danielle Andrews PLOTSTYLE: Pennoni.NCS.ctb PROJECT STATUS: —



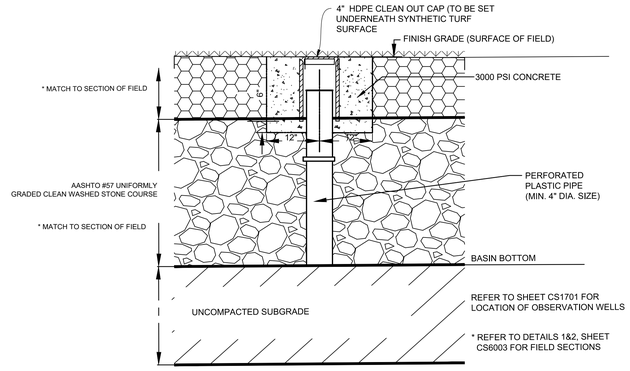
JOINTING NOTES:
1. 20' MAXIMUM SPACING BETWEEN EXPANSION JOINTS.
2. PLACE EXPANSION JOINTS AT LOCATIONS AS SHOWN ON PLAN AND WHERE SIDEWALK MEETS A CURB, RAMP, SOLID OBJECT OR STRUCTURE. CAULK ALL JOINTS.
3. PROVIDE ±¼" TOOLED RADIUS ON ALL JOINTS.

SIDEWALK NOTES:
1. ALL CONCRETE SHALL BE 4,000 PSI at 28 DAYS, AIR ENTRAINED, W/C RATIO 0.45, MAX. SLUMP 3".
2. COMPACTED SUBGRADE AS DIRECTED BY GEOTECHNICAL ENGINEER.

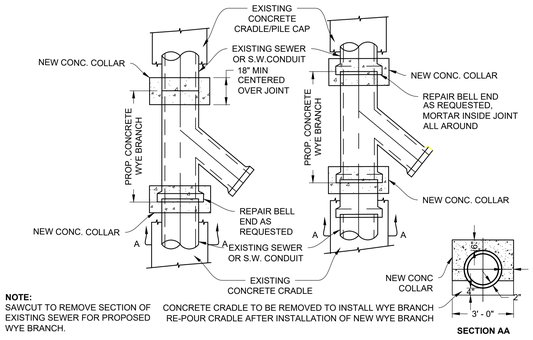
DETAIL- SIDEWALK AND JOINT
N.T.S.
1 / CS6001



CLEANOUT DETAIL
N.T.S
2 / CS6001



OBSERVATION WELL
N.T.S.
3 / CS6001



SECTION AA

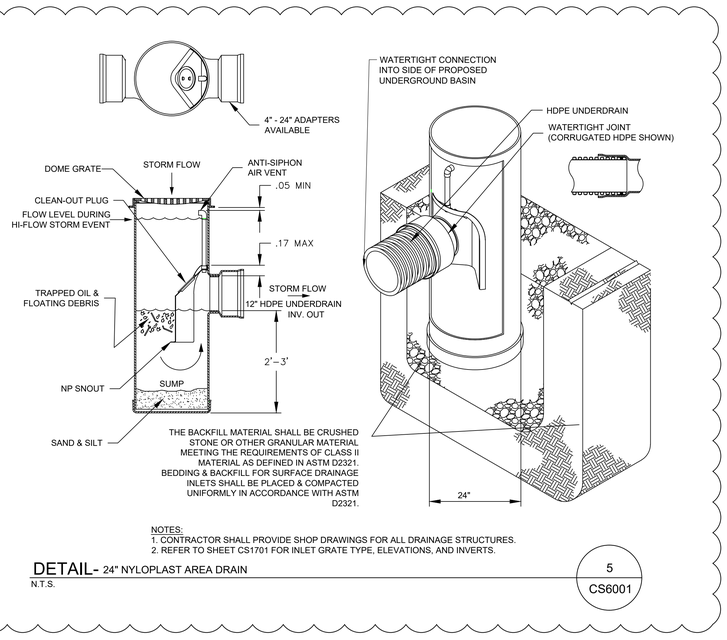
NOTE:
SAWCUT TO REMOVE SECTION OF EXISTING SEWER FOR PROPOSED WYE BRANCH.

CONCRETE CRADLE TO BE REMOVED TO INSTALL WYE BRANCH RE-POUR CRADLE AFTER INSTALLATION OF NEW WYE BRANCH

WYE BRANCH INSTALLATION PROCEDURE:

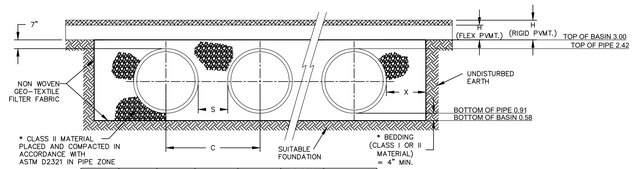
1. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE FLOW DURING THE CONNECTION.
2. THE CONTRACTOR IS TO OBTAIN INFORMATION ABOUT THE FLOW RATE PRIOR TO COMMENCING THE CONNECTION. THIS MAY BE OBTAINED BY OPENING A MANHOLE AND MEASURING THE FLOW (FLOW CAN VARY).
3. FOR HIGH FLOW RATE THE CONTRACTOR SHALL SUBMIT A BY-PASS METHOD FOR APPROVAL.
4. FOR LOW FLOW RATE THE CONTRACTOR MAY BE ABLE TO DIRECT THE FLOW THROUGH THE OPENED SECTION.
5. THE CONTRACTOR MUST SELECT THE PROPER SIZE WYE AND ALIGN THE INVERTS.
6. EXCAVATE SAFELY TO EXPOSE THE EXISTING SEWER PIPE WITHOUT DAMAGING IT.
7. EXCAVATE A DITCH WIDE ENOUGH TO ACCOMMODATE THE WYE AND THE CUT-OFF WALLS.
8. CONTRACTORS SHOULD PERFORM THE CONNECTION IN A SAFE MANNER AND PER OSHA REGULATIONS.
9. SHORING SHALL BE INSTALLED IN DITCHES AND TRENCHES AS PER OSHA REGULATIONS OR AS REGULATED BY PWD. VIOLATION OF THIS PROVISION WILL RESULT IN A STOP WORK ORDER AND/OR PENALTIES PRESCRIBED BY LAW. (REFER TO PHILADELPHIA PLUMBING CODE 2004 SECTION P- 1503.2 SHORING).
10. FOR CONNECTIONS TO BRICK SEWER, CONSTRUCT A 2-FOOT WIDE BY 8-INCH HIGH, CONCRETE CUTOFF WALL TO THE SPRING LINE, ON BOTH SIDES OF THE WYE, 12-INCH FROM THE LOCATION TO CUT THE SEWER PIPE.
11. USE A MINIMUM OF 3,500 PSI CONCRETE FOR THE CONCRETE CUT-OFF WALL.
12. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO CURE BEFORE CUTTING THE SEWER PIPE.
13. CUT THE SEWER PIPE SO THAT THE WYE SECTION WILL FIT IN TIGHTLY.
14. PREVENT ANY DEBRIS FROM FLOWING INTO THE SEWER.
15. CLEAN THE BOTTOM OF THE OPENED AREA FROM LOOSE AND SOFT SOIL IF NO CRADLE, AND PLACE STONE IN THE MIDDLE LEAVING 12 INCH BELOW THE JOINTS FOR CONCRETE COLLAR.
16. INSERT THE WYE SECTION IN PLACE IMMEDIATELY, SEAL THE JOINTS AND CONSTRUCT A 24-INCH CONCRETE COLLAR AROUND BOTH JOINTS.
17. USE A MINIMUM OF 3,500 PSI CONCRETE COLLAR, 12 INCH DEEP AND EXTENDING 24 INCH WIDE AROUND THE JOINT.
18. ALLOW AT LEAST 24 HOURS FOR THE CONCRETE TO CURE BEFORE BACKFILLING.
19. ANY OTHER PIPELINE EXPOSED AND UNDERMINED DURING THIS OPERATION MUST BE SUPPORTED IMMEDIATELY AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) AFTER THE COMPLETION OF THE CONNECTION.

DETAIL- WYE CONNECTION
N.T.S.
4 / CS6001



NOTES:
1. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL DRAINAGE STRUCTURES.
2. REFER TO SHEET CS1701 FOR INLET GRATE TYPE, ELEVATIONS, AND INVERTS.

DETAIL- 24" NYLOPLAST AREA DRAIN
N.T.S.
5 / CS6001



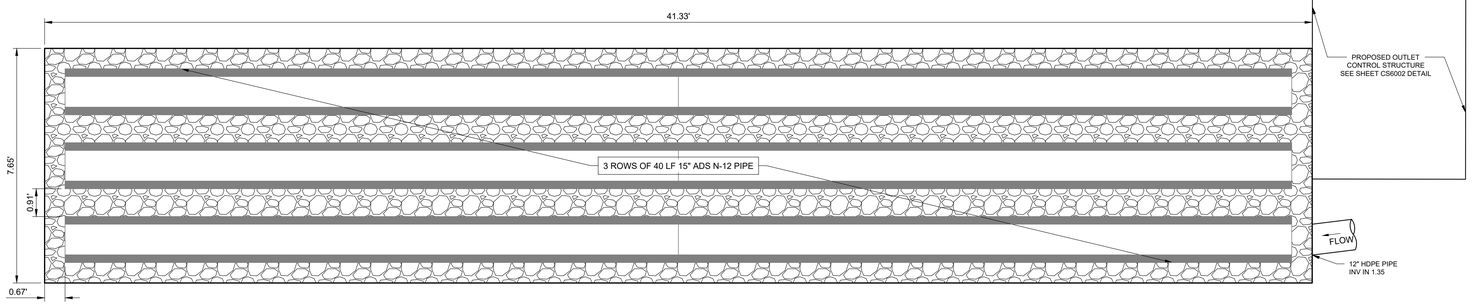
BASIN	NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	NOMINAL SPACING "C"	TYPICAL SIDE WALL "X"	H (NON-TRAFFIC)
UB - 1	15"	18"	10.9"	28.9"	8"	4"

(100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-1500mm).

NOTES:
1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
4. FILTER FABRIC: A GEOTEXTILE FABRIC MAY BE USED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4"
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. MINIMUM COVER: MINIMUM COVER OVER ALL RETNETION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" UP TO 36" DIAMETER PIPE AND 24" OF COVER FOR 42" - 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
9. PIPE USED WITHIN THE SUBSURFACE DETENTION SMP MUST HAVE A MINIMUM INNER DIAMETER OF FOURS INCHES.
10. HIGH-DENSITY POLYETHYLENE (HDPE) PIPE MUST MEET THE SPECIFICATION OF AASHTO M252, TYPE S OR AASHTO M294, TYPE 2.
11. ANY PIPE MATERIALS OUTSIDE THE SMP ARE TO MEET THE CITY PLUMBING CODE STANDARDS.

08

DETAIL- UNDERGROUND BASIN CROSS-SECTION: (UB -1)
N.T.S.
6 / CS6001



DETAIL- UNDERGROUND BASIN (UB-1)
N.T.S.
7 / CS6001

ISSUE FOR BID
PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

SITE DETAILS

BY	REVISIONS	DATE	NO.
SDL	ADDENDUM #2	03/16/2023	8
SDL	PWD PCSM RESUBMISSION	02/27/2023	7
SDL	PSD SUBMISSION	02/24/2023	6
SDL	ISSUE FOR BID	02/24/2023	5
SDL	PWD PCSM RESUBMISSION	01/18/2023	4
SDL	90% CONSTRUCTION DOCUMENTS	12/15/2022	3
SDL	PCSM/NPDES SUBMISSION	11/11/2022	2

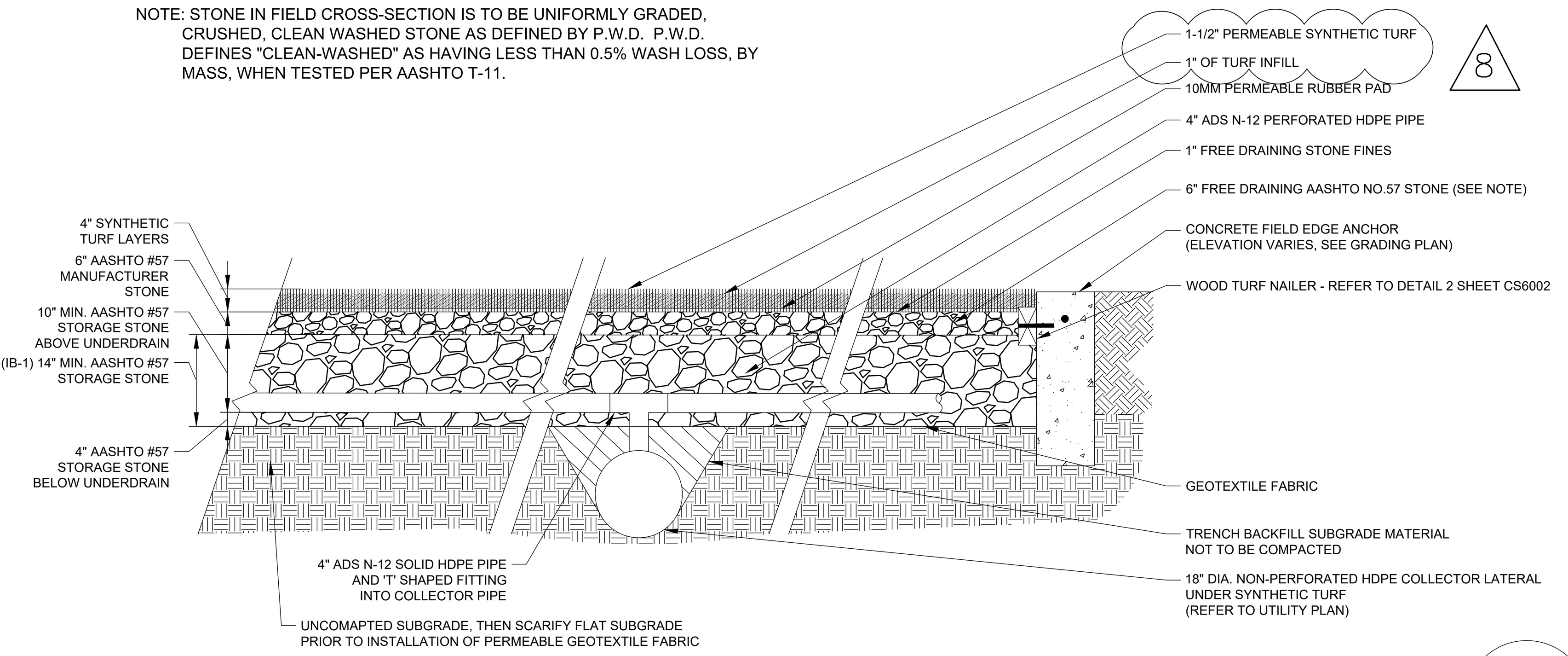
PROJECT	KLMLX20001
DATE	5/30/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDS
APPROVED BY	MJM

CS6001

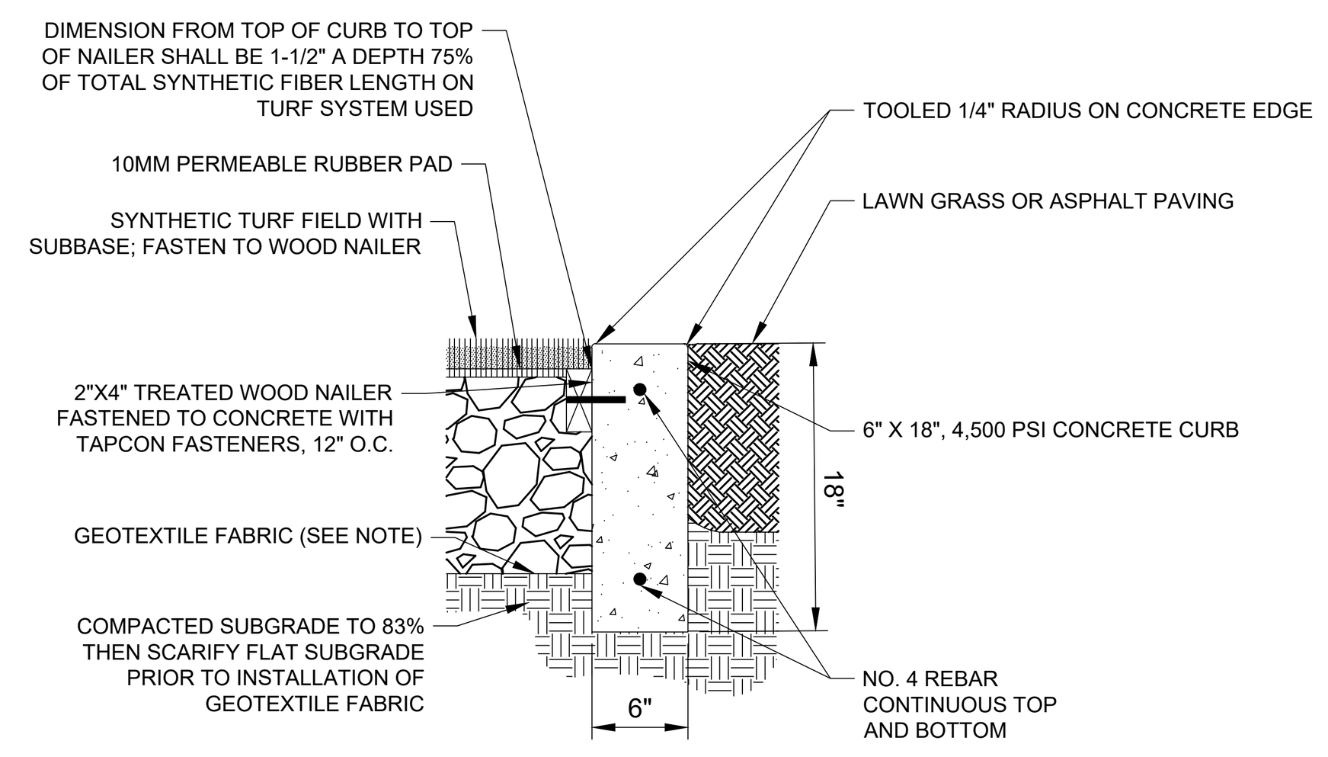
SHEET 11 OF 24

NOTE: GEOTEXTILE IS TO CONSIST OF POLYPROPYLENE FIBERS AND TO MEET THE FOLLOWING SPECIFICATIONS:
A) GRAB TENSILE STRENGTH (ASTM-D4632): ≥ 120 LBS
B) MULLEN BURST STRENGTH (ASTM-D3786): ≥ 225 PSI
C) FLOW RATE (ASTM-D4491): ≥ 95 GAL/MIN/FT2
D) UV RESISTANCE AFTER 500 HRS (ASTM-D4355): ≥ 70%
E) HEAT-SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED

NOTE: STONE IN FIELD CROSS-SECTION IS TO BE UNIFORMLY GRADED, CRUSHED, CLEAN WASHED STONE AS DEFINED BY P.W.D. P.W.D. DEFINES "CLEAN-WASHED" AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER AASHTO T-11.



DETAIL-SYNTHETIC FIELD UNDERDRAINAGE
N.T.S.
1
CS6002



NOTE: ALL TREATED WOOD TO BE NON-CCA. TOP OF TURF INFILL TO BE FLUSH WITH TOP OF CONCRETE CURB.
EXPANSION JOINTS TO BE INSTALLED AT INTERVALS NOT TO EXCEED 160' - SAWCUT CONTROL JOINTS SHALL OCCUR EVERY 20'.

NOTE: GEOTEXTILE IS TO CONSIST OF POLYPROPYLENE FIBERS AND TO MEET THE FOLLOWING SPECIFICATIONS:
A) GRAB TENSILE STRENGTH (ASTM-D4632): ≥ 120 LBS
B) MULLEN BURST STRENGTH (ASTM-D3786): ≥ 225 PSI
C) FLOW RATE (ASTM-D4491): ≥ 95 GAL/MIN/FT2
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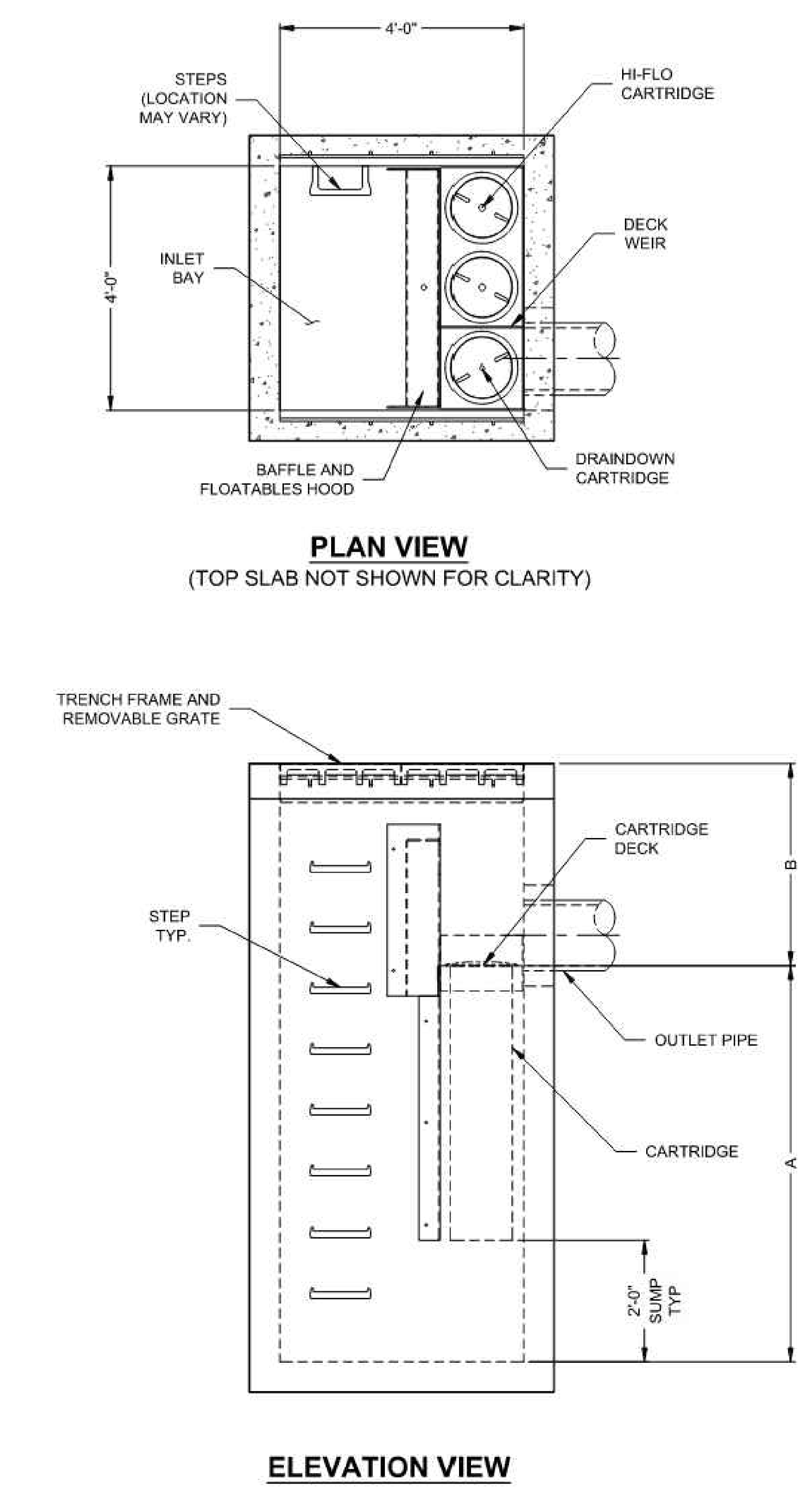
E) HEAT-SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED

NOTE: STONE IN FIELD CROSS-SECTION IS TO BE UNIFORMLY GRADED, CRUSHED, CLEAN WASHED STONE AS DEFINED BY P.W.D. P.W.D. DEFINES "CLEAN-WASHED" AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER AASHTO T-11.

DETAIL- CONCRETE FIELD EDGE ANCHOR
N.T.S.
2
CS6002

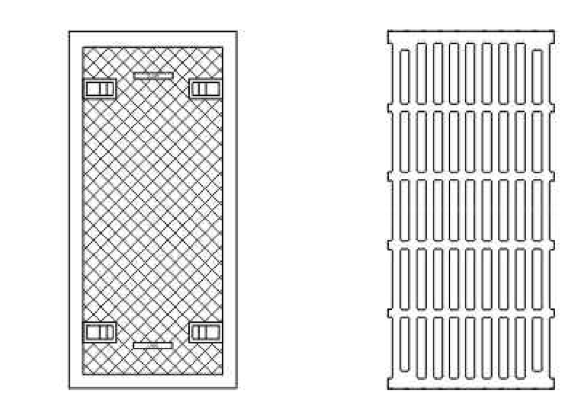


JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.45	0.33	0.22	0.12
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



24"
TRENCH COVER
N.T.S.

24"
TRENCH GRATE
N.T.S.

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

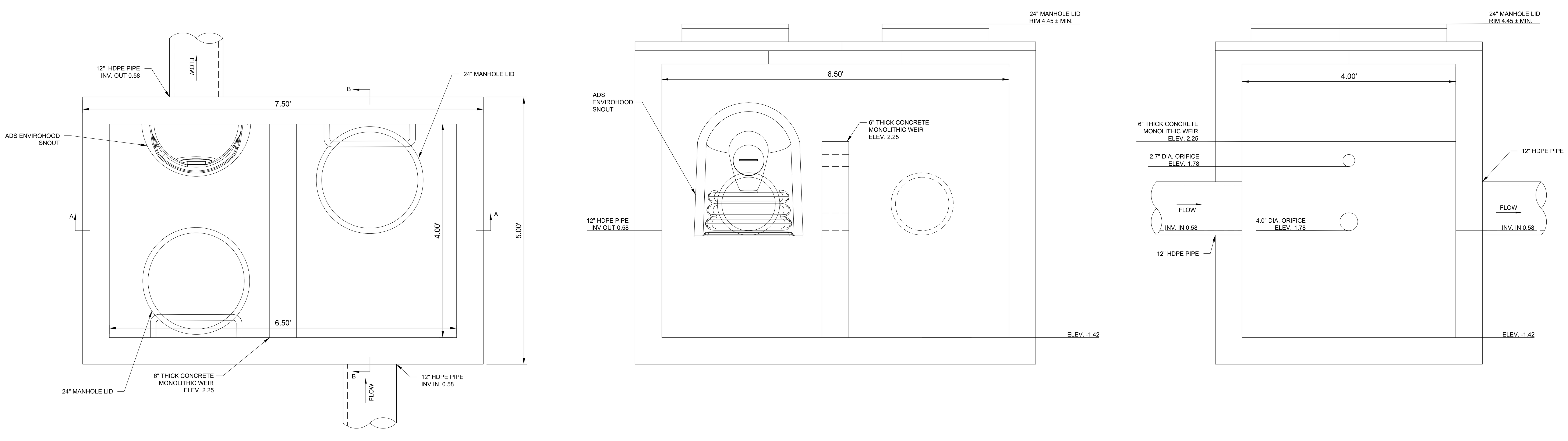
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0404
STANDARD DETAIL
SURFACE INLET CONFIGURATION
(CES#744554)

DETAIL- MEDIA QUALITY INLET (I-104)
N.T.S.
3
CS6002



PLAN VIEW
N.T.S.

SECTION A-A'
N.T.S.

SECTION B-B'
N.T.S.

DETAIL- UNDERGROUND BASIN - OUTLET CONTROL STRUCTURE (OCS-1)
N.T.S.
4
CS6002

Series DBRS

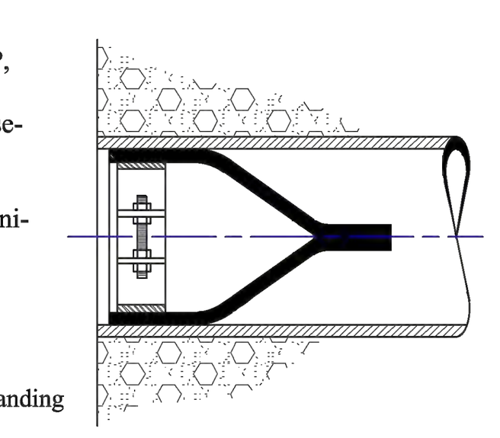
Reverse Slip-In Check Valve

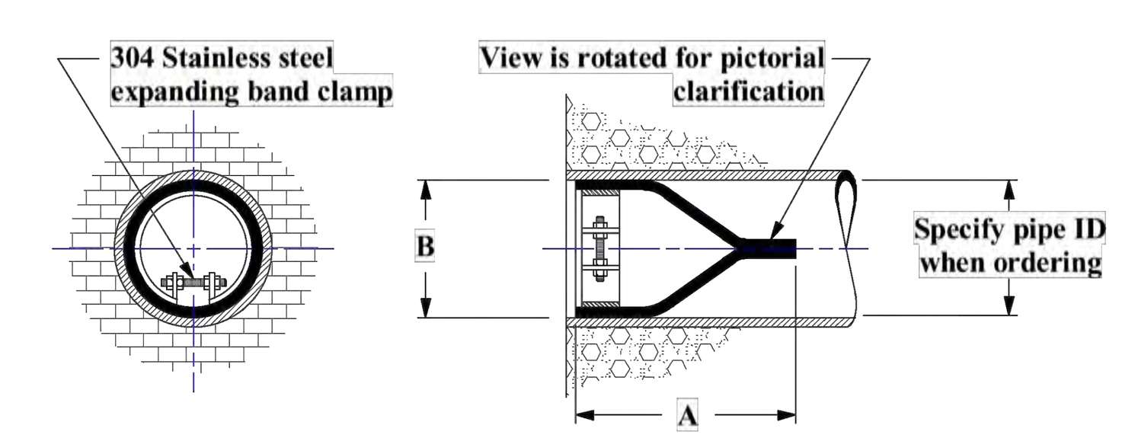
The series DBRS slip-in check valve, like the series DBCP, offers a cost effective method of backflow prevention. It is designed for installation inside of a non-flanged pipe secured by expanding band clamp.

The series DBRS slip-in check valve eliminates the mechanical parts which can wear and jam in conventional check

Performance Features:
- Low pressure drop
- Frost proof
- Silent operation
- Corrosion resistant

Options:
- Sleeve Elastomer
- 316 Stainless steel expanding band clamp





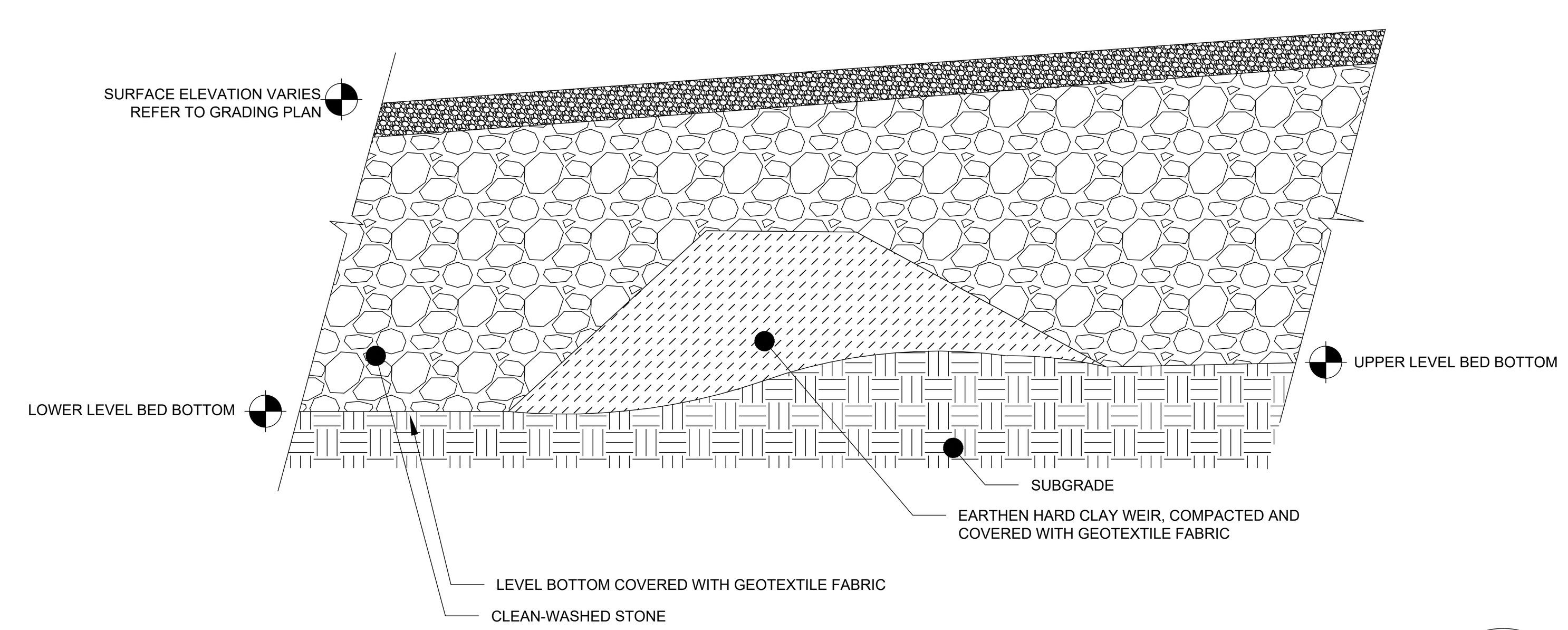
All Dimensions are in Inches.

Size	2	2.5	3	4	5	6	8	10	12	14
A	6.00	6.00	8.50	12.00	15.00	15.00	17.00	19.00	20.00	20.00
B	1.87	2.25	2.75	3.75	4.75	5.75	7.62	9.62	11.50	13.50
Wt, lb	5	8	10	15	17	20	25	35	60	90

Size	16	18	20	24	30	32	36	42	48	60
A	23.00	26.00	29.00	32.00	51.00	57.00	63.00			
B	15.50	17.50	19.50	23.00	29.00	31.00	35.00			
Wt, lb	120	200	300	400	550	600	650			

ONYX VALVE CO
835 Industrial Hwy
P: 856-829-2888
www.onyxvalve.com
Cinnaminson NJ 08077
Fax: 856-829-3080

DETAIL- WATER QUALITY INLET
N.T.S.
5
CS6002



DETAIL- UNDERGROUND BASIN - OUTLET CONTROL STRUCTURE (OCS-1)
N.T.S.
6
CS6002

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PWD TRACKING #: FY21-MURP-6508-01
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PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

MURPHY RECREATION CENTER
300 WEST SHUNK STREET
PHILADELPHIA, PENNSYLVANIA 19148

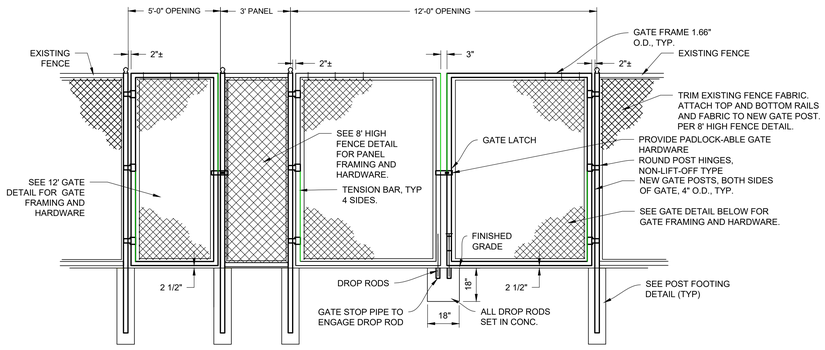
SITE DETAILS

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

DATE	NO.	REVISIONS	BY
03/16/2023	8	ADDENDUM #2	SDL
02/27/2023	7	PWD PCSM RESUBMISSION	SDL
02/24/2023	6	PSD SUBMISSION	SDL
02/24/2023	5	ISSUE FOR BID	SDL
01/18/2023	4	PWD PCSM RESUBMISSION	SDL
12/16/2022	3	90% CONSTRUCTION DOCUMENTS	SDL
11/11/2022	2	PCSMP/NPDES SUBMISSION	SDL

PROJECT	KLMLX20001
DATE	8/12/2022
DRAWING SCALE	AS NOTED
DRAWN BY	SDL
APPROVED BY	MJM

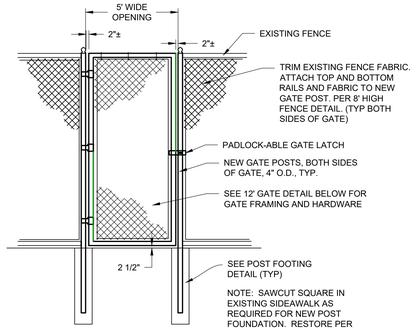
CS6002
SHEET 12 OF 24



DOUBLE GATE

DETAIL- 12' WIDE VEHICLE GATE & 5' WIDE PEDESTRIAN GATE
N.T.S.

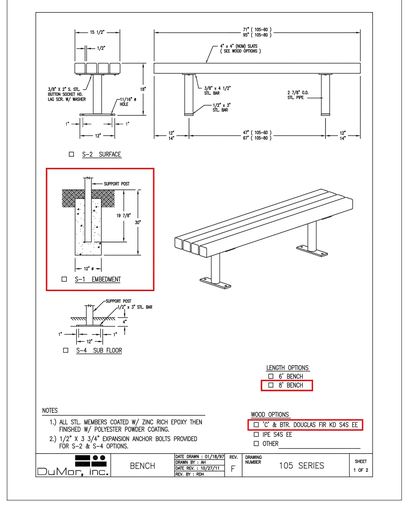
1
CS6004



SINGLE GATE

DETAIL- 5' WIDE PEDESTRIAN GATE
N.T.S.

2
CS6004

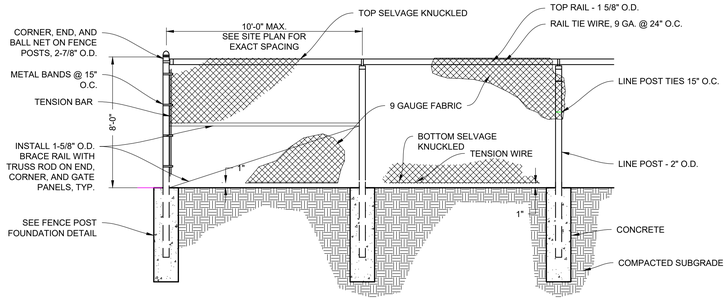


DETAIL- PLAYERS' BENCHES (10 REQUIRED)
N.T.S.

3
CS6004

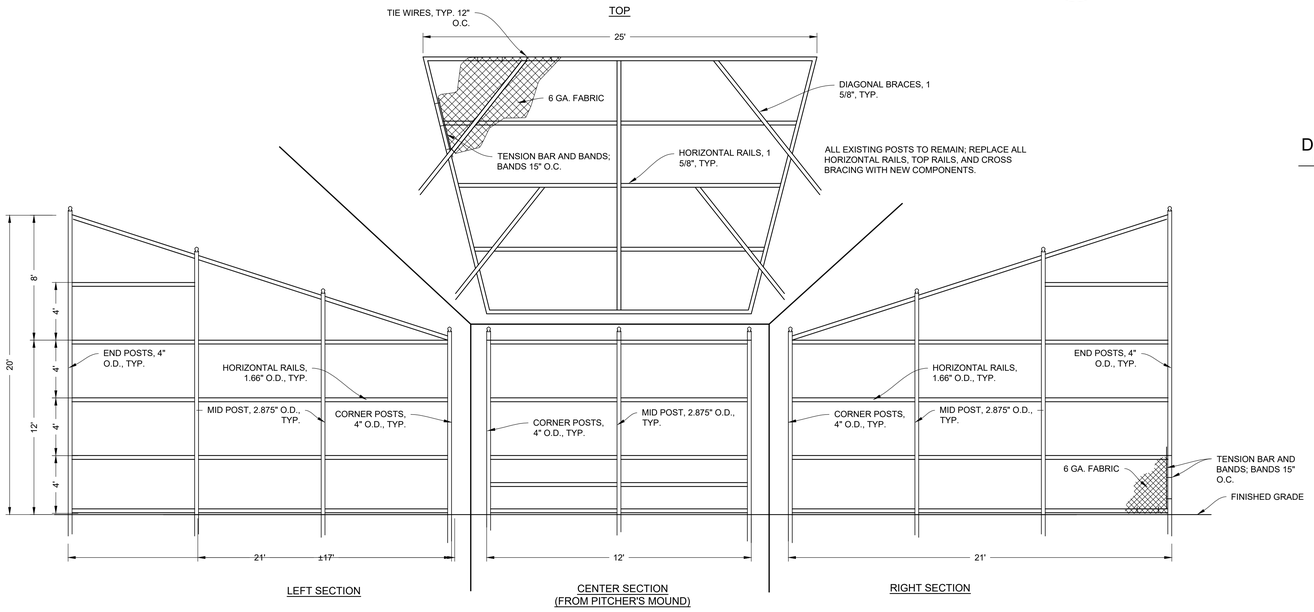
FENCING NOTES:

1. FENCE FABRIC TO BE CLASS 2B VINYL COATED, 2" DIAMOND MESH:
   - BACKSTOP FENCE: 6 GAUGE
   - 8' HIGH FENCE AND GATES: 9 GAUGE
2. ALL NEW FRAMING MEMBERS (INCLUDING POSTS) AND HARDWARE TO BE POWDER COATED (BLACK) PER SPECIFICATIONS.
3. GATE FRAME JOINTS TO BE WELDED TO MAKE A RIGID FRAME.
4. GATE DROP RODS TO BE SET IN CONCRETE.
4. FASTEN FENCE FABRIC TO PLAYING FIELD SIDE OF POSTS.
5. TOP AND BOTTOM SELVAGE TO BE KNUCKLED.
6. PROVIDE COMPLETE SHOP DRAWINGS FOR FENCES, GATES, AND BACKSTOP.



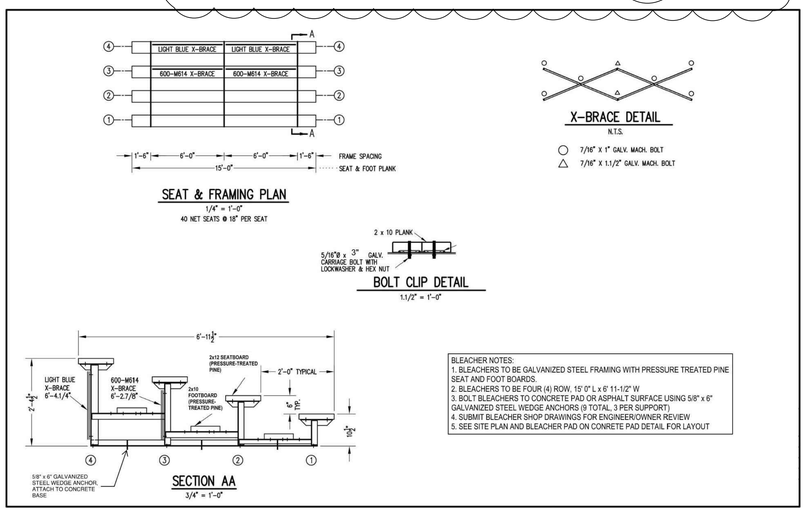
DETAIL- 8' HIGH CHAIN LINK FENCE
N.T.S.

4
CS6004



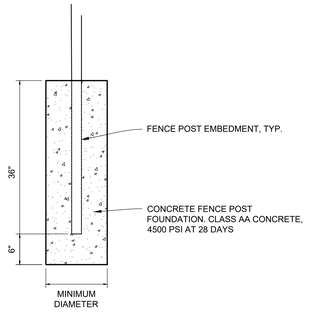
DETAIL- BASEBALL BACKSTOP DETAIL
N.T.S.

6
CS6004



DETAIL- 4-ROW SPECTATOR BLEACHERS (6 REQUIRED)
N.T.S.

5
CS6004



18" DIAMETER: CORNER, END, GATE POSTS, BACKSTOP POSTS, POSTS WITH BALL NET ABOVE

12" DIAMETER: LINE POSTS

DETAIL- FENCE POST FOUNDATION
N.T.S.

7
CS6004

08

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NPDES PERMIT #: PAC510297

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SITE DETAILS

CITY OF PHILADELPHIA
1401 JOHN F. KENNEDY BOULEVARD
PHILADELPHIA, PA 19102

BY	REVISIONS	DATE	NO
SDL	ADDENDUM #2	03/16/2023	8
SDL	PWD PCSM RESUBMISSION	02/27/2023	7
SDL	PSD SUBMISSION	02/24/2023	6
SDL	ISSUE FOR BID	02/24/2023	5
SDL	PWD PCSM RESUBMISSION	01/18/2023	4
SDL	90% CONSTRUCTION DOCUMENTS	02/16/2022	3
SDL	PCSM/NPDES SUBMISSION	11/11/2022	2

PROJECT	KLMLX20001
DATE	08/12/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDL
APPROVED BY	MJM

CS6004

SHEET 14 OF 24

PLOTTED: 3/14/2023 2:00 PM BY: Danielle Andrews PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —
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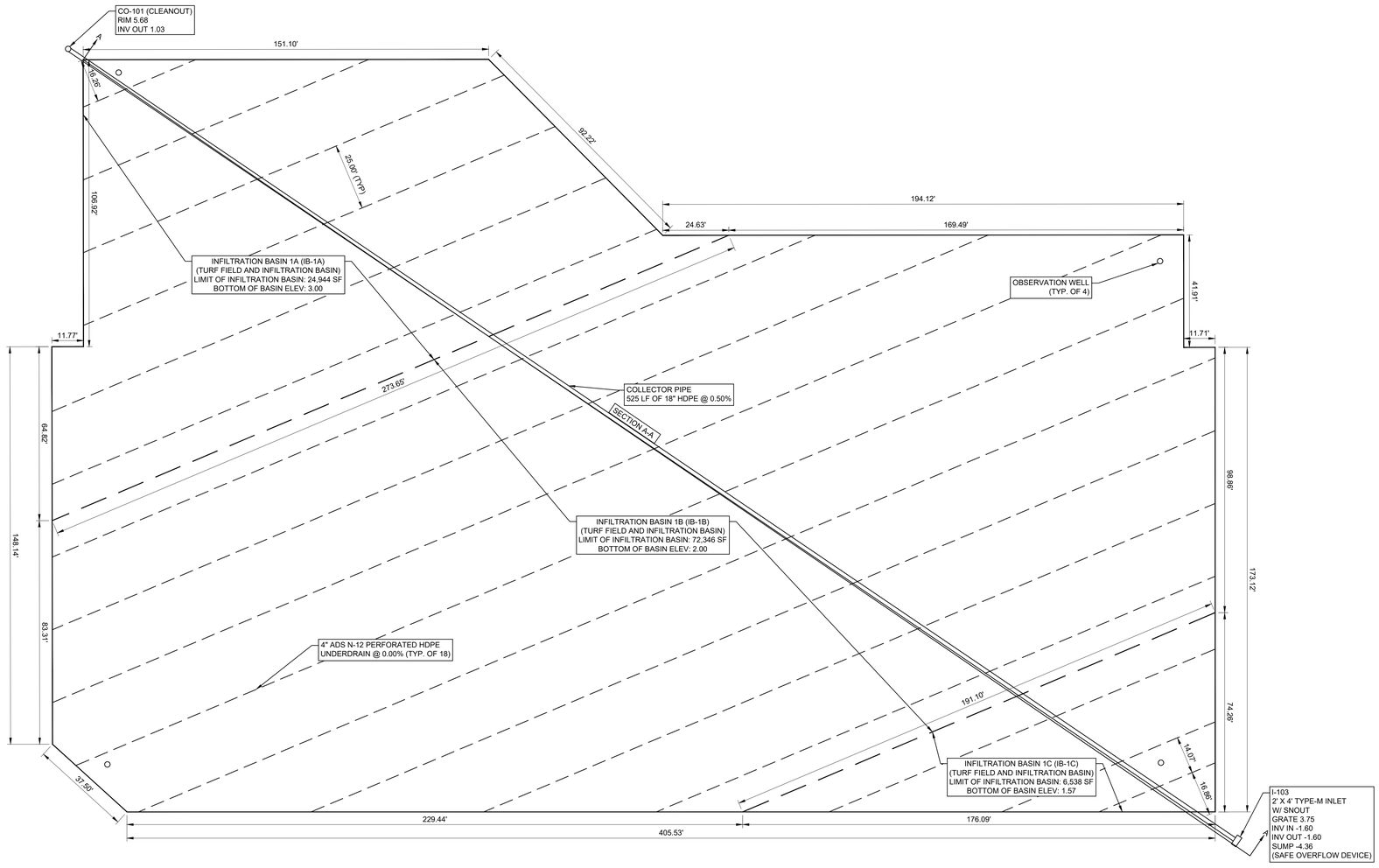
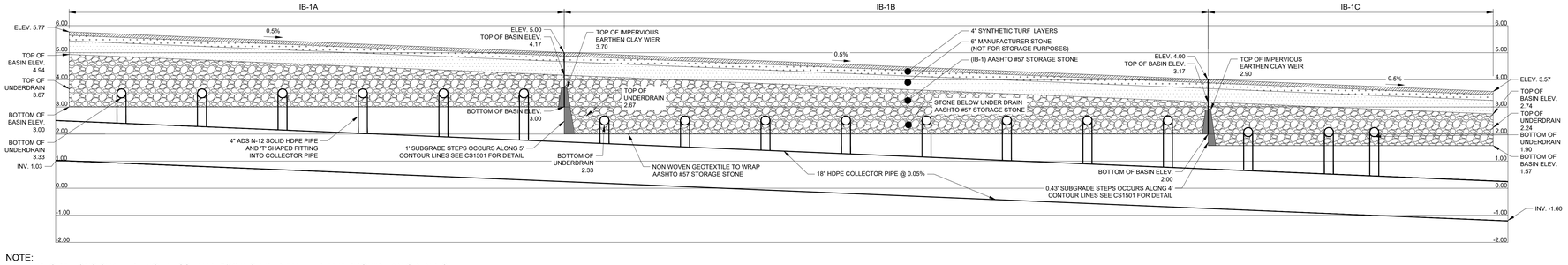


DETAIL- SYNTHETIC TURF FIELD INFILTRATION BASIN (IB-1A-C)

N.T.S.

1
CS6008



NOTE:

- PERFORATIONS SHALL BE NOT LESS THAN 5/16 INCH IN DIAMETER AND PROVIDE AN OPENING AREA NOT LESS THAN 3.31 SQUARE INCHES PER SQUARE FOOT OF PIPE SURFACE.

DETAIL- SYNTHETIC TURF FIELD INFILTRATION BASIN (IB-1A-C) SECTION A-A

N.T.S.

2
CS6008

ISSUE FOR BID
PWD TRACKING #: FY21-MURP-6508-01
NPDES PERMIT #: PAC510297

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PROJECT	KLMLX20001
DATE	08/12/2022
DRAWING SCALE	1"=20'
DRAWN BY	SDL
APPROVED BY	MJM

CS6008

SHEET 18 OF 24

GEOTECHNICAL ENGINEERING SERVICES

MURPHY RECREATION CENTER
300 W SHUNK STREET
PHILADELPHIA, PA

Submitted To:

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Kelly Maiello Architects
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Philadelphia, PA 19102

Submitted By:

Pennoni Associates Inc.
1900 Market Street
Philadelphia, PA

Daniel P. Marano Jr., PE
Geotechnical Project Engineer

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
DANIEL PATRICK MARANO
ENGINEER

KLMLX20001

November 30, 2020

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APPENDIX D – Important Information about this Geotechnical Engineering Report

1. EXECUTIVE SUMMARY

Pennoni has completed our geotechnical study for the proposed exterior improvements Murphy Recreation Center in Philadelphia, PA. The purpose of our work was to perform geotechnical field and laboratory testing to classify the subsurface soils in the area of the proposed construction, provide alternative foundation types for support of the proposed structures, and provide conclusions and recommendations related to the construction of the foundation system.

We understand that the project will be exterior improvements including a new artificial turf multi-purpose recreation field and associated amenities such as fence posts, benches, hinged football goal posts and bleachers.

On October 8 and 9, 2020, eighteen (18) geotechnical borings were drilled on the site. The borings generally disclosed that the near surface soils are a variable, very loose/very soft to very dense/very hard, Fill layer consisting of silt and coarse to medium to fine sand, and some coarse to fine gravel size rock, brick, and cinder fragments. The Fill is underlain by a native very soft to stiff silt layer. Evidence of groundwater was encountered in all borings at depths varying from 7.0 ft to 9.5 ft below existing grades (Elev. 3.0 to Elev. 0.5).

Based on the results of our field exploration, laboratory testing, engineering analyses, and our experience, we conclude that the construction of the proposed Murphy Recreation Center exterior improvements is feasible. In our professional opinion, a slab on grade can be considered for the bleachers, if it is bearing on densified existing fill and/or newly compacted load bearing structural fills. Detrimental long-term post-construction settlements are not expected if the recommendations presented in this report are followed. The clean inert portions of the on-site fill can be used in compacted load bearing fills. Use of proper compaction equipment and placement of soil in thinner layers should be considered when preparing earthwork schedules.

This report provides a more detailed summary of the field and laboratory testing programs as well as a discussion of the conclusions and recommendations pertaining to design and construction.

2. INTRODUCTION

2.1. LOCATION AND SURFACE FEATURES

The Murphy Recreation Center is located at 300 W Shunk Street in Philadelphia, Pennsylvania. The proposed exterior improvements will be located on the southern portion of the site where the grass field is currently present. The subject site is bound by the Murphy Recreation Center building and outside amenities to the north, by South 3rd Street to the east, by West Oregon Avenue to the south, and South 4th Street to the west. The site is accessible on West Shunk Street to the west of the recreation building.

The majority of the site is an open grass area. The northern portion of the site along West Shunk Street has a basketball court, recreation building, and an in-ground pool. There are two baseball diamonds; one in the southeast corner and the other in the southwest corner. Along the South 4th Street, West Oregon Avenue, and South 3rd Street borders, the site is lined with a wrought iron fence, small to large growth trees, and light posts. Below grade utilities were not observed on the site. The topography of the site is generally flat.

2.2. PROPOSED CONSTRUCTION

We understand that the project will be exterior improvements including a new artificial turf multi-purpose recreation field and associated amenities such as fence posts, benches, hinged football goal posts and bleachers. No additional information was provided at the time of this report; however, we have assumed that the synthetic turf field cross section will be approximately 8 in. thick and will consist of a combination of geotextile, subbase, and base course drainage aggregates. We have also assumed that no major grading will be required for this project and that the top of the proposed turf will be established at Elev. 10. It is our understanding that the fence posts will require concrete footings that will extend approximately 3 to 4 ft below grade. Additionally, the goal posts foundation system will be approximately 5.5 ft and it will consist of a leveling plate bolted to a concrete footing that sits on 6 in. of crushed stone. Lastly, we have assumed that the bleachers will consist of a non-elevated 4-row, aluminum frame, lightly loaded structure, approximately 21 ft long. The bleachers will be bolted to a slab on grade and the artificial turf will be placed over the slab on grade.

2.3. OBJECTIVES

The objectives of this geotechnical study were to determine subsurface conditions at the project site, evaluate these conditions with respect to the proposed construction, and present our conclusions and recommendations regarding:

- foundation design, including a discussion of alternate solutions, if applicable, anticipated total and differential settlements
- “general procedure” Soil Site Classification in accordance with IBC requirements
- lateral earth pressure parameters;
- design frost depth
- evaluation and determination of the earthwork requirements for use in preparation of the site area, including material selection and placement operations
- suitability of on-site material for re-use as fill as a part of the site work for the project
- groundwater conditions
- removal or treatment of objectionable material
- quality assurance, field-testing, and observation during construction

3. FIELD AND LABORATORY WORK

3.1. FIELD WORK

On October 8 and 9, 2020, 18 geotechnical Standard Penetration Test (SPT) borings were drilled by F.M.&W. Drilling, Inc., at the approximate locations presented on Drawing No. LP-1. Six of those borings were performed for infiltration testing purposes. Representative soil samples were obtained in general accordance with ASTM D 1586 and 1587 methods. The boring locations were selected and established by Pennoni personnel. Appendix A includes the boring logs and a location plan.

Our D. Marano, PE directed the field work; our E. Iannetti and N. Rex provided full-time observation of the test borings and infiltration testing.

3.2. LABORATORY WORK

The soil samples collected during our field study were delivered to our laboratory. Representative samples were selected and tested to determine moisture contents, plasticity indices, and gradation characteristics of the subsoils. Appendix B includes the laboratory testing results and a list of testing procedures.

4. SITE CHARACTERISTICS

4.1. GEOLOGY

The project site is located within the Lowland and Intermediate Upland section of the Atlantic Coastal Plain Province. The dominant topographic features of this section include very low local relief and a flat upper terrace surface cut by narrow, steep-sided to open valleys, shallow valleys; includes the Delaware River floodplain. The underlying subsurface material types consist of unconsolidated to poorly consolidated sand and gravel deposits, underlain by very complex, faulted and folded schist, gneiss, and other metamorphic rocks.

Available geological data indicates that the subject site is underlain by the Trenton Gravel Formation, which is subsequently underlain by the Wissahickon Formation. The Trenton Gravel Formation consists of gray to pale-reddish brown, very gravelly sand with interbedded and crossbedded sand and clay-silt layers.

The Wissahickon Formation consists of a coarsely crystalline, excessively micaceous schist. Fracturing results in a well-developed, platy pattern. This Formation is fissile to thinly bedded, moderately resistant to weathering, and often highly weathered to a moderate depth.

4.2. SUBSOILS

The borings revealed a 3 to 12 in. thick topsoil layer at the surface with the exception of I-1, which disclosed a fill layer at the surface. A Fill layer was observed below the surface layer in all borings with a thickness that varies from 6 ft to 13.5 ft below the existing grades. The underlying subsoils including the Fill, have been grouped into three principal strata based on their engineering properties and our interpretation of their origin. Brief strata descriptions are presented on the next page.

STRATUM	DESCRIPTION
F	FILL: varying amounts of SILT and coarse to medium to fine SAND, and some coarse to fine gravel size Rock and Brick Fragments; very loose/very soft to very dense/very hard
PF	POSSIBLE FILL: fine SAND and SILT, little medium to coarse Sand, trace fine gravel size Rock Fragments; very loose/soft to loose/firm
1	SILT, some medium to coarse to fine Sand, trace course to fine gravel size Rock Fragments; very soft to stiff

4.3. GROUNDWATER

Observations for groundwater were made in the borings during our field exploration. Evidence of groundwater was encountered in all borings at depths varying from 7.0 ft to 9.5 ft below existing grades (Elev. 3.0 to Elev. 0.5). Groundwater observations are for the times and locations noted and may not be indicative of seasonal or daily fluctuations in the groundwater levels.

5. ANALYSES AND RECOMMENDATIONS

5.1. SEISMIC SITE CLASSIFICATION

The borings disclosed near surface conditions generally described according to the Table 20.3-1 of ASCE 7 and referenced in Section 1613.3 of the 2018 International Building Code (IBC) as having a soil-profile corresponding to Site Class D – a stiff soil. Site Class determination is based on the properties in the upper 100 feet of the ground surface. The borings performed herein were advanced to a maximum depth of 20 feet. Values beyond 20 feet were estimated based on our local experience in this area.

5.2. EARTHWORK

A comparison of the existing grades with our assumed finished grading elevation (top of turf at Elev. 10) indicates that other than normal grading no significant cuts or fills (less than 2 ft) will be required to attain final subgrade elevations for the proposed amenities. However, cuts up to 5.5 ft deep will be required to install the foundations for the goal posts, fence and bleachers.

Prior to the placement of new fills, and construction of foundations, and slabs on grade, all existing concrete, asphalt, topsoil and vegetation located within the proposed footprint should be removed. Any existing utilities located within the proposed construction areas should be abandoned and relocated outside the proposed building footprint. Any existing utility line abandoned in-place should be grouted or the line should be removed from the trench and appropriately backfilled.

Exposed subgrades should be thoroughly proof-rolled in the presence of a representative from Pennoni using a loaded dump truck or a minimum 10-ton vibratory roller. Where space is limited subgrade soils should be manually probed in an attempt to disclose unstable surface areas. Any unstable surface areas (soft, yielding, etc.) found should be stabilized by excavating and replacing those soils with suitable soil that is adequately compacted. This can be accomplished by properly adjusting the moisture content of the subgrade soils and compacting them, or by other methods (placing a geotextile and stone layer, etc. or soil exchange).

Our experience indicates that the clean/inert portions of the on-site soils of Stratum F can be reused for earthwork construction, provided all organics and debris larger than 3 inches in its greatest dimension be removed prior to reuse. Laboratory test results indicate that the present moisture content (20.5% to 23.3%) of some of these soils is higher than the optimum moisture content normally associated with these soils to achieve desired degree of compaction. Drying "wet" soil is difficult during wet periods and during lower temperatures. In addition, based on our experience the on-site soils of Stratum F were observed to contain a significant amount of fine-grained material (silts). These types of soils are sensitive to moisture and may therefore require wetting or drying prior to compaction. Therefore, depending on the season that the earthwork operations are taking place, adjusting the moisture content of these on-site soils before use in any compacted fills and/or subgrade preparation may be required. Provisions for importing structural fill should be included in the contract documents.

If necessary, imported structural fill should be selected from suitable borrow sources and be approved by the Geotechnical Engineer well in advance of fill construction. Granular fill ideally should consist of well-graded material with not more than 20 percent passing the No. 200 sieve and have a plasticity index not greater than 8 percent; PennDOT 2A processed aggregate or recycled concrete with a gradation similar to that described above with a maximum particle size of 3 in. can be considered. Other gradations can be considered based on laboratory testing and at the discretion of the Geotechnical Engineer.

Fine grained and granular fills should be placed in layers not exceeding 8 to 10 in. and 10 to 12 in. loose thickness, respectively. This criterion might be adjusted by the geotechnical engineer in the field depending on the conditions present at the time of construction, on the compaction equipment used, and on the fill materials selected. Fills for support of foundations, and ground floor slab, and pavements should be compacted to at least 98 percent and 95 percent, respectively, of the laboratory determined dry density, ASTM D 698, when small, hand-operated compaction equipment is used, and to at least 95 percent and 93 percent, respectively, of the laboratory determined maximum dry density, ASTM D 1557, when self-propelled, heavy-duty construction equipment is used. Fills should extend a minimum of 5 ft beyond the exterior edge of a loaded area and have side slopes not steeper than 2 horizontal to 1 vertical.

Specifications should indicate that the percentage of maximum dry density attained in the field is not the only criteria to be used for assessing fill compaction. Observation of the behavior of the fill under the loads of construction equipment should also be used. If the test results indicate that the percentage of compaction is being achieved, but the soil mass is moving under the equipment, placement of additional fill should not be continued until the movement is stabilized. Otherwise, settlement of the fill may occur.

5.3. FOUNDATIONS

Based on the results of our field exploration and our experience with similar projects it our professional opinion that the construction of the artificial turf multi-purpose recreation field and associated amenities such as fence posts, benches, hinged football goal posts and bleachers is feasible.

The borings disclosed a variable fill layer with densities/consistencies varying from very loose/very soft to very dense/very hard. A very soft to stiff Silt layer was encountered below the fill layer. To minimize the magnitude of total and differential settlements, the bleachers can be supported on a slab on grade bearing on densified existing fill and/or newly compacted load bearing structural fills. Any unstable surface areas (soft, yielding, etc.) found should be stabilized by excavating and replacing those soils with suitable load-bearing engineered fill placed in layers and compacted. Slab on grade can then be designed using an allowable net bearing capacity of 1,500 psf.

Additionally, any of the auxiliary structures (i.e., fence posts, benches, and goal posts) constructed on shallow spread footings should be designed for an allowable net soil bearing pressure of 1,500 psf. This is to limit the amount of differential settlement caused by the soft subgrade soils.

5.4. SETTLEMENT

Settlement of a soil mass is a function of the characteristics of the supporting soils (type of soil, void ratio, pre-consolidation, etc.), the thickness of the layer(s), and the stresses imposed on the soils by an applied load (fill, shallow foundations, floor slab, etc.). The stresses affecting subsoils generally decrease with increasing depth and are variable based on the magnitude and area of applied loading.

The test borings disclosed the presence of compressible soil layer at an approximate thickness of 5 to 12 feet. The laboratory consolidation testing disclosed that the tested sample is predominantly granular and that settlements should occur rapidly and concurrently of the load application. Provided that the structures are supported on a slab on grade total and differential settlement values are expected to be less than or equal to 1 in. total and ½ in. differential. Detrimental post-construction settlements are not expected if the recommendations presented herein are followed.

5.5. LATERAL EARTH PRESSURE PARAMETERS

The soil parameters presented in Table 1 can be used to estimate lateral earth pressures to design below grade structures and temporary shoring. If the top of the structure is restrained from movement, thereby preventing the mobilization of active soil pressures, the structure should be designed using the at-rest pressure coefficient, k_o.

The earth pressure coefficients are based on the assumption of vertical walls, horizontal backfill, no surcharges, no wall friction, and a safety factor of 1.0. Hydrostatic pressures associated with seepage must also be considered in the design unless a drain and drainage stone layer are provided behind the wall.

TABLE 1: Lateral Earth Pressure Parameters

Parameter	*Fill / Possible Fill*	*Stratum 1*	*Engineered Granular Fill (PennDOT 2A)*
Unit Weight, pcf	120	100	135
Angle of Internal Friction, degrees	28	0	40
Cohesion, psf	0	500	0
Friction Factor (concrete)	0.34	0.0	0.60
k_a	0.36	1.00	0.22
k_o	0.53	1.00	0.36
k_p	2.77	1.00	4.60

If the contractor is responsible for the design of temporary or permanent retaining structures, then the contract documents should clearly require that a competent registered engineer performs the design and that the responsibility for satisfactory earth support is solely the contractor's. Furthermore, the contract documents should require the contractor to notify the engineer immediately if differing or unforeseen subsurface conditions are encountered during construction.

6. RECOMMENDATIONS FOR FURTHER GEOTECHNICAL SERVICES

Our experience on numerous construction projects is that the interests of the project team are best served by retaining the Geotechnical Engineer to provide construction observations during earthwork and foundation construction operations. To determine if soils, other materials, and groundwater conditions encountered during construction are similar to those encountered in the borings, and that they have comparable engineering properties or influences on the design of the structure, we recommend that Pennoni should provide field observation services during excavation; preparation of foundation subgrades; and installation/construction of foundations. Pennoni's Geotechnical Technology should review specifications for earthwork and foundation design/construction when they are prepared.

7. LIMITATIONS

This work has been done in accordance with our authorized scope of work and in accordance with generally accepted professional practice in the fields of geotechnical and foundation engineering. This warranty is in lieu of all other warranties either expressed or implied. Our conclusions and recommendations are based on the data revealed by this exploration. We are not responsible for any conclusions or opinions drawn from the data included herein, other than those specifically stated, nor are the recommendations presented in this report intended for direct use as construction specifications. This report is intended for use with regard to the specific project described herein; any changes in loads, structures, or locations should be brought to our attention so that we may determine how they may affect our conclusions. An attempt has been made to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction. If this should occur, or if additional or contradictory data are revealed in the future, we should be notified so that modifications to this report can be made, if necessary. If we do not review relevant construction documents and witness the relevant construction operations, then we cannot be responsible for any problems that may result from misinterpretation or misunderstanding of this report or failure to comply with our recommendations.

APPENDICES

APPENDIX A – FIELD DATA

TEST BORING B-1
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 9.5' / Elev 0.5'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	12	3-6-6-10		T	0.3 / 9.7 — 4" TOPSOIL FILL: Gray to Brown SILT and F SAND, some F gravel size Brick Fragments	
	S-2	12	10-9-9-6				
5	S-3	6	3-2-3-4		F		
	S-4	2	5-3-1-2			FILL: Gray to Black SILT, little F Sand, little F gravel size Brick Fragments	Sample Damp at 7'
▽ 10	S-5	6	3-5-2-3				Sample Wet at 9'
						10.0 / 0.0 — Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING LOG

TEST BORING B-2

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 9.0' / Elev 1.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	12	5-7-7-6		T	0.4 5" TOPSOIL 9.6 FILL: Gray to Brown SILT and F SAND, some F gravel sized Brick and Asphalt Fragments	
	S-2	4	5-8-6-4				
5	S-3	16	6-3-3-2		F	FILL: Gray to Black SILT, little F Sand, trace F gravel size Rock, Brick, and Asphalt Fragments	
	S-4	16	1-2-1-1				Sample Damp at 7'
▽	S-5	6	2-3-1-2				
10						10.0 0.0	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING B-3

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 9.9'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.5' / Elev 1.4'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	16	3-3-4-9		T	0.3 — 3" TOPSOIL — 9.7 FILL: Tan to Brown F SAND and SILT, some F gravel size Asphalt and Brick Fragments	
	S-2	16	9-11-9-6				
5	S-3	8	7-7-4-3		F		
	S-4	12	4-3-4-5			FILL: Gray to Brown SILT, little F Sand, some F gravel sized Asphalt and Brick Fragments	Sample Damp at 7'
▽	S-5	8	2-6-17-12				
10						10.0 — -0.1 Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING LOG

TEST BORING B-4

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	2-4-5-12		T	0.5 TOPSOIL 9.5 FILL: Brown to Black M/F/C SAND, some C/F gravel size Rock Fragments, trace Silt	
	S-2	24	10-8-22-16			FILL: Brown to Black M/C/F SAND, some C/F gravel size Rock and Brick Fragments, little Silt	
5	S-3	14	16-10-10-6		F		
	S-4	5	5-2-5-3			FILL: C/M/F SAND and C/F gravel size ROCK and BRICK FRAGMENTS	Sample Wet at 7'
▽	S-5	12	3-4-7-10				
10						10.0 0.0	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING B-5
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	3-8-15-12		T	0.3 / 9.7 TOPSOIL FILL: Gray M/F/C SAND, some F/C gravel size Rock Fragments, trace Silt	
	S-2	15	10-9-14-10			FILL: Brown SILT, some C/M/F Sand, trace F/C gravel size Rock and Brick Fragments	
5	S-3	16	9-8-4-6		F		
	S-4	17	6-5-6-5			FILL: Dark Gray SILT, some M/F Sand, some F/C gravel size Rock and Brick Fragments, trace Organics	
▽	S-5	9	3-3-5-2				Sample Wet at 8'
						9.5 / 0.5	
10					1	10.0 / 0.0 Dark Gray SILT, some M/F Sand Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING LOG

TEST BORING B-6

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 9.0' / Elev 1.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	12	4-4-7-6		T	0.3 / 9.7 — 4" TOPSOIL FILL: Tan to Brown F SAND and SILT, trace F gravel size Rock and Brick Fragments	
	S-2	16	5-12-8-5		F		
5	S-3	12	7-5-19-23			6.0 / 4.0	
	S-4	6	8-4-2-3		PF	Tan to Brown to Black F SAND and SILT, little M/C Sand, trace F gravel size Rock Fragments	
▽	S-5	2	7-2-2-2				Sample Wet, Rock Stuck in Spoon at 9'
10						10.0 / 0.0	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING B-7

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 7.0' / Elev 3.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	20	2-4-8-8		T	0.6 TOPSOIL 9.4 FILL: Brown to Black SILT and C/M/F SAND, trace F gravel size Rock and Brick Fragments	
	S-2	17	10-6-2-2				
5	S-3	7	1/12"-1-1		F		
▽	S-4	6	1-1-1-2			Brown SILT, some M/F Sand, trace F gravel size Rock and Brick Fragments, trace Organics	Sample Wet at 7'
	S-5	13	1-14-34-10			Brown to Black SILT and C/M/F SAND, trace F gravel size Rock and Brick Fragments	Wood Fragments in Spoon at 8' Wood Fragments in Spoon at 9'
10						10.0 0.0 Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING B-8
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 9.5' / Elev 0.5'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	12	2-3-5-8		T	0.3 — 4" TOPSOIL — 9.7 FILL: Tan to Brown to Black F SAND and SILT, some F gravel size Brick and Cinder Fragments	
	S-2	8	11-13-14-13				
5	S-3	8	9-8-10-8		F		
	S-4	4	5-4-3-2				
▽ 10	S-5	6	3-3-2-3				Sample Wet at 9'
						10.0 — 0.0	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING B-9
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	8	2-3-8-10		T	0.3 / 9.7 — 4" TOPSOIL FILL: Brown to Black F SAND and SILT, some F gravel size Brick and Cinder Fragments	
	S-2	12	6-8-15-12				
5	S-3	8	4-5-7-3		F		
	S-4	2	3-WOH-1-1				
▽	S-5	8	1-3-1-8			FILL: Gray to Black F SAND and SILT, trace subrounded Gravel, with Brick fragments, damp to wet	
10						10.0 / 0.0 — Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING B-10
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 9.5'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 1.5'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	17	1-2-6-8		T	0.8 / 8.8 TOPSOIL FILL: Brown to Black C/M/F SAND, some C/F gravel size Rock and Brick Fragments	
	S-2	19	11-10-5-3				
5	S-3	9	2-2-2-2		F		
	S-4	11	2-1-1-2				
▽	S-5	13	2-1-1-2			FILL: Gray C/F gravel size ROCK FRAGMENTS, some C/M/F Sand, trace Silt	Sample Wet at 8'
10						10.0 / -0.5	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING LOG

TEST BORING B-11

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 9.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 7.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0					T	Depth 0.4 — TOPSOIL — Elev. 8.6	
	S-1	15	1-4-3-3		F	FILL: Black to Brown C/M/F SAND, some C/F gravel size Brick and Rock Fragments, trace Silt	
	S-2	17	3-3-5-4			FILL: Brown to Black C/M/F SAND, some C/F gravel size Rock Fragments, trace Silt	
5	S-3	14	4-4-5-4			Brown SILT and M/F/C SAND, trace C/F gravel size Rock Fragments — Depth 6.0 — Elev. 3.0	
▽	S-4	8	3-1-1-1		1	Dark Gray SILT, little M/F Sand, trace F gravel size Rock Fragments	Sample Wet at 7'
	S-5	13	1-1-1-5				
10						Depth 10.0 — Dark Gray SILT, trace F/M Sand — Elev. -1.0	
						Borehole terminated at 10.0 feet.	

NOTES:

TEST BORING B-12
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 9.5'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 1.5'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	19	1-2-5-8		T	0.5 TOPSOIL 9.0 FILL: Brown SILT, some M/C/F Sand, trace F gravel size Rock Fragments	
	S-2	3	21-50/5				
5	S-3	11	3-2-2-2		F	FILL: Brown to Black C/M/F SAND, some C/F gravel size Rock and Brick Fragments, trace Silt	
	S-4	6	2-3-3-2				
▽	S-5	7	2-2-1-2				Sample Wet at 8'
10						10.0 -0.5	

Borehole terminated at 10.0 feet.

NOTES:

TEST BORING I-1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 11.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 3.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	18	3-5-9-9			FILL: Gray to Brown F SAND and SILT, some F gravel size Brick and Cinder Fragments	
	S-2	14	12-8-5-5			FILL: Gray to Brown SILT and CLAY, some F/M/C Sand, trace F Gravel	
5	S-3	4	3-3-3-1				
	S-4	6	1-2-3-4		F	FILL: Gray to Black SILT and F SAND, trace F gravel size Rock, Brick, and Cinder Fragments	
▽	S-5	20	3-3-3-4				
10	S-6	8	1-2-3-1				
	S-7	4	1-2-2-1				
						14.0 / -3.0	

Borehole terminated at 14.0 feet.

NOTES:

TEST BORING I-2
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	8	3-4-7-9		T	0.0 / 10.0 — 3" TOPSOIL FILL: Gray to Brown SILT and F SAND, some F/C gravel size Brick and Asphalt Fragments	
	S-2	18	6-8-11-8			FILL: Gray to Black F/M/C SAND and SILT and CLAY, trace F Gravel	
5	S-3	20	5-10-7-5		F		
	S-4	4	6-12-8-6			FILL: Gray to Black F SAND and SILT, trace to little subrounded Gravel, little Brick and Asphalt Fragments	
▽	S-5	12	4-2-4-5				
10						10.0 / 0.0	
	S-6	2	2-2-3-4		1	Gray to Black SILT, little F Sand, trace F gravel size Rock Fragments	Sample Wet at 11'
	S-7	24	5-2-2-3				Sample Wet at 13'
						14.0 / -4.0	

Borehole terminated at 14.0 feet.

NOTES:

TEST BORING LOG

TEST BORING I-3
PAGE 1 OF 1

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/8/20 **COMPLETED** 10/8/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 2.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY N. Rex **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	20	1-2-3-8		T	0.0 / 10.0 — 3" TOPSOIL FILL: Gray to Brown F SAND and SILT, some F gravel size Brick and Asphalt Fragments	
	S-2	16	7-6-9-14			FILL: Gray to Brown F/M/C SAND, some Silt, some Clay, little F Gravel	
5	S-3	4	15-12-11-9		F		
	S-4	2	7-5-4-4			FILL: Gray to Brown C/M/F SAND, little Silt, little to trace F gravel size Rock Fragments	
▽						8.0 / 2.0	
	S-5	10	5-7-3-1			Gray to Black SILT, little M/F Sand, little F gravel size Rock Fragments	Sample Damp at 9'
10	S-6	10	WOH-1-2-2				
	S-7	24	1-2-1-2		1		
15	U-1						Shelby Tube Pushed from 14'-16'
	S-8	24	3-4-4-7			Gray SILT, trace to little F Sand	
	S-9	24	1-3-3-4				
20						20.0 / -10.0	

Borehole terminated at 20.0 feet.

NOTES:

TEST BORING I-4
PAGE 1 OF 1

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 9.5'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 8.0' / Elev 1.5'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	15	5-4-7-9		T	0.3 TOPSOIL 9.3 FILL: Black C/M/F SAND, some C/F gravel size Rock and Brick Fragments, some Silt	
	S-2	20	10-8-6-5			FILL: Black M/F/C SAND, some Silt, some Clay, some F Gravel	
5	S-3	24	12-11-15-19			FILL: Black C/M/F SAND and C/F GRAVEL SIZE BRICK and ROCK FRAGMENTS, trace Silt	
	S-4	20	12-11-17-25		F	FILL: Black M/C/F SAND, some Silt, trace F gravel size Rock Fragments	Sample Wet at 7'
▽	S-5	17	13-8-7-9				
10	S-6	16	4-2-3-6				
	S-7	13	2-1-1-2			13.0 -3.5	
					1	Dark Gray CLAYEY SILT, some F/M Sand 14.0 -4.5	

Borehole terminated at 14.0 feet.

NOTES:

TEST BORING I-5

TEST BORING LOG

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 9.0' / Elev 1.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	14	1-3-5-12		T	TOPSOIL 1.0 / 9.0	
	S-2	16	14-18-10-9			FILL: Black C/M/F SAND, some F gravel size Rock and Brick fragments, trace Silt FILL: Black M/F/C SAND, some F Gravel, little Silt, little Clay	
5	S-3	13	4-2-2-3				
	S-4	14	4-2-2-2		F		Sample Damp at 7'
▽	S-5	9	3-2-2-3				Sample Wet at 9'
10	S-6	7	2-4-7-9				
	S-7	14	4-2-1-1			13.5 / -3.5	
					1	14.0 / -4.0 Dark Gray CLAYEY SILT, trace F Sand	
						Borehole terminated at 14.0 feet.	

NOTES:

TEST BORING LOG

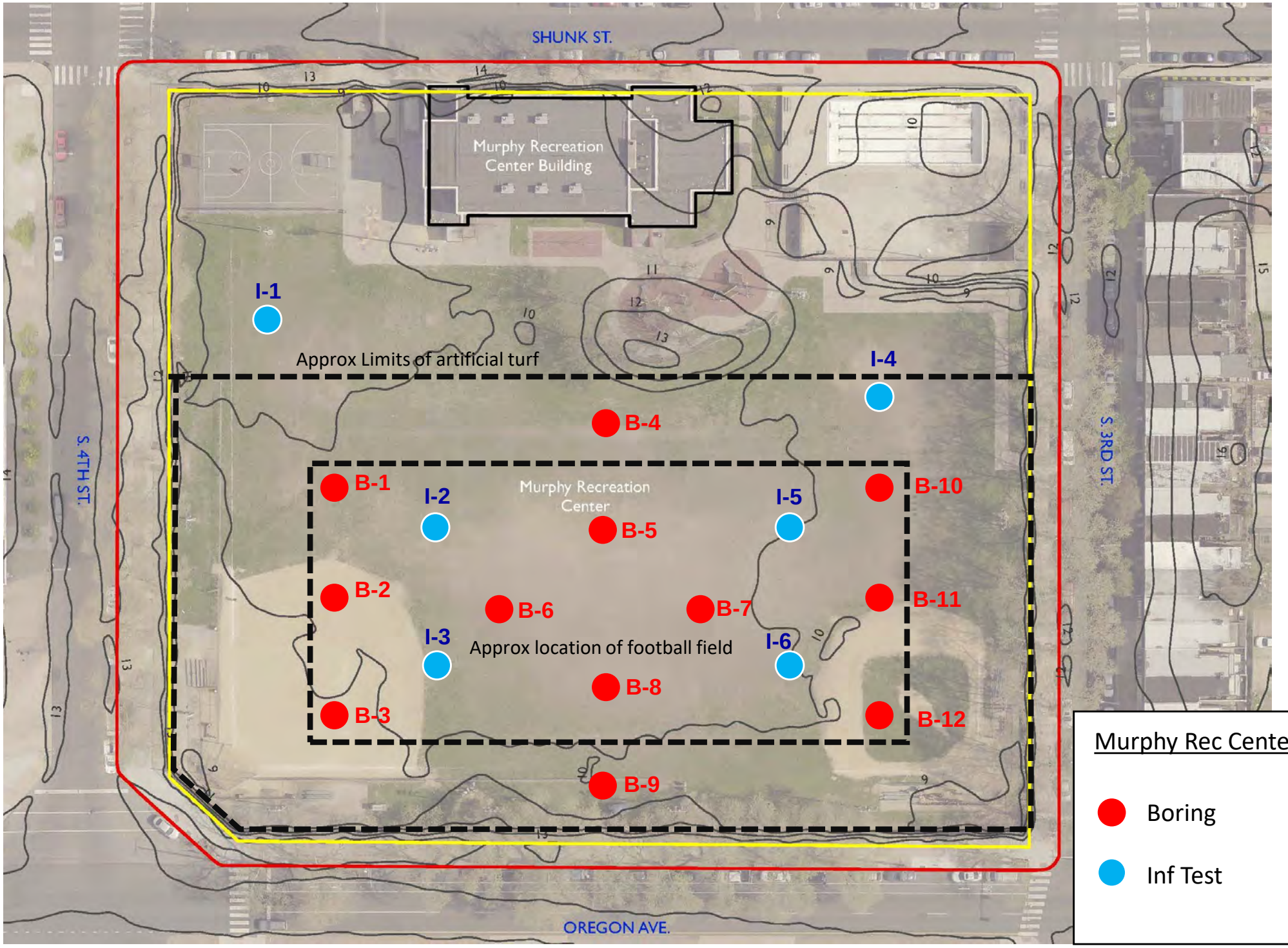
TEST BORING I-6

CLIENT Murphy Recreation Center
PROJECT NAME Murphy Rec Center
PROJECT NUMBER KLMLX20001
PROJECT LOCATION Philadelphia, PA
DATE STARTED 10/9/20 **COMPLETED** 10/9/20
GROUND ELEVATION 10.0'
DRILLING CONTRACTOR F.M. & W. Drilling Inc.
WATER ENCOUNTERED:
DRILLING METHOD Hollow Stem Auger
▽ **DURING DRILLING** 10.0' / Elev 0.0'
DRILLER / HELPER N. Sulmone / N. Campbell
AT END OF DRILLING
LOGGED BY E. Iannetti **CHECKED BY** D. Marano
AFTER DRILLING

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in.)	BLOW COUNTS	GRAPHIC LOG	STRATA	DESCRIPTION	REMARKS
0						Depth / Elev.	
	S-1	11	1-3-5-9		T	0.3 TOPSOIL 9.8 FILL: Brown SILT and F SAND, trace F gravel size Rock Fragments	
	S-2	9	10-5-5-8			FILL: Black M/F/C SAND and SILT and CLAY, trace F Gravel	
5	S-3	14	6-10-8-7			FILL: Black C/M/F SAND and C/F GRAVEL SIZE ROCK and BRICK FRAGMENTS	
	S-4	1	4-3-3-2		F		
	S-5	5	7-4-1-1			FILL: Black to Red C/F GRAVEL SIZE BRICK FRAGMENTS, some C/M Sand, some Silt	
10 ▽	S-6	3	2-2-6-5				Sample Wet at 10'
	S-7	15	5-3-1-2			13.0 -3.0	
					1	Dark Gray CLAYEY SILT, trace F Sand 14.0 -4.0	

Borehole terminated at 14.0 feet.

NOTES:



PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

Kelly Maiello Architects
1420 Walnut Street, 15th floor
Suite 415
Philadelphia, PA 19102

BORING LOCATION PLAN

Murphy Recreation Center
300 W Shunk Street
Philadelphia, PA 19148

PROJECT	KLMLX20001
DATE	11/03/2020
DRAWING SCALE	Not to Scale
DRAWN BY	MK
APPROVED BY	EI

LP-1

SHEET 1 OF 1

TEST BORING/TEST PIT/AUGER PROBE LOG KEY SHEET

COLUMN	DESCRIPTION
Depth	Depth in feet below ground surface
Description	Description of sample including color, texture, and classification of subsurface material as applicable. Estimated depths to bottom of strata as interpolated from the boring are also shown.
Stratum	Strata numbers as assigned by the geotechnical engineer
Sample No.	Split barrel sample and sample number (S-x) Undisturbed Tube sample and sample number (U-x) Rock core run and core number (R-x) NR indicates no recovery
Blow Counts	For soils sample (ASTM D 1586): indicates number of blows obtained for each 6 inches penetration of the standard split-barrel sampler. For rock coring (ASTM D 2113): indicates percent recovery (REC) per run and rock quality designation (RQD). RQD is the sum of rock pieces that are 4 inches or longer in length in one core run divided by the total core run.
Recovery	For soil samples indicates the length of recovery in the sample spoon
Remarks	Special conditions or test data as noted during drilling

Ground Water: Free water level as shown ( )*; * Free water level as noted may not be indicative of daily, seasonal, or long term fluctuations.

DESCRIPTIVE TERMS

RELATIVE PROPORTIONS

Descriptive Term	Symbol	Estimated Percentages
Trace	tr	1 to 10
Little	l	10 to 20
Some	sm	20 to 35
And	and	35 to 50

GRADATION OF COARSE GRAINED COMPONENTS

Soil Component	Size Range	Particle Size	
		Maximum	Minimum
Boulders		-	12"
Cobbles		12"	3"
Gravel	Coarse	3"	¾"
	Fine	¾"	#4 Sieve
Sand	Coarse	#4 Sieve	#10 Sieve
	Medium	#10 Sieve	#40 Sieve
	Fine	#40 Sieve	#200 Sieve
Silt		#200 Sieve	.005 mm
Clay		.005 mm	-

COMPOSITION OF COARSE-GRAINED COMPONENTS

Gradation Designation	Symbol	Defining Proportions
Coarse to Fine	CF	All fractions greater than 10% of the component
Coarse to Medium	CM	Less than 10% Fine
Medium to Fine	MF	Less than 10% Coarse
Coarse	C	Less than 10% Fine and Medium
Medium	M	Less than 10% Coarse and Fine
Fine	F	Less than 10% Coarse and Medium

APPENDIX B – LABORATORY DATA

SUMMARY OF LABORATORY DATA

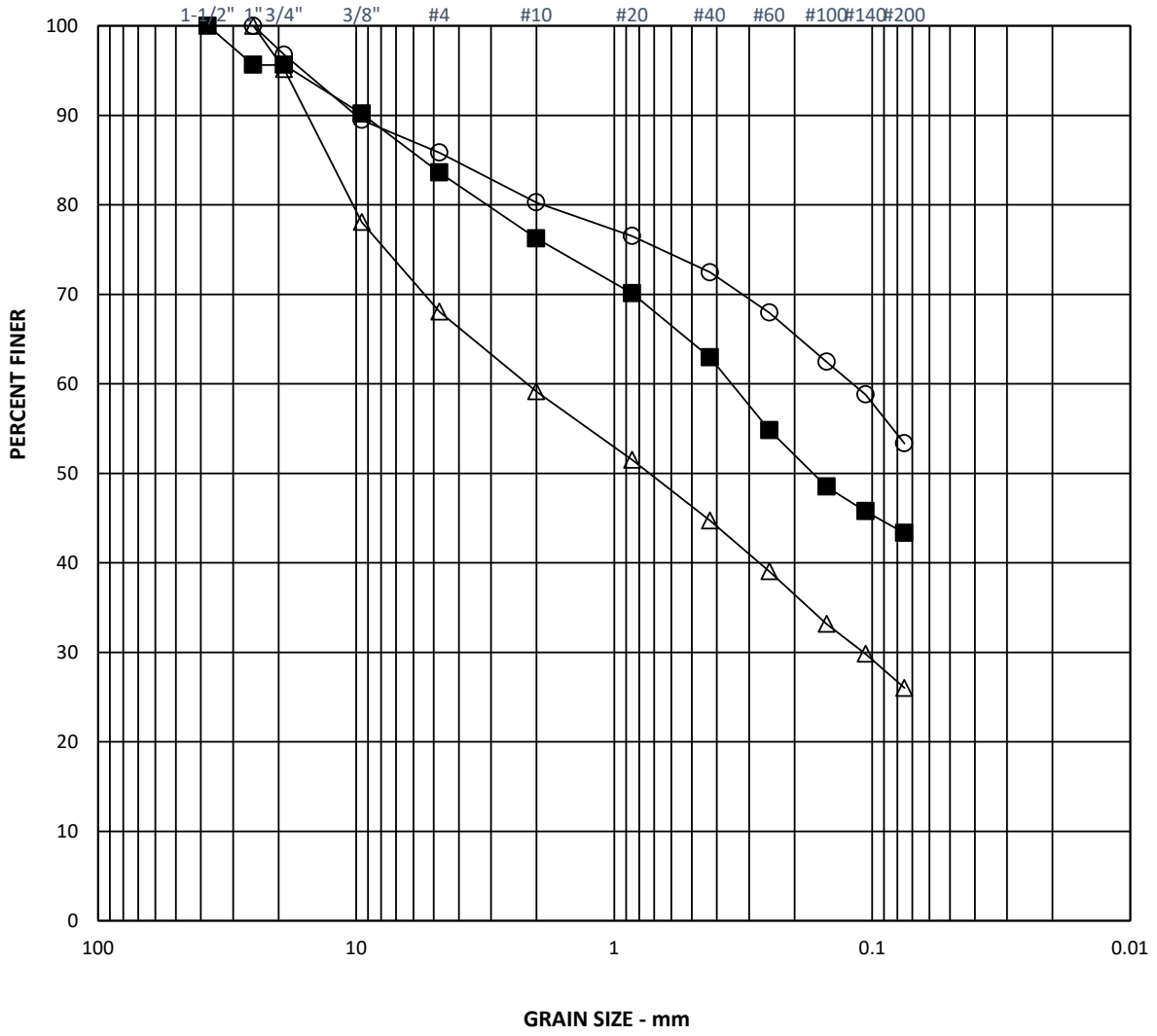
BORING NUMBER	SAMPLE NUMBER	DEPTH (ft)	SOIL CLASSIFICATION	GRAIN SIZE DISTRIBUTION			PLASTICITY				MOISTURE CONTENT w %	VOLUMETRIC					ORGANIC CONTENT (%)	CONSOLIDATION		
				GRAVEL %	SAND %	SILT/CLAY %	LIQUID LIMIT w_l	PLASTIC LIMIT wp	PLASTICITY INDEX I_P	LIQUIDITY INDEX I_L		SPECIFIC GRAVITY (G)	DRY UNIT WEIGHT (pcf)	WET UNIT WEIGHT (pcf)	VOID RATIO (e)	DEGREE OF SATURATION %		PRECONSOLODATION PRESSURE (TSF) Pc	RECOMPRESSION INDEX (Cr)	COMPRESSION INDEX (Cc)
I-3	U-1	14-16	SM	16	40	43	44	31	13	0.8	41.4	2.526	76.1	107.5	1.07	98	13.4			
B-3	S-4	6-8		14	32	53					20.5									
B-11	S-3	4-6		32	42	26					23.3									

PENNONI ASSOCIATES INC.	DRAWN BY: EVC	DATE: 11/9/2020	PROJECT: **MURPHY RECREATION CENTER**
	CHECKED BY:	DATE:	LOCATION: **PHILADELPHIA, PA**

JOB No.: **KLMLX 20001**

TABLE No.: **L-1**

Particle Size Distribution Report



	% Gravel		% Sand			% Fines		Moisture (%)
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
■	4.4	12.0	7.4	13.3	19.6	43.3		41.4
○	3.2	10.9	5.6	7.8	19.1	53.3		20.5
△	4.8	27.1	8.9	14.4	18.7	26.0		23.3

SYMBOL	SOURCE	SAMPLE	DEPTH (ft)	Material Description
■	I-3	U-1	14-16	SILT AND F/M/C SAND, LITTLE F/C GRAVEL
○	B-3	S-4	6-8	SILT/CLAY, SOME F/M/C SAND, LITTLE F/C GRAVEL
△	B-11	S-3	4-6	F/M/C SAND, SOME F/C GRAVEL, SOME SILT/CLAY

PENNONI ASSOCIATES INC.

Client: KELLY MAIELLO ARCHITECTS
Project: MURPHY RECREATION CENTER
Location: PHILADELPHIA, PA
Lab No. 10-186403
Figure S-1

LABORATORY TESTING PROCEDURES

All testing is either done in accordance with the indicated ASTM Designation-latest edition, or with other standard or generally accepted engineering practice as described:

1. Consolidation Test of Soils
   Preparation of samples and testing procedures generally follow the methods described in Lambe, op. Cit. In addition, the time of loading may be selected on the basis of:

   a. Controlled rate of percent of consolidation
   b. Controlled pore pressure gradient
   c. Controlled strain

   The method of test is selected to suit the soil type in question and the test is conducted in accordance with generally accepted engineering practice.

2. Atterberg Limits – Plasticity Indices
   a. Liquid limit of soils, ASTM D 4318
   b. Plastic limit and plasticity index of soils, ASTM D 4318
   c. Shrinkage factors of soils, ASTM D 427

   (Moisture content is also determined with the Atterberg Limit test, and liquidity index is also computed)

3. Moisture Content of Soil
   ASTM D 2216

4. Particle Size Analysis of Soils
   ASTM D 421, Dry preparation of soil samples; ASTM D 422, Sieve and/or hydrometer analysis.

5. Triaxial Compression Test of Soils
   Sample preparation, apparatus, and testing generally follow the procedures outlined in Soil Testing for Engineers, T.W. Lambe, John Wiley & Sons, Inc., New York, 1951 and in The Measurement of Soil Properties in the Triaxial Test, Alan W. Bishop & D.J. Henkel, 2nd Edition, St. Martin's Press, New York, 1962

6. Unconfined Compression Strength of Cohesive Soil
   ASTM D 2166

7. Specific Gravity of Soils
   ASTM D 854

8. Unit Weight Determination of Soils
   See ASTM D 2166 for preparation of specimen except that sample size may differ. For moisture content see ASTM D 2216.

9. Visual Identification of Soil Samples
   All soil samples are visually identified and/or classified. The classification system used is shown in Table L-1.

10. Identification of Rock
    Rock core samples are identified by the character and appearance of newly fractured surfaces of unweathered pieces, by core conditions and characteristics, and by the determination of simple physical and chemical properties.

11. Compaction Test of Soils
    a. Moisture-density relations of soils using 5.5 lb. hammer and 12 in. drop, ASTM D 698
    b. Moisture-density relations of soils using 10 lb. hammer and 18 in. drop, ASTM D 1557

12. Maximum and Minimum Densities of Granular Soils
    Testing procedures follow D.M. Burmeister, "Suggested Method of Test for Maximum and Minimum Densities of Granular Soils" cited in Proceedings for Testing Soils, Fourth Edition, ASTM, Philadelphia. 1964, pp 175-177.

13. Bearing Ratio of Laboratory Compacted Soils
    ASTM D 1883 (Sometimes called California Bearing Ratio or CBR)

14. Organic Content
    A modified dichromate oxidation method using ferrous ammonium sulfate is employed in determining the percent of organic matter in soil.

APPENDIX C – STANDARD SYMBOLS

STANDARD SYMBOLS

B	Width of footing
c	cohesion
c_v	coefficient of consolidation
C_c	compression index
C	coefficient of secondary compression
C_3	swelling index
C_u	uniformity coefficient (D_{60}/D_{10})
CBR	California Bearing Ratio
D_f	depth of foundation
D_p	diameter of grain corresponding to percentage p on grain size curve
D_{10}	effective grain size
E	modulus of linear deformation
E_s	Young's Modulus
e	void ratio
F_s	factor of safety
G	specific gravity
h	hydraulic head
H	stratum thickness
i	hydraulic gradient
I_L	liquidity index
I_P	plasticity index
k	coefficient of permeability
k_h	coefficient of horizontal subgrade reaction
k_v	coefficient of vertical subgrade reaction
l	length of footing
n	porosity
P	deviator stress
P_c	estimated probable preconsolidation pressure
P_o	existing overburden pressure
q_a	allowable soil bearing pressure
Q	triaxial compression test unconsolidated and undrained
Q_c	triaxial compression test consolidated and undrained
S	triaxial compression test consolidated and drained
S_r	degree of saturation
υ	pore-water pressure
U	degree of consolidation
U_c	unconfined compression test
w_f	moisture content at end of test
w_l	liquid limit
w_n	natural moisture content
w_p	plastic limit
γ	unit weight
γ_d	dry unit weight
γ_b	submerged unit weight
ε	unit linear strain
ε_f	unit linear strain at failure
σ	normal stress
σ_1	major principal stress
σ_3	minor principal stress
τ	shear stress
ϕ	angle of internal friction
k_a	coefficient of active pressure
k_p	coefficient of passive pressure
δ	friction angle
tan δ	friction factor

APPENDIX D – IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL ENGINEERING REPORT (PUBLISHED BY THE GBA)

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

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