



May 26, 2026

To All Bidders:

Subject: **Bid #: 8702-W6, South Worcester Playground Improvements – Phase III / DPRC**

**ADDENDUM NO. 2**

To Whom It May Concern:

With reference to our bid request relative to the above subject, please refer to the changes/modifications/clarifications to the original request.

- **PLEASE SEE ATTACHED GENERAL BID CLARIFICATIONS, QUESTIONS RECEIVED AND RESPONSES FROM CITY**

Bidders are requested to acknowledge and/or include this addendum with submission. All other terms, conditions and specifications remain unchanged.

Very truly yours

Christopher J. Gagliastro  
Purchasing Director

**ADDENDUM NUMBER TWO**

**Date:** May 22, 2026  
**Project:** South Worcester Phase III  
City of Worcester Department of Parks, Recreation & Cemetery

**General Bid Clarifications:**

1. Delete Sheet E-3 and replace with Sheet E-3, dated 05-22-26 Addendum 2

**General Bid Questions:**

**Question1:** Please provide dimensions for the Electrical enclosure in detail #4, sheet L-8  
**Answer:** Refer to Project Special Conditions Article 42 for Electrical Enclosure specification and sizing.

**Question2:** Sheet E-3 depicts a non-city standard handhole for the electrical product. Is this the desired handhole to be used on this project?  
**Answer:** Refer to Project Special Conditions Article 47 Attachment for DPRC standard handhole.

**Question3:** Sheet E-1, has a panel schedule depicted. The panel schedule notes the use of a Nema 3r panelboard enclosure. The city has never required this before. Should the panelboard be Nema-3R even though it is in an electrical cabinet?  
**Answer:** Yes, panelboard enclosure shall be Nema-3R rated.

**Question4:** What is the QA/QC specification for the form work on the cast in place Handball wall?  
**Answer:** See Sheet S.1 for specifications related to the handball wall.

**Question5:** What is the finish required on the wall? Is a coating required?  
**Answer:** See Sheet S.1 for specifications related to the handball wall.

**Question6:** What is the detail and spec on the permanent park sign?  
**Answer:** Refer to Details 3 and 5 on Sheet L-8, All metal post and framework to be powder coated finish- color is black.

**Question7:** How will the new granite meet the back of the existing sidewalk along Cambridge St?  
**Answer:** Install granite curb 6 inches from edge of existing concrete pavement. Add additional concrete cradle as needed to align with surface of existing concrete sidewalk, finish as per Detail 2 on sheet L-6. Layout and alignment of curb to be approved by Owner prior to placement of concrete cradle.

**Question8:** What is the spec and color of the new safety surface on the playground and mower strip?  
**Answer:** Article 44 Poured-in Place Safety Surfacing Renovation – Add Alternate #1 attached. Refer to Bonder Rubber Surface for mower strip colors.

Question9: I have spoken with two of the PIP Rubber companies, and neither of them will commit to replacing only the top layer of Rubber at the playground area. They would be unable to warranty the rubber since they didn't install the original base mat and think there might be serious issues with passing a "Drop Test", due to the age of the mat itself. We ask that the scope be revised to include a full depth removal of the existing rubber, to be replaced in kind with an all-new system.

Answer: **Refer to Article 44 Section 1.08 for warranty requirements of top surface. Attenuation/Drop Test HIC and GMAX values is the responsibility of the Owner.**

Question10: Does the city know who originally installed the PIP Rubber at the playground area?

Answer: **Fibar**

Question11: Is it the intent for the PIP Rubber at the playground to be the same as the PIP Rubber around the courts?

Answer: **No, bonded rubber is specified around the courts.**

**Attachments:**

**Article 44 Poured-in Place Safety Surfacing Renovation – Add Alternate #1 (5 pages)**

**Sheet E-3 – Electrical Details (dated, Revision 05-22-26)**

**Sheet S-1 Handball Court Wall Structure**

**END OF ADDENDUM TWO**

**ARTICLE 44    POURED-IN-PLACE SAFETY SURFACING RENOVATION - Add Alternate #1**

**PART 1 GENERAL**

**1.01 SUMMARY**

A. Section Includes: Poured-in-place playground surfacing system.

**1.02 REFERENCES**

A. American Society for Testing and Materials (ASTM):

1. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
2. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
3. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
4. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
5. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
6. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems under and Around Playground Equipment.
7. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems under and Around Playground Equipment.

**1.03 SYSTEM DESCRIPTION**

A. Performance Requirements: Provide a 2-layer rubber-polyurethane playground surfacing system which has been designed, manufactured and installed to meet the following criteria:

1. Shock Attenuation (ASTM F1292):
  - a. Gmax: **as determined in the field by Owner**
  - b. Head Injury Criteria: **as determined in the field by Owner**
2. Flammability (ASTM D2859): Pass.4. Tear Resistance (ASTM D624): 140%.
5. Water Permeability: 0.4 gal/yd<sup>2</sup>/second.
6. Accessibility: Comply with requirements of ASTM F1951.

#### **1.04 SUBMITTALS**

- A. General: Submit listed submittals in accordance with Conditions of the Contract.
- B. Product Data: Submit manufacturer's product data and installation instructions.
- C. Verification Samples: Submit manufacturer's standard verification square sample for field testing of 18" x 18".
- D. Quality Assurance/Control Submittals: Submit the following:
  - 1. Certificate of qualifications of the playground surfacing installer.
- E. Closeout Submittals: Submit the following:
  - 1. Warranty and Testing documents specified herein.

#### **1.05 QUALITY ASSURANCE**

- A. Qualifications: Utilize an installer approved and trained by the manufacturer of the playground surfacing system, having experience with other Projects of the scope and scale of the work described in this section. For installation of the poured-in-place play surface the Contractor shall have a minimum of five (5) years of experience. Provide evidence of successful completion of twenty-five (25) like surfaces installed during the past five (5) years with names of clients and phone numbers.
- B. Certifications: Certification by manufacturer that installer is an approved applicator of the playground surfacing system.
- C. International Play Equipment Manufacturers Association (IPEMA) certified.
- D. Testing: After seventy-two (72) hours but within thirty (30) days following installation of the finished playground surface, the Contractor shall be required to perform, with the Owner present, field testing by a third party (qualifications to be reviewed/approved by Owner), demonstrating that the surface is following ASTM F1292 for impact attenuation, ASTM F1951 for wheelchair accessibility and Project Documents. (NOT APPLICABLE)

#### **1.06 DELIVERY, STORAGE & HANDLING**

- A. General: Comply with Division 1 Product Requirement Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 40 degrees F (4 degrees C) and a maximum temperature of 90 degrees F (32 degrees C).

#### **1.07 PROJECT/SITE CONDITIONS**

- A. Environmental Requirements: Install surfacing system when the minimum ambient temperature is 40 degrees F (1 degree C), and maximum ambient temperature is 90 degrees F (32 degrees C). Do not install in steady or heavy rain.

## 1.08 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for Project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company officials. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents.

C. Warranty Period: Top Surfacing shall be guaranteed against defects in workmanship and materials for a period of no less than seven (7) years from the date of **ACCEPTANCE** of work.

## PART 2 PRODUCTS

### 2.01 POURED-IN-PLACE (PIP) PLAYGROUND SURFACING SYSTEM

A. Poured-in-place playground surfacing system, including the following:

1. Dynamic Stone Blend Base: 8 inches thick.(Not Applicable)

2. Poured-In-Place Primer:

a. Material: Polyurethane.

3. Poured-in-Place Basemat Shim layer:

a. Material: Blend of 100% recycled SBR (styrene butadiene rubber) and polyurethane.

b. Thickness meets ASTM F1292 requirements for Impact Attenuation of Surface Systems within use areas of Playground Equipment and Swings for designed maximum critical fall height, as determined by Owner.

c. Formulation Components: Blend of strand and granular material.

4. Poured-In-Place Top Surface:

a. Material: Blend of recycled EPDM (ethylene propylene diene monomer) and **Aromatic** polyurethane.

b. Thickness: Nominal 1/2" minimum.

c. Color: Uniform Custom Combination - 50% Black and 50 % of Manufacturer's three (3)

Premium colors.

d. Dry Static Coefficient of Friction (ASTM D2047): 1.0.

e. Wet Static Coefficient of Friction (ASTM D2047): 0.9.

f. Dry Skid Resistance (ASTM E303): 89.

g. Wet Skid Resistance (ASTM E303): 57.

## 2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: Approved Equal

## 2.03 MIXES

A. Required mix proportions by weight:

1. Basemat: 14% polyurethane, 86% rubber.
2. Top Surface: 18% polyurethane, 82% rubber.

## PART 3 EXECUTION

### 3.01 MANUFACTURER'S INSTRUCTIONS

A. Comply with the instructions and recommendations of the playground surfacing manufacturer

### 3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions are suitable for installation of the playground surfacing system.
- B. Do not proceed with installation until unsuitable conditions are corrected.

### 3.03 PREPARATION

A. Surface Preparation: Using a brush or short nap roller, apply primer to the existing base mat top surface, substrate perimeter and any adjacent vertical barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft<sup>2</sup>/gal (7.5 m<sup>2</sup>/L).

### 3.04 INSTALLATION

A. Do not proceed with playground surfacing installation until all applicable site work, including substrate preparation, fencing, playground equipment installation and other relevant work, has been completed.

B. Basemat Installation:

1. Using screeds and hand trowels, install the basemat at a consistent density of approximately 29 pounds, 1 ounce per cubic foot (466 kg/m<sup>3</sup>) to the specified thickness or as determined by Section 1.03 and verification sample or whichever is more stringent.
2. Allow basemat to cure for sufficient time so that indentations are not left in the basemat from applicator foot traffic or equipment.
3. Do not allow foot traffic or use of the basemat surface until it is sufficiently cured.
4. Primer Application: Using a brush or short nap roller, apply primer to the basemat top surface, perimeter and any adjacent vertical and horizontal barriers such as playground equipment support legs, curbs or slabs that will contact the surfacing system at the rate of 300 ft<sup>2</sup>/gal (7.5 m<sup>2</sup>/L).
5. Top Surface Installation: Using a hand trowel, install top surface at a consistent density of approximately 58 pounds, 9 ounces per cubic foot (938 kg/m<sup>3</sup>) to a nominal thickness of 1/2" (12.7 mm), or as determined by Section 1.03 and verification sample or whichever is more stringent.

6. Single application of each color/blend, no cold seams for top surface.

7. Allow top surface to be cured for a minimum of 48 hours.

8. At the end of the minimum curing period, verify that the top surface is sufficiently dry and firm to allow foot traffic and use without damage to the surface.

9. Do not allow foot traffic and protect the safety surfacing until it is sufficiently cured.

**3.05 PROTECTION**

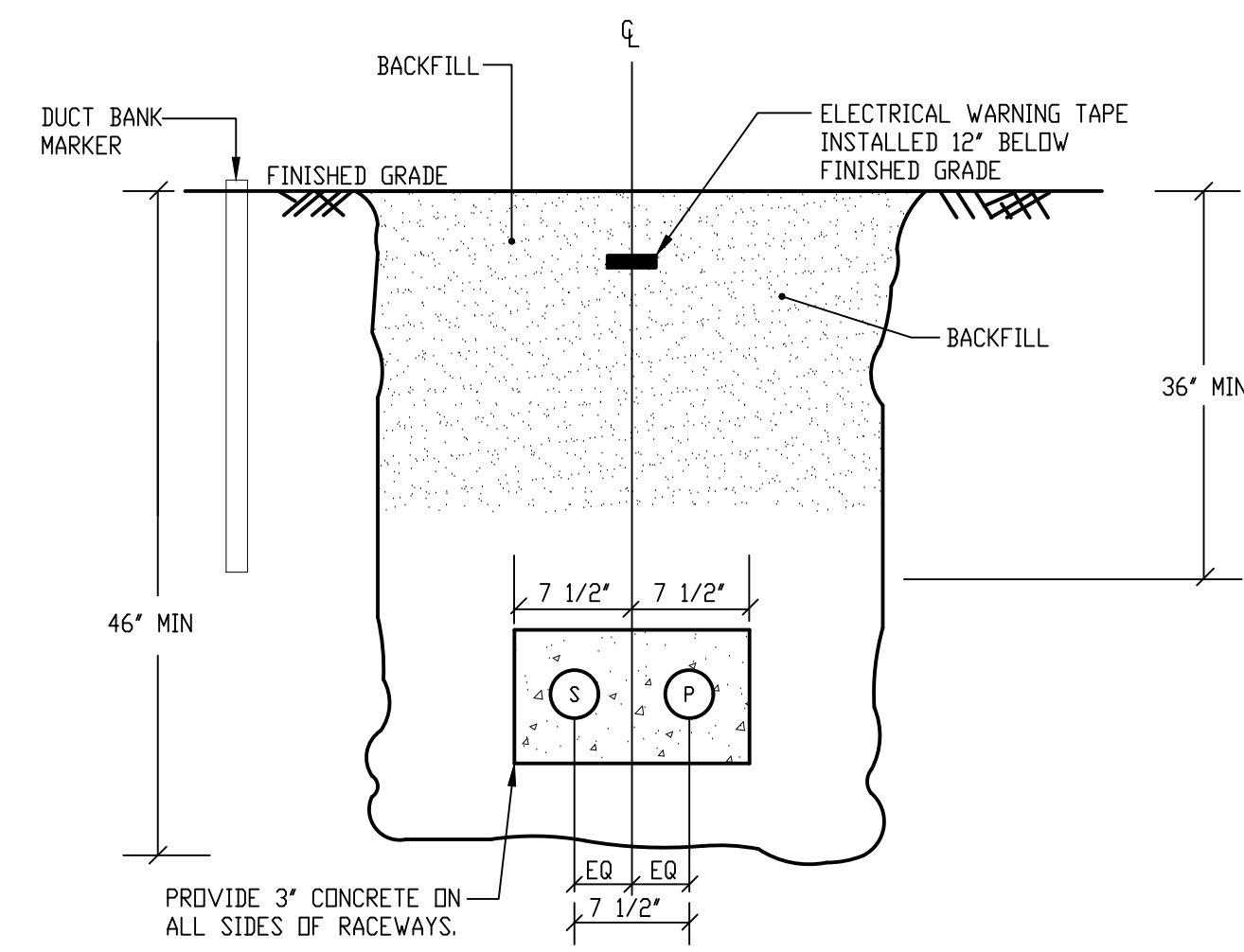
A. Protect the installed playground surface from damage resulting from subsequent construction activity on the site.

**End of Article 44**



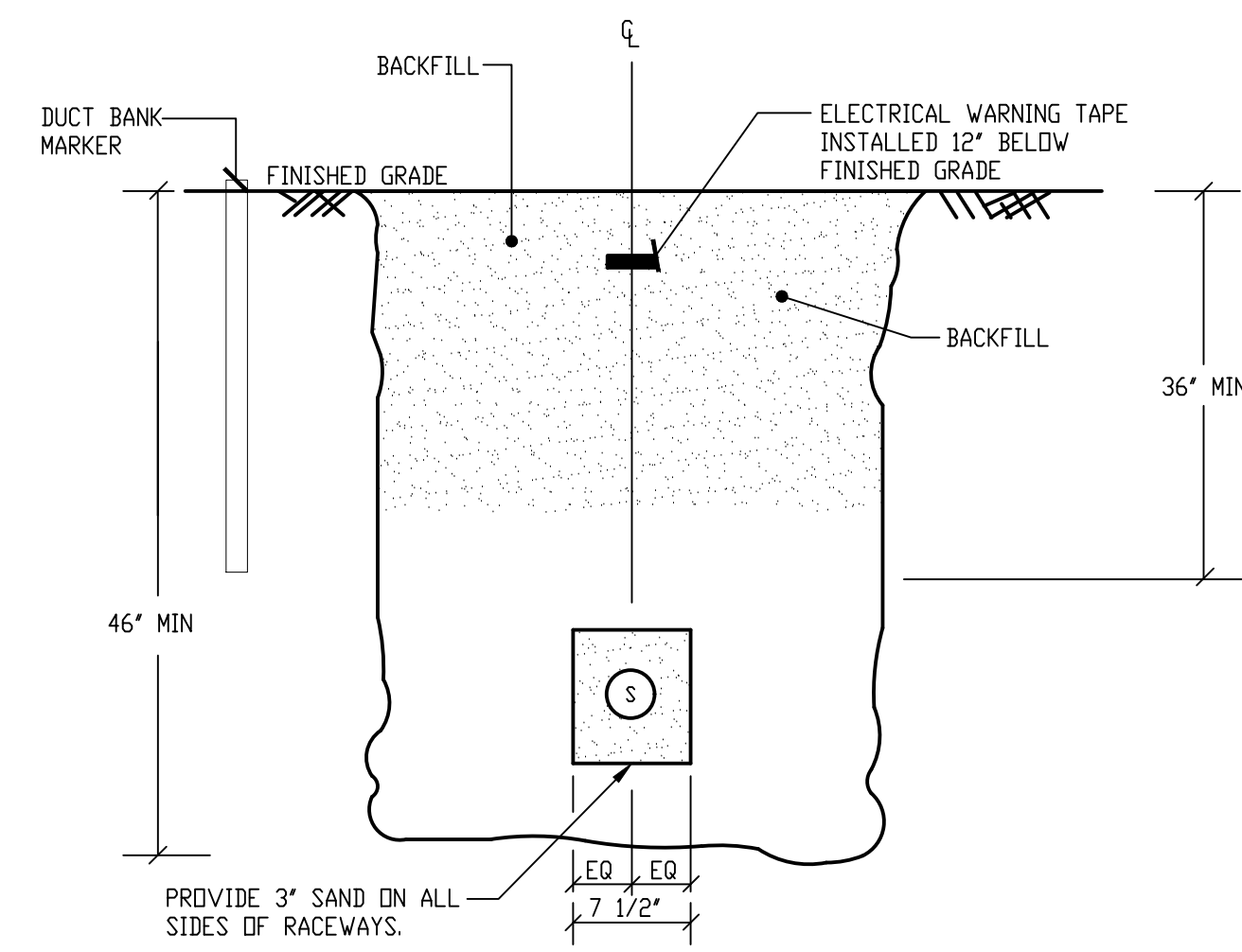
RAY DUNETZ LANDSCAPE ARCHITECTURE, INC. 179 GREEN STREET BOSTON, MA 02130 T: 617-524-6265

**J M E**  
 John J. Murphy, Jr. Electrical Construction & Engineering, Inc. 379 Liberty Street Suite 204 Rockland, MA 02370 Tel: (781) 792-0059 Fax: (781) 792-0061



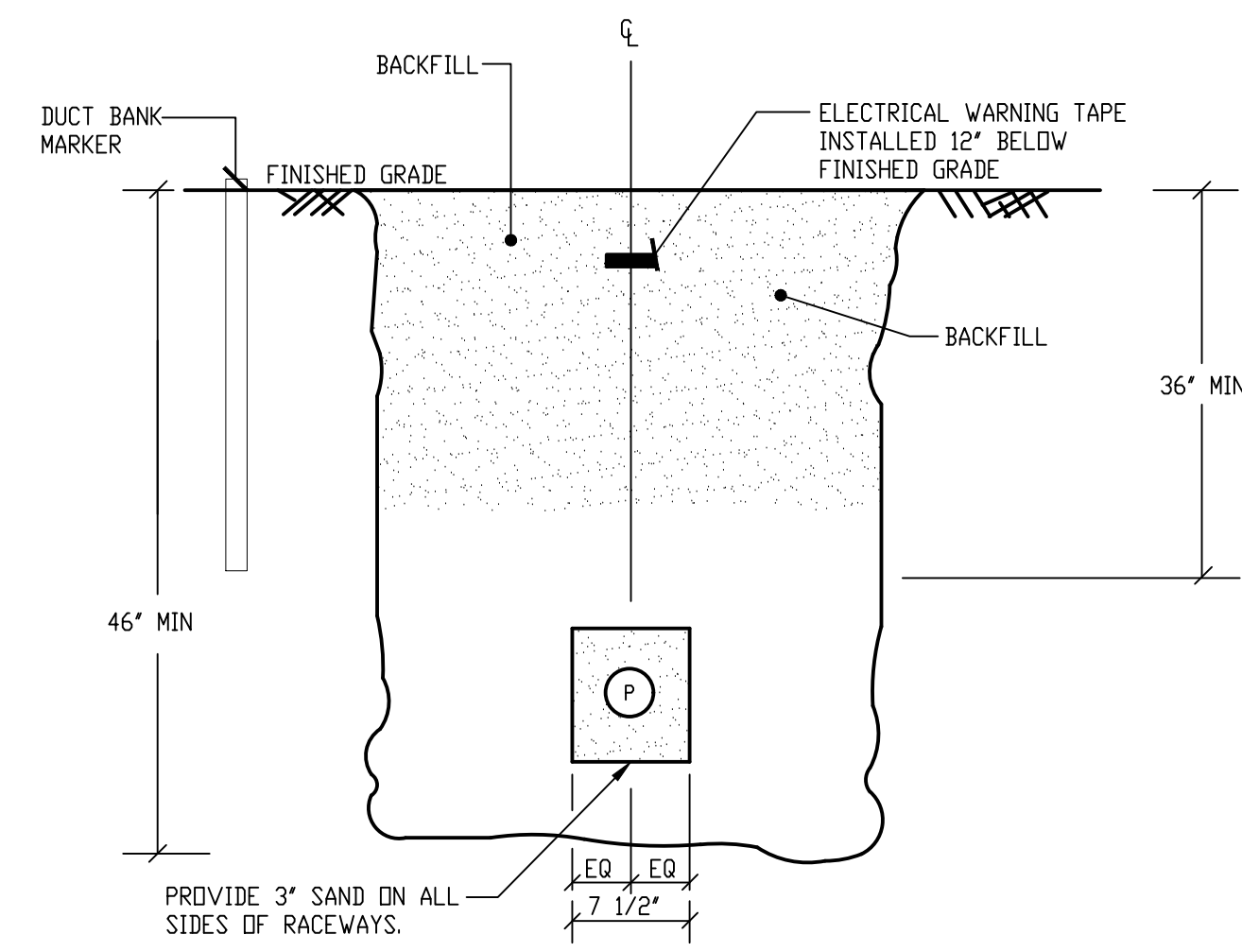
1 DUCT BANK SECTION A-A SCALE: NTS

- P 4" PRIM. ELEC. - SCHED 40 PVC
- S 4" SPARE - SCHED 40 PVC



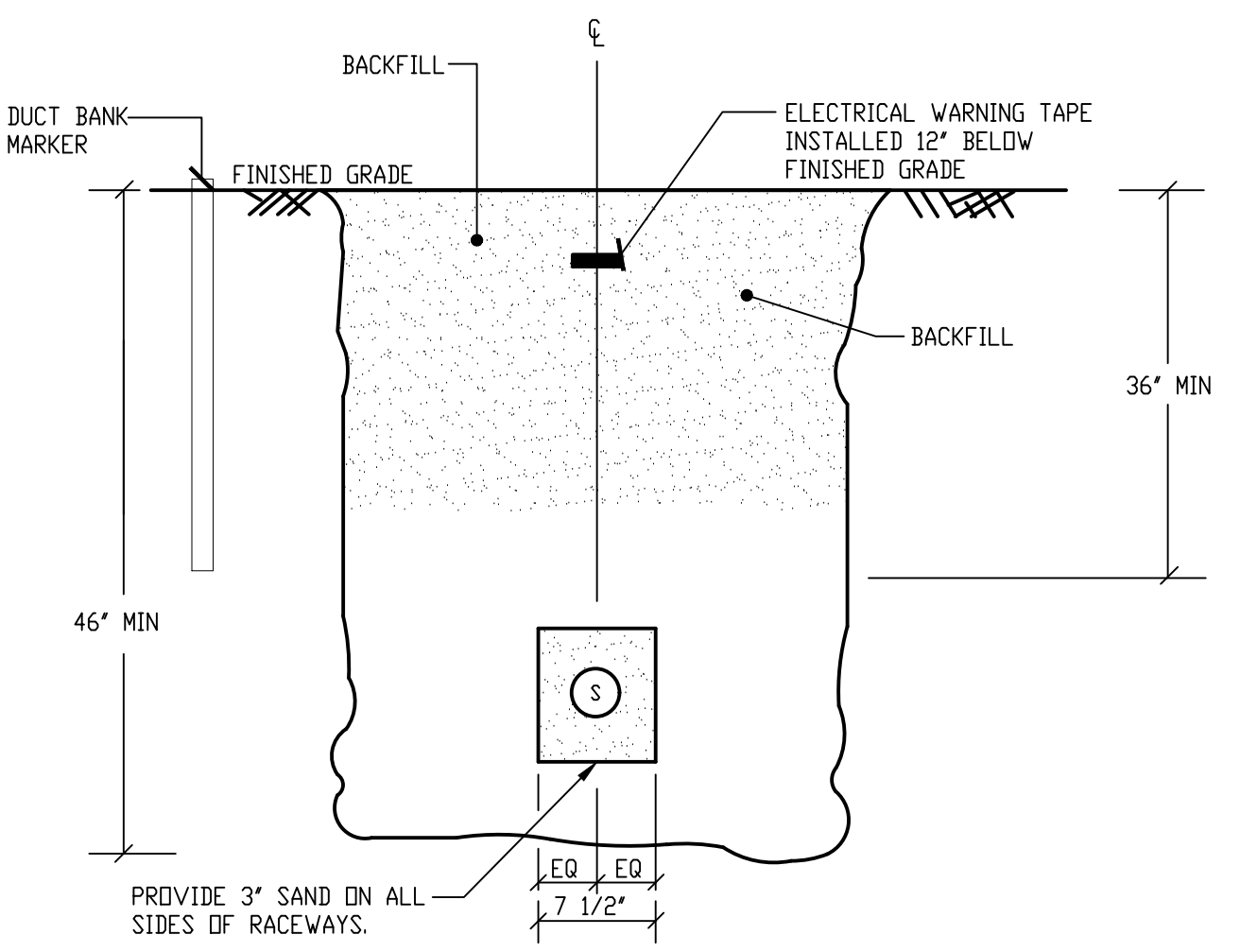
4 DUCT BANK SECTION D-D SCALE: NTS

- S 1" COMMUNICATIONS - HDPE



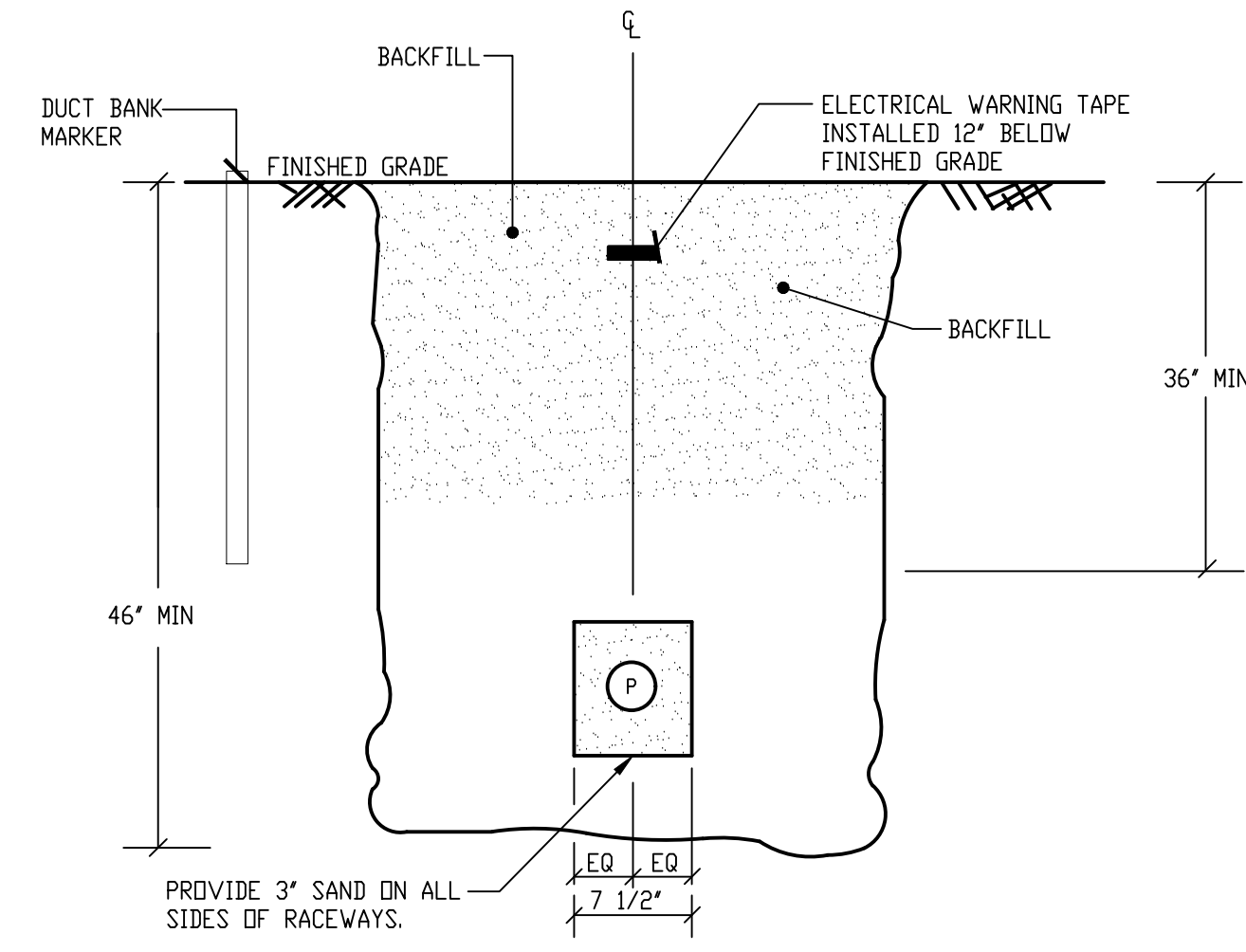
2 DUCT BANK SECTION B-B SCALE: NTS

- P 2" ELEC. - SCHED 40 PVC



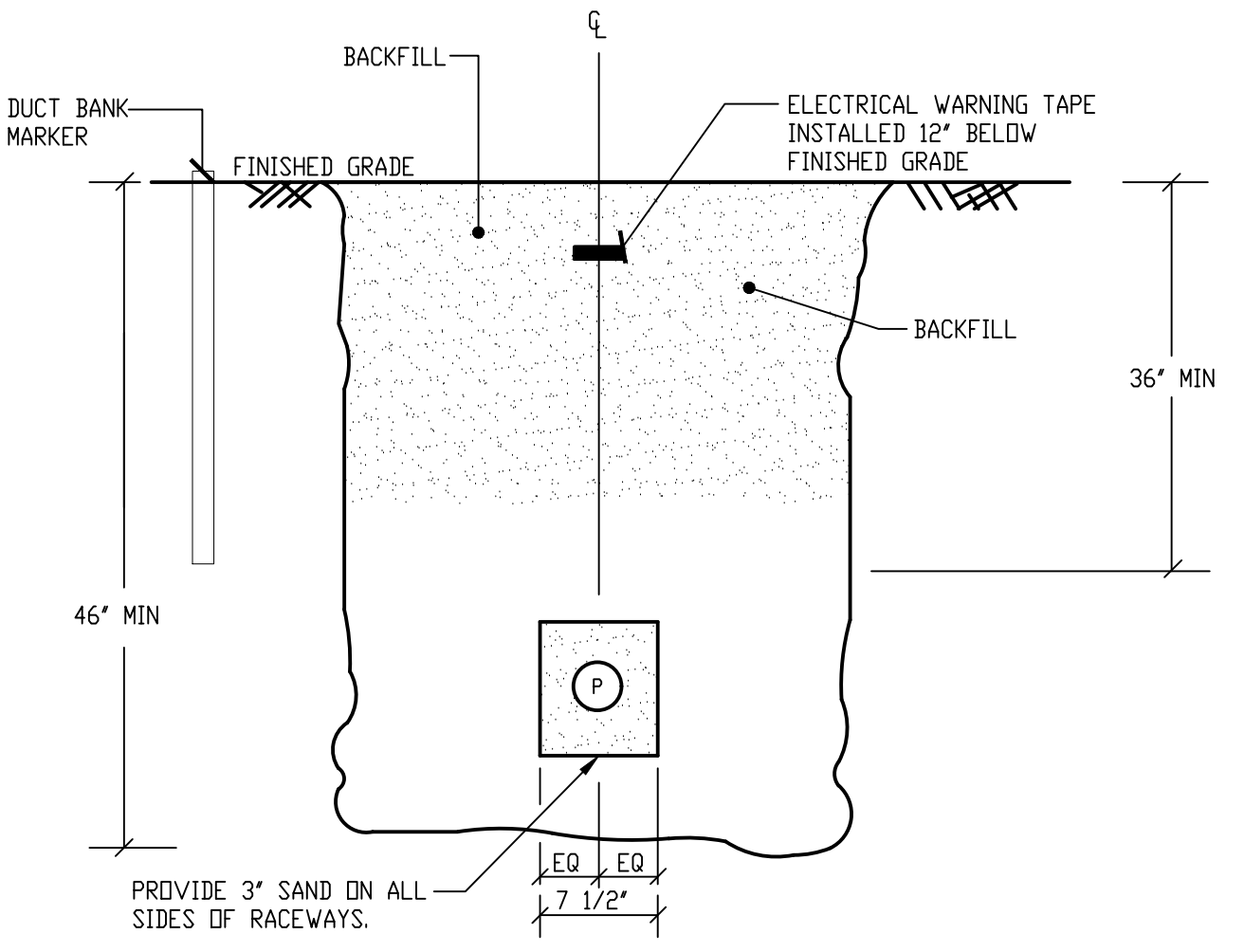
5 DUCT BANK SECTION E-E SCALE: NTS

- S 2" COMMUNICATIONS - HDPE



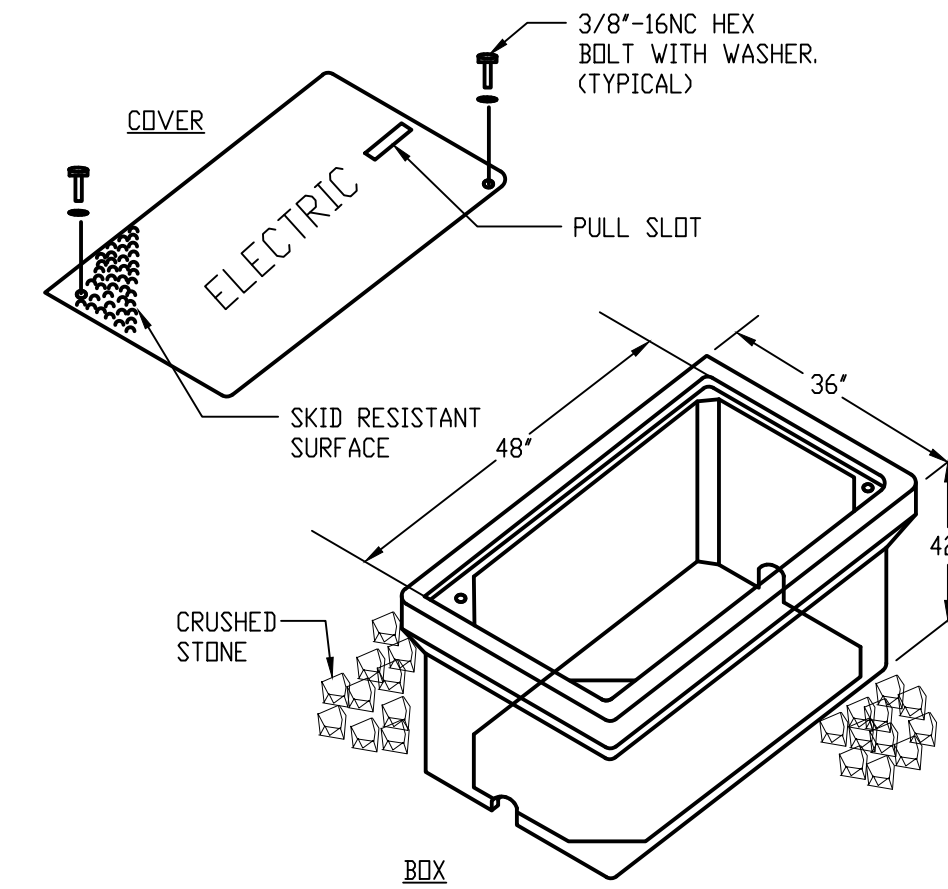
3 DUCT BANK SECTION C-C SCALE: NTS

- P 3/4" ELEC. - SCHED 40 PVC



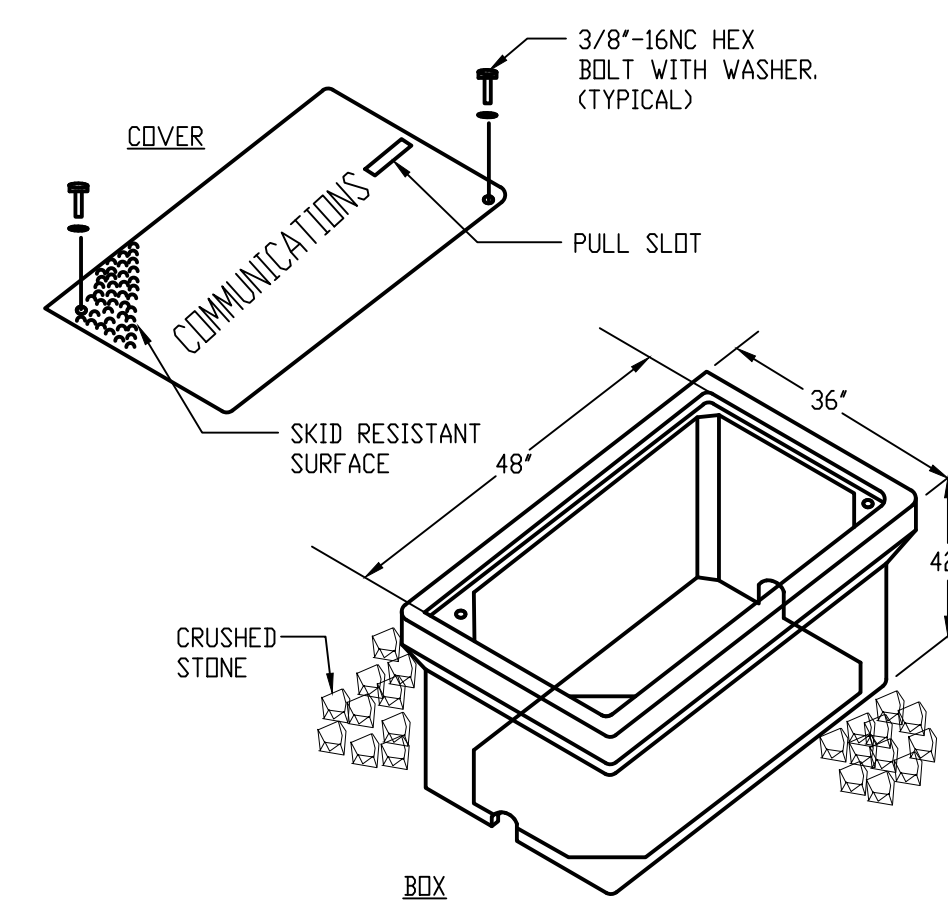
6 DUCT BANK SECTION F-F SCALE: NTS

- P 1-1/4" ELEC. - SCHED 40 PVC



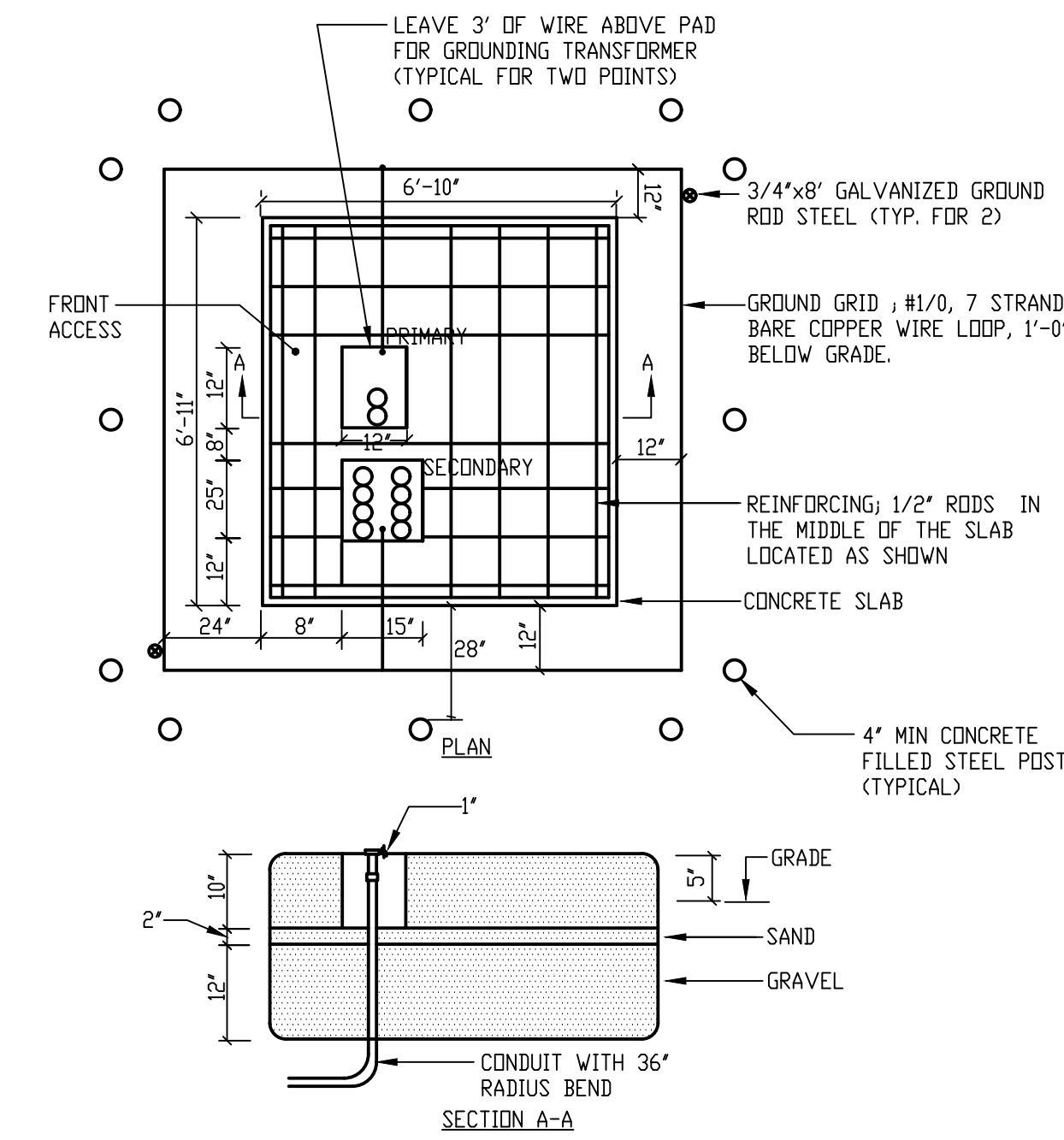
7 TYPICAL (ELECTRIC) HANDHOLE PULL BOX DETAIL SCALE: NTS

- NOTES:
- PHENIX PRECAST PRODUCTS 24"x36"x36" PULL BOX WITH HEAVY DUTY COVER CAT.#46665022 OR APPROVED EQUAL.
  - HANDHOLE BOX AND COVER SHALL BE FLUSH WITH SURROUNDING GRADE.
  - ENCLOSURES AND COVERS SHALL BE CONCRETE GRAY COLOR AND RATED FOR NO LESS THAN 8000 LBS. OVER A 10"x10" AREA AND BE DESIGNED AND TESTED TO TEMPERATURES OF -50° F.
  - MATERIAL COMPRESSIVE STRENGTH SHOULD BE NO LESS THAN 11,000 P.S.I.
  - COVERS SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.5.

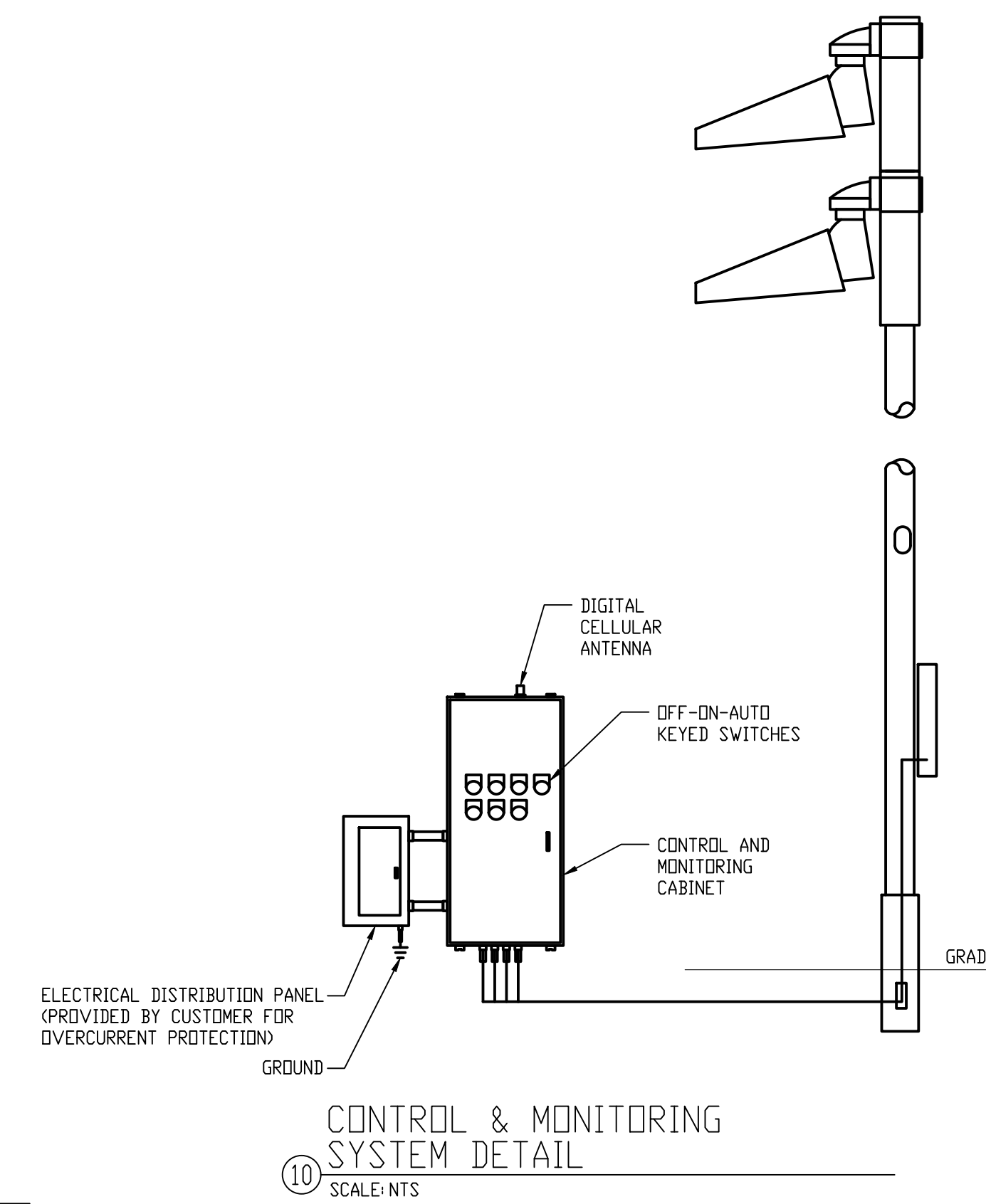


8 TYPICAL (COMMUNICATIONS) HANDHOLE PULL BOX DETAIL SCALE: NTS

- NOTES:
- PHENIX PRECAST PRODUCTS 24"x36"x36" PULL BOX WITH HEAVY DUTY COVER CAT.#46665022 OR APPROVED EQUAL.
  - HANDHOLE BOX AND COVER SHALL BE FLUSH WITH SURROUNDING GRADE.
  - ENCLOSURES AND COVERS SHALL BE CONCRETE GRAY COLOR AND RATED FOR NO LESS THAN 8000 LBS. OVER A 10"x10" AREA AND BE DESIGNED AND TESTED TO TEMPERATURES OF -50° F.
  - MATERIAL COMPRESSIVE STRENGTH SHOULD BE NO LESS THAN 11,000 P.S.I.
  - COVERS SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.5.



9 PADMOUNTED TRANSFORMER FOUNDATION DETAIL SCALE: NTS

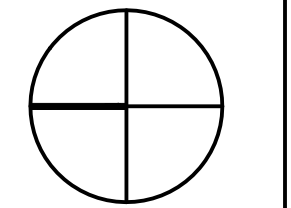


10 CONTROL & MONITORING SYSTEM DETAIL SCALE: NTS

05-22-26 Addendum 2

03-30-26 BID DOCUMENTS  
 DATE PROGRESS

REVISIONS



NORTH



STAMP

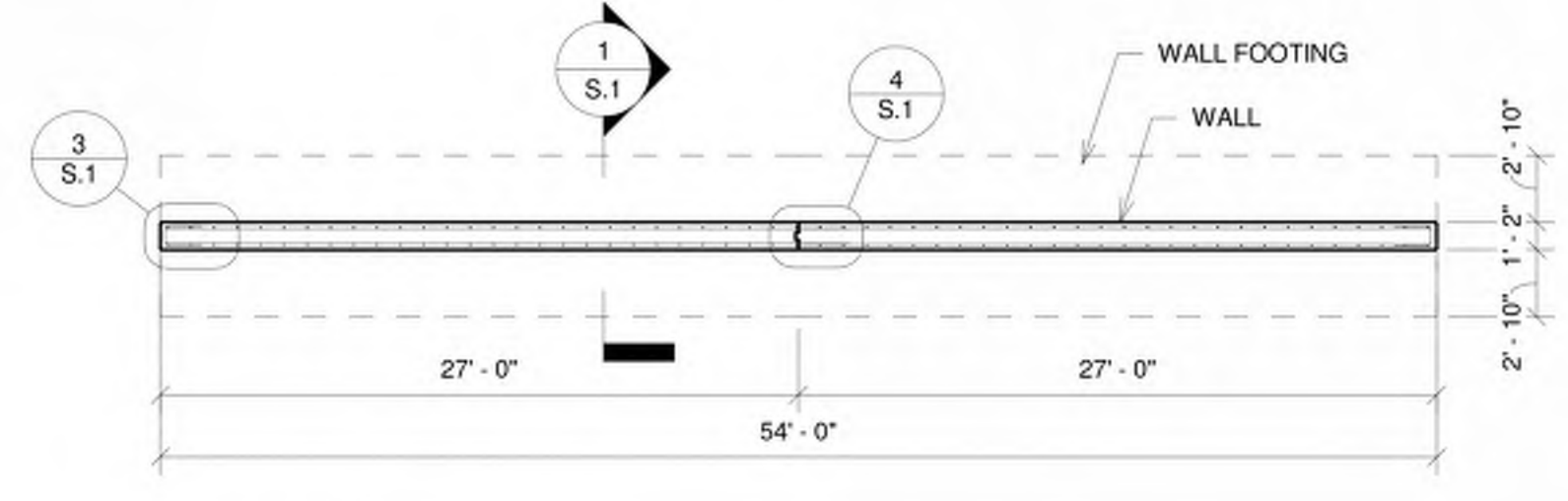
SOUTH WORCESTER PLAYGROUND IMPROVEMENTS PHASE III WORCESTER, MA  
 PROJECT

ELECTRICAL DETAILS

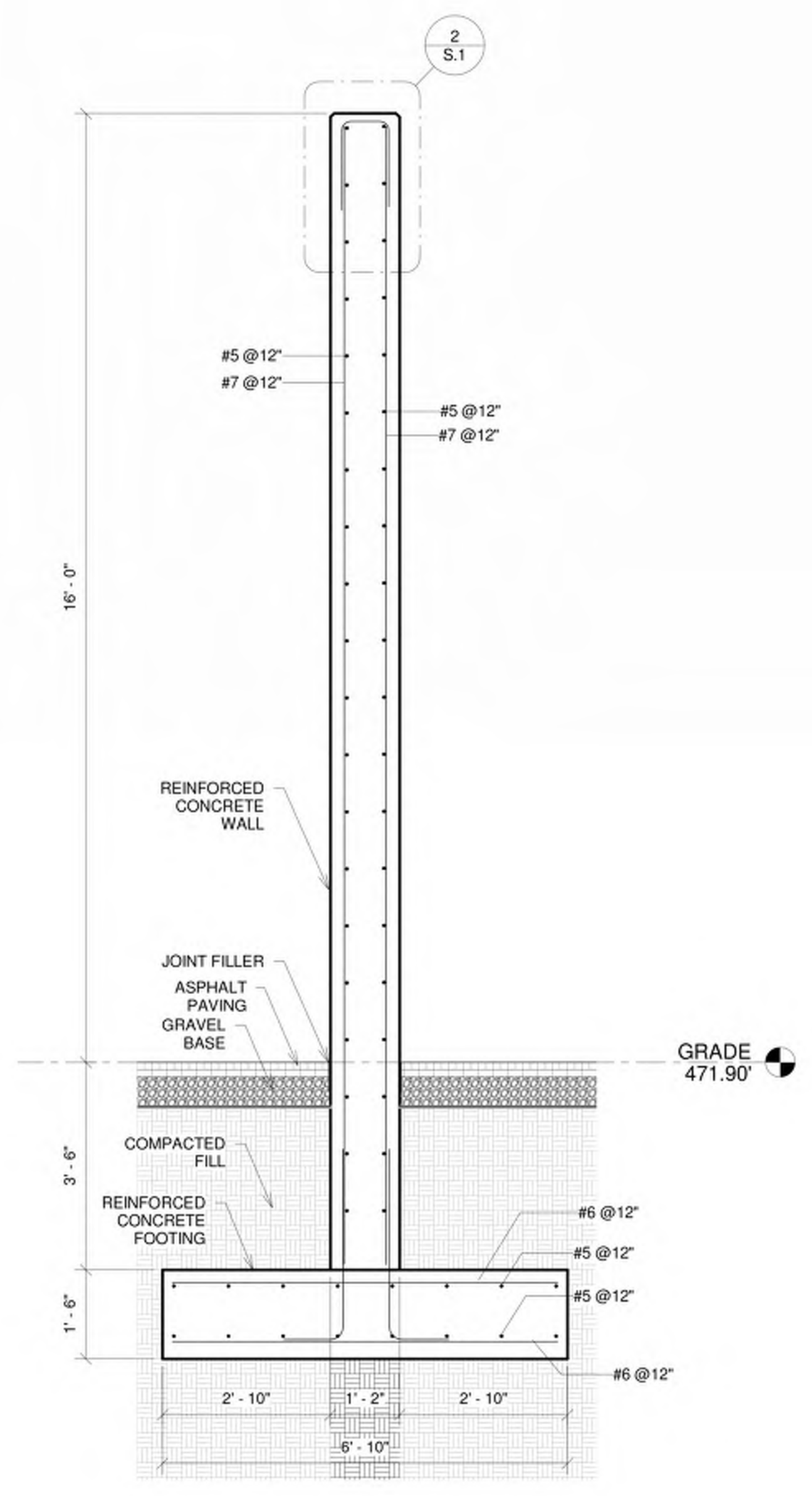
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DRAWN	MTG
CKD	JJM
SCALE	AS SHOWN

E-3

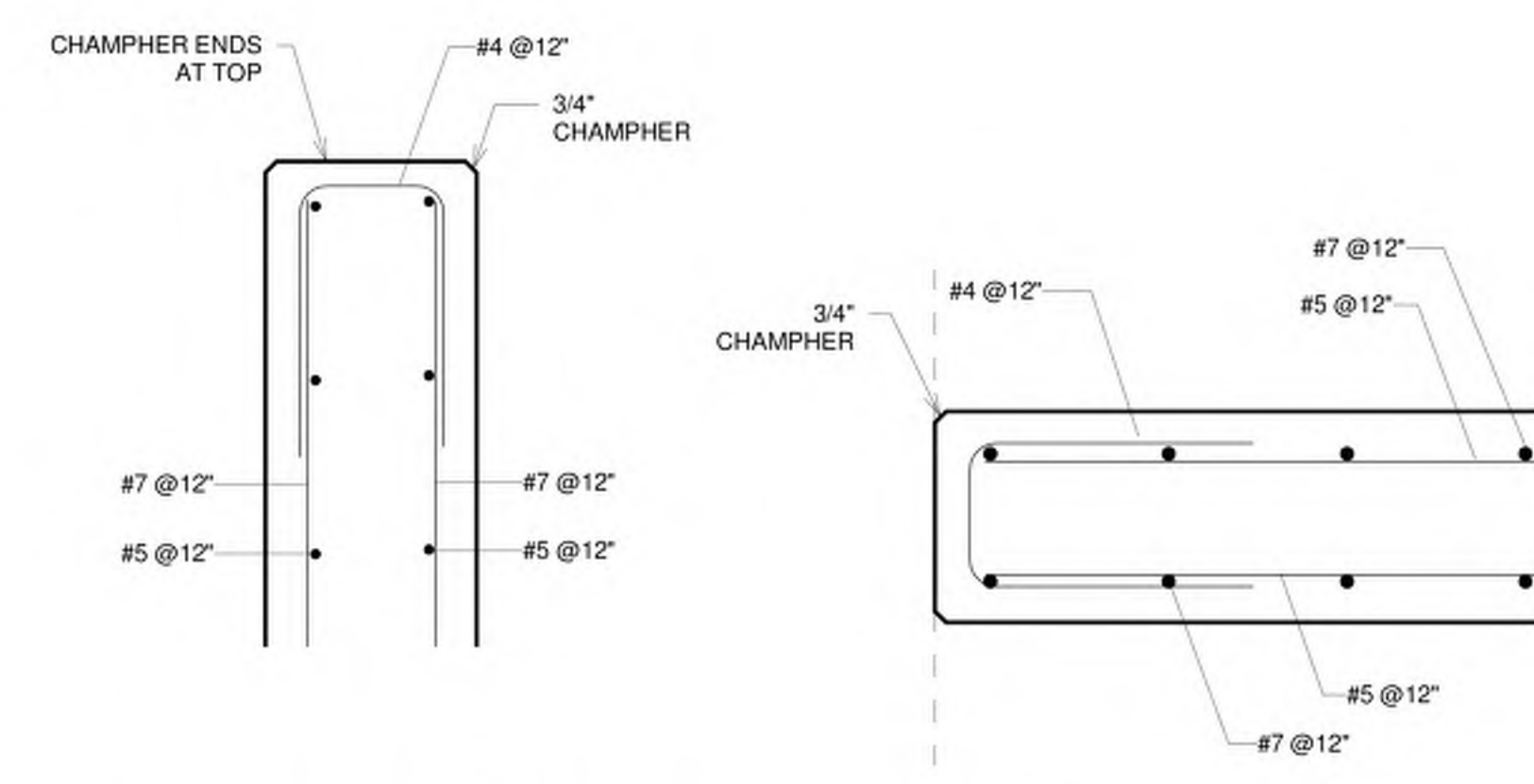
SHEET NO.



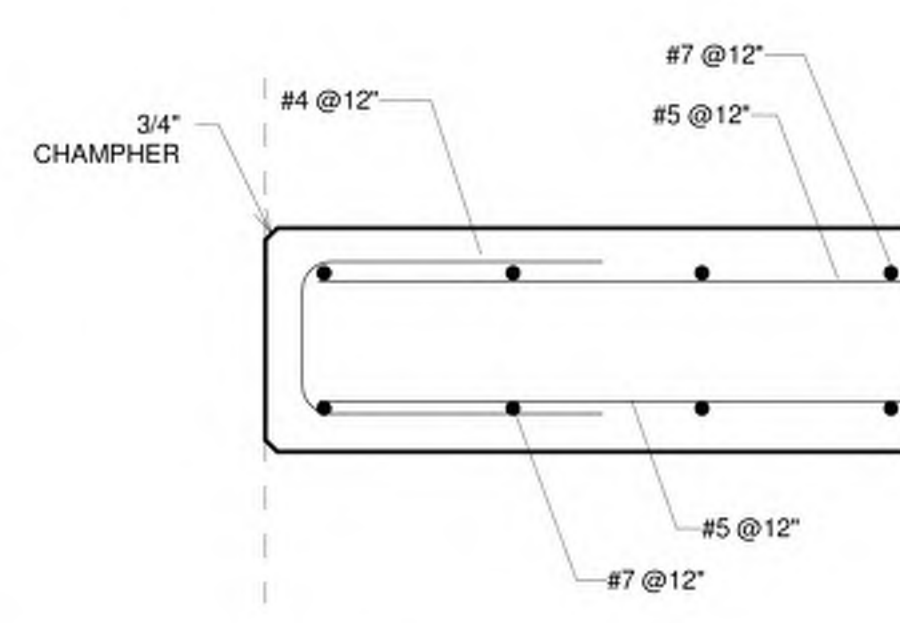
**A WALL LAYOUT PLAN**  
1/8" = 1'-0"



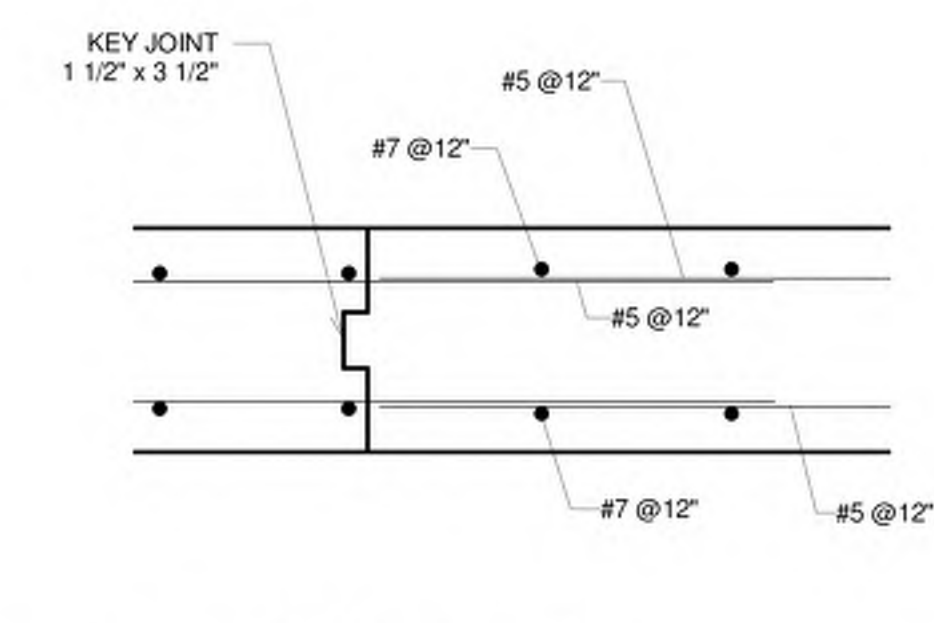
**1 HANDBALL COURT WALL SECTION**  
1/2" = 1'-0"



**2 HANDBALL COURT WALL SECTION TOP**  
1" = 1'-0"



**3 WALL ENDS**  
1" = 1'-0"



**4 WALL CONSTRUCTION JOINT**  
1" = 1'-0"

**01100 - GENERAL REQUIREMENTS**

- Drawing notes and specifications apply generally to all the work unless more specific information is shown elsewhere on the drawings or written in the specifications. In the event of conflicting instructions, the Architect shall determine what controls.
- Conform to The Massachusetts State Building Code, Ninth Edition and any amendments adopted by the local governing authority.
- Refer to the project manual for general contract requirements and specifications.
- Coordinate work with that shown on the architectural, site, and approved shop drawings.
- Grades and plan dimensions for existing work are approximate and for planning reference only. Contractor shall take field measurements of existing conditions, review discrepancies with the architect, and build to approved work points.
- Take dimensions to faces of walls.
- Coordinate dimensions shown on the contract drawings with fabrication drawings and field conditions and report any inconsistencies to the Architect before proceeding with work.
- Review, approve, and stamp shop drawing and product literature submittals to the Architect for review and approval.
- The structural design is based on the interaction of all the parts of the completed building. The Contractor shall solely bear the risk for providing adequate stability and safety of the structure during construction.
- Details shown on drawings are to be considered typical for all similar conditions.
- Submit for approval shop drawings, manufacturer's product literature, test reports, and certifications electronically in Adobe Acrobat format.

**01300 - DESIGN LOADS**

- Risk Category (IBC2015-1604.5) II  
In addition to self-weight, the structure is designed to carry the following:
  - Wind Load**  
Basic Wind Speed Risk Cat II (Vult) 124 mph  
Wind Exposure B  
Method: Part 2 Simplified Directional, Class 1
  - Earthquake Data**  
Seismic Importance Factor (Ie) 1.00  
Spectral Response (Ss) 0.180  
Spectral Response (S1) 0.066  
Site Class D  
Spectral Response Coef. (Sds) 0.192  
Spectral Response Coef. (Sd1) 0.106  
Seismic Design Category B  
Response Mode (R) 1.5  
Period (T) 0.276s  
Seismic Coefficient (Cs) 0.128

**01450 - STRUCTURAL TESTS AND SPECIAL INSPECTIONS**

- Structural work is subject to the testing and inspection provisions of Chapter 17 of the Code. The program of testing and inspection shall be prepared by the Structural Engineer of Record (SER) when documents are submitted for permit. The program of testing and inspections shall be carried out by an Independent Testing Agency (ITA) approved by the SER. The cost of the independent testing agency is borne by the Owner. The SER may choose to perform some inspections. The inspections and testing shall meet the standards referenced in the Code and comply with the contract documents and approved submittals.
- The testing and inspections shall include but is not limited to the following:
  - Soils.
    - Visually inspect soils under footings meets soil requirements in contract documents.
    - Test fill materials for gradation and soil constituent.
    - Test compaction of bearing fills.
  - Concrete.
    - Inspect reinforcing placement.
    - Inspect concrete placement, slump, segregation, and consolidation.
    - Prepare test cylinders and test compressive strength.

**02300 - CONSTRUCTION SAFEGUARDS**

- Provide a plan of action for the safe operations of the construction site. Include the storage of materials, construction egress, fire safety, public walkways, barricades, railings, barriers, and protections of the building and abutting property.

**02450 - EXCAVATION**

- Remove soft or organic materials under and adjacent to footings and slabs-on-grade.
- Slope sides or sheet, shore, or brace excavations to ensure stability.
- Drain excavations to remove water and place concrete in the dry.
- Elevations shown on the drawings are minimum required depths. Excavate deeper if needed to reach soil with specified bearing strength or increase footing size at the direction of the Architect/Engineer.

**02482 - FOUNDATIONS AND RETAINING WALLS**

- The Architect assumes no responsibility on the correctness of the subsurface conditions presented on the drawings and in boring or test pit reports. The data are intended for the preparation of bids and subsequent construction. They represent conditions only at those specific locations at the time they were made.
- The design assumes the following soil lateral pressures and bearing capacities (Tables IBC.1610.1 and IBC.1806.1) and the June, 27, 2022 Geotechnical Report by OHI Engineering, Inc.:
  - A. Active Pressure: 30 psf
  - B. At-Rest Pressure: 60 psf
  - C. Vertical Foundation Pressure: 4,000 psf
  - D. Lateral Bearing Pressure: 200 psf
  - E. Lateral Sliding Resistance coeff.: 0.35
- Carry footings down four inches into undisturbed soil having a minimum bearing capacity of 4,000 pounds per square foot.
- Do not excavate for footings below a line inclined down 30 degrees from nearby footings unless the excavation is adequately braced or approved by the Architect.
- Inform the Architect to inspect the completed excavations for acceptability of the soil before constructing concrete forms.
- Carry exterior foundations down at least 4 feet below exterior grade.
- Finish footing excavations with hand tools.
- Prevent soils supporting foundations from freezing. Remove any frozen soil and replace with concrete if under footings or with compacted granular fill if under slabs-on-grade.
- Prepare subgrade by proof rolling with fully loaded gravel trucks or mechanical compactors. Choke fine sand on site with 12 inches of crushed stone.
- Backfill under footings and under Base Course Fill with an approved Select Granular fill placed in 12-inch layers.
- Backfill beside foundation walls with an approved Clean Granular Fill placed in 12-inch layers.
- Compact each layer to 95% maximum density at optimum water content with at least four (4) passes of a vibratory roller, multiple-wheel pneumatic-tired roller or other approved compaction equipment. Inform the Architect before starting for inspection of backfill operations. Approved clean excavated materials meeting the specifications may be used for backfill.
- Gravel Fill Gradation Specifications**  
MHD M1.03.0 Type B  
Percent Passing by Weight  

Sieve Size	Gravel	Fill
3"	100	
1 1/2"	50-85	
No. 4	40-75	
No. 50	5-28	
No. 100	0-8	
- Crushed Stone Gradation Specifications**  
MHD M2.01.4  
Percent Passing by Weight  

Sieve Size	Gravel	Fill
1"	100	
3/4"	90-100	
1/2"	10-50	
3/8"	0-20	
No. 4	0-5	
- Below ground water level, provide (1) 12-inches of crushed stone base under basement slabs-on-grade and footings and (2) a perimeter perforated drain pipe in a bed of crushed stone covered with a filter fabric.

**03100 - FORMWORK**

- Concrete surfaces exposed to view in final construction shall be formed with new high density plastic overfield Grade A Douglas Fir Plywood not less than 5/8" thick.
- Form ties for use at exposed walls shall have 1-1/2" outside diameter wood or plastic cones 1-1/2" deep, and 1" from interior surfaces.
- Forms shall be coated before initial pour and between subsequent pours with form release.
- Design of formwork shall comply with ACI 347, and wind loads as specified by the State Building Code.
- Formwork shall be constructed plumb, true, water and mortar tight, sufficiently rigid and strong to prevent sagging between supports and to maintain true position and shape during and after placing concrete, without waves or bulges.
- Temporary openings shall be provided at the base of wall forms and at other points where necessary to facilitate cleaning and observations immediately before concrete is deposited.
- Use side forms at footings not cast directly against existing foundations.
- Form reglet joints in concrete where indicated.
- All forms shall be thoroughly cleaned before reuse. Replace portions of plywood forms which become damaged or otherwise present an unacceptable surface.
- Notify Architect 24 hours before placing footing forms for examination of bearing materials.
- Construct forms for sample panels as indicated or directed by the Architect using all materials and techniques as they will be used in actual construction.
- Contractor shall be solely responsible for safety of construction during and after form removal, and no act of Architect shall relieve him of this responsibility.
- Formwork for walls, sides of beams and slabs, and other parts not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations.
- Exercise care in form removal to prevent chipping of corners or other damage to concrete.

**03200 - REINFORCING STEEL**

- Conform to the Manual of Standard Practice for Detailing Reinforced Concrete Structures, ACI 315; the Standard Specification for Structural Concrete in Buildings, ACI 301; and the Building Code Requirements for Reinforced Concrete, ACI 318.
- Submit shop drawings for concrete work to the Architect for approval prior to fabrication.
- Provide reinforcing steel meeting the standards of ASTM A615 Grade 60.
- [All reinforcing steel to be hot dipped galvanized meeting ASTM A767.]
- Run reinforcing bars continuously. Lap at cold construction joints. Stagger splices wherever possible.
- Provide dowels in foundations for each supported vertical reinforcement bar.
- Provide and schedule on shop drawings accessories to hold reinforcing in position. Space high chairs shall not more than 4'-0" apart, wire to bottom reinforcing. Provide # 5 support bars on high chairs. Space slab bolsters no more than 3'-0" apart.
- Clearance of main reinforcing bars from adjacent concrete surfaces shall be:
 

Structural Element and Condition	Cover
Concrete cast against and permanently exposed to earth	3"
Concrete exposed to earth or weather	2"
#6 through #18 bars	1 1/2"
#5 bar, W31 or D31 wire or smaller	
- Place temperature bars perpendicular to all main reinforcing bars and lap 36 bar diameters. Place temperature bars in upper layer for bottom steel and in lower layer for top steel.
- Do not cut or displace reinforcing steel to accommodate the installation of embedded items without the approval of the Architect.

**03300 - CONCRETE**

- Comply with the latest edition of the Standard Specification for Structural Concrete in Buildings, ACI 301, and the Building Code Requirements for Reinforced Concrete, ACI 318.
- Submit product literature on concrete materials, design mixes, embedments, grout, fasteners, chemical treatments, and additives.
- Center footings under supported members unless shown otherwise.
- Brace retaining walls during backfilling and tamping operations. Leave bracing in position until permanent restraints are installed.
- Install only steel, cast iron pipe, or PVC pipe sleeves in concrete slabs, beams, and walls.
- Proportioned, mix and place concrete under the supervision of an approved concrete control engineer.
- Provide normal weight 3/4" stone concrete with 28-day compressive strengths for the following uses:
 

Use	psi
(Exposure classes and categories)	
Lean concrete mud mat	2000
Footings and interior slabs	4000
on grade (F0, W1, & C1)	
Foundation and retaining walls	4000
(F2, W1, & C1)	
Concrete freezing while moist	4500
walls and slabs. (F2, W1, & C1)	
- Refer to Table 19.3.1.1 for exposure classes and categories.
- Meet Table 19.3.2.1 - Requirements for concrete by exposure class to proportion water cement ratios, minimum 28 day strength, air content, Cementitious materials, and chloride content.
- Provide 6% air entrained concrete exposed to earth or weather.
- Wet cure walls for 7 continuous days.
- Do not omit, relocate, or add construction joints unless approved by the Engineer.
- Exercise care in form removal to prevent chipping of corners or other damage to concrete.
- Provide keyed construction joints no greater than 40 feet apart in walls. Apply approved adhesive to previous pour equivalent to neat Portland cement paste.
- Provide reinforcing steel in for walls as follows: Provide dowels to footings to match vertical bars.
- Provide 3/8" thick Asphalt Expansion Joint filler at all grade paving to wall edges against concrete walls equal to W.R. Meadows Asphalt Expansion Joint.
- Leave shoring in place until concrete has attained 75% of its 28-day strength.
- Notify the Architect at least 24 hours in advance of pouring concrete for inspection of reinforcing steel placement. Cast no concrete until the inspection has been made or waived by the Architect.
- Place all form ties in a symmetrical uniform grid. Submit layout to Architect for approval.
- All vertical and horizontal corners shall be chamfered 3/4".
- Place concrete in continuous lifts a maximum of four feet high thoroughly vibrating the mix to eliminate voids. Place all concrete in a single day between vertical construction joints.
- Upon stripping forms, fill all tie cone holes with mortar mixed with sand to blend well with the concrete. Trowel filled holes flat and in plane with the face of concrete.
- Patch any voids with same mortar mix and trowel flat and in plane to wall.
- Use rubbing stones to grind any excess concrete such as form joint fins and void patches.
- The intent is to produce a truly flat wall with a smooth surface with no irregularities that would affect handball rebound.



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**BID DOCUMENTS**

NO	DATE	REVISION
	5/23/2023	



PLAN NORTH  
PROJECT **SOUTH WORCESTER PLAYGROUND HANDBALL COURT WALL**  
47 Camp St., Worcester, MA 01603

DRAWING TITLE	
JOB NO:	2022.08
DATE	05/23/23
DRAWN	AHM
CKD	AHM
SCALE	As indicated
SHEET NO.	