



LAKE HAVASU CITY, ARIZONA
ADMINISTRATIVE SERVICES DEPARTMENT
◆ PROCUREMENT ◆

INVITATION TO BID
RUNWAY LIGHTS AND SIGNS IMPROVEMENT PROJECT
PROJECT NO. B25-PW-ARP-104015-500657
ADDENDUM NO. 4
APRIL 25, 2025

Attention is called to the following changes, additions, clarifications and/or deletions to the original solicitation, and they shall be considered in preparing submissions:

There is no change in the opening date. **Submissions are due no later than 3:00 p.m., Arizona Time, April 30, 2025**, at the City Clerk's Office, 2330 McCulloch Blvd. N., Lake Havasu City, AZ 86403 or electronically via DemandStar.

The following questions were received from bidders. The answers are provided herein by the OWNER:

Question 1: can you provide the spec sections for the P-610 Concrete for Miscellaneous Structures referenced in other specifications.

Answer 1: The Specification for P-610 Concrete for Miscellaneous Structures – is attached as Attachment D. Please note that due to the small amount of concrete on the project, concrete meeting MAG or ADOT specifications for structures with minimum 25% Type F fly ash, and a minimum compressive strength of 4,000 psi (28 MPa) may be used.

Question 2: can you provide the spec sections for P-153 Controlled Low-Strength Material (CLSM) referenced in other specifications.

Answer 2: P-153 Controlled Low-Strength Material (CLSM) is not to be used on this project. We are revising the documents to replace Slurry Encased to "Direct Buried" Conduit. See instructions below.

Question 3: When does the owner anticipate receiving funding for this project?

Answer 3: We do not know when the grant will be issued. However please note (as stipulated in the contract documents) that the contract will be awarded within 120 calendar days of the bid opening date. Refer to Section 30 Award and Execution of Contract.

This clarification will also be added to the Contract Documents and Technical Specifications as provided herein by the OWNER:

1. At the end of the Contract Documents and Technical Specifications after the last page insert the Specification for P-610 Concrete for Miscellaneous Structures, here enclosed as **Attachment D**.
2. On page 20, Bid Schedule, Item 17 – SINGLE-WAY, (1) - 2" CONDUIT, SLURRY ENCASED WITH COUNTERPOISE cross out ~~Slurry Encased~~ and write in "Direct Buried".
3. On page 286, Basis of Payment, 110-5.1 PAYMENT, Item L-110-5.1 Single-way, (1) - 2" Conduit, Slurry Encased with Counterpoise – per Linear Foot – cross out ~~Slurry Encased~~ and write in "Direct Buried".

This clarification will also be added to the Plans provided herein by the OWNER:

4. Replace the DUCTBANK DETAILS sheet EA-401 (26 of 31) of the Plans, with the revised DUCTBANK DETAILS sheet enclosed as **Attachment E**.

Andrew Klos, CPPB
Senior Procurement Specialist

Attachment D
Addendum 4

Item P-610 Concrete for Miscellaneous Structures

For small projects less than 20 cubic yards (15 m³), concrete meeting MAG or ADOT specifications for structures with minimum 25% Type F fly ash, and a minimum compressive strength of 4,000 psi (28 MPa) may be used.

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

| Maximum Aggregate Size | ASTM C33, Table 3 Grading Requirements (Size No.) |
|------------------------|---|
| 1 1/2 inch (37.5 mm) | 467 or 4 and 67 |
| 1 inch (25 mm) | 57 |
| 3/4 inch (19 mm) | 67 |
| 1/2 inch (12.5 mm) | 7 |

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified in Item P-501.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 - Type I, IA, II, IIA, III, IIIA; V.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from

the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Not used.

610-2.11 Materials for curing concrete. Curing materials shall conform to White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B in accordance with ASTM C309.

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard (280 kg per cubic meter). The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F (4°C), follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85°F (30 °C), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 No separate measurement will be made for structural concrete.

BASIS OF PAYMENT

610-6.1 No separate payment will be made for structural concrete, the cost of which shall be considered incidental to other items of work.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

| | |
|------------|--|
| ASTM A184 | Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement |
| ASTM A615 | Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement |
| ASTM A704 | Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement |
| ASTM A706 | Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement |
| ASTM A775 | Standard Specification for Epoxy-Coated Steel Reinforcing Bars |
| ASTM A884 | Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement |
| ASTM A934 | Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars |
| ASTM A1064 | Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete |
| ASTM C31 | Standard Practice for Making and Curing Concrete Test Specimens in the Field |

| | |
|-------------------|--|
| ASTM C33 | Standard Specification for Concrete Aggregates |
| ASTM C39 | Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens |
| ASTM C94 | Standard Specification for Ready-Mixed Concrete |
| ASTM C136 | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates |
| ASTM C114 | Standard Test Methods for Chemical Analysis of Hydraulic Cement |
| ASTM C136 | Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates |
| ASTM C143 | Standard Test Method for Slump of Hydraulic-Cement Concrete |
| ASTM C150 | Standard Specification for Portland Cement |
| ASTM C171 | Standard Specification for Sheet Materials for Curing Concrete |
| ASTM C172 | Standard Practice for Sampling Freshly Mixed Concrete |
| ASTM C231 | Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method |
| ASTM C260 | Standard Specification for Air-Entraining Admixtures for Concrete |
| ASTM C309 | Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete |
| ASTM C311 | Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete |
| ASTM C494 | Standard Specification for Chemical Admixtures for Concrete |
| ASTM C618 | Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete |
| ASTM C666 | Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing |
| ASTM C685 | Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing |
| ASTM C989 | Standard Specification for Slag Cement for Use in Concrete and Mortars |
| ASTM C1017 | Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete |
| ASTM C1077 | Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation |
| ASTM C1157 | Standard Performance Specification for Hydraulic Cement |
| ASTM C1260 | Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) |
| <u>ASTM C1365</u> | <u>Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis</u> |

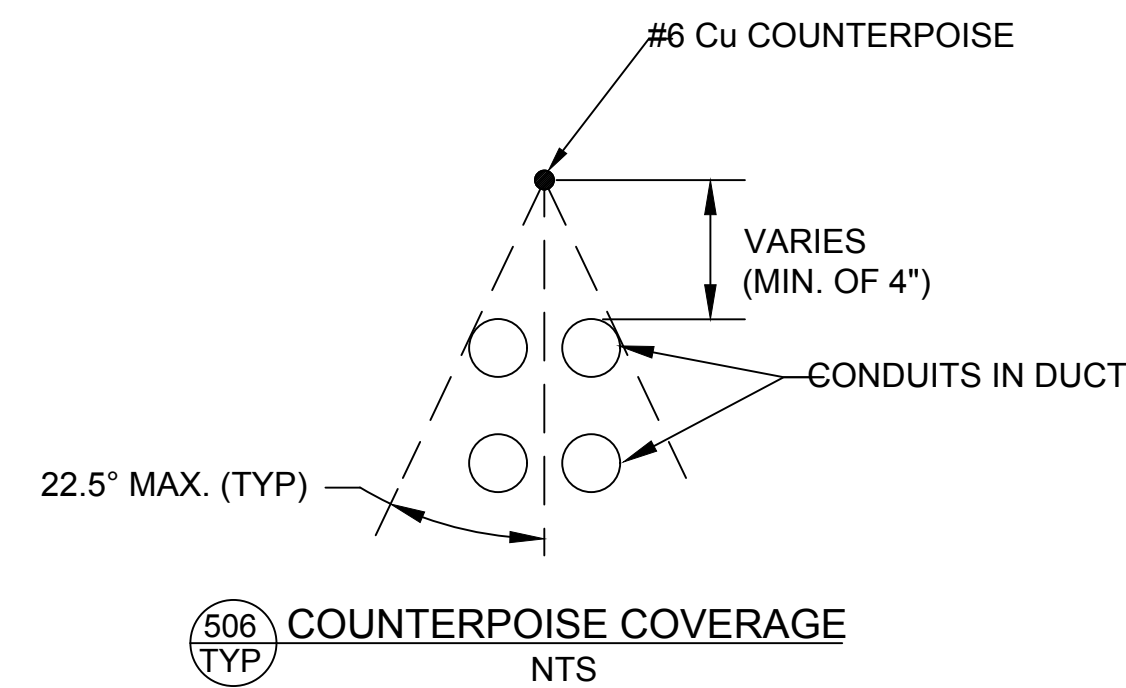
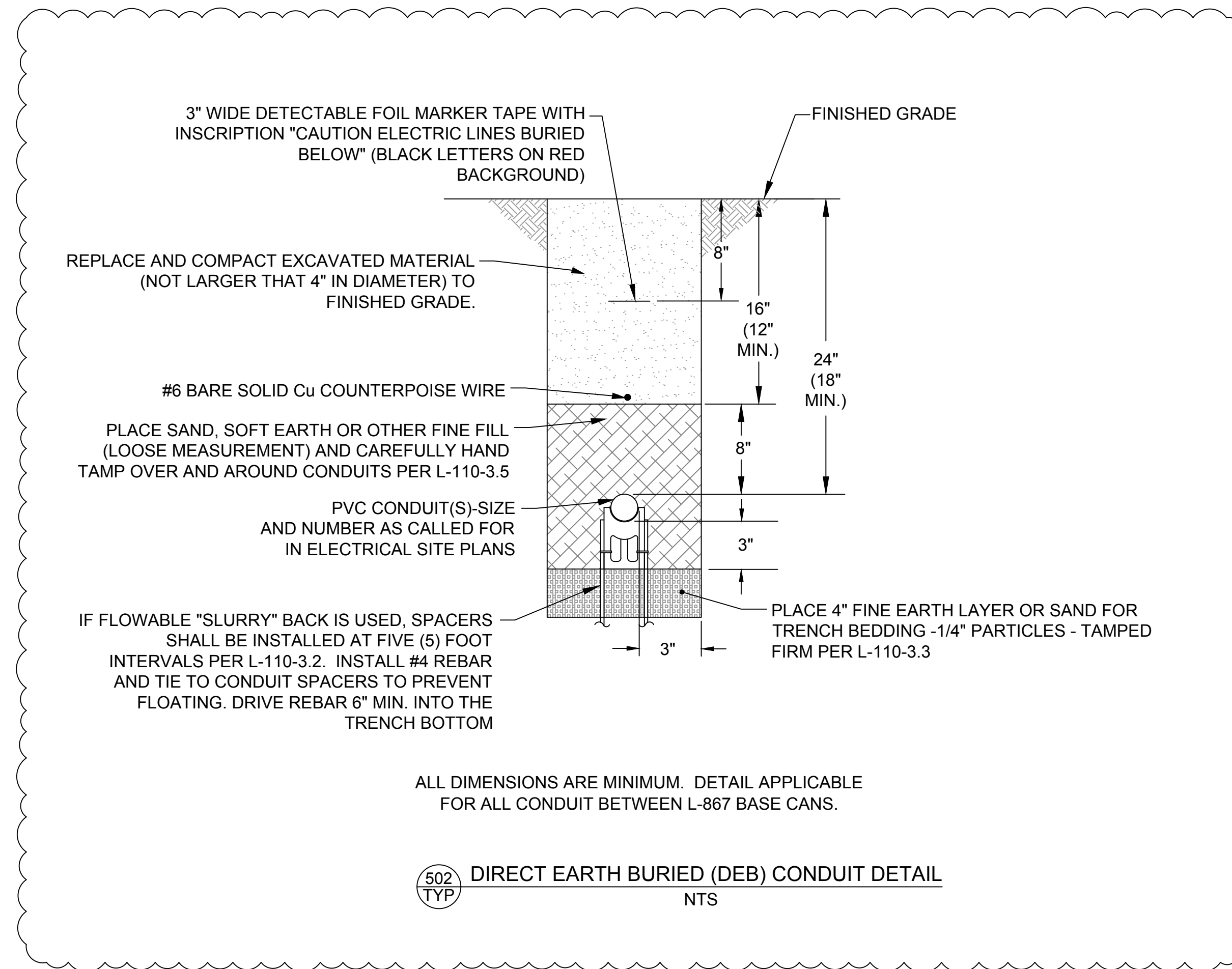
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| ASTM C1602 | Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete |
| ASTM D1751 | Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types) |
| ASTM D1752 | Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction |

American Concrete Institute (ACI)

| | |
|----------|--------------------------------------|
| ACI 305R | Hot Weather Concreting |
| ACI 306R | Cold Weather Concreting |
| ACI 308R | Guide to External Curing of Concrete |
| ACI 309R | Guide for Consolidation of Concrete |

END OF ITEM P-610

Attachment E
EA-401 Revised 4/23/2025



- ADJUST COUNTERPOISE OFFSET ABOVE CONDUIT/DUCT (MIN. OF 4") TO PROVIDE A CONE OF PROTECTION (MAX. OF 22.5" EACH SIDE OF VERTICAL) ABOVE ALL CONDUITS.

GENERAL NOTES FOR CONDUIT INSTALLATION

- PROVIDE PULL STRING IN ALL (NEW) UNUSED CONDUITS. PLUG ENDS IN HANDHOLES AND JUNCTION CANS (NPI).
- INSTALL A #6 BARE SOLID COPPER (Cu) COUNTERPOISE ABOVE EACH DUCT ASSEMBLY FROM HANDHOLE-TO-HANDHOLE AND EXOTHERMICALLY WELD TO GROUND RODS AT EACH HANDHOLE/JUNCTION CAN.
- INSTALL LIGHTING SERIES CIRCUITS AS FOLLOWS:
 - ONE CIRCUIT (1 OR 2 CONDUCTORS) PER 2°C. LIMIT 4°C TO NO MORE THAN (8) CONDUCTORS.
 - START INSTALLATION IN BOTTOM CONDUITS OF DUCT ARRAY, LEAVING THE UPPER CONDUITS EMPTY.
- ALL UNDERGROUND CONDUITS SHALL MAINTAIN A 12" (MIN.) SEPARATION FROM ALL OTHER (EXISTING OR NEW) UNDERGROUND FACILITIES (I.E. WATER, SEWER, AND GAS LINES, INCLUDING BOTH PUBLIC AND PRIVATE), UNLESS NOTED OTHERWISE ON DRAWINGS
- CONDUIT IN DUCTBANK(S) ARE TO BE STACKED NO MORE THAN FOUR (4) CONDUITS. IF MORE CONDUITS ARE NEEDED, THE WIDTH OF THE TRENCH IS TO BE INCREASED
- CONDUIT IN DUCTBANK(S) ARE TO BE STACKED NO MORE THAN FOUR (4) CONDUITS. IF MORE CONDUITS ARE NEEDED, THE WIDTH OF THE TRENCH IS TO BE INCREASED.
- ADJUST DEPTH TO 18-24" TOTAL FOR CONDUIT INSTALLATION BETWEEN OR INTO L-867/868 BASE CAN. INSTALL COUNTERPOISE AT 12" BELOW GRADE FOR THESE SECTIONS



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**RUNWAY LIGHTS AND SIGNS
IMPROVEMENT PROJECT**

**LAKE HAVASU CITY MUNICIPAL AIRPORT
LAKE HAVASU CITY, ARIZONA**

| MARK | DATE | DESCRIPTION |
|-----------------------|---------|--------------------------|
| △ | 4/23/25 | Addendum 4, Attachment D |
| REVISIONS | | |
| PROJECT NO: K33004009 | | |
| DATE: MARCH 2025 | | |
| DRAWN BY: JBW | | |
| DESIGNED BY: SW | | |
| CHECKED BY: CA | | |

**DUCTBANK
DETAILS**

EA-401
26 of 31

Apr 23, 2025 - 2:31pm
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