

# **TECHNICAL SPECIFICATIONS**

This project shall be built in accordance with the City of Alamogordo “Specifications,” and “Special Provisions to the Contract Documents.”

The Contract Documents will govern in the following order of importance:

1. City of Alamogordo Front End Documents
2. City of Alamogordo Specifications
3. Project Plan Drawings

**CITY OF ALAMOGORDO**  
**SPECIFICATION STANDARDS**

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## **Section 01 00 00    GENERAL REQUIREMENTS**

### **1.0    DEFINITIONS AND TERMS**

#### Abbreviations

AASHTO ..	American Association of State Highway and Transportation Officials
ACI .....	American Concrete Institute
AGC .....	Associated General Contractors of America, Inc.
ANSI ....	American National Standards Institute
APWA ....	American Public Works Association
ASCE ....	American Society of Civil Engineers
ASME ....	American Society of Mechanical Engineers
ASTM ....	American Society for Testing and Materials
AWWA ....	American Water Works Association
BM .....	Bench Mark
FH .....	Fire Hydrant
G .....	Gas Line
ID .....	Inside Diameter
Inv. ....	Invert
MH .....	Manhole
mg/l ....	Milligrams per Liter
MUTCD	Manual on Uniform Traffic Control Devices
NEMA ....	National Electrical Manufacturers Association
NFPA ....	National Fire Protection Association
NMDOT ..	New Mexico Department of Transportation
NMSA ....	New Mexico Statutes Annotated--1978 Compilation as Amended
OHP .....	Overhead Power
OHP&T ...	Overhead Power & Telephone
OHT .....	Overhead Telephone
OSHA.....	Occupational Safety and Health Association
PC .....	Point of Curvature

ppm .....	Parts per Million
PRC .....	Point of Reverse Curvature
psf .....	Pounds per Square Foot
psi .....	Pounds per Square Inch
PT .....	Point of Tangency
PVC .....	Polyvinyl chloride Pipe
Pvmt. ...	Pavement
Q .....	Rate of Flow
RCP .....	Reinforced Concrete Pipe
SCCP ....	Steel Cylinder Concrete Pipe
Sec .....	Section
Sta. ....	Station
Std. ....	Standard
UGT .....	Underground Telephone
UL .....	Underwriters' Laboratories, Inc.
V .....	Velocity

### Definitions

Alley – A minor public way intended for secondary service access to the rear side of a lot or piece of property.

City - The City of Alamogordo and all assigned representatives.

City Engineer – The City of Alamogordo’s Engineer.

Contract Documents - The written AGREEMENT between the CONTRACTOR and the OWNER setting forth the obligations of the parties thereunder, including but not limited to the performance of the Work and the Basis of Payment. The Contract Documents include: the Advertisement for Bids, Addenda (whether issued prior to the opening of Bids or the execution of the Agreement), Instructions to BIDDERS, CONTRACTOR's Bid, the Performance Bonds and Labor and Payment Bond (for both CONTRACTOR and SUBCONTRACTOR, if applicable to SUBCONTRACTOR), the Certificate of Insurance, the Statement of BIDDER’s Qualifications, the Campaign Contribution Disclosure Form, the Notice of Award, the Notice to Proceed, these General Conditions, the Contract Specifications, any Special Conditions, any referenced Specifications or Standards, Drawings and Plans, and all Modifications to the above, including Change Orders and extensions of Contract Time, all of which constitute one instrument.

CONTRACTOR - The person, firm, or corporation with whom an owner has executed the AGREEMENT.

Cul-De-Sac – A local street with only one (1) outlet having an appropriate terminus for the safe and convenient reversal of traffic movement.

Drawings or Plans - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by an ENGINEER.

Driveway, Private – A vehicular way not serving more than one (1) lot or parcel of land.

Driveway, Common – A vehicular way serving more than one (1) lot or parcel of land.

ENGINEER - The person or firm designated by an owner, who is responsible for providing engineering services.

Easement, Private – A right-of-use granted for the limited use of private land owners and where general use and maintenance of such area is governed by an agreement which runs with the land. This easement is serviceable only by mutual consent of all of the parties that benefit from the Easement.

Easement, Public – An easement dedicated for use by the public, which is included within the dimensions or areas of lots or parcels of land.

Field Order - A written order issued by an ENGINEER or Public Works Inspector which clarifies or interprets the Plans and Specifications.

Frontage Road – Used to relieve Major Arterial streets of side traffic.

Grade – The slope of any surface specified in percentage terms or in terms of elevation.

Grading – Any disturbance of the surface of the land with earth moving equipment.

Intersection – the location where two (2) or more streets cross at grade.

Median – A strip that separates the opposing flows of traffic on a street.

OWNER – The City of Alamogordo's representatives.

Pedestrian Way – A specifically designated place, means, or way by which pedestrians shall be provided safe, adequate and usable circulation; normally provides access through the interior of a property or development. Does not include street or vehicular easement or right-of-way or required sidewalk along a street or vehicular way.

Property Line – The line(s) of record bounding a lot or other parcel of land.

Project - The entire construction to be performed as provided in the Plans and Specifications.

Project Manager – The OWNER'S representative who is delegated the responsibility for administration of the Project and who is the primary point of contact for the CONTRACTOR.

Public Works Inspector – Inspector representing the City of Alamogordo responsible for inspection of all Work done and all materials furnished. He is authorized to call to the attention of the CONTRACTOR any failure of the Work or materials to conform to the City's Standards, Plans and Specifications. He shall have the authority to reject materials or suspend Work until any questions at issue can be resolved.

Reference Specifications, Test Methods, and Applicable Codes - All Standard Specifications and test methods of any society, association, or organization, referred to herein, are hereby made a part of these Technical Standards the same as if written in full. (Any reference to a paragraph or subparagraph within an article shall include all general provisions of the article to which reference is made.) References to such Standards refer to the latest published issues as of the date of the development or Project is approved, unless otherwise specified. Reference to local or state codes and laws shall mean the latest adopted and published codes as of the date of the development or Project is approved, unless otherwise specified.

Service Connections - Service Connections shall be construed to mean all or any portion of the pipe, conduit, cable, or duct which connects a utility main or distribution line to a building, home, residence, or property.

Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by CONTRACTOR, a Subcontractor, manufacturer, Supplier, or distributor which have been approved by OWNER and/or the City Engineer and which illustrate the equipment, material, or some portion of the Work.

Special Conditions - Conditions which modify any article or paragraph of these Technical Standards.

Specifications (also Technical Specifications) - A written technical description of materials, equipment, construction systems, standards and workmanship as applied to the Work.

Street – A right-of-way dedicated to the use of the public by which vehicles and pedestrians shall have lawful and usable ingress and egress, which has been accepted for maintenance and control by the City, County or State. See Section 3 of the Detail Drawings for street classifications.

Street, Stub – A street that has been designed to allow for the future extension of the street through subsequent developments.

Subcontractor - An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site, and who has a current City of Alamogordo Business Registration.

Utility - Overhead or underground wires, pipes, conduits, ducts, or structures, operated and maintained in or across a public right-of-way or easement or private easement operated and maintained to supply such commodities as water, gas, power, telephone, cable television, or sewer.

A. Public Utility - Owned and operated by a municipality or another political subdivision of the state.

B. Private Utility - Owned and operated by a private company or corporation.

Work - Any and all obligations, duties, and responsibilities necessary to the successful completion of the Project assigned to or undertaken by CONTRACTOR, including all labor, materials, equipment, incidentals, and the furnishing and installation thereof.

## 1.1 DESCRIPTION

2 The work will consist of but is not limited to, the construction of two outdoor post-tension basketball courts (42'x84' each), basketball court color surface and striping, basketball goals and asphalt pavement transition patch. The size of the post-tension concrete slab shall be 52'x188' and appurtenances, as specified and/or shown on the construction documents, complete, in place, all within the city limits of Alamogordo, New Mexico.

The CONTRACTOR is required to locate all existing utilities prior to commencing Work on the Project. It shall be the CONTRACTOR's sole financial and legal responsibility to field verify locations and depths of all existing utilities and coordinate any relocation Work required.

The CONTRACTOR shall be required to maintain adequate temporary access for the private residences and the businesses and facilities within the construction area, to the satisfaction of the City Engineer and/or Public Works Inspector.

At the end of each Work day, or as required during each day, or as required due to weather conditions, the CONTRACTOR shall perform grading, shaping, and cleanup, to maintain an acceptable site condition, as determined by the ENGINEER.

## 2.0 WORKMANSHIP AND MATERIALS

These standards are prepared with the intention that only first-class workmanship and materials of the best quality will be provided. Materials and workmanship of less than best quality will not be acceptable. In the event that these Standards may not completely describe each and every part, item and detail, it will not relieve the CONTRACTOR of the full responsibility for providing the necessary part, item or Work necessary to complete the Project satisfactorily for proper operation, as intended.

The materials and equipment specified are considered the minimum standard of quality necessary to produce a satisfactory Project. Substitutions for the materials and equipment that have been specified will not be permitted except on written approval of the City Engineer.

Any materials that are found to be damaged either before or after installation shall be removed promptly and replaced with new materials. The Public Works Inspector's inspection of the materials before they are installed shall not relieve the CONTRACTOR from any responsibility to furnish and install good quality materials, totally undamaged.

### **3.0 WATER FOR CONSTRUCTION**

The CONTRACTOR will be responsible for purchasing all of the reclaimed water needed for construction from the City of Alamogordo. The cost will be determined in accordance with the current reclaimed water rates. It shall be the CONTRACTOR's responsibility to transport and apply the reclaimed water as specified or as ordered by the ENGINEER.

#### **Reclaimed Hydrant Locations**

##### **Purple Hydrants**

1. Airport Pivot Hydrant, 3500 Airport Road
2. Airport Hydrant, 3500 Airport Road
3. LaVelle Hydrant, East of LaVelle Pump Station on Bypass Hwy.
4. Michel Street Hydrant, 2150 US Highway 54 South.
5. Civic Center Automated Fill Stand, 800 E. First Street
6. 26<sup>th</sup> Street Hydrant, 2518 Puerto Rico Avenue
7. Walker Ball Fields, 2143 S. Walker Avenue

The CONTRACTOR shall meter the reclaimed water used at the fire hydrant from which the reclaimed water is taken. The CONTRACTOR shall furnish the meter or obtain a meter from the City for which he will have to pay a deposit, to be refunded when the meter is returned in good working order.

The CONTRACTOR shall furnish and maintain the piping and/or equipment necessary to connect to the reclaimed water source and to convey the reclaimed water into the CONTRACTOR's reclaimed water tank. CONTRACTOR shall not allow reclaimed water to go to waste during the tank filling operations, and he shall not allow his piping and equipment to leak water.

The tank filling equipment shall be placed and maintained in such a way as to provide prevention against accidents of any nature to CONTRACTOR personnel or the public in general.

The CONTRACTOR is required to connect the fill stand or fill equipment to the fire hydrant, and leave the fire hydrant valve open. CONTRACTOR shall install a valve in the fill stand piping to control the water flow.

The hydrant valve shall not be closed except when water will not be needed over a weekend or a period of two (2) or more days.



#### **4.0 QUALITY ASSURANCE MATERIALS TESTING (GEOTECHNICAL)**

A materials testing laboratory shall be retained by the OWNER for Quality Assurance testing. The frequency of the Quality Assurance testing shall be as determined by the OWNER. The CONTRACTOR shall notify the Project Manager and the Public Works Inspector 24-hours prior to requesting testing thru e-mail when ready for each Quality Assurance test and cooperate fully in making way for the laboratory technician to make the required tests. The CONTRACTOR shall be notified if any of the Work fails to meet the standards specified, the CONTRACTOR shall correct such failures in a manner acceptable to the OWNER and/or the Public Works Inspector. The CONTRACTOR shall pay for the cost of all Quality Assurance re-testing necessary due to failure to meet Specification requirements on previous Quality Assurance testing. If the CONTRACTOR requests the testing laboratory to obtain density tests and the area to be tested is not ready when the technician arrives at the job site, the CONTRACTOR shall pay for all trip charges or stand-by time assessed. All cost for failed test and stand-by time will be deducted from the amount due on the Contract.

CONTRACTOR shall give Geotechnical Testing Lab a minimum of twenty-four (24) hours notice of readiness of the Work for Quality Control tests.

CONTRACTOR shall be responsible for providing to the OWNER the Proctor, Gradation and Liquid Limits of Subgrade material and Base Course material.

Material testing as referenced in this Section is for the OWNER's, Quality Assurance. The CONTRACTOR is responsible for Quality Control of material, process and method. Neither observations by ENGINEER nor inspections, tests or approvals by persons other than CONTRACTOR shall relieve CONTRACTOR from CONTRACTOR's obligations to perform the Work in accordance with the requirements of the Contract Documents

#### **5.0 SURVEYING AND STAKING**

The CONTRACTOR shall be responsible for all horizontal and vertical control required to build the Project, basic survey control will be provided by the City of Alamogordo. Any field adjustments made by the ENGINEER will be accepted as if incorporated herein and shall not make any claims for additional surveying or surveying expenses resulting therefrom.

#### **6.0 SANITARY FACILITIES**

The CONTRACTOR shall provide the necessary number of sanitary toilet units for all of the workers on the work site. The chemical toilets shall be moved along the Project routes so that they will be convenient for the workers.

Adequate potable drinking water shall be provided on the work site as well as drinking cups, for the benefit of all employees.

## **7.0 TRUCK BED COVERS**

All trucks or other conveyances hauling any loose materials, including hot-mix bituminous materials, on public streets, highways and detours shall be of an approved type, and shall be covered in such a manner as to prevent such materials from dropping, sifting, leaking, or otherwise escaping therefrom. Coverings for trucks or other conveyances hauling loose materials as herein provided shall be securely fastened so as to prevent said covering or load from becoming loose, detached, or in any manner a hazard to public traffic. Any vehicles in violation of this provision will not be permitted to operate.

## **8.0 METHOD OF BIDDING**

The Bid Schedule has been prepared for a Unit Price Contract procedure. All of the quantities shown in the Bid Schedule are estimated, and are not purported to be exactly correct. CONTRACTOR shall be required to furnish more or less of each estimated quantity that may be required to satisfactorily complete all of the Work. The CONTRACTOR will be paid on the unit basis for all of the material that is actually furnished and installed in the construction of the Project to plan dimensions. In no case shall the CONTRACTOR claim extra compensation for building any portion of the Project beyond plan dimensions.

## **9.0 UNDERGROUND AND OVERHEAD UTILITIES**

Any interference with, or damage to, either underground or overhead utilities of any nature shall be the CONTRACTOR's legal and financial responsibility, saving the OWNER harmless from any or all claims resulting from damage to these utilities by reasons of his operations.

The CONTRACTOR shall contact New Mexico One-Call at 1-800-321-2537 or by cell phone at 811 to request field utility locates forty-eight (48) hours prior to digging

## **10.0 CONTRACTOR COMMUNICATIONS**

The CONTRACTOR shall contact the OWNER, ENGINEER and the Department of Public Safety to provide information related to traffic control impacts, as well as to obtain any new requirements or restrictions for traffic control procedures.

## **11.0 SEQUENCE OF WORK**

The Work shall be carried out with the intent of causing as little disruption as possible to the public. The CONTRACTOR shall perform clean up operations on a continuous basis. Any area requested to be cleaned up by the OWNER, ENGINEER and/or Public Works Inspector shall be cleaned immediately.

CONTRACTOR shall be responsible for advising the businesses, residents and occupants along each street as to when Work will be done in that particular area. CONTRACTOR will notify the businesses, residents and occupants not less than two (2) days in advance of doing the Work. CONTRACTOR will request businesses, residents and occupants to move their vehicles out of the way of construction if required. If a

problem develops with any resident or occupant, the CONTRACTOR shall report it to the OWNER and ENGINEER. The OWNER will assist in solving the resolution.

## **12.0 AUTHORITY AND DUTIES OF PUBLIC WORKS INSPECTOR(S)**

Certified Inspectors representing the City of Alamogordo shall be authorized to inspect all Work done and all materials furnished. Such inspection may extend to all or any part of the Work and to the preparation, fabrication or manufacture of the materials to be used. The Public Works Inspector (Inspector) is not authorized to revoke, alter, or waive any requirements of the Specifications. The Public Works Inspector is authorized to call to the attention of the CONTRACTOR any failure of the Work or materials to conform to the Technical Standards and/or the Plans and Specifications, whichever is most strict. The Public Works Inspector shall have the authority to suspend the Work when an imminent hazard condition is known to exist, or when the CONTRACTOR either delays in correcting or permits repeated occurrences of a hazardous condition. This authority to suspend Work does not relieve the CONTRACTOR of the legal responsibility for safety at the jobsite.

The Public Works Inspector shall have the authority to suspend Work due to rejected materials or rejected Work only at the direction of the City Engineer or Project Manager. Any questions at issue as to quality of materials and/or Work installed may be referred to the OWNER and/or ENGINEER. If the CONTRACTOR refuses to suspend operations on verbal order, the Inspector shall issue a written order giving the reason for suspending the Work. After placing the order in the hands of the CONTRACTOR's man-in-charge, the Inspector shall immediately leave the job. Work done during the absence of the Inspector will not be accepted.

The Public Works Inspector shall in no case act as foreman or perform other duties for the CONTRACTOR, nor interfere with the management of the Work by the CONTRACTOR. Any advice which the Inspector may give the CONTRACTOR shall not be construed as binding the City in any way or releasing the CONTRACTOR from fulfilling all of the required Contract terms.

## **13.0 SANITARY LANDFILL**

All waste and recyclable materials shall be disposed of or stockpiled in approved locations per EPA regulations.

## **14.0 SIGN REMOVAL AND REPLACEMENT**

The CONTRACTOR shall be responsible for removing and replacing all existing signs that are in the way of the Project construction. The existing sign location and height shall be indexed before removal. Removed signs shall be properly and adequately stored. When replaced, signs shall be in existing or better condition, in all respects, than before removal. The CONTRACTOR shall replace any signs that are damaged due to negligence, mishandling, or inadequate storage.

## **15.0 PROTECTING THE WORK**

The CONTRACTOR shall be responsible for protecting all portions of the Work against any and all damage including but not limited to: vandalism, accidents and weather conditions, until accepted. No additional payment will be allowed for rebuilding any portion of the Project caused by such damage.

## **16.0 FENCING**

The CONTRACTOR shall be responsible for removing and rebuilding any and all existing fencing that is damaged or is in the way of the Project construction. This Work shall be considered incidental to the Project and no payment will be allowed for this Work.

## **17.0 EXISTING WATER VALVE BOXES**

The CONTRACTOR shall reference the location of all existing water valve boxes within the construction areas. Any valve boxes that are damaged during construction shall be replaced with no additional Payment. After the new paving has been installed and approved, the CONTRACTOR shall neatly saw-cut a two (2) foot by two (2) foot square opening in the new pavement, centered on the valve, and the CONTRACTOR shall install a new reinforced concrete collar, as provided in the Contract Documents.

## **18.0 EXISTING MANHOLES**

The CONTRACTOR shall reference the location and carefully remove and store manhole rings and lids within the construction areas. Any manhole rings and lids damaged shall be replaced by the CONTRACTOR. The top portion of the manhole shall be removed to a depth below the limits of Work, and a steel plate covering over the manhole shall be provided. After the new PMBP has been installed and approved, the CONTRACTOR shall neatly saw cut a four (4) foot by four (4) foot square opening in the new pavement, centered on the manhole.

The CONTRACTOR shall provide concrete adjustment rings as required to reconstruct the top of the manhole to the proper elevation so that the manhole frame and lid are flush with the new PMBP surface. Each manhole shall receive a new reinforced concrete collar, as provided in the Contract Documents.

## **19.0 WATER SHUT-OFFS**

All water shut-offs shall be done by the City. The CONTRACTOR shall notify the City Water Shop forty-eight (48) hours prior to the time of the required shut-off. The CONTRACTOR shall also notify, at least twenty-four (24) hours in advance, each household, office, business and/or other affected water user that a shut-off will be made.

**END OF ARTICLE 01-002.1**

## **01 11 10 PROJECT CLEANUP**

### **1.0 DESCRIPTION**

This Work shall consist of cleanup, in accordance with this Specification, the Project Plans, and all applicable specification items in these documents. CONTRACTOR shall furnish all the labor, equipment and materials necessary to perform all of the Work required.

### **2.0 PROJECT CLEANUP**

Cleanup of debris, trash and waste materials shall be performed on a continuous basis by the CONTRACTOR in such a way that will keep the work site(s) clean and neat at all times.

The CONTRACTOR shall be responsible for cleaning up the Project. All areas disturbed shall be left in excellent condition, free of any debris, trash, and the like.

All excess materials and trash shall be disposed of at an approved site or at a place approved by the New Mexico Environment Department.

### **3.0 FINAL INSPECTION CLEANUP**

Immediately before the final inspection tour is to be conducted, the CONTRACTOR shall cleanup the Project site in its entirety, removing all debris, waste, trash, excess materials and equipment. CONTRACTOR shall review the entire Project before the final inspection and shall have it neat and clean in appearance.

### **4.0 METHOD OF MEASUREMENT (REFER TO SECTION 3, BID SCHEDULE FOR MEASUREMENT)**

No separate measure shall be made for Project Cleanup. Project Cleanup shall be considered incidental to the Project Work.

### **5.0 BASIS OF PAYMENT (REFER TO SECTION 3, BID SCHEDULE FOR PAYMENT)**

No separate payment will be made for Project Cleanup. Payment for Project Cleanup shall be considered incidental to the Project Work.

**END OF SECTION – 01 11 10**

## 01 33 00 SUBMITTALS

### PART 1

#### 1.1 GENERAL

##### A. RELATED DOCUMENTS

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
1. Shop Drawings.
  2. Product Data.
  3. Samples.

#### 1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
- C. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
- D. The OWNER reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
- F. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The OWNER will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
- G. If an intermediate submittal is necessary, process the same as the initial submittal.
1. Allow two weeks for reprocessing each submittal.
- H. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
- I. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

- J. Include the following information on the label for processing and recording action taken.
  - 1. Project name.
  - 2. Date.
  - 3. Contract Number
  - 4. Name and address of supplier.
  - 5. Name of manufacturer.
  - 6. Number and title of appropriate Specification Section.
  - 7. Drawing number and detail references, as appropriate.
- K. Distribution: Following response to initial submittal, print and distribute copies to the, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
- L. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

#### 1.4 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
  - 1. Dimensions.
  - 2. Identification of products and materials included.
  - 3. Compliance with specified standards.
  - 4. Notation of coordination requirements.
  - 5. Notation of dimensions established by field measurement.
- C. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".
- D. Submittals: Submit three (3) copies of each required submittal. The OWNER will retain one (1), and will return two (2) marked with action taken and corrections or modifications required.
- E. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal. One of the prints returned shall be marked-up and maintained as a "Record Document".
- F. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

- G. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
- H. Preparation of coordination Drawings may include components previously shown in detail on Shop Drawings or Product Data.
- I. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

## 1.5 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings".
- B. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
  - 1. Manufacturer's printed recommendations.
  - 2. Compliance with recognized trade association standards.
  - 3. Compliance with recognized testing agency standards.
  - 4. Application of testing agency labels and seals.
  - 5. Notation of dimensions verified by field measurement.
  - 6. Notation of coordination requirements.
- C. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- D. Distribution: Furnish copies of final submittal to installers, suppliers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
- E. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.
- F. Do not permit use of unmarked copies of Product Data in connection with construction.

## 1.6 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.



- B. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Include the following:
  - 1. Generic description of the Sample.
  - 2. Sample source.
  - 3. Product name or name of Manufacturer.
  - 4. Compliance with recognized standards.
  - 5. Availability and delivery time.
- C. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- D. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than three (3)), that show approximate limits of the variations.
- E. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
- F. Refer to other sections for Samples to be returned to the Contractor for incorporation in the work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
- G. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
- H. Preliminary submittals will be reviewed and returned with the OWNER's mark indicating selection and other action.
- I. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit three (3) sets; one will be returned marked with the action taken.
- J. Maintain sets of samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
- K. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- L. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- M. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

- N. Field Samples specified in individual sections are special types of Samples. Field Samples are full size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judged.
- O. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

#### 1.7 OWNER'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the OWNER will review each submittal, mark to indicate action taken, and return promptly.
- B. Compliance with specified characteristics is the Contractor's responsibility.
- C. Action Stamp: The OWNER will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  - 1. NO EXCEPTIONS TAKEN
  - 2. NO EXCEPTIONS TAKEN Subject to corrections noted
  - 3. REVISE AND RESUBMIT
  - 4. REJECT – RESUBMIT
- D. Final Unrestricted Release: Where submittals are marked "NO EXCEPTIONS TAKEN", that part of the work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
- E. Final-But-Restricted Release: When submittals are marked "NO EXCEPTIONS Subject to corrections noted", that part of the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
- F. Returned for Resubmittal: When submittal is marked "REVISE AND RESUBMIT", do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
- G. Reject: When submittal is marked "REJECT - RESUBMIT", do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Reselect product, product manufacturer or supplier, resubmit product qualifications per specification section. Repeat if necessary to obtain a different action mark.
- H. Do not permit submittals marked "REVISE AND RESUBMIT" or "REJECT – RESUBMIT", to be used at the Project Site, or elsewhere where work is in progress.

**END OF SECTION – 01 33 00**

## **SECTION 01 62 00 - PRODUCT OPTIONS**

### **PART 1 – GENERAL**

#### **1.1 SUMMARY**

- A. This section includes requirements for product options and substitution procedures.

#### **1.2 PRODUCT OPTIONS**

- A. For products specified by reference standards or by description only, provide products meeting those standards or description as approved by the Engineer/Owner.
- B. For products specified by naming one or more manufacturers with the designation that no substitutions are allowed, provide only named products.
- C. For products specified by naming one or more manufacturers, provide named products or approved substitute products.
  - 1. Requests to use unspecified products shall be made in accordance with the “Substitution Request Procedures” as specified herein

#### **1.3 SUBSTITUTION REQUESTS**

- A. Where products are specified by naming specific products of one or more manufacturers, these products shall establish a minimum acceptable level of quality and performance.
- B. Prior Approval: The Engineer/Owner will consider requests made during bidding to use unspecified products only when indicated in individual specification sections.
  - 1. When substitution requests are allowed during bidding by individual specification sections, requests shall be made in accordance with the “Substitution Request Procedures” as specified herein.
  - 2. If product is acceptable, Engineer/Owner will provide approval by addendum issued to known recipients of Bidding Documents
- C. After signing of Agreement between Owner and Contractor, Engineer/Owner will consider written requests for substitutions.
  - 1. Requests shall be made in accordance with “Substitution Request Procedures” as specified herein.
  - 2. Engineer/Owner will determine acceptability of proposed substitutions and notify Contractor of decision in writing.
  - 3. Substitutions will not be considered when indicated or implied on shop drawings and product data submittals.

- D. Request for substitution and use of approved substitution shall constitute representation that Contractor.
1. Has investigated product and determined it meets or exceeds quality level of specified product.
  2. Will provide same warranty for substitution as for specified product.
  3. Will coordinate installation and make changes to other work required to accommodate accepted substitution and complete Work.
  4. Waives claims for additional costs or time extensions related to substitutions which later become apparent.

#### 1.4 **SUBSTITUTION REQUEST PROCEDURES**

- A. Submit separate request for each substitution with Form 01 62 13 "Product Substitutions" request form.
1. Copy of form follows this Section.
- B. Submit 3 copies of request for substitution and include the following:
1. Complete data substantiating compliance of proposed substitution with Contract Documents.
  2. For products:
    - a. Product identification, including manufacturer's name and address.
    - b. Manufacturer's literature containing product description, performance and test data, and reference standards.
    - c. Samples as required.
  3. For construction methods:
    - a. Detailed description of proposed method.
    - b. Drawings illustrating methods.
  4. Itemized comparison of proposed substitution with product specified.
  5. Data relating to changes in construction schedule
  6. Give cost data comparing proposed substitution with specified product.
  7. For substitution requests made after signing Agreement, include proposed changes to Contract Amount and Time if substitution is accepted.

**END OF SECTION 01 62 00**

**SECTION 01 62 13 - PRODUCT SUBSTITUTIONS**

Read **SECTION 01 62 00 "PRODUCT OPTIONS"** prior to submission of this form.

The undersigned requests that the following product be accepted for use in the Project.

Product: \_\_\_\_\_

Model No: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Address: \_\_\_\_\_

The above product would be used in lieu of:

Product: \_\_\_\_\_

Specified in: \_\_\_\_\_ Section: \_\_\_\_\_ Paragraph: \_\_\_\_\_

Reason for substitution request: \_\_\_\_\_

Attached are the following items:

Product description including specifications, performance and test data, and applicable reference standards

- Drawings
- Photographs
- Samples
- Tabulated comparison with specified product
- For items requiring color selections, full range of manufacturer's color samples
- Documentation of reason for request.
- Cost data for comparing proposed substitution with specified product
- Other: \_\_\_\_\_

The undersigned certifies that the following statements are correct. Explanations for all items which are **not** true are attached.

1. Proposed substitution has been thoroughly investigated and function, appearance, and quality meet or exceed that of specified product. True  False
2. Same warranty will be provided for substitution as for specified product. True  False
3. **No** aspect of Project will require re-design. True  False
4. Use of substitution will **not** adversely affect:
  - a. Dimensions shown on Drawings. True  False
  - b. Construction schedule and date of completion. True  False
  - c. Work of other trades. True  False
5. Maintenance service and replacement parts for proposed substitution will be readily available in the New Mexico area. True  False
6. Proposed substitution does **not** contain asbestos in any form. True  False
7. All changes to Contract Sum related to use of proposed substitution are included in price listed below. Contractor waives claims for additional costs related to acceptance of substitution which may subsequently become apparent. True  False
8. Costs of modifying project design caused by use of proposed substitution which subsequently become apparent will be paid for by Contractor. True  False

If substitution requested after signing of Agreement between Owner and Contractor is accepted:

Contract Sum will be [decreased] [increased] by \$ \_\_\_\_\_

Contract Time will be [decreased] [increased] by \_\_\_\_\_ calendar days.

Submitted By: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

**END OF SECTION 01 62 13**

## **SECTION 02 54 10 PLAY COURT SURFACING**

### **PART I - GENERAL**

#### **1.1 Description of Work**

The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplies necessary for, or appurtenant to, the colored/textured surfacing of basketball courts in accordance with these specifications.

#### **1.2 Quality Assurance**

The work shall be done in a thorough, workmanlike manner. Contractor references for five (5) similar, successfully executed projects will be required. Contractor shall be member contractors of the **American Sports Builders Association**, and will have a **Certified Tennis Court Builder** on staff.

#### **1.3 Limitations**

Application temperature shall be a minimum of 50°F, and surface temperature not above 130°F. Do not apply when surface is wet or if rain is imminent or forecast, or if night time temperatures are to be lower than 45°F. Keep from freezing. Do not store in direct sunlight for an extended period of time. Container shall be closed when not in use.

#### **1.4 Warrantee**

The contractors guarantee their respective work against defective materials or faulty workmanship for a period of one year from the date of completion, and that the colored surface will not wear through for a period of two (2) years.

#### **1.5 Substitutions, prior approval and "or equal"**

**Whenever in the specifications, any particular materials, process and/or equipment is indicated or specified by patent, proprietary, or brand name, or by name of manufacturer, such wording shall be deemed to be used for the purpose of facilitating description of the material, process, and/or equipment desired, and shall be deemed to be followed by the words "or equal". The lists of acceptable material are not intended to be comprehensive lists, or in any order of preference. The bidder may offer any material, process, and/or equipment which comply with the governing specifications which the bidder considers to be equivalent to that which is indicated or specified.**

Prior approval is a part of these specifications and any bidder or manufacturer wishing to obtain approval to use unspecified products shall submit a written request as specified in **Section 01 62 00 – PRODUCT OPTIONS**. **The request shall be received, by the OWNER, not later than 12:00 p.m. on June 1, 2018.**

Request shall clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. If the product is acceptable, the OWNER will approve it in an Addendum issued to all plan holders. Otherwise, the specified product or item shall be used. The burden of proof is the responsibility of the Contractor.

## PART 2 - MATERIALS

### 2.1 Primer

Prime coat if required shall consist of a mixture of 100% acrylic latex, diluted 1:4 with water.

### 2.2 Acrylic Resurfacer

Acrylic resurfacer coats shall consist of the following mixture:

55 gals. World Class Acrylic Resurfacer Concentrate

400 lbs. Silica Sand

18-23 gals. Fresh, Potable Water

### 2.3 Acrylic Color

The acrylic color applications for a slow tennis surface will consist of two (2) coats of the following mixture:

55 gals. World Class Acrylic Color Concentrate

400 lbs. Washed Silica Sand, #50

18-23 gals. Water (fresh and potable)

Color Selection:

Playing Area: To be selection from manufacture's standard color palette

Perimeter Area: To be selection from manufacture's standard color palette

### 2.4 Playing Lines

Playing lines shall be painted on using World Class Athletic Surfaces white, acrylic latex line paint.

### 2.5 Manufacturers

World Class Athletic Surfaces, P.O. Drawer 152, 817 North Broad Street, Leland, MS 38756, or equal.

## PART 3 - EXECUTION

### 3.1 Surface Preparation

Prior to the surfacing applications, the concrete shall be thoroughly cleaned by the use of a power broom or power washer or acid etching.

Contractor shall flood courts, mark and fill all water-holding depressions with the leveling course mixture. OWNER shall be present during this procedure.

Any remaining water-holding depressions greater than one-eighth inch (1/8" or cover a nickel) deep will be marked and filled with the leveling mix, again using a fourteen foot (14') straight edge squeegee. Water-holding areas will be determined by flooding the court with water and



allowing it to drain for one hour on a 70 degree or warmer day. The court will be re-flooded and refilled as necessary.

### 3.2 Acid Etching

If a compatible sealer is not used on the concrete, the concrete surface must be etched with muriatic acid, diluted with water at one part acid to ten parts water (always pour acid into water). Keep surface moist ahead of acid etching procedure. Brush acid into surface with a stiff broom. Acid solution should foam when poured onto concrete. Scrub surface to remove all dirt, as acid will not affect dirt. Flush surface thoroughly with water after acid solution stops foaming. Do not allow the acid etching mixture to dry on the surface.

### 3.3 Prime Coat

Prime coat shall be applied when acid-etching is required. The primer shall be applied with a stiff broom immediately following the acid etching procedure, when the surface has dried. Primer shall not be allowed to puddle.

### 3.4 Acrylic Resurfacer

The mixture will be agitated in a one hundred (100) gallon paddled mortar mixer so as to provide a consistent and homogeneous solution. The mixture will be applied over the entire court surface with a twenty-four inch (24") to thirty-six inch (36") rubber-tipped squeegee. The resurfacer coat(s) shall provide a uniform surface, with no ridges. One coat shall be applied, and further coats will be applied if necessary to provide for a uniform surface.

### 3.5 Acrylic Color

The mixture will be agitated in a one hundred (100) gallon paddled mortar mixer so as to provide a consistent and homogeneous solution. The mixture will be applied over the entire court surface using a twenty-four inch (24") to thirty-six inch (36") rubber-tipped squeegee. The color is to be free of ridges and uniform. Refer to Part 2.3 for number of applications and court color selection.

### 3.6 Playing Lines

Playing lines two inches (2") wide will be accurately located and marked by snapping a chalk line and placing one inch (1") masking tape guides, using a line taper. Latex acrylic line paint will be brushed on to provide a uniform line. The lines shall have clear definition and ragged lines will not be accepted. **See Sheet C3.0** for basketball court layout.

END OF SECTION 02541

**SECTION 03 03 65 POST-TENSIONED CONCRETE COURT PAVING**  
**(Overlay Method)**

**PART I - DESCRIPTION OF WORK**

The contract work to be performed under this section consists of furnishing all required labor, materials, equipment, implements, parts and supplies necessary for, or appurtenant to, the construction of a five-inch (5") minimum, thick post-tensioned concrete slab over an existing asphalt or concrete substrate.

1.1 Quality Assurance

Work is to be performed by contractor with a minimum of five (5) similar, successfully completed projects within the past three (3) years. Contractor will be a member of the **American Sports Builders Association**, and will have a **Certified Tennis Court Builder** on staff. Installing foreman shall be certified by the Post-Tensioning Institute (PTI) as a Level 2 installer.

All laying of cable, concrete work and stressing of cables shall be done by selected contractor (no part of work to be subcontracted). This provision intent is to provide continuity and one source responsibility for the integrity of the post-tensioned slabs.

1.2 Submittals

Contractor to provide the following documentation:

- a) Concrete mix design.
- b) Cable elongation records following final stress operations.
- c) Engineer fill.

1.3 Guarantee

Contractor shall guarantee that all materials and workmanship incorporated into the project will be of new quality and free from defects, and that all work will be installed as specified and drawn, and in conformance with the project documents. Any material or workmanship found to be defective or out of specification will be replaced, at the sole cost of the contractor, for a period of one (1) year from date of acceptance and that the colored surface will not wear through for a period of two (2) years from date of acceptance.

**PART 2 – MATERIALS**

2.1 Non-Expansive Fill

Fill grading/bond breaking material to be a free draining, loosely compacted material.

Fill shall be imported soil and shall meet the following requirements as determined in accordance with ASTM D-422:

## Engineered Fill – Table

SIEVE SIZE	PERCENT PASSING (%)
¾	100.0
½	91.5
3/8	84.5
4	68.5
10	55.5
40	40.0
200	25.3

The Engineered fill shall have a plasticity index between 2 and 12 when tested in accordance with ASTM D-4318.

### 2.2 Tensioning Cables and Anchors

Post-tensioning strands and anchorages shall conform to the "PTI Guide specifications for Post-tensioning Materials."

The tensioning strands shall consist of one-half inch (1/2") diameter, 7-wire, stress relieved strands, having a guaranteed ultimate tensile strength of 270,000 psi (270 Kips). Strands shall conform to ASTM A-416. Cables shall be fabricated to proper length for each slab, coated with a permanent rust preventative lubricant and encased in slippage sheathing. All breaks in the sheathing shall be repaired with tape prior to concrete placement. A maximum of six inches (6") exposed strands is permitted at the dead-end anchor.

A maximum horizontal deviation of +/- 6" at each cable is allowed, and a maximum vertical deviation of +/- ½" is allowed.

### 2.3 Concrete Mix Design

The concrete shall have a compressive strength of not less than 4000 psi after twenty-eight (28) days. Ready-mixed concrete shall be mixed and delivered according to ASTM C-94 specifications for ready-mixed concrete with a five-inch (5") maximum slump. Mix design as follows: cement - type I/II, six sack unit weight - 142.3 lbs. per cubic foot, air entrainment - 6.0% (+/- 1%), water/cement ratio - 0.49/1.

## **PART 3 - EXECUTION**

Prior to beginning work, carefully inspect the entire site. The drawings do not purport to show all objects existing on the site. Verify with the Owner all objects to be removed and all objects to be preserved.

Locate all active utility lines transversing the site, designate them and determine the requirements for their protection.

Approval: Placing concrete or reinforcing before compacted fill is approved by the Owner is a valid reason for rejecting the concrete in place or for causing all in place reinforcement to be removed.

### 3.1 Selective Demolition

Remove all fencing and posts, and other interior structures and salvage to owner. Saw cut and remove asphalt as show on the project drawings and dispose of all waste materials at a state approved location per EPA regulations.

### 3.2 Fine Grading

Bond-breaking/fine grading will be accomplished with the use of laser-guided machinery, capable of providing a true plane to a tolerance of +/- 3/8". Thickness of material to be 1-inch minimum, uniformly grade to specified slope. Additional thickness may be necessary to regain planarity of court or to increase slope.

### 3.3 Forming

Forms shall be accurately set to the lines and to plus or minus one-quarter inch (+/- 1/4") of finished grades indicated on the drawings and shall be securely staked to prevent settlement or movement during placement of concrete. Forms shall remain until concrete has taken final set.

### 3.4 Tensioning Cables and Anchors

All cables shall be supported on chairs and loosely tied at mid-depth of the slab at all intersections (too tightly tied, tendon friction will increase when tensioning) to prevent vertical and horizontal movement during concrete placement. Strands shall be placed with no greater spacing than two foot six inches (2' 6") on center, +/- 12", for lengths over 100' and three foot four inches (3' 4") on center, +/- 12", for lengths under 100'. Tendon spacing design to achieve a minimum compression of 125 psi (P/A) in the concrete. **See Sheet C2.0 and C3.0** for tendon spacing.

The perimeter beam cross section is to be 12" x 12". Cable ends are to be anchored approximately 4" below surface of the slab. One continuous #4 grade 60 rebar lies longitudinally around the court beam directly inside the cable anchor on the top of the cables. Overlapping should be at a minimum of 30 bar diameters.

### 3.5 Concrete Placement

A full court shall be placed in one (1) continuous operation without intervening joints of any kind. The five-inch (5") minimum, thick slab will be placed either with a mechanical screed capable of spanning a minimum of 62' width, or by the use of a laser-screed device capable of providing a surface tolerance to within +/- 1/4" when measured under a 10' straightedge. Contractor to provide sufficient manpower to ensure the uniform distribution of concrete ahead of the screed, and will not allow substantial build-up of concrete on leading edge of screed.

Concrete to be placed in accordance with ACI specifications for Hot Weather and Cold Weather placement. Concrete reaching 90 minutes past batching time prior to placement will be rejected.

**Note:** Finish surface shall not have a water-holding area greater than 1/8" deep (cover a nickel). This is to be determined by flooding the court with water, allowing it to drain for one hour on a 70 degree or warmer day.

### 3.6 Finishing

Following dissipation of bleed water from surface of concrete, finishing operations can begin. Concrete to be finished by any means to provide for a planar surface, free from ridges and depressions. Concrete shall be textured to allow for mechanical bonding of coatings. Hard-trowel (smooth) finishes shall be textured by means of shot-blasting. Edges shall be finished with ½-inch radius edger.

### 3.7 Tensioning Operations

After the forms are removed and the concrete has set to a minimum of 1,700 psi (typically 24 hours) a partial tensioning may be applied to restrict movement and cracking. Following approximately one (1) week of curing, when concrete has attained a minimum strength of 2,700 psi, the final stress procedure may begin. Each tendon shall be tensioned to a maximum of eighty percent (80%) ultimate breaking strength, and anchored at a minimum of seventy percent (70%) ultimate breaking strength.

Ultimate Breaking Strength	80%	70%
41,300 psi	33,000 psi	28,900 psi

Cable elongation records shall be accurately kept by the contractor and provided to the owner.

Measured elongation shall be compared to calculated elongation to assure specified tension. Cable elongation to be within +/- 10% of calculated elongation.

Following confirmation of elongation, the cable ends shall be cut off and cone holes grouted flush with edge of slab. Grout shall be non-shrink grout.

### 3.8 Curing

Immediately after finishing, the concrete shall be kept moist by covering with polyethylene, by sprinkling, by ponding or by curing compound (must be compatible with acrylic tennis surfacing material).

END OF SECTION 02530