

Colton Joint Unified School District

Frank Miranda, Ed.D., Superintendent

Gregory Fromm, Assistant Superintendent, Business Services Division

Owen Chang, Director of Facilities and Energy Management



BUSINESS SERVICES DIVISION

FACILITIES AND ENERGY MANAGEMENT

Commitment to Equal Opportunity

ADDENDUM NO. 03 - TRANSPORTATION YARD – INFRASTRUCTURE IMPROVEMENTS BID NO. 26-29FAC

Project Location:

451 North 3rd Street, Colton, California, 92324

Department:

Facilities and Energy Management
325 Hermosa Avenue, Building 5,
Colton, CA 92324

DATE OF ISSUANCE

June 23, 2026



TRANSPORTATION YARD – INFRASTRUCTURE IMPROVEMENTS

BID NO. 26-29FAC

ADDENDUM NO. 03

Issuance Date: June 23, 2026

Addendum No. 03 comprises Master File Index in section I; Supplemental Conditions in section II; responses to Pre-Bid Clarifications 012 thru 019 found in section III, Redline Clouded Changes to Drawings in Section IV, and Updated Bid Set Drawings in section V; and Redline Changes to Project Manual in section VI.

I. ADDENDUM NO. 03 - MASTER FILE INDEX

- Refer to attachment.

II. BID DOCUMENTS (SUPPLEMENTAL CONDITIONS)

- Refer to attachment.

III. PRE-BID CLARIFICATIONS (RESPONSES) – 012 (REVISED) and 019

- Pre-Bid Clarification No. 012, 013, 014, 015, 016, 017, 018, 019 are attached, herein.

IV. DRAWINGS (REDLINE CLOUDED CHANGES)

- a. A Separate Electronic File:

[DRAWINGS - REDLINES CLOUDED-ADDENDUM 03-2026-06-23](#)

V. DRAWINGS (UPDATED BID SET)

- a. A Separate Electronic File:

[DRAWINGS - UPDATED BID SET-ADDENDUM 03-2026-06-23](#)

VI. APPENDICES

APPENDIX A – REDLINE SPECIFICATION CHANGES

SECTIONS

31 22 00 - GRADING

31 23 16 - EXCAVATION

31 23 16.13 - TRENCHING



I. ADDENDUM NO. 03 - MASTER FILE INDEX

*The Addendum No. 03 -Master Drawing; Bid Documents Index is
found in the next FOUR (4) pages.*

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I. ADDENDUM NO. 03 - MASTER FILE INDEX
ADDENDUM NO. 03 - MASTER FILE INDEX
BID NO. 26-29FAC
TRANSPORTATION YARD - INFRASTRUCTURE IMPROVEMENTS
COLTON JOINT UNIFIED SCHOOL DISTRICT
JUNE 23, 2026

			ADDENDUM NO. 03
SECTION NO.	SECTION		
I.	ADDENDUM NO. 03 - MASTER FILE INDEX		X
II.	BID DOCUMENTS (REVISIONS-DELETIONS)		X
III.	PRE-BID CLARIFICATIONS (RESPONSES) - 012 THRU 019		X



IV. DRAWINGS (REDLINE CLOUDED CHANGES)

ADDENDUM NO. 03 - MASTER FILE INDEX

BID NO. 26-29FAC

TRANSPORTATION YARD - INFRASTRUCTURE IMPROVEMENTS

COLTON JOINT UNIFIED SCHOOL DISTRICT

JUNE 23, 2026

JUNE 23, 2026			ADD 01	ADD 02	ADD 03
SHEET NO.	SHEET NAME		REDLINE; CLOUDED; 06/09/2026	REDLINE; CLOUDED; 06/12/2026	REDLINE; CLOUDED; 06/17/2026
DRAWINGS					
GENERAL					
G-1	TITLE SHEET & SHEET INDEX		X	incl.	incl.
CIVIL					
C-1.0	TITLE SHEET		X	X	X
C-2.0	DEMOLITION SITE PLAN		X	X	X
C-3.0	GRADING PLAN		X	X	X
C-4.0	DETAILS & SECTIONS		X	X	X
C-5.0	EROSION CONTROL PLAN		X	X	X
ARCHITECTURE					
AS-1.0	DEMOLITION SITE PLAN		X	X	X
AS-1.1	FIRE ACCESS PLAN, OVERALL SITE PLAN		X	X	X
AS-2.0	ENLARGED SITE PLAN		X	X	X
AS-2.1	ENLARGED SITE PLANS		X	X	
ARCHITECTURE DETAILS					
ASD-1.0	SITE DETAILS		X		X
ASD-2.0	GATE & FENCE DETAILS		X		
ELECTRICAL					
E1	ELECTRICAL NOTES AND SYMBOLS LIST				X
E2	POWER SITE PLAN				X
E3	SINGLE LINE DIAGRAM		X		X
	TOTAL SHEET (WITH CHANGES) - 12; (NO CHANGES) - 3				

NOTE: The above Drawings are provided in a separate electronic file entitled:

[DRAWINGS - REDLINES CLOUDED - ADDENDUM 03 - 2026-06-23](#)



V. DRAWING (UPDATED BID SET)

ADDENDUM NO. 03 - MASTER FILE INDEX

BID NO. 26-29FAC

TRANSPORTATION YARD - INFRASTRUCTURE IMPROVEMENTS

COLTON JOINT UNIFIED SCHOOL DISTRICT

JUNE 23, 2026

JUNE 23, 2026		ADD 01		ADD 02	ADD 03
SHEET NO.	SHEET NAME	IFB - FINAL BID DOCUMENTS (5/18/2026)	ADDENDUM No. 01 (6/10/2026)	ADDENDUM No. 02 (6/12/2026)	ADDENDUM No. 03 (6/17/2026)
DRAWINGS					
GENERAL					
G-1	TITLE SHEET & SHEET INDEX	X	X	X	X
CIVIL					
C-1.0	TITLE SHEET	X	X	X	X
C-2.0	DEMOLITION SITE PLAN	X	X	X	X
C-3.0	GRADING PLAN	X	X	X	X
C-4.0	DETAILS & SECTIONS	X	X	X	X
C-5.0	EROSION CONTROL PLAN	X	X	X	X
ARCHITECTURE					
AS-1.0	DEMOLITION SITE PLAN	X	X	X	X
AS-1.1	FIRE ACCESS PLAN, OVERALL SITE PLAN	X	X	X	X
AS-2.0	ENLARGED SITE PLAN	X	X	X	X
AS-2.1	ENLARGED SITE PLANS	X	X	X	X
ARCHITECTURE DETAILS					
ASD-1.0	SITE DETAILS	X	X	X	X
ASD-2.0	GATE & FENCE DETAILS	X	X	X	X
ELECTRICAL					
E1	ELECTRICAL NOTES AND SYMBOLS LIST	X	X	X	X
E2	POWER SITE PLAN	X	X	X	X
E3	SINGLE LINE DIAGRAM	X	X	X	X
	TOTAL SHEET COUNT - 15				

NOTE: The above Drawings are provided in a separate electronic file entitled:

[DRAWINGS - UPDATED BID SET - ADDENDUM 03-2026-06-23](#)



VI. APPENDICES

ADDENDUM NO. 03 - MASTER FILE INDEX

BID NO. 26-29FAC

TRANSPORTATION YARD - INFRASTRUCTURE IMPROVEMENTS

COLTON JOINT UNIFIED SCHOOL DISTRICT

JUNE 23, 2026

SECTION NO.	SECTION		ADDENDUM NO. 03
VI.	PROJECT MANUAL - SECTION 31 22 00 - REDLINE CHANGES		X
VI.	PROJECT MANUAL - SECTION 31 23 16 - REDLINES CHANGES		X
VI.	PROJECT MANUAL - SECTION 31 23 16.13 - REDLINE CHANGES		X



II. BID DOCUMENTS – SUPPLEMENTAL CONDITIONS

*Bid Documents (Supplemental Conditions – additions) are found on
the following TWO (2) pages.*



ADDENDUM NO. 03 – BID DOCUMENTS – SUPPLEMENTAL CONDITIONS

TRANSPORTATION YARD – INFRASTRUCTURE IMPROVEMENTS BID NO. 26-29FAC CONSTRUCTION VEHICLE ACCESS AND HAUL ROUTE REQUIREMENTS

The Contract Documents are hereby amended to include the following Construction Vehicle Access and Haul Route Requirements. These requirements shall apply to the Contractor, all subcontractors, suppliers, vendors, delivery personnel, and all other parties performing work associated with the Project.

The Contractor shall include all costs associated with compliance with these requirements in its Bid. No additional compensation shall be provided by the District for compliance with these requirements.

1. PURPOSE

These requirements are intended to minimize impacts to Colton High School operations, school transportation activities, student safety, staff access, and adjacent neighborhood traffic circulation during construction.

2. THIRD STREET TRANSPORTATION YARD ACCESS GATE

- A. From Notice to Proceed through July 26, 2026, construction vehicles may access the Project Site through the existing Third Street Transportation Yard Access Gate during authorized construction hours.
- B. The Contractor shall provide a flag person at the Third Street Access Gate whenever construction vehicle access is required. The flag person shall be responsible for opening and securing the gate utilizing a District-issued access device.
- C. Effective July 26, 2026 through Project Completion, construction vehicle access through the Third Street Transportation Yard Access Gate shall be prohibited between the hours of 5:00 AM and 7:00 AM and between 1:00 PM and 2:30 PM, Monday through Friday, unless otherwise authorized in writing by the District or the District's Authorized Representative.

3. SECOND STREET CONTRACTOR ACCESS GATE

- A. From Notice to Proceed through Project Completion, construction vehicles may access the Project Site through the temporary or permanent Second Street vehicle access gate established by the Contractor and approved by the District.
- B. The Contractor shall be responsible for maintaining safe ingress and egress through the Second Street access point throughout construction.

4. CONSTRUCTION VEHICLE HAUL ROUTES

- A. Effective July 26, 2026, construction vehicles traveling to or from the Project Site shall utilize approved haul routes that avoid traffic conflicts with Colton High School operations.
- B. Construction vehicles approaching from Interstate 10 shall utilize the Pepper Avenue exit

Colton Joint Unified School District

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and proceed to the Project Site utilizing routes that avoid Valley Boulevard and Rancho Avenue adjacent to Colton High School.

- C. Construction vehicle access utilizing the Interstate 10 Valley Boulevard exit or Rancho Avenue exit is prohibited.
- D. Construction vehicle traffic shall be prohibited from traveling along Valley Boulevard or Rancho Avenue immediately adjacent to Colton High School except as specifically authorized in writing by the District.
- E. The Contractor shall be responsible for identifying, coordinating, and enforcing approved haul routes for all subcontractors, suppliers, material vendors, and delivery companies.

5. CONTRACTOR RESPONSIBILITY

- A. The Contractor shall distribute these requirements to all subcontractors, suppliers, vendors, trucking firms, and delivery personnel associated with the Project.
- B. The Contractor shall be responsible for ensuring compliance with these requirements by all parties under its control.
- C. Failure of subcontractors, suppliers, or delivery personnel to comply with these requirements shall be deemed a failure of Contractor performance.

7. EXCEPTIONS

These restrictions shall not apply to emergency response vehicles or to specific activities authorized in writing by the District.



III. PRE-BID CLARIFICATIONS (RESPONSES) – 012, 013, 014, 015, 016, 017, 018, 019

*The Pre-Bid Clarifications (Pre-Bid RFIs) are found in the next
NINE (9) pages.*

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjustd.net rduncan@eci-team.com

DATE:			
	Type text here		Type text here
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:	Addendum 02	DRAWING NUMBER:	AS-1.1, 2.0 & 2.1

REQUESTED CLARIFICATION:
Per Addendum 02 all disturbed landscape areas shall be restored with stabilized soil. What should this process include? Can you define a criteria we should use to meet the required stabilized soil requirements? Example; is compacted soil an acceptable stabilization method or is something more desired?
RESPONSE TO CLARIFICATION:
Compaction is an acceptable method to stabilize the soil. B.Jester RCA 06-15-26

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjustd.net rduncan@eci-team.com

DATE:	06/16/2026		
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	AS-1.1

REQUESTED CLARIFICATION:

The current plans do not include a structural section for the Fire Lane. Please provide the following information:

Scope of Work for the Fire Lane — Confirm whether the fire lane is existing or proposed as new construction.

Fire Access Legend — Include a note stating: "Contractor to provide all required painting or curbs and provide all signage per local Fire Authority requirements."

Fire Truck Access Gates — Clarify whether the access gates are existing or will be newly installed.

RESPONSE TO CLARIFICATION:

The is no scope of work for the Fire Access lane. All indications within the plans for the fire access are existing to remain, Fire Access gate keynote has been updated to state existing. Will be reflected in forthcoming Addendum 3.

B.Jester RCA 6/17/26

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjusd.net rduncan@eci-team.com

DATE:	06/16/2026		
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	C-3.0

REQUESTED CLARIFICATION:
Since Geotechnical Report / Soils Report not provided as per Add.#1, please provide specifications for over excavation for new pavement area & future Retaining Wall footing.
RESPONSE TO CLARIFICATION:
See Response on Next Page.

ATTACHMENT TO:

PRE-BID CLARIFICATION NO. 014

Response:

No project-specific Geotechnical Report has been provided as part of the Contract Documents.

The Contractor shall perform excavation, trenching, backfilling, compaction, and related earthwork activities in accordance with Division 31, applicable codes, and industry standards.

If unsuitable materials, undocumented fill, unstable subgrade, excessive moisture, or other unforeseen subsurface conditions are encountered, the Contractor shall immediately notify the District's Representative and discontinue affected work in the area pending further direction.

The District reserves the right to retain a Geotechnical Engineer during construction to evaluate subsurface conditions and provide recommendations regarding excavation, over-excavation, recompaction, fill placement, or other corrective measures deemed necessary.

References within the Contract Documents to a project-specific Geotechnical Report shall not apply where no such report has been provided.

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjustd.net rduncan@eci-team.com

DATE:	6/17/2026		
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:	General Conditions, Article 11	DRAWING NUMBER:	N/A

REQUESTED CLARIFICATION:

Can you please confirm that \$1M Single/\$2M Agg General Liability with \$8M Umbrella/Excess is sufficient for subcontractors on the above referenced project?

RESPONSE TO CLARIFICATION:

According to 11.1.3, Subcontractor Insurance Requirements states: The Contractor shall require its Subcontractors to take out and maintain general liability insurance and property insurance required under Article 11.1 in like amounts.

As such, \$2M 'Per occurrence'; \$2M 'Project Specific Aggregate' Comprehensive Liability Coverage is required.

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjusd.net rduncan@eci-team.com

DATE:	06/17/2026		
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	C-2.0 & AS-1.0

REQUESTED CLARIFICATION:

There is a discrepancy between plan sheets C-2.0 and AS-1.0 regarding the limits of removal for existing concrete paving, asphalt, and landscaping. Please confirm the correct removal layout, as the square footages shown on the two sheets do not match.

RESPONSE TO CLARIFICATION:

Follow the limits of removal identified on sheet AS-1.0. Civil will update sheet C-2.0 to align with Architectural sheet and will be updated in Addendum #3.

B.Jester RCA 6/17/26

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjusd.net rduncan@eci-team.com

DATE:	6/17/26		
FROM:	[REDACTED]		
DOCUMENT/DIVISION NUMBER:	Power Site Plan	DRAWING NUMBER:	E-2 / E-3

REQUESTED CLARIFICATION:

EV Count on page E-2 does not match single line on page E-3

EV count = 14 on page E-2

Breakers for EV Chargers are only 11 per single line on E-3

Please clarify or correct single line so the EV gear will be priced accordingly.

**RESPONSE TO CLARIFICATION:**

There are (11) DC fast charger connected to new panel "EVDC" and there are (3) level 2 chargers connected to existing panel "EV".

Irwan Yowanto
06/18/26

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjusd.net rduncan@eci-team.com

DATE:	6/17/26		
FROM:	[REDACTED]	EMAIL:	[REDACTED]
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	

REQUESTED CLARIFICATION:
Please Provide Trenching Detail
RESPONSE TO CLARIFICATION:
For Trenching Details please see sheet ASD-1.0 Details 7 and 12 for both Concrete and Asphalt. B.Jester RCA 6/18/26

PRE-BID CLARIFICATION FORM (For Contractor's Use)

Attach additional numbered sheets as necessary; however, only one (1) request shall be contained on each submitted form

PROJECT NAME:	TRANSPORTATION YARD – INFRASTRUCTURE PROJECT		
BID NUMBER:	26-29FAC		
TO:	Jay Kim Randy Duncan	EMAIL:	Jay_kim@cjusd.net rduncan@eci-team.com

DATE:	6/17/26		
FROM:		EMAIL:	
DOCUMENT/DIVISION NUMBER:		DRAWING NUMBER:	

REQUESTED CLARIFICATION:
Please Provide Detail for EV Foundation
RESPONSE TO CLARIFICATION:
See sheet ASD-2.0 DETAIL 30 for mounting pedestal detail. Please also review manufacturers product data for additional support information. EV Charging Cut sheets to be provided with Addendum #3 B.Jester RCA 6/18/26



IV. DRAWINGS (REDLINE CLOUDED CHANGES)

Refer to Separate Electronic File entitled –
DRAWINGS -REDLINES CLOUDED-ADDENDUM 03-
2026-06-23.



V. DRAWINGS (UPDATED BID SET)

Refer to Separate Electronic File entitled:
DRAWINGS -UPDATED BID SET-ADDENDUM 03-2026-06-23.

Colton Joint Unified School District

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VI. APPENDICES



APPENDIX A – REDLINE SPECS (CHANGES)

SPECIFICATION SECTION(S)

31 22 00

31 23 16

31 23 16.13

Colton Joint Unified School District

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Owen Chang, Director of Facilities and Energy Management



SECTION 31 22 00

GRADING

SECTION 31 22 00 GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordinate work of this Section to compliment and coordinate with field conditions and Civil Drawing noted specific referenced requirements. Utilize the most stringent requirements.
- B. Rough grading and consolidation/compaction the site for site structures.
 - 1. Preparation for excavation, trenching, backfilling and compacting Work.
- C. Fine grading.
- D. Excavation of subsoil, stockpiling for later reuse, and removal of excess from the site.
- E. Preparing of subgrade for walks, pavements and site retaining walls.
- F. Excavating, backfilling and compaction for wet utility lines.

1.02 RELATED REQUIREMENTS

- A. ~~Document 00 31 00 - Available Project Information: Geotechnical Report(s).~~
- B. Section 31 10 00 - Site Clearing.
- C. Section 31 23 16 - Excavation.
- D. Section 31 23 23 - Fill.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1910.266 - Logging Operations.
- B. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.
 - 1. Accurately record location of all changes in finish elevations and gradients which materially affect drainage.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: For conditions not covered in this Section, refer to applicable provisions of the California Building Code (CBC), Chapter 18A - Soils and Foundations, as amended and adopted by authorities having jurisdiction.
- B. Perform Work in accordance with locally adopted {\rs\#1} standards.
 - 1. Maintain one copy on-site.

1.06 FIELD CONDITIONS

- A. Ambient Conditions: Terminate work during hazardous environmental conditions in accordance with 29 CFR 1910.266.
- B. Existing Conditions: See site and utility survey, existing conditions survey, and site drawing; see Section 00 31 00 - Available Project Information.

1.07 PROTECTION

- A. Dust Control: Comply with requirements specified in Section 01 50 00 - Temporary Facilities and Controls.
- B. Protection:
 - 1. Comply with general requirements specified in Section 01 50 00 - Temporary Facilities and Controls.
 - 2. Provide protection for walks, curbs, drains, and trees and boxing around corners of existing buildings to prevent damage.
 - 3. Keep adjacent roads, streets and drives clear of dirt and debris from earthwork operations.
- C. Underground Utilities:
 - 1. Buried utility lines may exist.
 - 2. If such are encountered, notify Owner Representative, Architect and District and for directions to be followed for preservation, relocation or demolition of utilities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Gravel: Excavated on-site.
 - 1. Graded according to ASTM D2487 Group Symbol GW, GP, or SP.
- B. Shoring and Bracing: Provide all materials and services necessary to properly engineer and construct shoring for excavations. Selection of materials and design of shoring, underpinning and bracing of new and existing structures shall be solely the responsibility of the Contractor.
 - 1. Shoring design shall comply with State of California Trenching and Shoring Manual issued by Offices of Structure Construction; 2011.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify survey bench mark and intended elevations for grading areas are as indicated.
- B. Verify the absence of standing or ponding water.
- C. Upon discovery of unknown utility or concealed conditions, discontinue affected Work and notify AHJ, Architect and District for direction. Unforeseen conditions shall be resolved in accordance with the General Conditions.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect above- and below-grade utilities to remain.
 - 1. Maintain and protect existing utilities remaining which pass through Project area.
- D. Notify utility company to remove and relocate utilities, as required.
- E. Provide temporary means and methods to remove standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to bench marks, survey control points, and fences.
- G. Remove topsoil in accordance with Section 31 10 00.
- H. Excavate materials in accordance with Section 31 23 16.
- I. Fill and backfill in accordance with Section 31 23 23.

3.03 ROUGH GRADING

- A. Excavate and fill subgrade material to elevations indicated on plans.
- ~~B. Comply with Geotechnical Report and field directives of geotechnical engineer on-site.~~
- C. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, in excess of 1 inch in size.
- D. Remove and replace unsuitable materials as specified fill.
- E. Grade top perimeter of excavations to prevent surface water from draining into excavation.
 - 1. Provide dewatering of excavations as required to ensure suitable conditions for concrete and backfilling operations.
- F. Uniformly grade areas as shown on Drawings to tolerances specified in this Section..
 - 1. Evenly grade between points where elevations are shown or between points of Work and existing grades.
- G. Slope rough grade away from building perimeter at gradient indicated.
 - 1. Upaved area slope for a distance of 10 feet from the building: Not less than one unit vertical in 20 units horizontal or 5 percent.
 - a. CBC Section 1804A.4.
 - 2. When supported by soil conditions and climate; slope not less than 1:48 or 2 percent in unpaved areas.
 - a. CBC Section 1804A.4, Exception.
- H. Make grade changes gradual. Blend slopes into level areas.

3.04 FINE GRADING

- A. Scrape and spread subgrade material uniformly smooth and without disruptions as indicated on drawings.
- B. Slopes: Transition smoothly to adjacent areas.
- C. See Section 31 23 23 for final compaction.

3.05 TOLERANCES

- A. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).
- B. Top Surface Under Paving: Plus or minus 0.04 foot (1/2 inch) from required elevation.
- C. Top Surface Under Footings and Foundations: Plus 0, minus 0.2 foot (2.4 inch).

3.06 CLEANING

- A. See Section 01 70 00 - Execution and Closeout Requirements for additional requirements.
- B. Remove unused stockpiled subsoil. Grade stockpile area to prevent standing water.
- C. Leave site clean and raked, ready to receive work.

3.07 PROTECTION

- A. Protect completed grading from erosion from weather and traffic.
- B. Over-excavate and recompact areas damaged by construction activities and weather.

END OF SECTION

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SECTION 31 23 16

EXCAVATION

SECTION 31 23 16 EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Support and protection.
- B. Dewatering.
- C. Excavation.
- D. Excavation repairs.

1.02 RELATED REQUIREMENTS

- A. Section 02 41 00 - Demolition.
- B. Section 31 10 00 - Site Clearing.
- C. Section 31 22 00 - Grading.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Review ground-penetrating radar results with Architect.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Delegated Design Documents: Support and protection plan drawings and calculations sealed by designer.
- C. Field Quality Control Submittals: Document visual inspection of loadbearing excavated surfaces.
- D. Shoring installer's qualification statement.
- E. Testing agency's qualification statement.
- F. Project Record Documents: Record drawings at project closeout; see Section 01 70 00 - Execution and Closeout Requirements. On drawings, show locations of installed support materials left in place, including referenced locations and depths.

1.06 QUALITY ASSURANCE

- A. Shoring Installer Qualifications: Company specializing in performing the shoring and bracing work of this section with minimum five years of documented experience.

1.07 FIELD CONDITIONS

- A. Ambient Conditions: Do not perform excavation during periods of heavy rain as directed by Architect.

- B. Existing Conditions: See site and utility survey, ~~geotechnical report~~, hazardous material survey, existing conditions survey, and site drawing; ~~see Section 00 31 00.~~
- C. Utility Location: Notify Call Before You Dig (811) before excavation to request approximate underground utility marking.
- D. Stormwater: Comply with requirements, see Section 01 57 13 - Temporary Erosion and Sediment Control (SWPP).

1.08 COORDINATION OF SPECIFICATION REQUIREMENTS

- A. Coordinate these Specification Section requirements with specifications included on Drawings. Comply with more stringent requirements and with those requirements of authorities having jurisdiction.
- ~~B. Comply in full with the direction (recommendations) given in the Geotechnical Report.~~

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DIG ALERT NOTIFICATION

- A. Before any excavation in or near the public right-of-way, contact the Underground Service Alert of Southern California (Dig Alert) at 811 for information on buried utilities and pipelines.
- B. Delineation of the proposed excavation site is mandatory. Mark the area to be excavated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- C. Call at least Two (2) full working days prior to digging.
- D. If the members (utility companies) have facilities within the work area, they will mark them prior to the start of your excavation and if not, they will let you know there is no conflict. A different color is used for each utility type (electricity is marked in red, gas in yellow, water in blue, sewer in green, telephone and cable TV in orange).
- E. The Law requires to hand expose to the point of no conflict 24 inches on either side of the underground facility, to know its exact location before using power equipment.
- F. If caught digging without a Dig Alert ticket fines can be as much as \$50,000 per California government code 4216.

3.02 EXAMINATION

- A. Verify survey bench mark elevations are as indicated on drawings.
- B. Survey existing adjacent structures and exterior improvements to establish exact elevations at fixed points for bench marking.
- C. Assess adjacent structures and exterior improvements to establish existing conditions. Notify Architect of existing cracks, sags, or other damages prior to starting work.
- D. Verify prevailing groundwater level is as indicated on drawings.

3.03 PREPARATION

- A. See Section 31 10 00 for site clearing and topsoil removal.

- B. Identify required lines, levels, contours, and datum locations.
- C. Protect survey bench marks, control points, and monuments from excavating equipment and vehicular traffic.
- D. Protect existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Protect plants, lawns, rock outcroppings, and other features to remain.
- F. Locate and identify known utilities to remain and protect from damage.

3.04 SUPPORT AND PROTECTION

- A. Excavation Safety: Comply with OSHA's Excavation Standard, 29 CFR 1926, Subpart P.
- B. Shoring Design: Comply with State of California Trenching and Shoring Manual issued by Offices of Structure Construction; 2011.
 - 1. Provide all materials and services necessary to properly engineer and construct shoring for excavations. Selection of materials and design of shoring, underpinning and bracing of new and existing structures shall be solely the responsibility of the Contractor.
- C. Underpin adjacent structures that could be damaged by excavating work, including utilities and pipe chases.
- D. Protect excavations from cave-in and from loose soil and other matter from falling in.
- E. Permanently leave in place excavation support and protection systems used as formwork or within 10 feet of existing foundations unless otherwise noted on drawings.
 - 1. Remove top 4 feet below grade.
- F. Remove support and protection systems not required to remain in place subject to approval of Architect.
 - 1. Prevent harmful disturbance to underlying soils and damage to buildings, structures, pavements, facilities, and utilities.
- G. See Sections 01 70 00 and 02 41 00 for underpinning and shoring of adjacent structures that could be damaged by excavating work.

3.05 DEWATERING

- A. Prevent surface water and groundwater from entering excavations and surrounding areas.
- B. Dispose of water without causing surface erosion, sediment buildup, or endangering public health or property.

3.06 EXCAVATION

- A. Grade top perimeter of excavation to prevent surface water collection.
- B. General Excavation:
 - 1. Excavate to indicated contours, elevations, and grades.
 - 2. Classified Excavation: Classify excavated material as rock and earth.
 - a. Earth Excavation: Excavate material as indicated on drawings.
- C. Excavation for Exterior Improvements:
 - 1. Excavate to subgrade; do not disturb subsoils.

2. Compact subgrade as indicated on drawings.
- D. Excavate to accommodate new structures and paving/site structures.
 1. Excavate to specified elevations.
 2. Over-excavate to safely install, adjust, and remove forms, bracing, or supports necessary for installation of work.
 3. Hand trim excavations. Remove loose matter.
 4. Excavate subsoil from areas to be filled with structural fill, to construct foundations, footings, slabs on grade, paving and to achieve final finish grades.
 5. Over-excavate to working elevations for backfilling and compaction operations.
 6. Where excavations are made to a depth greater than that indicated, such additional depth shall be filled with concrete having the same compressive strength as specified for the footing.
 - a. Correct unauthorized and erroneous excavation at no change in Contract Time or Contract Sum.
- E. Notify Architect of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- F. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored, per CalOSHA requirements for Type C Soil.
 1. Machine slope banks of excavations to minimum 1 to 1 ratio horizontal to vertical or angle of repose, if less, until shored.
 - a. Exception: If authorized in writing by Geotechnical Engineer.
 - b. Slope must comply with local codes, ordinances and requirements of agencies having jurisdiction.
- G. Do not interfere with 45 degree influence line of bearing splay of foundations.

3.07 EXCAVATION REPAIRS

- A. Notify Architect of over-excavations.
- B. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23 at no additional cost.

3.08 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for additional requirements.
- B. Provide for visual inspection of load-bearing excavated surfaces by Architect and geotechnical consultant before placement of foundations.
- C. Resurvey existing adjacent structure and exterior improvement bench marks. Notify Architect of changes in elevations, positions, or slopes.
- D. Notify Architect of additional cracks, sags, or other damages to adjacent structures or exterior improvements occurring during work.
- E. Scarification, over excavation and all other excavations will be subject to the approval of the Geotechnical Engineer.

3.09 CLEANING

- A. See Section 01 70 00 - Execution and Closeout Requirements for additional requirements.
- B. Stockpile excavated material for re-use in area designated on-site; see Section 31 22 00.
- C. Remove excavated material unsuitable for re-use from site.
- D. Remove excess excavated material from site.
- E. Geotechnical engineer or other consultant as selected by District to test soils prior to export for disposition.

3.10 PROTECTION

- A. Divert surface water away from excavations.
- B. Keep excavations free of standing water.
- C. Maintain stability of banks and loose soils; prevent from falling into excavations.
- D. Maintain excavations in satisfactory, undisturbed condition.
- E. Protect bottom of excavations from freezing.

END OF SECTION

Colton Joint Unified School District

Frank Miranda, Ed.D., Superintendent

Gregory Fromm, Assistant Superintendent, Business Services Division

Owen Chang, Director of Facilities and Energy Management



SECTION 31 23 16.13 TRENCHING

SECTION 31 23 16.13 TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Trench excavation.
- B. Utility bedding and cover.
- C. Backfill and compaction.
- D. Dewatering.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 31 10 00 - Site Clearing.
- C. Section 31 22 00 - Grading.

1.03 REFERENCES

- A. 29 CFR 1926 - Safety and Health Regulations for Construction.
- B. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- C. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- D. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
- E. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
- G. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
- H. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- I. ASTM D6432 - Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation.
- J. SSPWC (Greenbook) - Standard Specifications for Public Works Construction.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate trenching with utility installation.
- B. Coordinate these Specification Section requirements with specifications included on Drawings and directions of the geotechnical engineer. Comply with more stringent requirements and with those requirements of the authorities having jurisdiction.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

Colton Joint Unified School District

Transportation Yard - Infrastructure Improvements

RCA Project No. 1-15-122 District Bid No. 26-29FAC

Trenching

31 23 16.13 - 1

- B. Samples: 10 lb sample of each type of fill; submit in air-tight containers to testing laboratory.
- C. Source Quality Control Submittals: Submit name of imported materials source.
 - 1. Results of gradation tests on proposed and actual materials used.
- D. Field Quality Control Submittals:
 - 1. Results of compaction density tests.
- E. Manufacturer's qualification statement.
- F. Installer's qualification statement.
- G. Compaction Density Test Reports.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum 3 years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of type specified, with minimum 3 years of documented experience.
- C. Documents at Project Site: Maintain at project site one copy of reference standard documents containing execution requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. See Section 01 74 19 - Construction Waste Management and Disposal for packaging waste requirements.
- B. Deliver fill to project site in advance of need.
- C. When fill materials need on-site storage, locate stockpiles where indicated on drawings.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Comprised of sand and gravel; free of shale, clay, friable materials, and debris.
 - 1. Fill Type : Subsoil excavated on-site.
 - a. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - b. Complying with ASTM D2487 Group Symbol CL.
- B. Granular Fill: Pit-run washed stone; free of shale, clay, friable materials, and debris.
 - 1. Graded in accordance with ASTM D2487 Group Symbol GW.
- C. Crushed Stone: Crusher-run, mineral aggregate, free of silt, clay, loam, friable or soluble materials, and organic matter.
 - 1. Grade in accordance with ASTM D2487 Group Symbol GM.
- D. Filter Fabric: Geotextile, capable of material separation.
 - 1. Geotextile: Nonbiodegradable, nonwoven.

- E. Sand: Natural river or bank, washed free of silt, clay, loam, friable or soluble materials, and organic matter.
 - 1. Grade in accordance with ASTM D2487 Group Symbol SW.
 - 2. Sand Equivalent: In accordance with ASTM D2419.
- F. Concrete: Ready mix.
 - 1. Ready for placement in accordance with ASTM C94/C94M.
 - 2. Backfill: See Section 03 30 00; compressive strength of 2,500 psi.

2.02 ACCESSORIES

- A. Underground Warning Tape: Suitable for direct burial.
 - 1. Bright-colored, continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mils, 0.004 inch thick.
- B. Buried Detection Wire: Copper, single strand, continuously insulated, 12 AWG, suitable for direct burial.

2.03 SOURCE QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for additional requirements.
- B. Test fill materials in accordance with specified standard before delivery to site.
- C. Nonconforming Materials: Change and retest.
- D. Provide materials of each type from same source or as directed by Architect.

PART 3 EXECUTION

3.01 DIG ALERT NOTIFICATION

- A. Before any excavation in or near the public right-of-way, contact the Underground Service Alert of Southern California (Dig Alert) at 811 for information on buried utilities and pipelines.
- B. Delineation of the proposed excavation site is mandatory. Mark the area to be excavated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- C. Call at least Two (2) full working days prior to digging.
- D. If the members (utility companies) have facilities within the work area, they will mark them prior to the start of your excavation and if not, they will let you know there is no conflict. A different color is used for each utility type (electricity is marked in red, gas in yellow, water in blue, sewer in green, telephone and cable TV in orange).
- E. The Law requires to hand expose to the point of no conflict 24 inches on either side of the underground facility, to know its exact location before using power equipment.
- F. If caught digging without a Dig Alert ticket fines can be as much as \$50,000 per California government code 4216.

3.02 EXAMINATION

- A. Verify survey benchmarks and intended elevations for work are as indicated on drawings.

- B. Perform assessment of adjacent structures and exterior improvements to establish existing conditions. Notify Architect of existing cracks, sags, or other damages prior to starting work.
- C. See Section 01 71 23 - Field Engineering for additional requirements.

3.03 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 31 10 00 for site clearing and topsoil removal.
- C. Protect survey benchmarks, control points, and monuments from excavating equipment and vehicular traffic.
- D. Protect existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Protect plants, lawns, rock outcroppings, and other features to remain.
- F. Locate and identify existing utilities to remain as indicated on drawings and protect from damage.
- G. Perform ground-penetrating radar surveys in accordance with ASTM D6432 for undocumented utilities to remain; protect from damage.
- H. Notify utility company to remove and relocate utilities as indicated on drawings.

3.04 SUPPORT AND PROTECTION

- A. Excavation Safety: Comply with OSHA's Excavation Standard, 29 CFR 1926, Subpart P.
- B. Abandon support and protection systems used as formwork or within 10 feet of existing foundations, unless otherwise noted on drawings.
 - 1. Remove top 4 feet below grade.
- C. Remove support and protection systems not required to remain in place, subject to approval of Architect.
 - 1. Prevent harmful disturbance to underlying soils and damage to buildings, structures, pavements, facilities, and utilities.

3.05 DEWATERING

- A. Prevent surface water and groundwater from entering excavations and surrounding areas.
- B. Dispose of water without causing surface erosion, sediment buildup, or endangering public health or property.

3.06 TRENCH EXCAVATION

- A. Grade top perimeter of excavation to prevent surface water collection.
- B. Notify Architect of unexpected subsurface conditions and discontinue affected work in area until notified to resume.
- C. General: Cut trenches neat and clean.
 - 1. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
 - 2. Do not interfere with 45-degree bearing splay of foundations.
 - 3. Cut trenches wide enough to allow inspection of installed utilities.

4. Hand trim excavations and remove loose matter.
5. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
6. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
- D. Utility Preparation: Rake trench bottom to uniform grade.
 1. Remove unsuitable subgrade and backfill.
 2. Compact subgrade to density equal to or greater than subsequent fill material requirements.
- E. Maintain trenches and prevent loose soil or rocks from entering.
- F. Remove excavated material that is unsuitable for re-use from site.
- G. Remove excess excavated material from site.
- H. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- I. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.
- J. Excavate subsoil required for conduits, storm drain, sanitary sewer, water and gas piping to on-site and municipal utilities.
 1. Pipe Depths:
 - a. Domestic Water:
 - 1) PVC: 36 inches plus pipe diameter plus 4 inch bedding.
 - 2) Other: 36 inches plus pipe diameter plus 4 inch bedding.
 - b. Sewer: Minimum 30 inches plus pipe diameter plus 4 inch bedding.
 - c. Storm Drain: Minimum 24 inches plus pipe diameter plus 4 inch bedding.
 - d. Irrigation Water:
 - 1) 3 inch diameter or less: 18 inches plus pipe diameter plus 2 inch bedding.
 - 2) 4 inch diameter or more: Same as domestic water.
 2. Trench Widths:
 - a. Domestic Water: 8 inches plus pipe diameter, min.
 - b. Sewer: 6 inches plus pipe diameter min.
 - c. Storm Drain: 6 inches plus pipe diameter, min..
 - d. Gas: 8 inches plus pipe diameter, min.
 3. Joint Trench:
 - a. Joint trenches are allowed in accordance with the current edition of the SSPWC (Greenbook) and local jurisdiction standards.
 - b. Submit a trench plan to the project engineer for approval prior to proceeding with joint trenches not shown on the plans. Do not assume joint trenches are allowed during bidding, unless joint trenches are shown on the Drawings.

3.07 UTILITY BEDDING AND COVER

- A. Crushed Stone: Compact to 95 percent of maximum dry density.
 - 1. Bedding: Fill to subgrade elevation; rake smooth.
 - 2. Cover: Completely cover utility.
- B. Sand: Compact in maximum 8-inch lifts to 95 percent of maximum dry density.
 - 1. Bedding: Fill to subgrade elevation; rake smooth.
- C. Filter Fabric: Position geosynthetic smooth and wrinkle-free on prepared surface; unroll or unfold carefully; avoid stretching.
 - 1. Wrap around crushed stone and utility assembly; overlap seams.
- D. Concrete: Place in accordance with ACI PRC-304.
- E. Inspect utility for damage from falling rock. Repair or replace damaged utility.

3.08 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.09 BACKFILL AND COMPACTION

- A. Backfill to contours and elevations indicated on drawings using unfrozen materials.
- B. Fill to subgrade elevations unless otherwise indicated on drawings.
- C. Employ placement method that does not disturb or damage other work.
- D. Systematically fill and compact as as to achieve 90 percent relative compaction without damaging conduit or pipe. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. General Fill: Place and compact materials in equal continuous layers not exceeding 8 inches compacted depth.
- G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth ~~or as directed by the Geotechnical Report.~~
- H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- I. Correct areas that are over-excavated.
 - 1. Thrust-Bearing Surfaces: Fill with concrete.
 - 2. Other areas: Use general fill, flush to required elevation, compacted to minimum 90 or 95 percent of maximum dry density as applicable for the fill area.
- J. Compaction Density Unless Otherwise Specified or Indicated:
 - 1. Under paving and similar construction: 95 percent of maximum dry density.
 - 2. At Other Locations: 95 percent of maximum dry density.
- K. Reshape and re-compact fills subjected to vehicular traffic.

- L. Underground Warning Tape:
 - 1. Install 6 to 8 inches below finished grade, directly above buried pipe.
- M. Buried Detection Wire: Install 6 to 8 inches below finished grade, directly above buried pipe.

3.10 TOLERANCES

- A. Maximum Variation from Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.
- B. Maximum Variation from Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.11 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements for general requirements for field inspection and testing.
- B. Compaction density testing will be performed on compacted fill in accordance with ASTM D1556 or ASTM D6938.
- C. Correct unauthorized excavation at no cost to District.
- D. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 modified proctor, AASHTO T 180, or ASTM D698 standard proctor.
- E. Nonconforming Work: For failed tests, remove work, replace, and retest.
- F. Frequency of Tests: Backfill mid-point and top.

3.12 CLEANING

- A. See Section 01 70 00 - Execution and Closeout Requirements for additional requirements.
- B. Stockpile excavated material re-used in area designated on-site; see Section 31 22 00.
- C. Remove excavated material that is not required or unsuitable for re-use from site.

3.13 PROTECTION

- A. Divert surface water away from excavations.
- B. Keep excavations free of standing water.
- C. Maintain stability of banks and loose soils; prevent from falling into excavations.
- D. Maintain excavations in neat and square, undisturbed condition.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for paving and site structures.
- B. Backfilling and compacting for utilities outside the building to utility main connections.
- C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.
- D. Lightweight concrete fill.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 31 22 00 - Grading: Site grading.
- C. Section 31 23 16 - Excavation: Removal and handling of soil to be re-used.
- D. Section 32 11 20 - Subbase and Aggregate Base Courses.

1.03 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: Indicated on drawings.

1.04 REFERENCE STANDARDS

- A. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
- A. ASTM C150/C150M - Standard Specification for Portland Cement.
- B. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
- C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
- E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- F. ASTM D4829 - Standard Test Method for Expansion Index of Soils.
- G. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- H. DTSC-Clean Fill - California Department of Toxic Substances Control - Clean Imported Fill Material.
- I. Greenbook - Greenbook: Standard Specifications for Public Works Construction.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Soil Samples: 10 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.
 - 1. Submit samples directly to Geotechnical Engineer for testing and analysis copy transmittals to Architect and District.
- C. Materials Sources: Submit name of imported materials source.
- D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
- E. Compaction Density Test Reports.
- F. Manufacturer's Instructions.
- G. Manufacturer's Qualification Statement.
- H. Specimen Warranty.
- I. Provide proof that all imported materials conform to the requirements of DTSC-Clean Fill Imported Fill Materials for School Sites by proper documentation for the imported materials.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.
- B. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where agreed to.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

1.08 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Subsoil excavated on-site.
 - 1. Graded.

2. Free of lumps larger than 3 inches, rocks larger than 3 inches, and debris; are suitable for use as fill at depths minimum 18 inches below the final building pad level.
3. Complying with ASTM D2487 Group Symbol CL.
- B. Import soils shall not have any corrosion impacts to buried concrete; and be non-expansive (Expansion Index less than 20 per ASTM D4829).
- C. Structural Fill: Subsoil excavated on-site.
 1. Graded.
 - a. Test soil for potential contamination in accordance with DTSC-Clean Fill protocols.
 2. Free of organic matter, debris, and oversize particles (e.g., cobbles, rubble, etc. that are larger than 3 inches, rocks larger than 3 inches. Fill shall contain at least fifty percent of material smaller than 1/4 inch in size.
 3. Imported fill materials: The soil shall be tested for potential contamination in accordance with DTSC-Clean Fill protocols.
 - a. Import sandy soil shall be free of organics, debris and oversize particles (e.g., cobbles, rubble, rocks, etc. that are greater than 3 inches in the largest dimension).
 - b. Additionally, import soils shall not have any corrosion impacts to buried concrete; and be non-expansive (Expansion Index less than 21 per ASTM D4829).
 - c. Prior to import, geotechnical consultant shall evaluate and test the import soils in order to confirm the quality of the material.
 4. On-site soils should only be used as specified in the Soils Report.
 5. Complying with ASTM D2487 Group Symbol CL.
- D. Granular Fill- Fill Type GM, GW: Coarse aggregate, conforming to Uniform Standard Specifications for Public Works Construction Off-Site Improvements standard.
- E. Granular Fill - Pea Gravel: Natural stone; washed, free of clay, shale, organic matter.
 1. Grade in accordance with ASTM D2487 Group Symbol GP.
- F. Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter.
 1. Grade in accordance with ASTM D2487 Group Symbol SP or SW.
- G. Engineered Fill - Lightweight Concrete:
 1. Finished Properties, Class II Engineered Fill:
 - a. Cast Density, Maximum: 30 pounds per cubic foot.
 - b. Compressive Strength, Minimum: 41 pounds per square inch.
 2. Materials:
 - a. Cement: ASTM C150/C150M.
 - b. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.
 - c. Admixtures: As recommended by lightweight concrete fill manufacturer.
 - d. Expansion Material: Manufacturer's recommended expansion material.
 - e. Mix Design: By manufacturer.

- f. Basis of Design Product: Elastizell EF as manufactured by Elastizell Corporation of America; www.elastizell.com, or approved equal.

2.02 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, non-woven; Geotex 801 manufactured by Propex Geotextile Systems, geotextile.com.

2.03 SOURCE QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for testing and analysis of soil material.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.
- E. Comply with EPA/DTSC-Clean Fill requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify structural or other backfill materials to be reused or imported are acceptable to the satisfaction of the Geotechnical Engineer. Approval shall be obtained in advance of re-use or importation onto the site.
 - 1. Test soil for potential contamination in accordance with DTSC-Clean Fill protocols.
 - 2. Provide imported fill materials compatible with on-site soils in addition to being suitable for its intended use with the following criterion, as allowed by the Geotechnical Engineer.
 - a. Predominantly granular in nature.
 - b. Containing no rocks larger than 3 inches maximum dimension.
 - c. Free of organic material (loss on ignition less-than 2 percent).
 - d. Very low expansion potential (with an Expansion Index less than 21).
 - e. Low corrosion impact to the proposed improvements.
- B. Verify that survey bench marks and intended elevations for the Work are as indicated.
- C. Identify required lines, levels, contours, and datum locations.
- D. See Section 31 22 00 for additional requirements.
- E. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- F. Verify structural ability of unsupported walls to support imposed loads by the fill.
- G. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

- A. Scarify and proof roll subgrade surface to a depth of 8 inches to identify soft spots.

- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with AWS D1.4/D1.4M Type II or concrete fill and compact to density equal to or greater than requirements for subsequent backfill material.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Prior to placement of aggregate base course material at paved areas, compact subsoil to 95 percent of its maximum dry density in accordance with ASTM D1557.
- E. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Fill up to subgrade elevations unless otherwise indicated.
 - 1. Place fill soils compacted in horizontal lifts to a relative compaction of 90 percent or more in general accordance with ASTM D1557.
 - 2. Lift thickness for fill soils will vary depending on the type of compaction equipment used but should generally be placed in horizontal lifts not exceeding 8 inches in loose thickness.
 - 3. Place fill soils at slightly above optimum moisture content as evaluated by ASTM D1557.
 - 4. Avoid damage to wet and dry utility lines when compacting fill and subgrade materials.
- C. Employ a placement method that does not disturb or damage other work.
 - 1. Do not disturb or damage foundation perimeter drainage and foundation waterproofing and protective cover utilities in trenches.
- D. Systematically fill and compact per ~~geotechnical report~~ ^{Pre-Bid RFI 014 Response}. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.
- H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- I. Correct areas that are over-excavated.
 - 1. Load-bearing foundation surfaces: Fill with concrete.
 - 2. Other areas: Use general fill, flush to required elevation, compacted to minimum 90 or 95 percent of maximum dry density in subgrade zone.
- J. Compaction Density Unless Otherwise Specified or Indicated:
 - 1. Under paving, slabs-on-grade, and similar construction: 90 percent of maximum dry density.
 - 2. At upper 12 inches beneath vehicular pavements: 95 percent of maximum dry density.
 - 3. At other locations: At least 90 percent of maximum dry density.
- K. Reshape and re-compact fills subjected to vehicular traffic.

- L. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- M. Remove surplus fill and backfill materials from site.

3.04 ENGINEERED FILL - LIGHTWEIGHT CONCRETE

- A. Install lightweight concrete fill according to manufacturer's written instructions.
 - 1. The area to be filled shall not have any standing water in it prior to fill placement. Set and stabilize items encased in the fill prior to installation.
- B. Use automated batching, mixing, and placing equipment approved by the manufacturer.
 - 1. Place the Engineered Fill in lifts in such a manner to prevent segregation. The final surface finish shall be within ± 5.0 cm (0.16 foot) of plan elevation.
- C. Prevent segregation of material.
- D. Tolerance: Finished surface within 2 inches of elevation indicated on drawings.

3.05 FILL AT SPECIFIC LOCATIONS

- A. Use general fill unless otherwise specified or indicated.
- B. Structural Fill:
 - 1. Use general fill.
 - 2. Fill up to subgrade elevations.
 - 3. Maximum depth per lift: 6 inches, compacted.
 - 4. Compact to minimum at least 90 percent of maximum dry density.
- C. Over Buried Utility Piping, Conduits, and Duct Bank in Trenches:
 - 1. Bedding: Use general fill.
 - 2. Cover with general fill.
 - 3. Fill up to subgrade elevation.
 - 4. Compact in maximum 8 inch lifts to at least 90 percent of maximum dry density. Compact to at least 95 percent in subgrade zone.
- D. At Planting Areas Other Than Lawns :
 - 1. Use general fill.
 - 2. Fill up to finish grade elevations.
 - 3. Compact to at least 90 percent of maximum dry density.
 - 4. See Section 32 91 19 for topsoil placement.
- E. Under Monolithic Paving :
 - 1. Compact subsoil to at least 90 percent of its maximum dry density before placing fill.
 - 2. Use general fill.
 - 3. Fill up to subgrade elevation.
 - 4. Compact to at least 90 percent of maximum dry density; , 95 percent in upper 12 inches.

5. See Section 32 11 20 for aggregate base course placed over fill.

3.06 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.
- B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.07 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
 1. Laboratory Tests and Analyses: Where backfill is required to be compacted to a specified density, tests for compliance shall be made in accordance with requirements specified in Section 01 40 00 - Quality Requirements.
- B. Perform compaction density testing on compacted fill in accordance with ASTM D1556 or ASTM D6938.
 1. Field inspections and testing shall be performed and submitted in accordance with requirements specified in Section 01 40 00 - Quality Requirements.
 2. Allow testing service to inspect and approve each subgrade and fill layer before further fill, backfill or construction Work is performed.
 3. Alternate Density Test Method:
 - a. Field density tests may also be performed by the nuclear method in accordance with ASTM D6938, providing that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D1556/D1556M.
 - b. In conjunction with each density calibration check, check the calibration curves furnished with the moisture gages in accordance with ASTM D6938.
 - c. If field tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of Work, on each different type of material encountered, and at intervals as directed by Architect or District's testing and inspection agency.
- C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 1557 ("modified Proctor") or AASHTO T 180.
- D. Non-compliance: If tests indicate work does not meet specified requirements, remove work, replace and retest.
 1. Should tests of fill or backfill indicate non-compliance with required density, Contractor shall over-excavate, recompact and retest until specified density is obtained.
 2. Costs and Time associated with remedial Work and retesting shall be in accordance with provisions of the General Conditions.
 3. Retesting to demonstrate compliance shall be by a testing laboratory acceptable to District and shall be at Contractor's expense.
- E. Frequency of Tests:
 1. Footing Subgrade Testing:
 - a. For each strata of soil on which footings will be placed, perform at least one in-place density test to verify required design bearing capacities.

- b. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata when acceptable to Geotechnical Engineer.
 - 2. Paved Areas and Building Slab Subgrade Testing:
 - a. Perform at least one field density test of subgrade for every 2,000 sf of paved area or building slab, but in no case fewer than three tests.
 - b. In each compacted fill layer, perform one field density test for every 2,000 sf of overlaying building slab or paved area, but in no case fewer than three tests.
 - 3. Foundation Wall Backfill Testing: Perform at least two field density tests at locations and elevations as directed.
- F. Proof roll compacted fill at surfaces that will be under slabs-on-grade.

3.08 CLEANING

- A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.
- B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

Colton Joint Unified School District

Frank Miranda, Ed.D., Superintendent

Gregory Fromm, Assistant Superintendent, Business Services Division

Owen Chang, Director of Facilities and Energy Management



END OF ADDENDUM NO. 03