KAESTLE BOOS
associates, inc

A D D E N D U M N O . 2

ATHLETIC FACILITIES RENOVATION
PROJECT
DERBY HIGH SCHOOL
Derby, CT
KBA #17015.00 |CITY PROJECT NO. COD-02

Date: March 20, 2018

The following changes to the Project Manual shall become a part of the Drawings, Specifications, Bidding Requirements and Contract Documents; superseding previously issued Drawings, Specifications, Bidding Requirements, Contract Documents and Addenda, to the extent modified by this Addendum.

PREVIOUS BID CLARIFICATIONS
BID DATE REMAINS (PER ADDENDA #1): MONDAY, APRIL 2, 2018, time remains the same

CLARIFICATIONS

DEADLINE FOR QUESTIONS HAS BEEN EXTENDED FROM 3/21/2018 **UNTIL 3/22/2018, 12 NOON.**

Synthetic Turf and Track Materials:
AstroTurf Corporation is the apparent low bidder of the track and turf material bid. General Contractors are responsible for contracting with AstroTurf Corporation and carrying their price within the bid. General Contractor shall coordinate with AstroTurf all testing requirements, performance bonds if required from subcontractors, and other items to ensure General Contractors Bids are all inclusive for a complete project per the Project Documents.

Synthetic Grass Sports Field Surfacing System: $615,908.00
Running Track Surfacing System: $238,503.00

BIDDER QUESTIONS:

Q: Where are the specifications for chain link fence, gates and timber guide rail. Sections are missing.
A: See attached specification sections 32 31 01 – Wood Guide Rail and Section 32 31 13 Chain Link Fences and Gates for your reference. NOTE: these sections are identical to those provided in the bid documents, no changes have been made.

Q: Division 1, Section 01 5000 Temporary Facilities and controls: Is there temporary fence required for this project, please provide layout plan.
A: Scope and extents of fencing is means and methods that are the responsibility of the contractor. Contractor shall coordinate locations and extents as required to secure the site. Existing fencing can be utilized where practicable.

Q: "Should we include on Site work the Retaining Walls?"
A: All site work associated with wall installation shall be part of the bid, including all wall materials, labor and warranties. See addenda 1 for wall details and specification.

Q: Please clarify security requirements ITB states not less than 5% of Bid. Instructions to bidder's page 3 of 6 states security to be equal to at least 10% of bid.
A: Security shall be at least equal to 10% of bid. Disregard Security requirements noted on the ITB.

Q: Would it be possible to extend bid question deadline until Friday? [3/23/2018].
A: Deadline for question has been extended to Thursday 3/22 12 noon.

KAESTLE BOOS
associates, inc

A D D E N D U M N O . 2

ATHLETIC FACILITIES RENOVATION
PROJECT
DERBY HIGH SCHOOL
Derby, CT
KBA #17015.00 |CITY PROJECT NO. COD-02

Date: March 20, 2018

Q: Will Local Permit Fees be waived?
A: No. Contractor is required to pay fees per 260400, 1.8A.

Q: Will the Town pay UI utility disconnect fees directly, if required?
A: Yes. Assume that town will pay UI disconnect fees, if required.

Q: Can Photos of existing 100-amp 120/240-volt electrical panel, subpanel and wiring in existing building be provided?
A: Photographs are not available.

Q: Can a list be provided of existing circuit breakers required to be included in new Panel 'FH" for existing branch circuits?
A: A list of existing circuit breakers is not available.

Q: Does existing overhead 100-amp services (meter/Nema 3R Panel) mounted on wooden utility pole located next to flag pole and existing scoreboard at baseball [Softball] field on Nutmeg Avenue that supplies power to field lighting and scoreboard need to be removed?
A: The pole and service for lighting shall remain and shall be discontinued at the pole. Disconnect branch circuit feeding the scoreboard and refeed from panel replacement 'FH' as indicated on the drawings.

Q: Do general contractors need to be prequalified with CT DAS in order to bid this project?
A: Yes. Per State of CT grant funding requirements.

Q: Section 312000, 3.8B, says do not proceed with excavation of rock until necessary measurements have been taken. Can a unit price be added to bid form for rock removal, if such is encountered when performing work?
A: Omit Section 31 20 00 EARTHMOVING dated 2/28/2018 included in the bid. Substitute included Section 312000 Earthmoving dated 3/20/2018 included with this addendum. Omit previous versions of the bid form and substitute the included Section 00 00 00.11 Form of Proposal.

Q: Section 015000 Temporary Facilities and Controls list materials such as gypsum board, tarpaulins and insulation. Are these materials relevant to this project?
A: No. Please disregard non-relevant materials.

Q: Also included in this spec section is Temporary Use of Elevator and Temporary Fire Protection. Is this relevant to this project?
A: No. Please disregard non-relevant measures and materials

Q: In Section 017300 it lists Progress Project Surveys, Certified Surveys, and Final As-Built Surveys all prepared in AutoCAD by a professional land surveyor. Can you please clarify the frequency of the Progress Project Surveys and how many of each survey will be required?
A: For track pavements Refer to section 32 12 16.01 item 3.7 G. For Synthetic turf field stone base: refer to Section 33 46 16 – item 3.2. Contractor is also responsible for the final as-built survey – frequency and coordination for updating construction information in order to provide an accurate, final as-built is the responsibility of the contractor.

KAESTLE BOOS
associates, inc

A D D E N D U M N O . 2

ATHLETIC FACILITIES RENOVATION
PROJECT
DERBY HIGH SCHOOL
Derby, CT
KBA #17015.00 |CITY PROJECT NO. COD-02

Date: March 20, 2018

Q: Section 312000, 3.9F says to refer to Section 312334, Part 3.1 for structural fill compaction requirements. I don't have this spec section. Can you please clarify the compaction requirements?
A: Disregard this reference (31 20 00 3.9 F item 4). Structural fill requirements for this project shall be the same as Section 312000, 3.9 F items 1 & 2.

Q: Is the contractor responsible for paying for the field density testing? If so, can you please provide frequencies?
A: Yes, Refer to Section 33 46 16 (field subdrainage system) – item 1.7. Contractor is responsible for all materials testing.

Q: If the synthetic turf and synthetic track surfacing are separate contracts, are we to still include coordination with their work?
A: Yes. General contractors shall carry the contract with the selected turf/track vendor/installer and be responsible for all coordination.

Q: Will a grading plan be provided for the field events area?
A: This plan will be issued as part of a later addenda.

END OF QUESTIONS

CHANGES TO SPECIFICATIONS

Section 31 20 00 EARTHMOVING:
OMIT Section 31 20 00 EARTHMOVING dated 2/28/2018 included in the bid in its entirety. Substitute included Section 312000 Earthmoving dated 3/20/2018 included with this addendum.

Section 00 00 00.11 Form of Proposal:
OMIT all previous versions of this section in their entirety and substitute the included Section 00 00 00.11 Form of Proposal dated 3/20/2018.

CHANGES TO DRAWINGS

None

ATTACHMENTS

Prebid meeting sign-in sheet. (1 page)

Turf and Track Material Bid Results (Astroturf Corp. 9 pages)

Specifications:
Section 00 00 00.11 Form of Proposal - 4 pages dated 3/20/2018
Section 31 20 00 EARTHMOVING – 16 pages dated 3/20/2018
Section 32 31 01 – Wood Guide Rail - 3 pages dated 2/28/2018
Section 32 31 13 - Chain Link Fences and Gates – 16 pages dated 2/28/2018

KAESTLE BOOS
associates, inc

PRE-BID SIGN-IN

DERBY HIGH SCHOOL ATHLETIC FACILITIES
RENOVATION PROJECT
Derby, CT
KBA #17015.00

10:00 a.m. March 14, 2018

NON-MANDATORY PRE-BID MEETING

Representative Name	Company Name	Phone/Fax
Mark Dickson	L. Holzner Electric Co.	203-335-4204
Nick DeRita	DeRita & Sons Const. Co	860-558-8642
Andrew Dyjak	Field Turf	(860)333-7859
Ed Hellauer	Guerrera Const.	203.888.5065
Mike MAHANEY	UNISCO	860 453 4325
Tim Belansky	Shock Electric	203-748-5690
FitzRoy Smith	DANNY Home Improv	2034244709
Joe Ignagni	NASDI, LLC	978-701-7063
Deb Reading	Northeast Building Group	203.618.4636
DAVID GREENFIELD	YAZ QUALITY WORKS	(203) 336-5229
Bob Lord	Astro Turf	774-513-0024
Mike Worobel	Earthworks Exc	203-881-9620

FORM OF PROPOSAL

SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR THE ATHLETIC FACILITIES RENOVATION PROJECT & THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD DERBY HIGH SCHOOL DERBY, CT CITY PROJECT NO. COD 2018-02

TO: Salvatore Coppola, Finance Director
Finance Office
Derby City Hall
1 Elizabeth Street
Derby, CT 06418

Pursuant to and in compliance with your "Invitation to Bid" relating thereto, the undersigned,

ASTROTURF CORPORATION
(Name of Firm)

having visited the site and carefully examined the Drawings, Bidding Documents and complete Specifications **dated February 28, 2018** together with all Addenda issued and received prior to scheduled closing time for recipient of Bids as prepared by the Architects, KAESTLE BOOS ASSOCIATES, INC., 416 Slater Road, New Britain, Connecticut, hereby offers and agrees as follows:

To provide all labor, materials, and all else whatsoever necessary to erect and properly finish all work in connection with the

SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR THE ATHLETIC FACILITIES RENOVATION PROJECT & THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD at DERBY HIGH SCHOOL DERBY, CT

to the satisfaction of the Architect and Owner for the sum of:

J.R. Payden Field House & Payden Baseball Field (non-prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

SIX HUNDRED TWENTY THOUSAND THREE HUNDRED NINETY FOUR ($620,394.00)

Synthetic Grass Landscape Surfacing System

TWENTY THOUSAND FOUR HUNDRED FOURTEEN ($20,414.00)

Derby High School Athletic Facility Renovations COD 2018-02 (prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

SIX HUNDRED FIFTEEN THOUSAND NINE HUNDRED EIGHT ($615,908.00)

Running Track Surfacing System

TWO HUNDRED THIRTY EIGHT FIVE HUNDRED THREE ($238,503.00)

TOTAL BID

ONE MILLION FOUR HUNDRED NINETY FIVE THOUSAND TWO HUNDRED NINETEEN ($1,495,219.00)

to provide all labor, materials, and all else whatsoever necessary to construct all improvements described in the specifications.

If awarded this Contract, we will execute a Contract with the **General Contractors** award the various projects based on the lowest qualified total bid price.

UNIT PRICES

Not Applicable

ALTERNATES

Not Applicable

CONTRACT TIME

The undersigned Bidder hereby certifies that Substantial Completion and Final Completion will be achieved in accordance with the time designated in the General Conditions of the Contract for Construction.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum No. # 1 Dated MARCH 9, 2018

Addendum No. # 2 Dated MARCH 16, 2018

Addendum No. # _____ Dated _____

ATTACHMENTS

1. Non-Collusion Affidavit
2. Bid Submittals as required under Specification Section 32 18 13 "Synthetic Grass Surfacing", 1.5 "Submittals", A. "Bid Submittals"

SIGNATURE

ASTROTURF CORPORATION
Contractor Firm

Authorized Signature

TODD RUSH, AUTHORIZED SIGNER
Printed Name and Title

2680 ABUTMENT RD, SE
Business Address

DALTON, GA 30721
City and State

706-979-1384
Telephone Number

412-252-2711
Telephone Fax Number

NON-COLLUSION AFFIDAVIT
CITY PROJECT NO. COD 2018-02

State of PENNSYLVANIA)
)ss.
County of ALLEGHENY)

TODD RUSH, being first duly sworn, deposes and says that:

(1) He is (~~owner, partner, officer,~~ representative or agent) of ASTROTURF CORPORATION, the Bidder that has submitted the attached bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid,

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from Bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) Todd Rush

AUTHORIZED SIGNER
(Title)

ASTROTURF CORPORATION SEAL 2016 GEORGIA

Subscribed and sworn to before me
this 16th day of MARCH, 2018.

Janelle M. Jones
(Notary Public)

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Janelle M. Jones, Notary Public
Sharpsburg Boro, Allegheny County
My Commission Expires Aug. 2, 2020
MEMBER PENNSYLVANIA ASSOCIATION OF NOTARIES

My commission expires August 2, 2020.

CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: ASTROTURF CORPORATION

Address and Zip Code: 2680 ABUTMENT ROAD, SE
DALTON, GA 30721

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes ____ No X *(If answer is yes, identify the most recent contract,)*

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   Yes ____ No X *(If answer is yes, identify the most recent contract.)*

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
   Yes ____ No ____ None Required X

4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.
   The item required of Astroturf Corporation

Certification - The information above is true and complete to the best of my knowledge and belief.

TODD RUSH, AUTHORIZED SIGNER
Name and Title of Signer (Please Type)

Signature

MARCH 16, 2018
Date

CERTIFICATION OF SUBCONTRACTOR REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

ASTROTURF CORPORATION
Name of Prime Contractor

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the Owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: ATT Sports, Inc

Address and Zip Code: 115 B Grass Keys Road
Berlin, NJ 08009

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes X No ____

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   Yes X No ____

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
   Yes X No ____ None Required ____

4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Darren Anderson, Chief Estimator
Name and Title of Signer (Please Type)

Signature 3-16-18 *Date*

CERTIFICATION OF SUBCONTRACTOR REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

AstroTurf Corporation
Name of Prime Contractor

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the Owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: Patterson-Starcher Sports Turf LLC

Address and Zip Code: 458 Buckeye Trail
Chillicothe, Oh. 45601

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes ____ No X

2. Compliance reports were required to be filed in connection with such contract or subcontract.
   Yes ____ No X

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
   Yes ____ No ____ None Required X

4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Randy L. Patterson- owner
Name and Title of Signer (Please Type)

Signature

March 16, 2018
Date

AstroTurf SINCE 1965
powered by sportgroup
THE SURFACE SPECIALISTS

The first name in turf ...and all that's around it.

March 16, 2018

SYNTHETIC TURF AND RUNNING TRACK SURFACING
FOR DERBY HIGH SCHOOL
ATHLETIC FACILITIES RENOVATION PROJECTS

RE: Specification Section 32 18 13 "Synthetic Grass Surfacing", 1.5 "Submittals, A. "Bid Submittals

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms their intent conform to all requirements set forth in the Bid Documents for the Synthetic Grass Surfacing System and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms that the Bid Documents for the Synthetic Grass Surfacing System have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the synthetic grass field surfacing are proper and adequate for the applications shown and in no way impact the system warranty.

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms their intent to conform to all requirements set forth in the Bid Documents for Drainage Pad and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms that the Bid Documents for the Drainage Pad have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the Drainage Pad are proper and adequate for the applications shown and in no way impact the system warranty.

Thank you,

Todd Rush
Authorized Signer
AstroTurf Corporation

2680 Abutment Road, Dalton, GA 30721
T. 706-979-1384 TF.800-723-TURF (8873) info@astroturf.com

March 16, 2018

SYNTHETIC TURF AND RUNNING TRACK SURFACING
FOR DERBY HIGH SCHOOL
ATHLETIC FACILITIES RENOVATION PROJECTS

RE: **Company Information**

Principals:

- **W. Heard Smith, COO**
  26 Abutment Road, SE
  Dalton, GA 30721

- **Troy Squires, President**
  26 Abutment Road, SE
  Dalton, GA 30721

- **Robert Carey, Secretary**
  26 Abutment Road, SE
  Dalton, GA 30721

Firm:

Name:	AstroTurf Corporation
Treasury Number:	81-2479849
Address:	26 Abutment Road, SE Dalton, GA 30721
Phone Number:	706-979-1384
Fax Number:	412-252-2711
Email Address:	trush@astroturf.com

FORM OF PROPOSAL

ATHLETIC FACILITIES RENOVATION PROJECT
DERBY HIGH SCHOOL
DERBY, CT
CITY PROJECT NO. COD 2018-02

TO: Salvatore Coppola, Finance Director
Finance Office
Derby City Hall
1 Elizabeth Street
Derby, CT 06418

Pursuant to and in compliance with your "Invitation to Bid" relating thereto, the undersigned,

_____
(Name of Firm)

having visited the site and carefully examined the Drawings, Bidding Documents and complete Specifications **dated February 28, 2018** together with all Addenda issued and received prior to scheduled closing time for recipient of Bids as prepared by the Architects, KAESTLE BOOS ASSOCIATES, INC., 416 Slater Road, New Britain, Connecticut, hereby offers and agrees as follows:

To provide all labor, materials, and all else whatsoever necessary to erect and properly finish all work in connection with the

ATHLETIC FACILITIES RENOVATION PROJECT
DERBY HIGH SCHOOL
DERBY, CT

to the satisfaction of the Architect and Owner for the sum of:

_____**($)**

to provide all labor, materials, and all else whatsoever necessary to construct all improvements described in the specifications. ***Total noted above shall include selected Turf & Track Materials bid numbers included as part of Addenda 2.***

If awarded this Contract, we will execute a Contract with the **City of Derby,** Owner of the property.

UNIT PRICES

Should the amount of improvements required be increased or decreased due to special considerations found at the site or because of a request of the **Derby Public Schools,** the undersigned agrees that the following supplemental UNIT PRICES will be the basic price in place for computing the EXTRA or CREDIT.

Each UNIT PRICE shall include all equipment, tools, labor, permits, fees, etc., incidental to the installation and completion of the work involved.

The amounts shown are net changes to the Contract for additional work and include the Contractor's and any Subcontractor's amounts for overhead and profit. For deleted work, the net credit to the Contract shall be 10% less.

All work is to be accomplished in accordance with applicable Sections of the Specifications.

C.Y. = cubic yard	S.F. = square foot
S.Y. = square yard	V.F. = vertical foot
L.F. = linear foot	EA = Each

ITEMS

1. Mass Earth Work $_____
2. Granular Base Fill $_____
3. Crushed Stone $_____
4. Processed Aggregate $_____
5. Concrete Anchor Curbing $_____
6. **Rock Removal (assume 10 CY, hydraulic Hammer)** **$_____**
7. Slot Drain in Concrete Anchor Curb $_____
8. Flat Panel Drain $_____
9. Collector Pipe Stone $_____
10. Field Base, Bottom Stone $_____
11. Field Base, Top Stone $_____
12. Geotextile Filter Fabric $_____
13. Natural Turf Field $_____
14. Natural Turf Infield $_____
15. Softball Field Mix $_____
16. 4' High Black Vinyl Coated Chain-Link Fencing $_____
17. 6' High Black Vinyl Coated Chain-Link Fencing $_____
18. 8' High Black Vinyl Coated Chain-Link Fencing $_____
19. Track Pavement Asphalt Base $_____

ALTERNATES

The undersigned Bidder further proposed and agrees that should the following Alternates be accepted and included in the Contract, the amount of the Lump Sum Bid, as heretofore stated, shall be adjusted by the amount of said Alternates. All materials and workmanship shall be in strict accordance with the Drawings and specification and shall be in place prices.

Alternate No. 1: ADD: Sanitary Line Replacement

Add $_____

Alternate No. 2 ADD: Non-Fixed Athletic Accessories

Add $_____

Alternate No. 3 ADD: Non-Fixed Track and Field Equipment

Add $_____

Alternate No. 4 ADD: Storage Containers

Add $_____

Alternate No. 5 ADD: Prefabricated Storage Sheds

Add $_____

Alternate No. 6 ADD: Press Box Accessible Access Ramp

Add $_____

Alternate No. 7 ADD: Multi-Sport Field Lighting Upgrade

Add $_____

Alternate No. 8 DEDUCT: Multi-Sport Lighting Elevation Change

Deduct $_____

CONTRACT TIME

The undersigned Bidder hereby certifies that Substantial Completion and Final Completion will be achieved in accordance with the time designated in the General Conditions of the Contract for Construction.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum No. # _____ Dated _____

Addendum No. # _____ Dated _____

Addendum No. # _____ Dated _____

ATTACHMENTS

Enclosed herewith, is the Bid Security which is in the form of:

Bid Bond ( ) Certified Check ( )

In the Amount of

$_____Dollars

SIGNATURE

_____
Contractor Firm

_____
Authorized Signature

_____
Printed Name and Title

_____
Business Address

_____
City and State

_____
Telephone Number

_____
Telephone Fax Number

SECTION 32 31 01 – WOOD GUIDE RAIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section "Summary."

1.2 SUMMARY

A. This Section includes the following:

1. Wood Guiderail
2. Miscellaneous Galvanized Fastening Hardware

B. Related Sections include the following:

1. Division 31 Section "Earth Moving".
2. Division 32 Section "Topsoil".
3. Division 32 Section "Turf and Grasses".

1.3 SUBMITTALS

A. Shop Drawings: Contractor shall provide fully dimensioned shop drawings and manufacturer's technical literature for all improvements and confirm fabrication, reinforcing, and anchoring systems for approval.

1.4 QUALITY ASSURANCE

A. Wood Treatment: Comply with American Wood Preservers Association (AWPA) standards for wood preservative treatment scheduled.

B. Provide each piece of lumber factory grade marked in conformance with AWPA quality mark.

C. Allowable Tolerances: Guiderail shall not deviate more than ½" in to grade in each section.

PART 2 - PRODUCTS

2.1 WOOD (TIMBERS)

A. Rough sawn, No. 2 or better, pressure treated Southern Yellow Pine timbers.

B. Rails: AWPA use Category UC3B, with 0.25 PCF ACQ retention, size 5 inch by 8 inch by length indicated.

C. Posts: AWPA use Category UC4A, with 0.40 ACQ retention, 12" x 12", modified for dado joint assembly.

D. Kiln dried or air dried before and after treatment for 25% maximum moisture content.

2.2 ACCESSORIES

A. Provide miscellaneous steel hardware, concrete and accessories as required. All hardware shall be hot dipped galvanized, for exterior, high humidity, and treated wood conditions.

B. Wood Stain: A water-based exterior grade, translucent stain.

PART 3 - EXECUTION

3.1 PREPARATIONS

A. Obtain measurements and verify dimensions and details before proceeding with work.

3.2 JOB CONDITIONS

A. Confirm pavements, curbs and other improvements are completed prior to installation of specified improvements.

3.3 INSTALLATION

A. Install: Timber guide rails where and as show on the Drawings.

1. Posts shall be set at a constant vertical alignment above finish grade of each segment of guiderail.
2. Posts shall be held at a consistent distance from the edge of curbing as noted and shall be firmly installed below grade to the dimensions indicated.

B. Install: Rails as indicated, dadoed into posts.

C. Smoothly: finish grade around posts to prepare for replacement conditions. Provide topsoil as per Division 32, Section "Topsoil" for all proposed lawn areas. Do not allow water to stand adjacent to post bases.

D. At completion of installation, prep wood for staining keeping the surface free of dirt, oil and other debris. Stain according to manufacturer's recommendation. See Division 09.

3.4 FINISHING

A. Exposed edges of all timbers shall be chamfered ½" and lightly sanded to produce eased edges.

3.5 CLEANING

A. Clean up debris and cutting on a regular periodic basis.

B. Perform cleaning during installation of the work and completion of the work. Remove from site all excess materials, debris, tools and equipment. Repair damage resulting from rough carpentry work.

C. Dispose of all pressure treated lumber in a satisfactory legal manner.

3.6 PROTECTION

A. Protect until acceptance of project. Replace or refinish the surfaces if damaged prior to acceptance. Clean up all debris from installation. Dispose of excess pressure treated lumber in a satisfactory legal manner off-site.

END SECTION 32 31 01

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SECTION 31 20 00 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section "Summary."

1.2 SUMMARY

A. This Section includes, but is not limited to the following:

1. Site excavating, grading, filling, backfilling, compacting, and preparing sub-grades for the entire project including but not limited to: foundations, footings, retaining walls, walks, pavement, pads, drainage structures, and athletic fields.
2. Granular fill course for curbs and other site improvements.
3. Excavating and backfilling for field and structures.
4. Processed aggregate for pavements and other improvements.
5. General fill for establishing project sub-grades.
6. Excavation of rock and/or boulders, including replacement with suitable earthwork materials.
7. Removal of encountered unsatisfactory soils, including lawful off-site disposal and replacement with suitable earthwork fill material.

B. Related Sections include the following:
1. Division 01 Section "Alternates."
2. Division 31 Section "Dewatering".
3. Division 32 Section "Topsoil"
4. Division 33 Section "Field Sub Drainage System"

1.3 DEFINITIONS

A. Backfill: Suitable soil materials used to fill an excavation as approved by Architect and Geotechnical Engineer.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Layer placed between the subbase course and proposed improvements.

C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow: Suitable soil or earthwork products imported from off-site for use as fill or backfill as approved by Architect and Geotechnical Engineer.

E. Excavation: Removal of material encountered above subgrade elevations.

1. Additional Excavation: Excavation below subgrade elevations as directed by Architect. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Mass Excavation: Excavations more than 8 feet in width and pits more than 30 feet in either length or width.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

F. Fill: Suitable soil materials used to raise existing grades as approved by Architect and Geotechnical Engineer.

G. Mass Rock or Earth: Excavated material that is greater than 8' in both length and width.

H. Rock: Excavated rock material in beds, ledges, unstratified masses, and conglomerate deposits that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; Caterpillar 325D or equal, equipped with a 42-inch wide, short-tip-radius rock bucket.
2. Mass Excavation: Late-model, track-mounted loader; Caterpillar 963C or equal; or Late-model, track-mounted hydraulic excavator; Caterpillar 325D or equal, equipped with a 42-inch wide, short-tip-radius rock bucket.

I. Boulder: An excavated, individual rock fragment or natural stone with a volume of 1.5 c.y. to 6 c.y. All boulders exceeding 6 c.y. shall be classified as "rock" and shall fall within "mass" or "trench" subcategory based on definitions in this section. Material classified as "Rock" and excavated and paid for shall not be eligible to be classified as "boulder" for additional payment purposes. <u>All excavated boulder material, to be disposed of on-site, or processed for re-use on-site, is not eligible for compensation under allowance and is part of base bid.</u>

J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

K. Subbase Course: Layer placed between the subgrade and base course for pavement or other site improvements.

L. Subgrade: Surface or elevation remaining after completing excavation, or top surface elevation of a fill or backfill elevation immediately below subbase, drainage fill, or topsoil materials.

M. Trench Rock or Earth: Excavated material from trench excavations that is less than 8' (eight feet) in either length or width.

N. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

O. Form 817: "Standard Specifications for Roads, Bridges, and Incidental Construction", State of Connecticut, Department of Transportation, Form 817, 2016 edition, as supplemented.

P. Unsatisfactory Soils: Any material generated, excavated and/or collected by earth moving activities or other contract work that does not meet any of the product specifications contained in contract documents.

1.4 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specifications Sections.

B. Product Data: For the following:
1. Drainage fabric.
2. Separation fabric.

C. Samples: For the following:

1. 50-lb samples, sealed in airtight containers, of each proposed soil material from on-site or borrow sources, for Owner's independent laboratory testing agency. Samples shall be delivered to the site seven (7) calendar days in advance or time planned on incorporating them into the work. Owner's testing lab will confirm submitted test results and compaction curve data.

2. 5-lb sample to Architect's office for visual conformance confirmation.
3. 12-by-12-inch sample of drainage fabric.
4. 12-by-12-inch sample of separation fabric.

D. Material Test Reports: From an approved qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Complete mechanical/sieve analysis classification according to Form 816 and ASTM D 2487 for every 400 cubic yards of on-site or borrow soil material proposed for fill and backfill. Washed sieve shall be performed for 200 sieve on all materials.
2. Laboratory compaction curve according to ASTM D 1557 for each on-site or borrow soil material proposed for fill and backfill.
3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.
4. Test sampling shall conform to the requirements of ASTM D-75, and ASTM D-3665.
5. Documentation for each borrow material proposed for use that demonstrates that the material meets applicable CT DEEP Remediation Standard Regulation criteria for soil, either through knowledge of the soil material or analytical testing of known or suspected contaminants.

E. Blasting plan approved by authorities having jurisdiction, for record purposes.

F. Seismic survey agency report, for record purposes.

G. All installation of materials prior to testing and/or review and response by Architect is at Contractor's risk.

H. CTHPB Documentation Submittals: Comply with Division 01 Section "Sustainable Design Requirements" and provide the following in addition to other action submittals:
   1. Product Data for Credit 6d8: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
   2. Product Certificates for Credit 6d10: For products and materials required to comply with requirements for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

1.5 QUALITY ASSURANCE

A. Comply with applicable requirements of NFPA 495, "Explosive Materials Code" and Form 816, Paragraph 1.07.08.

B. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures to perform the following services:

   1. Prepare plan report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.
   2. Seismographic monitoring services during blasting operations.
   3. Prepare a preblast survey of all adjacent properties, including a structural inspection of the buildings and properties and shall include a written and photographic record of existing conditions.
   4. Blast operations shall not commence until all reports and plans are received and approved by the Owner and the Architect.

C. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

D. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 1, Section "Project Coordination".

   1. Before commencing earthwork, meet with representatives of the governing authorities, Owner, Architect, Engineer, consultants, independent testing agency, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

E. Testing: Compaction tests will be required by the Owner and will be paid for by the Owner. No specific testing schedule has been established at this time. If tests indicate that density requirements have not been achieved, the Contractor shall continue compacting.

All retesting in these areas shall be paid for by the Contractor. See Division 1, Section "Quality Control Services". Contractor is required to compensate testing laboratory, directly, for all material test reports.

F. Density and Compaction Testing: The Contractor is responsible to schedule compaction tests and to allow adequate time for the proper execution of said tests.

G. Protect all benchmarks, monuments, and property boundary pins. Replace if destroyed by Contractor's operations.

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated. Note that school operations must be maintained throughout construction.

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active. Contact **[Call Before You Dig (1-800-922-4455)]** prior to any earthwork or demolition operations.

C. Geotechnical Report: A subsurface geotechnical investigation report for the site, prepared by Freeman Companies, LLC, dated November 18, 2013 is available for information only. The report is not part of the Contract Documents. The opinions expressed in this report are those of the geotechnical engineer and represent interpretations of the subsoil conditions, tests, and results of analyses conducted by the geotechnical engineer. Neither the Owner nor the Architect will be responsible for interpretations or conclusions drawn from this data by the Contractor as required for confirming field conditions. The Contractor shall conduct their own investigation of existing subsurface conditions as necessary. Neither the Owner nor Architect will be responsible in any manner for additional compensation for excavation work performed under the Contract due to the Contractor's assumptions based on soil investigation data prepared by the Owner's geotechnical investigation.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Suitable Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, reclaimed or recycled materials (i.e., asphalt, concrete, glass, etc.), and other deleterious matter. CL, SC, and GC can be used if approved by

the Owner's Geotechnical Engineer. (use of recycled asphalt may be permitted for specific soil products as specified and shall be approved for use by Architect)

C. Unsuitable Soils: ASTM D 2487 soil classification groups GC, SC, MH, CH, OL, OH, and PT, or a combination of these group symbols, and any materials that contain reclaimed or recycled materials (i.e., asphalt, concrete, glass, etc.) unless otherwise specified.

D. Unsuitable soils also include suitable soils not maintained by the General Contractor within 2 percent of optimum moisture content at time of compaction.

E. Backfill and Fill: Suitable soil that meets specification requirements.

F. Common Fill: Suitable soil that can be placed and compacted. On site soils may be used as common fill to establish subgrade beneath walks, pavements and lawn areas provided they conform to soil requirements per project specifications as approved by the project geotechnical engineer.

G. Granular Fill: Form 817 Article M.02.06, Type 'B' is to be used for filling under footings, pavements, and improvements, and subbase under pavements that is required to achieve the rough grades indicated. Granular Fill may be referred to as base or subbase course in project documents.

1. Provide borrow material as required to meet project specifications.

H. Crushed Stone: Suitable soil consisting of washed, clean, narrowly graded mixture of crushed stone, or crushed gravel, free of all reclaimed aggregate. Sound material free of debris, waste, recycled material, frozen materials and organic material conforming to Form 817, Article M.01.01, No. 6 or size as indicated on Drawings.

I. Porous fill and Filter Media: 3/8" crushed stone, Clean, sound material free of debris, waste, frozen materials and organic material conforming to Form 817, Article M.01.01 No. 8.

J. Processed Aggregate: a.k.a Base Course. Artificially graded mixture of sound coarse and fine aggregates, containing no more than 15 percent by weight of recycled bituminous concrete. Mixture to be free of debris, waste, frozen materials and organic materials and conform to Form 817, Article M.05.01. Maximum size of aggregate shall not exceed 1 ½". Broken stone is required; rounded gravel will not be permitted.

K. Bedding Material: Suitable soil consisting of naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

L. Field Base Stone: See Specification Section 33 46 16 "Field Subdrainage System"

M. General Fill: Material used to establish subgrade elevations may be either:

1. Approved soil material available from excavation on site provided material meets specification for general fill as described below, or approved by Architect prior to placement. Maximum size of any piece of aggregate - 8".
2. Approved material, obtained from off-site, certified to conform to the following grain-size gradation:

SQUARE MESH SIEVES	PERCENT PASSING WEIGHT
Pass 5”	100
Pass 3/4”	75-100
Pass #4	25-80

Less than 15% of the material passing the #4 sieve shall pass a #200 sieve.

3. All material used for general filling shall be clean, free of clay and organic material and capable of satisfactory compaction.
4. If sufficient approved on-site material is not available to meet site elevations indicated, Contractor shall provide additional approved off-site material at no extra cost to Owner.

N. Impervious Fill: Suitable soils consisting of a mixture of silt, clay and sand capable of being compacting to a relatively impermeable condition.

O. Sand: Form 817, Section M.11.04, Grade “B”.
- For athletic facility sand refer to the appropriate section.

P. Subsoil: shall be the existing on site weathered moraine material; typically 12”–24” depth located immediately under the existing topsoil and atop the residual moraine material.

Q. Stone: An individual rock fragment or natural stone, with a volume of 0.5 cubic yards to 1.5 cubic yards, obtained from on-site excavation, on-site processing of rock or boulders, or an off-site source. All stone obtained from on-site excavation shall be considered Mass Earth of Trench Earth. All excess stone shall be considered “Unsatisfactory Soils” and shall be legally disposed of off-site.

2.2 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Drainage Fabric: Non-woven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:

1. Grab Tensile Strength: 110 lb/f; ASTM D 4632.
2. Tear Strength: 40 lb/f; ASTM D 4533.
3. Puncture Resistance: 50 lb/f; ASTM D 4833.
4. Water Flow Rate: 150 gpm per sq. ft.; ASTM D 4491.

5. Apparent Opening Size: No. 50; ASTM D 4751.

C. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:

1. Grab Tensile Strength: 200 lbf; ASTM D 4632.
2. Tear Strength: 75 lbf; ASTM D 4533.
3. Puncture Resistance: 90 lbf; ASTM D 4833.
4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D 4491.
5. Apparent Opening Size: No. 30; ASTM D 4751.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary. The Contractor shall remove and replace or reconstruct subgrade soils and foundation soils that have frozen as necessary at no additional expense to the owner.

C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Refer to Division 31, Section “Sedimentation and Erosion Control”.

D. Provide protective safety barrier around all trees in the work area that are to remain.

E. Soils at the site are sensitive to disturbance and can readily become muddy and unstable when disturbed by traffic from heavy construction equipment or other construction operations, particularly during or following periods of wet weather. The Contractor shall take all measures necessary to maintain stable site conditions.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area. Coordinate with project sediment and erosion control requirements.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site. Secure and pay for all permits as required.

B. Comply with procedures outlined in paragraph "Quality Assurance", sub-paragraph "Seismic Survey Agency", above and Form 816, Section 1.07.08. No overnight on-site storage of explosives is permitted.

1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.

C. Provide minimum 48-hours notice to Owner, Architect, abutting properties, and all affected utilities. No blasting is permitted prior to 8:00 a.m. or after 4:00 p.m. or on Holidays, Saturdays or Sundays without written permission of the Owner. Blasting is NOT permitted while school is in session unless otherwise noted.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of the surface and subsurface conditions encountered, including rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory materials and rock, replace with satisfactory soil materials.
2. Contractor will not be entitled to additional time to complete the project or additional compensation, when rock removal is required.

B. Rock Excavation Procedures:

1. When, during the process of excavation, rock is encountered as specified herein, the Contractor shall strictly adhere to the following procedures.
   a. Such material shall be uncovered and exposed.
   b. The Architect and the Owner shall be notified by the Contractor before proceeding further.

2. Rock excavation materials may be used for fill, only as specifically allowed and approved by the Architect, in accordance with the following paragraph "D".

C. All areas where rock is removed must be marked on the as-built Drawings. Obtain approval of the Architect before starting work.

D. If the Contractor intends to utilize excavated rock for site earthwork operations, the Contractor must modify any such material to comply with the specification for the designated specific material, at no cost to the Owner. Boulders may also be modified for use. No material may be used, unless approved by the Architect, prior to placement.

E. Boulder disposal:

1. Limited on-site, below grade boulder disposal is permitted. If any boulders are encountered review acceptable below grade placement locations with Architect. Contractor shall not deviate from following procedure for on-site, below grade disposal.
   a. Boulders to be buried in areas of fill under lawn and landscape areas only. Contractor to ensure that there are no conflicts with proposed or existing utilities.
   b. Top of Boulders shall have a minimum 4'-0" cover to finish grade
   c. There shall be a minimum distance of 4'-0" between boulders.
   d. Approved fill materials shall be placed between boulders and installed and compacted in compliance with project specifications. Approved fill materials shall be placed above buried boulders in compliance with project specifications.

F. Rock and boulder disposal:
   1. All excess rock and boulders remain the property of the Contractor and must be removed from project site and disposed in a legal manner.

G. Dispose of unsuitable soil, and rock, off site properly and replace with approved fill material as required to bring the site to final elevations. Contractor shall excavate all material deemed "unsuitable" by the Owner's geotechnical engineer. In the case of any question or inconsistencies, the Owner's geotechnical engineer's determination of unsuitable soils shall be final.

3.5 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances and requirements of authorities having jurisdiction to maintain stable excavations.

3.6 SUBGRADE PREPARATION FOR CURB

A. Do not disturb bottom of excavation. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.7 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus **[**1 inch**]**. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

   1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work (min. 18" outside of face of footings with no undercutting permitted, Trenches min. 18" wider than outside dimension of structures they are to contain.). Place a minimum 8-inch thick layer of 3/8" Crushed Stone over Separation Fabric over the footing or foundation subgrade. For footings for the proposed bridge structure, compact the subgrade using intensive surface compaction, as indicated in Section 3.9.B, and place a 2-foot thick layer of compacted structural fill.

   2. Excavation for Floor Slab: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and

grades to leave solid base to receive other work. Place a minimum 12-inch thick layer of Structural Fill over Separation Fabric over the floor slab subgrade.

3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.

4. Surfaces of excavation shall be suitably dressed to grade noted to receive subsequent construction. Bottoms shall be level with no projections and free of loose material. Material at bottom of excavations shall be undisturbed. The engineer shall be immediately notified if unsatisfactory material for foundation bearing is encountered before proceeding with work.

3.8 APPROVAL OF SUBGRADE

A. Notify Architect and Owner's Representative when excavations have reached required subgrade.

B. If unsatisfactory soil is present at sub-grade elevation, The Contractor shall notify Architect & Geotechnical Engineer for review, upon further direction the Contractor shall continue excavation and replace with compacted backfill or fill material as directed.

1. Additional excavation and replacement material for existing unsuitable subgrade soils will be paid for according to Contract provisions for changes in the work.

2. Any subgrades that are damaged from construction activity shall be deemed unsuitable material and shall be the responsibility of the contractor. Damaged soils shall be replaced or repaired at no additional cost to the owner.

C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades. Conform to Form 816, Section 2.09. Subgrade must be approved prior to application of any borrow or fill materials.

D. If it is determined that unsatisfactory soil or excess moisture content is present, continue excavation and replace with compacted free draining backfill or fill material as directed.

E. Soil subgrades are susceptible to disturbance and loss of strength due to construction equipment operating over the subgrade or other disturbance when the subgrade is wet or moist. All loose, saturated or disturbed materials that are unsuitable and shall be removed and replaced with compacted structural fill or suitable compacted fill approved by project geotechnical engineer.

F. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect & Geotechnical Engineer.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

A. Contractor shall Stockpile borrow materials and satisfactory excavated/manufactured soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover with tarps to prevent windblown dust and to protect from becoming excessively wet due to rainfall or infiltration from other sources. Temporarily seed soil stockpiles as required to prevent erosion. per Division 31 Section "Erosion and Sedimentation Controls".

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
2. Contamination/intermixing of soil materials is just cause for rejection of material.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation and drainage.
2. Surveying locations of underground utilities for record documents.
3. Inspecting, testing, and approving of underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris from excavation.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.12 PLACEMENT OF FILL OR BACKFILLS

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material. Provide Steps or benches in the subgrades of existing steep slopes to promote stabilization of fill material. Fills in sloping areas shall be placed and compacted to a minimum of 93 percent modified proctor dry density as determined by ASTM D1557.

C. Place and compact fill material in layers to required elevations as follows:
1. Under curbs and field use Common Fill, base, and subbase.

3.13 MOISTURE CONTROL (All Soils)

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Remove and replace, or scarify and air-dry, all soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

1. Stockpile or spread and dry removed wet satisfactory soil material.

D. The Contractor is alerted that the existing on-site soils are silty and sensitive to variations in moisture content. The silty on-site soil can be difficult to place and compact when wet, and may need to be dried to achieve the required compaction. Drying the fill can be difficult and time consuming, particularly during times of cold or wet weather. On-site materials that cannot be placed to the required compaction shall be removed and replaced, or amended with another approved suitable fill material to achieve compaction at no additional cost to the owner. The Contractor shall plan and conduct his excavation and filling operations considering the nature of the on-site materials.

E. The Contractor is responsible for protecting excavated subgrades and stockpiled materials intended for reuse as on-site fill from precipitation and frost. Compacted subgrades should be covered or sealed in advance of wet weather, and protected from construction equipment or human traffic that may loosen or disturb the fill. All loose, saturated or disturbed materials shall be removed and replaced with suitable compacted fill

3.14 FILL AND COMPACTION OF MATERIALS

A. Place materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment (minimum 10 tons static weight, 20 tons dynamic force) and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Otherwise, conform to requirements of paragraph 3.16.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compaction of the Porous Fill or Crushed Stone which is not suited for field density testing shall be accomplished with two to three passes of a vibratory compactor.

D. Compaction equipment shall not be of the nature as to cause unstable conditions in the underlying natural soil. Compacting equipment shall be approved for use by the inspector of the Owner's testing laboratory.

E. 95% of maximum dry density as determined by AASHTO Method T 180.

3.15 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Shape pavement base course with required cross sections and elevations.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
3. In all cases, maintain positive drainage.
4. Refer to related specifications for additional information.

3.16 SUBBASE AND BASE COURSES

A. Under pavements and walks, place subbase course on prepared subgrade and as follows:

1. Place base course material over subbase.
2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
3. Shape subbase and base to required crown elevations and cross-slope grades.
4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

B. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 60 inches wide, of common fill or approved suitable soil material and compact each layer of subbase, and base layer to not less than 93 percent of maximum dry unit weight according to ASTM D 1557.

3.17 FIELD QUALITY CONTROL

A. Testing Agency: Allow the Owner's testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable.

a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM C 1556. With each density calibration check, check the calibration curves furnished with the moisture gages according to ASTM D 3017.
b. When field in-place density 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 the Engineer.

B. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or allow to dry, or remove and replace soil to the depth required, re-compact and retest until required density is obtained. All retesting costs are the responsibility of the Contractor.

C. Testing Laboratory's presence does not include supervision or direction of the actual work by the Contractor, his employees, subcontractors or agents. Neither the presence of the Testing

Laboratory, nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.

D. Testing equipment will be provided by and testing performed by the Testing Laboratory, except as otherwise provided by Contract. Upon request by Architect, the Contractor shall provide such auxiliary personnel and services as needed to accomplish testing work and to repair damage caused thereby to permanent work.

E. Refer to related sections for additional testing requirements.

3.18 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by the Architect; reshape and re-compact at optimum moisture content to the required density.

C. Settling: Where settling occurs during the Project correction period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

D. Protect areas with slopes of 1 vertical : 2 horizontal with erosion-control fiber mesh and with erosion-control blankets installed and stapled according to manufacturer's written instructions, or as indicated on the civil drainage plans.

E. Protect areas with slopes not exceeding 1 vertical : 2 horizontal by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.

3.19 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 31 20 00

SECTION 32 31 13 – CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Furnishing and installing woven wire fencing systems of the type and height specified and supported by metal posts erected where indicated on the Drawings and as specified herein, including fence and gates.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR).

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. American Society for Testing and Materials (ASTM).

1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

2. ASTM A90- Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc Alloy.

3. ASTM A123- Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

4. ASTM A153- Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.

5. ASTM A392- Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.

6. ASTM A428- Standard Test Method for Weight (Mass) of Coating on Aluminum-Coated Iron or Steel Articles.

7. ASTM A491- Standard Specification for Aluminum Coated Steel Chain Link Fence Fabric.

8. ASTM A780 – Standard Specification for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

9. ASTM A817- Standard Specification for Metallic-Coated Steel Wire for Chain Link Fence Fabric and Marcelled Tension Wire.

10. ASTM A824 - Standard Specification Metallic-Coated Steel Marcelled Tension Wire for Use with Chain Link Fence.
11. ASTM B211- Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod and Wire.
12. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
13. ASTM F552 - Standard Terminology Relating to Chain Link Fencing.
14. ASTM F567- Standard Practice for Installation of Chain Link Fence.
15. ASTM F626 - Standard Specification for Fence Fittings.
16. ASTM F668 - Specification for Polymer Coated Chain Link Fence Fabric.
17. ASTM F900 - Standard Specification for Industrial and Commercial Swing Gates.
18. ASTM F934 - Specification for Standard Colors for Polymer-Coated Chain Link.
19. ASTM F1043 - Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
20. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
21. ASTM F1183 - Standard Specification for Aluminum Alloy Chain Link Fence Fabric.

D. Chain Link Fence Manufacturer's Institute

1. Chain Link Fence Manufacturer's Institute Product Manual, latest revision.

1.3 SYSTEM DESCRIPTION

A. Temporary Construction Fence shall meet the following basic parameters:

1. Fence Height: 8 feet.
2. Mesh Size: 2 inches.
3. Mesh Gage: 12
4. Gates: Height of gates shall match that of fence. Width of gates shall be as shown on the Drawings.
5. Anchored post or driven posts where indicated. No top or bottom rails required.
6. Panelized/modular units where indicated. Two stabilizers per panel.

B. Permanent Fence shall meet the following basic parameters:

1. Fence Height: Varies, refer to the Drawings.
2. Mesh Size:

a. Field fencing: 2"

b. Backstop: 1-3/4”

3. Mesh Gage:

a. Field Fencing: Wire with a diameter of 9 gauge galvanized core fused. Measured prior to application of coating.

b. Backstop: Wire with a diameter of 6 gauge galvanized core fused. Measured prior to application of coating.

4. Gates: Height of gates shall match that of fence. Type and size of gates shall be as shown on the Drawings.

5. Anchored post where indicated; top and bottom rails between posts unless otherwise indicated.

1.4 SUBMITTALS

A. Shop drawings showing the plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates and a schedule of components.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.

1. Fence and gate posts, rails, and fittings.

2. Chain-link fabric, reinforcements, and attachments.

3. Accessories: Privacy slats.

4. Gates, locking mechanisms and hardware.

5. Gate operators, including operating instructions.

6. Motors (if applicable): Show nameplate data, ratings, characteristics, and mounting arrangements.

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show accessories, hardware, gate operation, and operational clearances.

1. Gate Operator (if applicable): Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

2. Wiring Diagrams (if applicable): For power, signal, and control wiring.

D. Samples for Initial Selection: For components with factory-applied color finishes.

E. Samples for Verification: Prepared on Samples of size indicated below:

1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.

F. Delegated-Design Submittal: For chain-link fences and gate framework indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified factory-authorized service representative.

B. Product Certificates: For each type of chain-link fence, and gate, from manufacturer.

C. Product Test Reports: For framing strength according to ASTM F 1043.

D. Field quality-control reports.

E. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For the following to include in emergency, operation, and maintenance manuals:

1. Polymer finishes.

2. Gate hardware.

3. Gate operator.

1.7 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Supply material in accordance with Chain Link Fence Manufacturer’s Institute Product Manual and this Specification.

C. Perform installation in accordance with ASTM F567.

D. Maintain all facilities installed under this Section in proper and safe condition throughout the progress of the work.

E. Testing Agency Qualifications: For testing fence grounding. Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.

H. Mockups: Build mockups to set quality standards for fabrication and installation.

1. Include 10-foot length of fence and gate.

I. Preinstallation Conference: Conduct conference at Project site.

1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.

2. Review sequence of operation for each type of gate operator.

3. Review coordination of interlocked equipment specified in this Section and elsewhere.

4. Review required testing, inspecting, and certifying procedures.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver fence fabric and accessories in packed cartons or firmly tied rolls.

B. Packages shall be labeled with the manufacturer’s name.

C. Store fence fabric and accessories in a secure and dry place.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Faulty operation of gate operators and controls.

b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 GENERAL

A. Material furnished shall be in good condition and shall not have been painted.

B. All posts and rails shall be straight, true to section and of sufficient length for proper installation.

C. Unless otherwise specified, hardware and accessories shall conform to the requirements of ASTM F626 and ASTM A123 or ASTM A153 as applicable for zinc-coating.

2.2 LINE POSTS

A. See Drawings for size depending on height of fence.

1. Vinyl Coated

2. Color: Black

2.3 CORNER, END, AND PULL POSTS

A. See Drawings for size depending on height of fence.

1. Vinyl Coated

2. Color: Black

2.4 BRACE ASSEMBLY

A. Rails

1. 1.25-inch nominal (1.660 O.D.) steel pipe, steel pipe, vinyl coated.

a. Vinyl Coated

b. Color: Black

B. Truss rod shall be 3/8-inch vinyl coated steel with adjustable turnbuckles or truss tightener.

2.5 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: As indicated on Drawings.

2. Steel Wire Fabric:

a. Field Fencing: Wire with a diameter of 9 gauge galvanized core fused. Measured prior to application of coating.

b. Backstop: Wire with a diameter of 6 gauge galvanized core fused. Measured prior to application of coating.

c. Mesh Size:

1) Field Fencing: 2 inches. Measured prior to application of coating.

2) Backstop:1-3/4” inches. Measured prior to application of coating.

d. Polymer-Coated Fabric: ASTM F 668, Class 2b.

1) Color: Black, ASTM F 934.

e. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.

3. Selvage: Knuckled at both selvages.

2.6 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: As indicated on Drawings.

2. Light Industrial Strength: Material Group IC-L, round steel pipe, electric-resistance-welded pipe.

a. Line Post: Refer to Drawings for prost sizes based on fence height.

b. End, Corner and Pull Post: Refer to Drawings for prost sizes based on fence height.

3. Horizontal Framework Members: Intermediate top and bottom rails complying with ASTM F 1043.

a. Top, Bottom and Mid Rail for all fencing systems and all heights: Refer to Drawings for prost sizes based on fence height.

b. Brace Rails: Comply with ASTM F 1043.

B. Polymer coating over metallic coating.

1. Color: Black, ASTM F 934.

2.7 STRETCHER BARS

A. Bars shall be one piece lengths of zinc-coated steel, not less than 2-inches shorter than the full height of the fencing fabric with a minimum cross section of 3/16-inch by 3/4-inch, ASTM F626.

B. Polymer coating over metallic coating.

C. Color: Black, ASTM F 934.

2.8 TENSION WIRE

A. Polymer-Coated Steel Wire: Marcelled (spiraled or crimped) No. 7 gage, (0.177-inches) diameter, ASTM A824, ASTM F 1664, Class 2b over-coated steel wire.

B. Polymer coating over metallic coating.

C. Color: Black, ASTM F 934.

2.9 HARDWARE AND TIES

A. Miscellaneous hardware, including but not limited to nuts, bolts, washers, clips, bands, rail ends, brackets, and straps shall be provided as required, hot-dip galvanized steel or aluminum alloy, ASTM F626.

B. Tension bands shall be formed from flat or beveled steel and shall have a minimum thickness after galvanizing of 0.078-inches and a minimum width of 3/4-inch.

C. Brace bands shall be formed from flat or beveled steel and shall have a minimum thickness after galvanizing of 0.108-inches and a minimum width of 3/4-inch.

D. Wire ties shall be minimum 16-gage galvanized steel wire or minimum 9-gage aluminum alloy wire.

E. All fasteners shall be hot-dip galvanized, ASTM F2329.

F. Bolts: Steel, ASTM A307.

G. Washers: Steel, round, ASTM F844.

H. Bolts: Steel, ASTM A563 Grade A, hex head.

2.10 FITTINGS

A. General: Comply with ASTM F 626.

B. Post Caps: Provide for each post.

1. Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:

1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.

2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches (50 mm) shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:

a. Hot-Dip Galvanized Steel: 0.148-inch- (3.76-mm-) diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2.11 MODULAR OR PANELIZED FENCE

A. Free-standing fence panels, minimum ten (10) foot panels of the height specified.

B. Fabric as specified.

C. Welded tubular steel frame.

D. Stands: Four sided welded tubular steel frame with center bar and tubular sleeves.

2.12 GATES

A. Gate Construction: ASTM F900. Corners welded or assembled with special malleable or pressed-steel fittings and rivets or bolts to provide rigid connections.

B. Pipe and Tubing:

1. Zinc-Coated Steel: Comply with ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framing.

C. Posts: Round tubular steel.

1. Size: Refer to Drawings for prost sizes based on fence height.

D. Gate Frames and Bracing: Round tubular steel.

1. Framing:

a. Size: Refer to Drawings for prost sizes based on fence height.

b. Assemble gate frames by welded connections. When width of gate leaf exceeds 10 feet, install mid-distance vertical tubing of the same size and weight as frame members. When either horizontal or vertical bracing is not required, provide truss rods as cross bracing to prevent sag or twist.

c. Horizontal bid bracing shall be used on all gates.

E. Wire Fencing Fabric: Fabric shall match that of fence, attached securely to frame at intervals not exceeding 15-inches.

F. Hardware:

1. Hinges: 360-degree inward and outward swing.

a. Hindges shall be welded into place and coated.

2. Latches permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.

3. All gates shall be equipped with hot-dipped galvanized steel hinges and latch with provisions for padlocking.

4. Double gates and single gates with leaf width 4 feet and greater shall be equipped with a minimum ½'' drop bar and gate hold backs.

5. Hinges shall be cast steel hinges capable of 360 degree opening. Set screw shall be installed drilled into the steel post to lock each hinge to the gate post and prevent rotation. No-lift-off type. Box type hinges are not acceptable.

6. Gate Leaves: Configured with intermediate members and diagonal truss rods or tubular members as necessary to provide rigid construction, free from sag or twist.

7. Latches, hinges, stops, keepers and other hardware items shall be furnished as required for proper operation.

2.13 CONCRETE

A. Concrete shall conform to ASTM C94; or pre-packaged concrete mix, ASTM C387. Minimum 28-day compressive strength of 3,000 psi. No air entrainment.

2.14 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

PART 3 EXECUTION

3.1 GENERAL

A. Install fence with properly trained crew as shown on the drawings in accordance with ASTM F567.

B. Install all nuts for tension bands and hardware bolts on the side of the fence opposite the fabric.

C. The temporary chain link fence shall be removed at the conclusion of the work.

3.2 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

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

3.3 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.4 INSTALLATION, GENERAL

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

1. Install fencing on established boundary lines inside property line.