# ROGERS SPORTS COMPLEX-
# "YANKEE" FIELD IMPROVEMENTS- PHASE 2
# FORT DODGE, IOWA
# PROJECT NO. 123.0895.01A

Prepared by:

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FORT DODGE, IOWA
S&A PROJECT NO. 123.0895.01A

**The following documents are a part of this contract:**

BIDDING INFORMATION AND CONTRACT DOCUMENTS



SPECIAL PROVISIONS



STANDARD SPECIFICATIONS

The most recent editions, as per the project letting date, of the Statewide Urban Design and Specifications (SUDAS) Standard Specifications, the Iowa Department of Transportation (Iowa DOT) Standard Specifications (where applicable), and the Iowa DOT Materials I.M.s (where applicable), shall apply to all work performed on this project unless otherwise noted herein, or within the City of Fort Dodge Supplemental Specifications or Special Provisions included in the Contract Documents.

SUPPLEMENTAL SPECIFICATIONS

The following technical specification sections represent specialty work and are to override or supplement any SUDAS requirements.

02 41 23 Site Selective Demolition
32 23 00 Excavation and Earthwork
31 23 16 Trench and Backfill
31 25 00 Erosion and Sediment Control
32 11 16 Aggregate Base for Synthetic Turf
32 13 13 Concrete Paving
32 18 23 Synthetic Turf System
32 31 13 Chain Link Fencing
32 92 00 Seeding and Soil Supplements
33 41 00 Sub-Surface Drainage System

BIDDING INFORMATION AND CONTRACT DOCUMENTS

**NOTICE TO BIDDERS**

JURISDICTION OF CITY OF FORT DODGE PUBLIC IMPROVEMENT PROJECT

Notice is hereby given that a public hearing will be held by the ***City of Fort Dodge*** on the proposed contract documents (plans, specifications, and form of contract) and estimated cost for the improvement at its meeting at ***6:00 P.M.*** on ***January 22nd, 2024***, in said **Fort Dodge City Hall at 819 1st Avenue South, Fort Dodge, Iowa.**

Sealed bids for the work comprising each improvement as stated below must be filed before ***10:00 A.M.*** on ***January 16th, 2024*** in the office of the **City Clerk of City of Fort Dodge, Iowa.** Bids received after the deadline for submission of bids as stated herein shall not be considered and shall be returned to the late bidder unopened.

Sealed proposals will be opened, and bids tabulated at ***10:00 A.M.*** on ***January 16th, 2024***, in the **Fort Dodge Council Chambers** for consideration by the **City of Fort Dodge** at its meeting on ***January 22nd, 2024***.

Pre-Bid Conference

A **pre-bid conference** will not be held for this project. Potential bidders are encouraged to visit the site and become familiar with the existing condition for bidding purposes.

Contract Documents

The contract documents may be examined at the **City of Fort Dodge, Office of City Clerk at City Hall**. Electronic contract documents are available at no cost by clicking on the "Bids" link at www.snyder-associates.com and choosing the **ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2** on the left. Project information, engineer's cost opinion, and plan holder information is also available at no cost at this website. Downloads require the user to register for a free membership at QuestCDN.com.

Preference of Products and Labor

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

General Nature of the Public Improvement

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2, PROJECT # 123.0895.01A**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal of the existing grass turf and installation of a granular base, subdrains and ballfield synthetic turf surfacing. Other project requirements include drainage improvements and site restoration.

Bid Security

Each bidder shall accompany its bid with bid security as defined in Iowa Code Section 26.8, as security that the successful bidder will enter into a contract for the work bid upon and will furnish after the award of contract a corporate surety bond, in a form acceptable to the Jurisdiction, for the faithful performance of the contract, in an amount equal to 100% of the amount of the contract. The bidder's security shall be in the amount fixed in the Instruction to Bidders and shall be in the form of a cashier's check or a certified check drawn on an FDIC insured bank in Iowa or on an FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a bid bond on the form provided in the contract documents with corporate surety satisfactory to the Jurisdiction. The bid shall contain no condition except as provided in the specifications.

The **CITY OF FORT DODGE** reserves the right to defer acceptance of any bid for a period of sixty (60) calendar days after receipt of bids and no bid may be withdrawn during this period.

Performance, Payment and Maintenance Bond

Each successful bidder will be required to furnish a corporate surety bond in an amount equal to 100% of its contract price. Said bond shall be issued by a responsible surety approved by **CITY OF FORT DODGE** and shall guarantee the faithful performance of the contract and the terms and conditions therein contained and shall guarantee the prompt payment of all material and labor, and protect and save harmless **CITY OF FORT DODGE** from claims and damages of any kind caused by the operations of the contract and shall also guarantee the maintenance of the improvement caused by failures in materials and construction for a period of two years from and after acceptance of the contract. The guaranteed maintenance period for new paving shall be four years.

Title VI Compliance

The **CITY OF FORT DODGE**, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Commencement of Work

Work on the improvement shall be commenced any time after the after a written Notice to Proceed is issued, no later than **February 1st, 2024**, and shall be completed as stated below. The Notice to Proceed will be issued at the preconstruction conference, which is expected to occur the week of **February 1st, 2024**.

Completion of Work

Work on the project shall be substantially complete by **July 1st, 2024**, with all the improvements associated Yankee Field completed for the Owner's use. Final Completion of all project work, including site restoration, punch-list items, and close-out procedures, shall be completed by **July 15th, 2024.**

Should the contractor fail to complete the work in this timeframe, liquidated damages of **One Thousand dollars ($1,000.00**) per calendar day will be assessed for work not completed within the designated contract term.

The **CITY OF FORT DODGE** does hereby reserve the right to reject any or all bids, to waive informalities, and to enter into such contract, or contracts, as it shall deem to be in the best interest of the jurisdiction.

This Notice is given by authority of the **CITY OF FORT DODGE**

_____
City Clerk
**CITY OF FORT DODGE**

**NOTICE OF HEARING**

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS, SPECIFICATIONS, FORM OF CONTRACT, AND ESTIMATE OF COST FOR THE **CITY OF FORT DODGE**.

Public Notice is hereby given that at ***6:00 P.M.*** on the ***22th Day of January, 2024***, the **City Council of the City of Fort Dodge, Iowa** will, in the **Fort Dodge City Hall at 819 1ST Avenue South, Fort Dodge, IA**, hold a hearing whereat said ***Council*** will resolve to adopt plans, specifications, form of contract and estimate of cost for the construction of the **ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2** and, at the time, date and place specified above, or at such time, date and place as then may be fixed, to act upon proposals and enter into contract for the construction of said improvements.

General Nature of the Public Improvement

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS, PROJECT- PHASE 2**
**# 123.0895.01A**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal of the existing grass turf and installation of a granular base, subdrains and ballfield synthetic turf surfacing. Other project requirements include drainage improvements and site restoration.

At said hearing, the **City Council** will consider the proposed plans, specifications, form of contract and estimate of cost for said project, the same now being on file in the **Office of the City Clerk of the City of Fort Dodge, Iowa at City Hall**, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Council will also receive and consider any comments/objections to said plans, specifications and form of contract or to the estimated cost of said improvements made by any interested party.

This Notice is given by authority of the **City Council of the City of Fort Dodge, Iowa**

City Clerk
City of Fort Dodge

Published in **The Messenger on _____ day of _____, 2023.**

Bid Date: January 16th, 2024
Time 10:00 AM

# INSTRUCTIONS TO BIDDERS

Project Name: **ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2**

The work comprising the above referenced project shall be constructed in accordance with the construction plans and the 2023 edition of the SUDAS Standard Specifications, and as further modified by supplemental specifications and special provisions included in the contract documents. The terms used in the contract revision of the documents are defined in said Standard Specifications. Before submitting your bid, review the requirements of Division 1, General Provisions and Covenants, in particular the sections regarding proposal requirements, bonding, contract execution and insurance requirements. Be certain that all documents have been completed properly, as failure to complete and sign all documents and to comply with the requirements listed below can cause your bid not to be read.

## I. BID SECURITY

The bid security must be in the minimum amount of **10%** of the total bid amount including all add alternates (do not deduct the amount of deduct alternates). Bid security shall be in the form of a cashier's check or a certified check, drawn on an FDIC insured bank in Iowa or drawn on an FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the Jurisdiction. The bid bond must be submitted on the enclosed Bid Bond form as no other bid bond forms are acceptable. All signatures on the bid bond must be original signatures in ink; facsimile (fax) of any signature or use of an electronic signature on the bid bond is not acceptable. Bid security other than said bid bond shall be made payable to **City of Fort Dodge, Iowa**. "Miscellaneous Bank Checks," and personal checks, as well as "Money Orders" and "Traveler's Checks" issued by persons, firms, or corporations licensed under Chapter 533C of the Iowa Code, are not acceptable bid security.

## II. SUBMISSION OF THE PROPOSAL AND IDENTITY OF BIDDER

A. The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder and deposited with the Jurisdiction at or before the time and at the place provided in the Notice to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered to the Jurisdiction prior to the time for opening bids, along with the appropriate bid security sealed in a separate envelope identified as Bid Security and attached to the outside of the bid proposal envelope. Any proposal received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered. If the Jurisdiction provides envelopes for proposals and bid security, bidders shall be required to utilize such envelopes in the submission of their bids.

B. The following documents shall be completed, signed, and returned in the Proposal envelope. The bid cannot be read if any of these documents are omitted from the Proposal envelope.

1. PROPOSAL – Complete each of the following parts:

- Part B – Acknowledgment of Addenda, if any have been issued
- Part C – Bid Items, Quantities, and Prices, including Bid Alternate
- Part F – Additional Requirements

The following proposal attachments must be completed and attached:

| ITEM NO. | DESCRIPTION OF ATTACHMENT |
|---|---|
| 1. | TSB Provisions |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |

- Part G – Identity of Bidder (including the Bidder Status Form)

Sign the proposal. The signature on the proposal and all proposal attachments must be an original signature in ink signed by the same individual who is the Company Owner or an authorized Officer of the Company; copies or facsimile of any signature or electronic signatures will not be accepted. The Bidder Status Form is required by the Iowa Labor Commissioner, pursuant to the Iowa Administrative Code rule 875-156.2(1). The Bidder must complete and submit the Bidder Status Form, signed by an authorized representative of the Bidder, with their bid proposal. Under Iowa Administrative Code rule 875-156.2(1), failure to provide the Bidder Status Form with the bid may result in the bid being deemed non-responsive and may result in the bid being rejected. The Worksheet: Authorized to Transact Business from the Labor Commissioner is including on the following page and can be used to assist Bidders in completing the Bidder Status Form.

The following documents must be submitted as printed. No alterations, additions, or deletions are allowed. If the Bidder notes a requirement in the contract documents that the Bidder believes will require a conditioned or unsolicited alternate bid, the Bidder must immediately notify the Engineer in writing. The Engineer will issue any necessary interpretation by an addendum.

# PROPOSAL

## PROPOSAL: PART A – SCOPE

The City of Fort Dodge, Iowa, hereinafter called the "Jurisdiction," has need of a qualified contractor to complete the work comprising the below referenced improvement. The undersigned Bidder hereby proposes to complete the work comprising the below referenced improvement as specified in the contract documents, which are officially on file with the Jurisdiction, in the office of the City Clerk, at the prices hereinafter provided in Part C of the Proposal, for the following described improvements:

**PROJECT DESCRIPTION:**

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2, PROJECT #123.0895.01A**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal of the existing grass turf and installation of a granular base, subdrains and ballfield synthetic turf surfacing. Other project requirements include drainage improvements and site restoration.

## PROPOSAL: PART B – ACKNOWLEDGMENT OF ADDENDA

The Bidder hereby acknowledges that all addenda become a part of the contract documents when issued, and that each such addendum has been received and utilized in the preparation of this bid. The Bidder hereby acknowledges receipt of the following addenda by inserting the number of each addendum in the blanks below:

ADDENDUM NUMBER _____ ADDENDUM NUMBER _____

ADDENDUM NUMBER _____ ADDENDUM NUMBER _____

and certifies that said addenda were utilized in the preparation of this bid.

**PROPOSAL: PART C – BID ITEMS, QUANTITIES, AND PRICES**

UNIT BID PRICE CONTRACTS: The Bidder must provide the Unit Bid Price, the Total Bid Price, any Alternate Prices, and the Total Construction Costs on the Proposal Attachment: Part C – Bid Items, Quantities, and Prices. In case of discrepancy, the Unit Bid Price governs. The quantities shown on the Proposal Attachment: Part C – Bid Items, Quantities, and Prices are approximate only, but are considered sufficiently adequate for the purpose of comparing bids. The bidder must submit bids for all Alternates. The Total Construction Cost plus any Alternates selected by the Jurisdiction shall be used only for comparison of bids. The Total Construction Cost, including the sum of any selected Alternates, shall be used for determining the sufficiency of the bid security.

**PROPOSAL: PART D – GENERAL**

The Bidder hereby acknowledges that the Jurisdiction, in advertising for public bids for this project, reserves the right to:

1. Reject any or all bids. Award of the contract, if any, to be to the lowest responsible, responsive bidder; and
2. Reject any or all alternates in determining the items to be included in the contract. Designation of the lowest responsible, responsive bidder to be based on comparison of the total bid plus any selected alternates; and
3. Make such alterations in the contract documents or in the proposal quantities as it determines necessary in accordance with the contract documents after execution of the contract. Such alterations shall not be considered a waiver of any conditions of the contract documents, and shall not invalidate any of the provisions thereof; and

The Bidder hereby agrees to:

1. Enter into a contract, if this proposal is selected, in the form approved by the Jurisdiction, provide proof of registration with the Iowa Division of Labor in accordance with Chapter 91C of the Iowa Code, and furnish a performance, maintenance, and payment bond; and
2. Forfeit bid security, not as a penalty but as liquidated damages, upon failure to enter into such contract and/or to furnish said bond; and
3. Commence the work on this project on or before a date to be specified in a written notice to proceed by the Jurisdiction, and to fully complete ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2; and to pay liquidated damages for noncompliance with said completion provisions at the rate of One Thousand dollars ($1,000) for each calendar day thereafter that the work remains incomplete.

**PROPOSAL: PART E – NON-COLLUSION AFFIDAVIT**

The Bidder hereby certifies:

1. That this proposal is not affected by, contingent on, or dependent on any other proposal submitted for any improvement with the Jurisdiction; and

2. That no individual employed by the Bidder has employed any person to solicit or procure the work on this project, nor will any employee of the Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this project; and

3. That no part of the bid price received by the Bidder was or will be paid to any person, corporation, firm, association, or other organization for soliciting the bid, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the project were in the regular course of their duties for the Bidder; and

4. That this proposal is genuine and not collusive or sham; that the Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to submit a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person, to fix the bid price of the Bidder or of any other bidder, and that all statements in this proposal are true; and

5. That the individual(s) executing this proposal have the authority to execute this proposal on behalf of the Bidder.

**PROPOSAL: PART F – ADDITIONAL REQUIREMENTS**

The Bidder hereby agrees to comply with the additional requirements listed below that are included in this proposal and identified as proposal attachments:

| ITEM NO. | DESCRIPTION OF ATTACHMENT |
|---|---|
| 1. | _____ |
| 2. | _____ |
| 3. | _____ |
| 4. | _____ |
| 5. | _____ |
| 6. | _____ |

**PROPOSAL: PART G – IDENTITY OF BIDDER**

The Bidder shall indicate whether the bid is submitted by a/an:

- ☐ Individual, Sole Proprietorship
- ☐ Partnership
- ☐ Corporation
- ☐ Limited Liability Company
- ☐ Joint-venture: all parties must join-in and execute all documents
- ☐ Other

The Bidder shall enter its Public Registration Number ___ ___ ___ ___ ___ - ___ ___ issued By the Iowa Commissioner of Labor Pursuant Section 91C.5 of the Iowa Code.

Failure to provide said Registration Number shall result in the bid being read under advisement. A contract will not be executed until the Contractor is registered.

_____
Bidder

_____
Signature

By _____
Name (Print/Type)

_____
Title

_____
Street Address

_____
City, State, Zip Code

_____
Telephone Number

**Type or print the name and title of the company's owner, president, CEO, etc. if a different person than entered above**

_____
Name

_____
Title

**NOTE: The signature on this proposal must be an original signature in ink; copies, facsimiles, or electronic signatures will not be accepted.**

# PROPOSAL

## PROPOSAL ATTACHMENT: PART C – BID ITEMS, QUANTITIES, AND PRICES

This is a UNIT BID PRICE CONTRACT. The bidder must provide the Bid Price(s), Bid Alternate Item Price(s), and the Total of the Total Construction Cost plus the total of the individual Bid Alternate in this Proposal Attachment: Part C – Bid Items, Quantities, and Prices the total of the base bid plus any alternate selected by the Jurisdiction shall be used only for comparison of bids. The bidder must submit bids for all alternates to be deemed responsive. The total of the Total Construction Cost plus the sum of any selected Alternates shall be used for determining the sufficiency of the bid security.

| ITEM | DESCRIPTION | UNITS | QUANTITY | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| | **DEMOLITION** | | | | |
| 1.1 | Mobilization | LS | 1 | $ | $ |
| 1.2 | Remove Grass Turf and Topsoil | CY | 850 | $ | $ |
| 1.3 | Remove Aggregate Infield Mix and Sand Subbase to 10” Depth | CY | 915 | $ | $ |
| | **EARTHWORK** | | | | |
| 2.1 | Earthwork | LS | 1 | $ | $ |
| 2.2 | Erosion Control | LS | 1 | $ | $ |
| | **FIELD IMPROVEMENTS** | | | | |
| 3.1 | Synthetic Turf System with In-Fill | SF | 46,104 | $ | $ |
| 3.2 | Granular Base, 6” Depth, and Subdrain System | LS | 1 | $ | $ |
| 3.3 | Storm Sewer System | LS | 1 | $ | $ |
| 3.4 | Turf Curb | LF | 620 | | |
| 3.5 | 4” Depth PCC Sidewalk (allowance) | SF | 300 | $ | $ |
| 3.6 | 6” Depth PCC Pad | SF | 280 | $ | $ |
| 3.7 | Re-Use Existing 8’ Galvanized Fabric | LF | 300 | $ | $ |
| 3.8 | 8’ Ht. (Galv.) Chain Link Fence | SF | 417 | $ | $ |
| 3.9 | 12’ Ht. (Galv.) Chain Link Fence | SF | 30 | $ | $ |
| 3.10 | 8’ Ht. 4’ w. Swing Gate (Galv.) | EA | 4 | $ | $ |
| 3.11 | 8’ Ht. 10’ w. Swing Gate (Galv.) | EA | 2 | $ | $ |
| 3.12 | 20’ Foul Pole with In-Ground Sleeve | EA | 2 | $ | $ |
| 3.13 | Irrigation Renovation/Removal/New Quick Couplers | LS | 1 | $ | $ |
| | **SITE RESTORATION** | | | | |
| 4.1 | Seed Mix and Hydromulch | AC | 1.5 | $ | $ |

**CONSTRUCTION TOTAL** **$** _____

# Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.

☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa Secretary of State, has filed its most recent biennial report with the Secretary of State, and has neither received a certificate of withdrawal from the Secretary of state nor had its authority revoked.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa Secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

All bidders must submit the following completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.

# Bidder Status Form

## To be completed by all bidders — Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No My company is authorized to transact business in Iowa.
*(To help you determine if your company is authorized, please review the worksheet on the next page).*

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a non-resident bidder. Please complete Parts C and D of this form.

## To be completed by resident bidders — Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ to _____ Address: _____
*(mm/dd/yyyy)* City, State, Zip: _____

Dates: _____ to _____ Address: _____
*(mm/dd/yyyy)* City, State, Zip: _____

Dates: _____ to _____ Address: _____
*(mm/dd/yyyy)* City, State, Zip: _____

*You may attach additional sheet(s) if needed.*

## To be completed by non-resident bidders — Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

   _____

2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

   _____

   _____

   *You may attach additional sheet(s) if needed.*

## To be completed by all bidders — Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

## CONTRACT PROVISION

### Targeted Small Business (TSB) Affirmative Action Responsibilities on Non-Federal-aid Projects (Third-party State-Assisted Projects)

1. TSB DEFINITION

A TSB is a small business, as defined by Iowa Code Section 15.102(10), which is 51% or more owned, operated and actively managed by one or more women, minority persons, service-disabled veterans or persons with a disability provided the business meets all of the following requirements: is located in this state, is operated for profit and has an annual gross income of less than 4 million dollars computed as an average of the three preceding fiscal years.

2. TSB REQUIREMENTS

In all State-assisted projects made available through the Iowa Department of Transportation, local governments have certain affirmative action requirements to encourage and increase participation of disadvantaged individuals in business enterprises. These requirements are based on Iowa Code Section 19B.7. These requirements supersede all existing TSB regulations, orders, circulars and administrative requirements.

3. TSB DIRECTORY INFORMATION

Available from: Iowa Economic Development Authority
Targeted Small Business Certification Program
200 East Grand Avenue
Des Moines, IA 50309
Phone: (515-348-6159)
Website: https://iowaeconomicdevelopment.com/tsb

4. THE CONTRACTOR'S TSB POLICY

The contractor is expected to promote participation of disadvantaged business enterprises as suppliers, manufactures and subcontractors through a continuous, positive, result-oriented program. Therefore, the contractor's TSB policy shall be:

> It is the policy of this firm that Targeted Small Business (TSB) concerns shall have the maximum practical opportunity to participate in contracts funded with State-assisted funds which are administered by this firm (e.g. suppliers, manufactures and subcontractors). The purpose of our policy is to encourage and increase the TSB participation in contracting opportunities made available by State-assisted programs.

5. CONTRACTOR SHALL APPOINT AN EQUAL EMPLOYMENT OPPORTUNITY (EEO) OFFICER

The contractor shall designate a responsible person to serve as TSB officer to fulfill the contractors affirmative action responsibilities. This person shall have the necessary statistics, funding, authority and responsibility to carry out and enforce the firm's EEO policy. The EEO officer shall be responsible for developing, managing and implementing the program on a day-to-day basis. The officer shall also:

A. For current TSB information, contact the Iowa Economic Development Authority (515-348-6159) to identify potential material suppliers, manufactures and contractors.

B. Make every reasonable effort to involve TSBs by soliciting quotations from them and incorporating them into the firm's bid.

C. Make every reasonable effort to establish systematic written and verbal contact with those TSBs having the materials or expertise to perform the work to be subcontracted, at least two weeks prior to the time quotations are to be submitted. Maintain complete records of negotiation efforts.

D. Provide or arrange for assistance to TSBs in seeking bonding, analyzing plans/specifications or other actions that can be viewed as technical assistance.

E. Ensure the scheduled progress payments are made to TSBs as agreed in subcontract agreements.

F. Require all subcontractors and material suppliers to comply with all contract equal opportunity and affirmative action provisions.

6. COUNTING TSBs PARTICIPATION ON A PROJECT

TSBs are to assume actual and contractual responsibilities for provision of materials/supplies, subcontracted work or other commercially useful function.

A. The bidder may count:

(1) Planned expenditures for materials/supplies to be obtained from TSB suppliers and manufacturers; or
(2) Work to be subcontracted to a TSB; or
(3) Any other commercially useful function.

B. The contractor may count:

(1) 100% of an expenditure to a TSB manufacturer that produces/supplies goods manufactured from raw materials.
(2) 60% of an expenditure to TSB suppliers that are not manufacturers; provided the suppliers perform a commercially useful function in the supply process.
(3) Only those expenditures to TSBs that perform a commercially useful function in the work of a contract, including those as a subcontractor.
(4) Work the Contracting Authority has determined that it involves a commercially usefulfunction. The TSB must have a necessary and useful role in the transaction of a kind for which there is a market outside the context of the TSB program. For example, leasing equipment or purchasing materials from the prime contractor would not count.

7. REQUIRED DATA, DOCUMENTS AND CONTRACT AWARD PROCEDURES FROM BIDDERS/CONTRACTORS FOR PROJECTS WITH ASSIGNED GOALS

A. Bidders

Bidders who fail to demonstrate reasonable positive efforts may be declared ineligible to be awarded the contract. Bidders shall complete the bidding documents plus a separate form called "TSB Pre-Bid Contact Information". This form includes:
(1) Name(s) of the TSB(s) contacted regarding subcontractable items.
(2) Date ofthe contract.
(3) Whether or not a TSB bid/quotation was received.
(4) Whether or not the TSB's bid/quotation was used.
(5) The dollar amount proposed to be subcontracted.

B. Contractors Using Quotes From TSBs

Use those TSBs whose quotes are listed in the "Quotation Used in Bid" column along with a "yes" indicated on the Pre-bid Contact Information form.

C. Contractors NOT Using Quotes From TSBs

If there are no TSBs listed on the Pre-bid Contract Information form, then the contractor shall document all efforts made to include TSB participation in this project by documenting the following:

(1) What pre-solicitation or pre-bid meetings scheduled by the contracting authority were attended?
(2) Which general news circulation, trade associations and/or minority-focused media were advertised concerning the subcontracting opportunities?
(3) Were written notices sent to TSBs that TSBs were being solicited and was sufficient time allowed for the TSBs to participate effectively?
(4) Were initial solicitations of interested TSBs followed up?
(5) Were TSBs provided with adequate information about the plans, specifications and requirements of the contract?
(6) Were interested TSBs negotiated with in good faith? If a TSB was rejected as unqualified, was the decision based on an investigation of their capabilities?
(7) Were interested TSBs assisted in obtaining bonding, lines of credit or insurance required by the contractor?
(8) Were services used of minority community organization, minority contractors' groups; local, State and Federal minority business assistance offices or any other organization providing such assistance.

The above documentation shall remain in the contractor's files for a period of three (3) years after the completion of the project and be available for examination by the Iowa Economic Development Authority.

8. POSITIVE EFFORT DOCUMENTATION WHEN NO GOALS ARE ASSIGNED

Contractors are also required to make positive efforts in utilizing TSBs on all State-assisted projects which are not assigned goals. Form "TSB Pre-bid Contact Information" is required to be submitted with bids on all projects. If there is no TSB participation, then the contractor shall comply with section 7C. of this document prior to the contract award.

Form 730007WP 7-97

Contractor _____ Page#_____

Project# _____

County _____

City _____

# TARGETED SMALL BUSINESS (TSB)

## PRE-BID CONTACT INFORMATION

(To Be Completed By All Bidders Per The Current Contract Provision)

In order for your bid to be considered responsive, you are required to provide information on this form showing your Targeted Small Business contacts made with your bid submission. This information is subject to verification and confirmation.

In the event it is determined that the Targeted Small Business goals are not met, then before awarding the contract, the Contracting Authority will make a determination as to whether or not the apparent successful low bidder made good faith efforts to meet the goals.

**NOTE:** Every effort shall be made to solicit quotes or bids on as many subcontractable items as necessary to achieve the established goals. If a TSB's quote is used in the bid, it is assumed that the firm listed will be used as a subcontractor.

TABLE OF INFORMATION SHOWING BIDDERS PRE-BID
TARGETED SMALL BUSINESS (TSB) CONTACTS

| SUBCONTRACTOR | TSB | DATES CONTACTED | QUOTES RECEIVED | | QUOTATION USED IN BID | |
|---|---|---|---|---|---|---|
| | | | YES/ NO | DATES CONTACTED | YES/ NO | DOLLAR AMT. PROPOSED TO BE SUBCONTRACTED |
| | | | | | | |
| | | | | | | |
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| | | | | | | |

Total dollar amount proposed to be subcontracted to TSB on this project $_____ List items by name to be subcontracted:

# BID BOND

KNOW ALL BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto _____, as Obligee, (hereinafter referred to as "the Jurisdiction"), in the penal sum of _____ _____ _____dollars ($_____), or 10% percent of the amount bid in lawful money of the United States, for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the Jurisdiction a certain proposal, in a separate envelope, and hereby made a part hereof, to enter into a contract in writing, for the following described improvements;

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS, PROJECT- PHASE 2 #123.0895.01A**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal and replacement of the existing grass turf and installing artificial turf. Other project requirements include drainage improvements and site restoration.

The Surety hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Jurisdiction may accept such bid or execute such Contract; and said Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Webster County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or Principal to enforce the provisions of the bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all damages, costs, and attorney fees incurred by enforcing any of the provisions of this Bond. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against Surety for any amount guaranteed hereunder whether action is brought against Principal or whether Principal is joined in any such action or actions or not.

NOW, THEREFORE, if said proposal by the Principal be accepted, and the Principal shall enter into a contract with Jurisdiction in accordance with the terms of such proposal, including the provision of insurance and of a bond as may be specified in the contract documents, with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then
this obligation shall become null and void; otherwise, the Principal shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____, 20_____.

| SURETY: | PRINCIPAL: |
|---|---|
| _____ Surety Company | _____ Bidder |
| By _____ Signature Attorney-in-Fact/Officer | By _____ Signature |
| _____ Printed Name of Attorney-in-Fact/Officer | _____ Printed Name |
| _____ Company Name | _____ Title |
| _____ Company Address | _____ Address |
| _____ City, State, Zip Code | _____ City, State, Zip Code |
| _____ Company Telephone Number | _____ Telephone Number |

NOTE: All signatures on this bid bond must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted. This bond must be sealed with the Surety's raised, embossing seal. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal.

S&A Project No. 123.0895.01A

CONTRACT NO. 123.0895.01A

DATE _____

# CONTRACT

THIS CONTRACT, made and entered into at City of Fort Dodge, Iowa this _____ day of _____, 2023, by and between the City of Fort Dodge by its Mayor upon order of its City Council hereinafter called the "Jurisdiction," and _____, hereinafter called the "Contractor."

WITNESSETH:

The Contractor hereby agrees to complete the work comprising the below referenced improvement as specified in the contract documents, which are officially on file with the Jurisdiction, in the office of the City Clerk. This contract includes all contract documents. The work under this contract shall be constructed in accordance with the SUDAS Standard Specifications, 2023 Edition, and as further modified by the supplemental specifications and special provisions included in said contract documents, and the Contract Attachment - Item 1: General, which is attached hereto. The Contractor further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law, for the time required in said contract documents, after its acceptance by the Jurisdiction.

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices shown on the Contract Attachment - Item 2: Bid Items, Quantities, and Prices, which were proposed by the Contractor in its proposal submitted in accordance with the Notice to Bidders and Notice of Public Hearing for the following described improvements:

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS, PROJECT- PHASE 2 #123.0895.01**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal of the existing grass turf and installation of a granular base, subdrains and ballfield synthetic turf surfacing. Other project requirements include drainage improvements and site restoration.

The Contractor agrees to perform said work for and in consideration of the Jurisdiction's payment of the bid amount of _____ dollars ($_____) which amount shall constitute the required amount of the performance, maintenance, and payment bond. The Contractor hereby agrees to commence work under this contract on or before a date to be specified in a written notice to proceed by the Jurisdiction and to fully complete the ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2; and to pay liquidated damages for noncompliance with said completion provisions as follows:

Completion of Work

Work on the improvement shall be commenced any time after the after a written Notice to Proceed is issued, no later than **February 1st, 2024**, and shall be completed as stated below. The Notice to Proceed will be issued after the preconstruction conference, which is expected to occur the week of **February 1st, 2024.**

Work on the project shall be substantial complete by **July 1st, 2024**, with Yankee Field ready for use. Final Completion of all project work, including site restoration, punch-list items and close-out procedures, shall be completed by **July 15th, 2024**.

Should the contractor fail to complete the work in this timeframe, liquidated damages of **One Thousand dollars ($1,000.00**) per calendar day will be assessed for work not completed within the designated contract term.

IN WITNESS WHEREOF, the Parties hereto have executed this instrument, in triplicate on the date first shown written.

| JURISDICTION | CONTRACTOR |
|---|---|
| By _____ Mayor | _____ Contractor |
| (Seal) ATTEST: | By _____ Signature |
| _____ City Clerk | _____ Title |
| | _____ Street Address |
| _____ | _____ City, State, Zip Code |
| | _____ Telephone |

CONTRACTOR PUBLIC REGISTRATION INFORMATION To Be Provided By:

1. All Contractors: The Contractor shall enter its Public Registration Number __ __ __ __ __ - __ __ issued by the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code.

2. Out-of-State Contractors:

   A. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the division of labor services of the department of workforce development. It is the contractor's responsibility to comply with said Section 91C.7 before commencing this work.

B. Prior to entering into contract, the designated low bidder, if it is a corporation organized under the laws of a state other than Iowa, shall file with the Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Iowa Code, or as amended, governing foreign corporations.

NOTE: All signatures on this contract must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted.

CORPORATE ACKNOWLEDGMENT

State of_____)
) SS
_____County)

On this _____ day of _____, 20____, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ and _____, to me known, who, being by me duly sworn, did say that they are the _____, and _____, respectively, of the corporation executing the foregoing instrument; that (no seal has been procured by) (the seal affixed thereto is the seal of) the corporation; that said instrument was signed (and sealed) on behalf of the corporation by authority of this Board of Directors; that _____ and _____acknowledged the execution of the instrument to be the voluntary act and deed of the corporation, by it and by them voluntarily executed.

_____
Notary Public in and for the State of _____
My commission expires _____, 20 _____

PARTNERSHIP ACKNOWLEDGMENT

State of _____)
) SS
_____County)

On this ____ day of _____, 20 ___, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ to me personally known, who being by me duly sworn, did say that the person is one of the partners of _____, a partnership, and that the instrument was signed on behalf of the partnership by authority of the partners and the partner acknowledged the execution of the instrument to be the voluntary act and deed of the partnership by it and by the partner voluntarily executed.

_____
Notary Public in and for the State of _____
My commission expires _____, 20_____

INDIVIDUAL ACKNOWLEDGMENT

State of _____)
) SS
_____County)

On this _____ day of _____, 20____, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ and _____, to me known to be the identical person(s) named in and who executed the foregoing instrument, and acknowledged that (he) (she) (they) executed the instrument as (his) (her) (their) voluntary act and deed.

_____
Notary Public in and for the State of _____
My commission expires _____, 20_____

LIMITED LIABILITY COMPANY ACKNOWLEDGMENT

State of _____)
) SS
_____County)

On this _____ day of _____, 20____, before me a Notary Public in and for said county, personally appeared _____, to me personally known, who being by me duly sworn did say that person is _____ of said _____, that (the seal affixed to said instrument is the seal of said OR no seal has been procured by the said) _____, and that said instrument was signed and sealed on behalf of the said _____, by authority of its managers and the said _____ acknowledged the execution of said instrument to be the voluntary act and deed of said _____, by it voluntarily executed.

_____
Notary Public in and for the State of_____
My commission expires _____, 20 _____

**CONTRACT ATTACHMENT: ITEM 2 - BID ITEMS AND QUANTITIES**

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices tabulated below as proposed by the Contractor in its proposal submitted in accordance with notice to bidders and notice of public hearing. All quantities are subject to revision by the Jurisdiction. Quantity changes that amount to 20% or less of the amount bid shall not affect the unit bid price.

| ITEM | DESCRIPTION | UNITS | QUANTITY | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| | **DEMOLITION** | | | | |
| 1.1 | Mobilization | LS | 1 | $ | $ |
| 1.2 | Remove Grass Turf and Topsoil | CY | 850 | $ | $ |
| 1.3 | Remove Aggregate Infield Mix and Sand Subbase to 10" Depth | CY | 915 | $ | $ |
| | **EARTHWORK** | | | | |
| 2.1 | Earthwork | LS | 1 | $ | $ |
| 2.2 | Erosion Control | LS | 1 | $ | $ |
| | **FIELD IMPROVEMENTS** | | | | |
| 3.1 | Synthetic Turf System with In-Fill | SF | 46,104 | $ | $ |
| 3.2 | Granular Base, 6" Depth, and Subdrain System | LS | 1 | $ | $ |
| 3.3 | Storm Sewer System | LS | 1 | $ | $ |
| 3.4 | Turf Curb | LF | 620 | | |
| 3.5 | 4" Depth PCC Sidewalk (allowance) | SF | 300 | $ | $ |
| 3.6 | 6" Depth PCC Pad | SF | 280 | $ | $ |
| 3.7 | Re-Use Existing 8' Galvanized Fabric | LF | 300 | $ | $ |
| 3.8 | 8' Ht. (Galv.) Chain Link Fence | SF | 417 | $ | $ |
| 3.9 | 12' Ht. (Galv.) Chain Link Fence | SF | 30 | $ | $ |
| 3.10 | 8' Ht. 4' w. Swing Gate (Galv.) | EA | 4 | $ | $ |
| 3.11 | 8' Ht. 10' w. Swing Gate (Galv.) | EA | 2 | $ | $ |
| 3.12 | 20' Foul Pole with In-Ground Sleeve | EA | 2 | $ | $ |
| 3.13 | Irrigation Renovation/Removal/New Quick Couplers | LS | 1 | $ | $ |
| | **SITE RESTORATION** | | | | |
| 4.1 | Seed Mix and Hydromulch | AC | 1.5 | $ | $ |
| | | | | **CONSTRUCTION TOTAL** | **$** |

SURETY BOND NO. _____

**PERFORMANCE, PAYMENT, AND MAINTENANCE BOND**

KNOW ALL BY THESE PRESENTS:

That we, _____, as Principal (hereinafter the "Contractor" or "Principal" and _____, as Surety are held and firmly bound unto City of Fort Dodge , as Obligee (hereinafter referred to as "the Jurisdiction"), and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of _____ dollars ($_____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly or severally, firmly by these presents.

The conditions of the above obligations are such that whereas said Contractor entered into a contract with the Jurisdiction, bearing date the _____ day of _____, _____, hereinafter the "Contract") wherein said Contractor undertakes and agrees to construct the following described improvements:

**ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS, PROJECT- PHASE 2 #123.0895.01A**

The ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2 project is located at 1628 Nelson Ave, Fort Dodge, IA 50501. The project will consist of removal and replacement of the existing grass turf and installing artificial turf. Other project requirements include drainage improvements and site restoration.

I will faithfully perform all the terms and requirements of said Contract within the time therein specified, in a good and workmanlike manner, and in accordance with the Contract Documents. Provided, however, that one year after the date of acceptance as complete of the work under the above referenced Contract, the maintenance portion of this Bond shall continue in force but the penal sum for maintenance shall be reduced to the sum of _____DOLLARS ($_____), which is the cost associated with those items shown on the proposal and in the Contract that require a maintenance bond period in excess of one year.

It is expressly understood and agreed by the Contractor and Surety in this bond that the following provisions are a part of this Bond and are binding upon said Contractor and Surety, to-wit:

1. PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill, and abide by each and every covenant, condition, and part of said Contract and Contract Documents, by reference made a part hereof, for the above referenced improvements, and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor's default of failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.

2. PAYMENT: The Contractor and the Surety on this Bond hereby agreed to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract on account of which this Bond is given, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment, and tools, consumed or used by the Contractor or any subcontractor, wherein

the same are not satisfied out of the portion of the contract price the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Chapter 573 of the Iowa Code, which by this reference is made a part hereof as though fully set out herein.

3. MAINTENANCE: The Contractor and the Surety on this Bond hereby agree, at their own expense:

   A. To remedy any and all defects that may develop in or result from work to be performed under the Contract within the period of 2 years from the date of acceptance of the work under the Contract;

   B. To keep all work in continuous good repair; and,

   C. To pay the Jurisdiction's reasonable costs of monitoring and inspection to assure that any defects are remedied, and to repay the Jurisdiction all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

4. GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

   A. To consent without notice to any extension of time to the Contractor in which to perform the Contract;

   B. To consent without notice to any change in the Contract or Contract Documents, which thereby increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than 20% of the total contract price, and that this bond shall then be released as to such excess increase; and

   C. To consent without notice that this Bond shall remain in full force and effect until the Contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and the liquidated damage penalty is being charged against the Contractor.

   D. That no provision of this Bond or of any other contract shall be valid that limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.

   E. That as used herein, the phrase "all outlay and expense" is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits, and overhead where applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorneys fees (including overhead expenses of the Jurisdiction's staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor's failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

In the event the Jurisdiction incurs any "outlay and expense" in defending itself against any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety's obligation under this bond shall not exceed 125% of the penal sum of this bond.

In the event that any actions or proceedings are initiated regarding this Bond, the parties agree that the venue thereof shall be Webster County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Contractor and the Surety agree, jointly, and severally, to pay the Jurisdiction all outlay and expense incurred therefor by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers, and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether Contractor is joined in any such action(s) or not.

NOW THEREFORE, the condition of this obligation is such that if said Principal shall faithfully perform all the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a work, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.

Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Witness our hands, in triplicate, this _____ day of _____, _____.

Surety Countersigned By:

_____
Signature of Agent

_____
Printed Name of Agent

_____
Company Name

_____
Company Address

_____
City, State, Zip Code

_____
Company Telephone Number

**PRINCIPAL:**

_____
Contractor

By: _____
Signature

_____
Title

**SURETY:**

_____
Surety Company

By: _____
Signature Attorney-in-Fact Officer

_____
Printed Name of Attorney-in-Fact Officer

_____
Company Name

_____
Company Address

_____
City, State, Zip Code

_____
Company Telephone Number

**NOTE:**

1. **All signatures on this performance, payment, and maintenance bond must be original signatures in ink; copies, facsimile, or electronic signatures will not be accepted.**
2. **This bond must be sealed with the Surety's raised, embossing seal.**
3. **The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal.**
4. **The name and signature of the Surety's Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.**

**NOTICE TO PROCEED**

PROJECT: ROGERS SPORTS COMPLEX- "YANKEE" FIELD IMPROVEMENTS- PHASE 2

OWNER: CITY OF FORT DODGE, IOWA DATE: February 1st, 2024

TO: Contractor Name: _____

Contractor Address: _____

_____

You are hereby notified to commence work in accordance with the Contract dated **February 1st, 2024**; on or before **February 1st, 2024**, and you are to complete the work as follows:

Work on the project shall be substantially complete by **July 1st, 2024**, with the artificial turf ready for use. Final Completion of all project work, including site restoration, punch-list items and close-out procedures, shall be completed by **July 15th, 2024**.

Should the contractor fail to complete the work in this timeframe, liquidated damages of One Thousand dollars ($1,000.00) per calendar day will be assessed for work not completed within the designated contract term.

On behalf of the City of Fort Dodge

SNYDER & ASSOCIATES, INC

By: _____

Title: PROJECT ENGINEER

**ACCEPTANCE OF NOTICE**

Receipt of the above Notice to Proceed is hereby acknowledged by _____ of

_____ on this the _____ day of _____, 20___.

By: _____

Title: _____

SPECIAL PROVISIONS

SPECIAL PROVISIONS

FOR THE

Rogers Sports Park- “Yankee” Field Improvements- Phase 2

CITY OF FORT DODGE, IOWA

S & A PROJECT NO. 123.0895.01A

THE 2023 EDITION OF THE STATEWIDE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS ARE AMENDED BY THE FOLLOWING MODIFICATIONS. THESE ARE SPECIAL PROVISIONS WHICH SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

SPECIAL PROVISIONS

FOR

PART 1 - GENERAL REQUIREMENTS

INDEX



## 1. DEFINITION AND INTENT

A. The Technical Specifications that apply to the materials and construction practices for this project are defined as follows:

1. The 2023 edition of the Iowa Statewide Urban Specifications for Public Improvements (SUDAS), except as modified by these Special Provisions to the Technical Specifications.

2. Contractor shall furnish and install materials and perform all work and services for completed project described in Contract Documents.

## 2. WORK REQUIRED

A. Work under this contract includes all materials, labor, equipment, transportation, traffic control and associated work for the construction of the Rogers Sports Complex- Safety Improvements Project, as described in the Official Publication.

B. This project consists of one contract for all work described.

C. Schedule and coordinate the construction work to facilitate timely construction of the improvements.

D. Contractor shall be responsible for the cost of all utilities including, but not limited to, telephone and electric until project acceptance by the City Council.

3. SALVAGE OF MATERIALS AND EQUIPMENT

A. The City of Fort Dodge retains first right of refusal for retaining any existing materials removed by the contractor during construction.

B. The Contractor shall carefully remove, in a manner to prevent damage, all materials and equipment specified or indicated to be salvaged. The Contractor shall protect and store items as specified.

C. Any items damaged in removal, storage, or handling through carelessness or improper procedures shall be replaced by the Contractor in kind with new items.

4. PLANS AND SPECIFICATIONS

A. The City will furnish 5 sets of plans and specifications to the Contractor after award of the contract. The Contractor shall compensate the City for printing costs for additional copies required.

B. Provide one set of plans and specifications for each foreman and superintendent in charge of each crew on the job.

5. CONSTRUCTION FACILITIES

A. Provide telephone numbers where Contractor's representative can be reached during workdays and on nights and weekends in the event of an emergency.

B. Provide and maintain suitable sanitary facilities for construction personnel for duration of work; remove upon completion of work.

C. Do not store construction equipment, employee's vehicles, or materials on streets open to traffic. Location for storage of equipment by Contractors is subject to approval by the City and Engineer.

D. The Contractor shall provide suitable storage facilities necessary for proper storage of materials and equipment.

E. Provide fence, barricades, and/or workers to prevent access of unauthorized persons to site where work is in progress and to ensure the safety of the public when allowed on site. No trenches shall be left open over night and during non-working hours.

F. Compressed air, sanitary facilities, storage areas, and other services shall be furnished by the Contractor to meet their own requirements and at their own cost.

6. SUBMITTALS

A. Provide construction schedule showing dates of starting and completing various portions of work. The schedule is required at the Preconstruction Meeting and shall be updated for each weekly or bi-weekly construction meeting.

B. The Contractor shall provide a schedule of unit prices for each Lump Sum bid item.

C. Provide at least 3 copies, including additional copies required by Contractor. This information shall be submitted to the Engineer at the preconstruction conference or at least 14 days prior to utilization of the item on this project. Submit the following information for Engineer's review:

1. Testing reports as outlined in Section 9.

2. Manufacturer's data for materials that are to be permanently incorporated into the project.

3. Details of proposed methods of any special construction required.

4. Submit purchase orders and subcontracts without prices.

5. Seed Mix

6. Certificate of Insurance to the Engineer which includes the Jurisdiction and Engineer as additional insured.

7. Portland Cement Concrete (PCC) Design Mixes including maturity curves.

8. Such other information as the Engineer may request to ensure compliance with contract documents.

7. STANDARDS AND CODES

A. Construct improvements with best present day construction practices and equipment.

B. Conform with and test in accordance with applicable sections of the following standards and codes.

1. American Association of State Highway and Transportation Officials (AASHTO).

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

3. Iowa Department of Transportation Standard Specifications (Iowa DOT).

4. American National Standards Institute (ANSI).

5. American Water Works Association (AWWA).

6. American Welding Society (AWS).

7. Federal Specifications (FS).

8. Iowa Occupational Safety and Health Act of 1972 (IOSHA).

9. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).

10. SUDAS Standard Specification, 2018 Edition

11. Iowa DOT Standard Specifications, Most Recent Edition

12. Iowa DOT Materials I.M.s, Most Recent Edition

13. Standards and Codes of the State of Iowa and the ordinances of the City of Fort Dodge, Iowa.

14. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contract.

8. MATERIALS TESTS

A. Contractor shall employ and pay for services of an independent testing laboratory for test required to show compliance materials and specifications. Provide transportation of all samples to laboratory. Selection of testing laboratory subject to approval of the Engineer.

B. Coordinate all material testing with the Engineer.

C. Provide transportation of all samples to the laboratory.

D. Do not ship materials to the project site until laboratory tests have been furnished showing compliance of materials with specifications.

E. Provide gradation and materials certifications for all granular materials.

F. Certify that materials and equipment are manufactured with applicable specifications.

G. Any Materials not in compliance with these specifications will be ordered off the site(s) and compensation for transportation and/or materials will not be paid.

9. FIELD TESTS

A. Field testing is incidental to construction and will be completed by an independent testing laboratory retained by the Contractor and approved by the Engineer. Testing shall meet the requirements of SUDAS.

B. Coordinate all field testing with the Engineer. The Engineer will observe all tests.

C. The Contractor is responsible for meeting the specified testing requirements in the SUDAS for construction relating to Divisions 2, 3, 4, 6, 7, and 9 of said specification, if deemed necessary for the completion of the work specified.

1. Trench Backfill: Section 3010, Part 2 and Section 3010, Part 3.06 and Special Provisions of these specifications

a. Compact trench and structure backfill to not less than 95% of maximum Standard Proctor Density in a street or road right-of-way and under any granular or paved surfaces.

b. Compact to not less than 90% maximum Standard Proctor Density in all other areas.

c. Compaction requirements remain in effect during cold weather.

D. If test results do not meet those specified, the Contractor shall make necessary corrections and repeat testing to demonstrate compliance with the specifications. Contractor shall pay all costs for retesting.

10. CONSTRUCTION STAKING

A. Construction staking will be provided by the Contractor for construction of the Project.

11. MEASUREMENT AND PAYMENT

A. Contract unit or lump sum prices are full compensation for furnishing all materials, equipment, tools, transportation, and labor necessary to construct and complete each item of work as specified. No separate payment will be made for work included in this project. All other items of work are incidental to construction.

12. INCIDENTAL CONTRACT ITEMS

The following list includes major items that are incidental to the project and will not be paid for as separate bid items. Other items may be designated as incidental under certain bid items.

- Cold weather protection for PCC Pavement
- Connection of existing drain line to storm sewer
- Construction fencing
- Coordination and cooperation with utility companies
- Coordination and cooperation with the City of Fort Dodge
- Curb and pavement backfill
- Dewatering and handling storm water flow during construction
- Dust control measures
- Engineering fabric
- Excavation, verification, and protection of existing utilities
- Finish grading
- Granular backfill and bedding for storm sewer installation
- Granular surfacing removal (unless included as a specific contract item)
- Handling storm water flow during construction
- Locate of existing utilities, potholing if necessary
- Maintaining garbage and utility service to users
- Maintenance and watering for seeding and sodding
- Material & Field testing
- Monitoring weather conditions
- Porous backfill and fabric for subdrain
- Protection of hydrants and valves
- Protection of existing utilities and light poles
- Protection of existing trees and plantings not removed
- Repair of field tiles, if encountered
- Saw-cutting pavement at removal limits
- Site cleanup/surface restoration and seeding
- Temporary sheeting and shoring

SPECIAL PROVISIONS

FOR

PART 2 - SPECIAL CONDITIONS

INDEX



1. INTENT

A. To supplement the provisions of the GENERAL REQUIREMENTS by outlining special conditions applicable to project.

2. LOCATION

A. Work is located on City owned property in the City of Fort Dodge, Iowa.

3. SITE AVAILABILITY AND WORK AREA LIMITS

A. The Contractor may commence work any time starting February 1st, 2024. The Contractor shall prosecute the work diligently and continuously to completion.

B. Contractor shall coordinate construction activities and work schedule with the Engineer, City of Fort Dodge, and any adjacent construction operations located within the project area.

C. The Contractor is required to coordinate and maintain access to the property and other field areas during construction.

D. Once construction work commences, confine movements of equipment and personnel, excavation, materials, and all other construction operations within construction limits as shown on the construction drawings.

E. The Contractor is expected to provide adequate personnel and equipment to perform work within specified time of construction.

F. Install and maintain orange safety fence around all open trenches or open structures when left unattended. No trenches shall be left open during non-working hours and at night.

G. Provide surface restoration and clean up as construction progresses.

H. The Contractor shall limit his work operations to the following hours as follows:

Monday through Friday – 7:00 a.m. to 9:00 p.m.
Saturday – 7:00 a.m. to 9:00 p.m.
Sunday – 7:00 a.m. to 6:00 p.m.

4. ORDER OF CONSTRUCTION

A. Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work. This schedule is required at the Preconstruction Meeting and shall be updated for each construction meeting.

B. The Contractor is required to submit an updated and accurate construction schedule with each partial pay application submittal. Partial pay applications will not be processed until said construction schedule is received by the Engineer.

5. INTERRUPTIONS TO SERVICE

A. Utility service shall remain in substantially continuous operation during construction except during periods of notified service interruption.

B. Perform work which will interrupt utility service only at times approved by Engineer; hold interruptions of service to a minimum.

6. SERVICE FACILITIES

A. Compressed air, sanitary facilities, storage areas, and other services shall be furnished by Contractor to meet their own requirements and at their own cost. All facilities shall be confined to the City-owned property within the construction limits, as defined and approved by the City.

7. STORAGE OF MATERIALS AND EQUIPMENT

A. Secure site for storage of materials and equipment. Do not store within street rights-of-way or public areas unless allowed by Owner.

B. Store materials and equipment in a manner which will preserve their quality and fitness.

8. CONSTRUCTION FACILITIES BY CONTRACTORS

A. Provide office telephone and cell phone numbers of contractor representative for weekend, holiday, and evening problems referral.

B. Provide fence, barricades, and/or workers to prevent access of unauthorized persons to site where work is in progress and to ensure the safety of the public when allowed on site.

9. EMPLOYMENT PRACTICES

A. Contractor, or his/her subcontractors, shall not employ any person whose physical or mental condition is such that their employment will endanger the health and safety of themselves or others employed on the project.

10. APPROVAL OF MATERIALS

A. All materials to be supplied by the Contractor shall have prior approval by the Engineer as to suppliers, components, proportions, gradations, sources, and delivery methods.

B. Submit to the Engineer certified statements of materials electronically; certify that the materials to be used on this project meet the specifications so outlined. Any deviations must be pointed out and will be subject to the approval of the Engineer before incorporation into this project.

C. Any materials not in compliance with these specifications will be ordered off the site(s) and compensation for transportation and/or materials will not be paid.

11. PROJECT ACCEPTANCE

A. All seeding and surface restoration shall meet the following requirements prior to project acceptance:

1. All requirements for the completed installation, watering, and maintenance have been provided.

2. Seeded areas shall be growing and in a well-established condition without eroded areas, bare spots, free of weeds, undesirable grass species, and disease.

3. Clean-up operations are completed.

B. All streets, sidewalks, and recreational trails located within the project limits shall be cleaned and free of mud, dirt, and other debris.

C. The punch list items shall be completed prior to project acceptance.

D. Grass located within the project limits that is longer than 12-inches shall be mowed prior to project acceptance.

12. EXISTING UTILITIES

A. Location of utility lines, mains, cables and appurtenances shown on plans are from information provided by utility companies and records of the Owner.

B. Prior to construction, contact all utility companies and have all utility lines and services located. The Contractor is responsible for excavating and exposing underground utilities in order to confirm their locations ahead of the work.

C. Contractor is solely responsible for damage to utilities or private or public property due to utility disruption.

D. The Contractor shall notify utility company immediately if utility infrastructure is damaged during construction.

E. Utility companies will relocate utility infrastructure in direct conflict with line and grade of the work during construction. Support and protect all utilities that are not moved.

F. Utility services are not generally shown on plans; protect and maintain services during construction. Notify Owner and affected property owners 48 hours prior to any planned utility service interruptions.

G. If utility work does occur during the construction period, work schedules from the contractor and from the utility companies will be submitted to the Engineer for coordination to obtain mutual acceptable schedules, if possible.

H. Existing utilities shall remain in substantially continuous operation during construction. Select the order and methods of construction that will not interfere with the operation of the utility systems. Interrupt utility services only with approval of Owner and Engineer.

I. No claims for additional compensation or time extensions will be allowed to the Contractor for interference or delay caused by utility companies.

J. Contractor shall coordinate their operations with private construction companies on adjacent properties.

13. PROJECT SUPERVISION

A. The Prime Contractor shall be always present at the construction site. It is imperative that the construction operations are always supervised by a qualified superintendent or other designated, qualified representative. The superintendent or representative must be duly authorized to receive and execute instructions, notices, and written orders from the Engineer.

B. Issues that arise during construction relating to traffic control, construction staging, resident notifications, mail service, garbage service, access to residences, etc. are the responsibility of the Prime Contractor.

C. A meeting with the Contractor, Engineer and Owner will be held at the project site before construction to coordinate the construction work.

D. Refer to Division 1 – General Provisions and Covenants, Section 1080 – Contractual Provisions, Prosecution and Progress, Section 1.10 Contractor's Employees, Methods and Equipment for additional requirements.

14. CONSTRUCTION LIMITS

A. Confine the construction operations within the construction limits shown on the plans, consisting of public right-of way and temporary easements.

B. Do not store equipment, vehicles, or materials within the right-of-way of any streets open to traffic at any time without approval of the City. Do not store equipment, vehicles, or materials within temporary construction easement areas.

C. Areas disturbed outside of construction limits shall be restored at the contractor's expense to the satisfaction of the Jurisdiction. Contractor shall protect trees, fences, sidewalks, and landscaping within the construction limits not marked as remove.

D. Contractor shall demonstrate that sufficient manpower and equipment is scheduled for construction work to maintain a timely and orderly construction.

15. DISPOSAL

A. Remove from project site and dispose of trees, shrubs, vegetation, excess soil excavation, rubbish, concrete, granular materials and other materials encountered as shown on plans and as specified.

B. Dispose of materials in accordance with applicable laws and ordinances. Disposal sites are subject to the review and approval of the Engineer.

1. Burning of brush and other debris is not permitted. Contractor responsible for selecting disposal site.

2. Dispose of broken concrete, asphalt, granular material, rubble, excess or unsuitable excavated material. Contractor is responsible for selecting disposal site.

3. Cooperate with all applicable City, State and Federal agencies concerning disposal of materials.

4. The Owner has the first right to any excess materials from construction.

16. EROSION PROTECTION

A. Comply with IOWA URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, Section 9040 except as modified herein.

B. Comply with soil erosion control requirements of Iowa Code and local ordinances. Protect against erosion and dust pollution on the project site and any off-site deposit area used for this project.

C. Provide erosion control measures necessary to protect against siltation and erosion or flow of storm water. Maintain storm sewer and other drainage systems throughout the construction period.

D. Use silt fences, ditch checks, and other means at all drainage courses and swales to protect against siltation and erosion.

E. Furnish, install, maintain, clean, repair, and remove silt fence and silt basins at intakes and inlets and as shown on plans and as directed by Engineer.

F. Contractor fully liable for all damages to public or private property caused by their action or inaction in providing for handling of storm water flow during construction.

G. As construction progresses, sodding, seeding, and mulching is required in those segments of the corridor that become available to do so. The Contractor shall not wait until all grading and paving operations are completed before commencing final surface restoration.

H. The Contractor shall anticipate multiple mobilizations to complete seeding, sodding, mulching, and surface restoration operations as areas of the project corridor become available to do so.

17. DEWATERING

A. Perform all construction work in dry conditions.

B. Submit dewatering methods to the Engineer for review. Obtain the Engineer′s approval on methods prior to construction.

C. Groundwater levels are subject to variation. No additional compensation will be permitted due to high groundwater conditions.

D. If excavation encounters only cohesive soils with no wet sand seams or layers, it may be possible to control water seepage by draining groundwater to temporary construction sumps and pumping it outside the perimeter of the excavation.

E. Do not pump water from open excavation in sand and gravel below the natural ground water level.

F. Maintain water levels 2 feet or more below the bottom of excavations in saturated cohesionless (sand and/or gravel) soils to prevent upward seepage, which could reduce subgrade support.

1. Install dewatering system (well points or shallow wells) when working in cohesionless soils.

2. Costs of installing and operating dewatering system are incidental.

G. Provide for handling surface water encountered during construction.

1. Prevent surface water from flowing into excavation, remove water as it accumulates.

2. Divert storm sewer flow around areas of construction.

3. Do not use sanitary sewers for the disposal of trench water.

H. Backfill pipe and structures prior to stopping dewatering operations. Do not lay pipe or construct concrete structures on excessively wet soils.

I. The costs of handling both surface water and groundwater are incidental.

18. TEMPORARY FENCES

A. Install temporary fencing around open excavations or material storage areas and as directed by Engineer to prevent access of unauthorized persons to construction areas.

B. Provide orange plastic mesh safety fence with a nominal height of 48”. Support

fence securely on driven posts in vertical position without sagging.

1. Materials: Iowa DOT Section 4188.03.

2. Use unless required otherwise.

C. Temporary fencing installed around open excavations or material storage areas is incidental to construction and will not be measured for payment.

D. Remove temporary fencing upon completion of construction.

19. RESPONSIBILITY OF CONTRACTOR

A. Supervision of the work.

B. Protection of all property from injury or loss resulting from construction operations.

C. Replace or repair objects sustaining any such damage, injury or loss to satisfaction of Owner and Engineer.

D. Cooperate with Owner, Engineer, and representatives of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve the Contractor of responsibility for damage thereto caused by construction operations.

E. Keep clean-up current with construction operations.

F. Comply with all Federal, State of Iowa, and City of Fort Dodge, Iowa laws and ordinances.

20. CONCRETE PAVEMENT (PCC)

A. Comply with IOWA URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, Sections 7010 and 7030, except as modified herein.

B. Coarse Aggregate: USE CLASS 3 DURABILITY LIMESTONE, IDOT, SECTION 4115.04.

C. Mix Design: IDOT C-4 mix shall be used for all concrete as specified on the construction drawings.

D. Restore core holes by tamping non-shrink cement grout into hole; finish and texture surface.

E. The use of maturity testing as per IDOT IM 383 will be allowed with a minimum

of one set of cylinders made each day to verify compressive strength.

F. Each truck load of concrete must be identified by an acceptable plant charge ticket showing plant name, contractor, project name, date, quantity, class, and time batched.

G. Provide cold weather protection as specified for temperatures below 25 degrees F. for all concrete placed after November 15.

H. Special care should be taken when forming at intersections so that the profiles and elevations shown on the cross sections, plan and profile, and intersection detail sheets are obtained. Short lengths of forms or flexible forms may be necessary at these locations.

I. Maturity testing shall be utilized to expedite street opening.

J. Contractor to provide all materials testing including slump and air entrainment testing.

## 21. SURFACE RESTORATION

A. Finish grade all disturbed areas to smooth, uniform lines without large clods, lumps, or debris. Grade for positive drainage.

B. Prepare the finished surface for seeding. Provide and place additional clean topsoil on any disturbed areas that, in the opinion of the Engineer, are lacking in natural topsoil. Provide organic material that is free of vegetation, rubble or other debris.

C. All areas to be seeded shall be prepared, fertilized, seeded, mulched, staked, watered, maintained, and warranted in accordance with SUDAS Section 9010.

D. Any areas disturbed by construction that are outside of the construction limits shall be repaired and restored at the Contractor's expense. No extra payment will be allowed for surface restoration on these areas.

E. Install silt fences at the locations directed by the Engineer during construction and any locations needed to prevent soil erosion.

F. Seeding work completed after the specified seeding dates in SUDAS Section 9010, Part 2.02 shall be at the risk of the contractor to maintain.

END OF SECTION

TECHNICAL SPECIFICATIONS

SECTION 02 41 23

SITE SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 Drawings and general provisions of contract including general and supplementary conditions apply to this section.

1.2 This part of the specifications includes the demolition and removal of existing pavement, utilities, granular areas, poles, footings, plant material and other miscellaneous items or structures as shown on the drawings.

1.3 The Contractor is responsible for the hauling and disposal of all removal items off of the site. Any items to be removed and salvaged shall be stored at a location chosen by the Owner.

1.4 The Contractor shall be responsible for any permits and notices necessary for authorizing the demolition, or for the transport and disposal of debris, if required by local authorities.

1.5 PROTECTION

A. The Contractor is expected not to interfere with the use of adjacent public streets and is required to maintain safe passage to and from the site.

B. The Contractor shall prevent the movement, settlement, or collapse of adjacent utility services, sidewalks, roadways, driveways and buildings. Any damage shall be repaired by the contractor to the owner's specifications and at the contractor's expense.

C. The Contractor shall install and maintain safety fence and traffic control as required to protect the general public, workers and adjoining property owners. See plan for perimeter fencing location and additional information.

D. The Contractor is responsible for locating and protecting existing utility lines during construction. Any damage shall be repaired by the Contractor to the Owner's specifications at the Contractor's expense.

1.6 EXISTING SERVICES

A. The Contractor shall arrange with the affected utility companies and Owner in advance to obtain approval for disconnecting, removing, capping and for plugging utility services.

B. Manholes, utility stop boxes, fire hydrants, utility vents, and power and light poles, occurring in walks, alleys, or pavement that are required to remain in service, shall be left intact in the sidewalk or pavement removed from around them. The Contractor shall exercise extreme care and caution and will become liable for any damages to the existing utilities regardless of their location.

C. The Contractor shall install markers to indicate the location of disconnected services.

PART 2 - MATERIALS – NONE

PART 3 – EXECUTION

3.1 DEMOLITION

A. Work with pneumatic or vibratory tools will generally be permitted. Use of explosives will not be permitted.

B. Provide protection to the public, workers, and adjacent properties from falling debris and operating equipment adjacent to structures under demolition by the use of barricades or other adequate means. Warning signs and lights shall be placed at night at locations where the public is exposed to damage. The Contractor is responsible for maintaining during the period that danger to the public exists.

C. Repair demolition performed in excess of that required at no cost to the Owner.

D. Keep work sprinkled to prevent dust. Provide hoses and water main or hydrant connections for this purpose.

E. Burning of materials on site is not permitted.

F. Remove from site contaminated, vermin infested, or dangerous materials encountered and dispose of by safe means so as not to endanger the health of workers and the public.

G. Remove demolished materials, tools, and equipment upon completion of work.

H. Contractor to mark demolition limits in field for Engineer's and Owner's approval prior to demolition activities.

3.2 REPAIR

A. The Contractor shall repair any damage done to adjacent site improvements caused as a result of this work. The repairs will be made to the Owner's specifications at the Contractor's expense.

3.3 CLEANING

A. All roadways shall be kept free of debris on a daily basis on a daily basis and washed down as required to remove mud, soil, and dust on streets that result from trucking at points of site access.

B. Wet down dry materials and rubbish to lay dust.

C. Leave the site free of any vertical objects projecting above grade inside the staging area enclosed by any required safety fencing.

END OF SECTION

SECTION 31 23 00

EXCAVATION AND EARTHWORK

## PART 1 - GENERAL

### 1.1 SECTION INCLUDES

A. Drawings and general provisions of contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this section.

B. This section includes excavation and earthwork for all site work including pavement earth subgrade.

### 1.2 DESCRIPTION OF WORK

A. Work includes stockpiling topsoil, excavating, loading, hauling, depositing, compacting, grading, pavement subgrade preparation, topsoil respreading, finish grading, and restoring surfaces as necessary to conform to lines, grades, and slopes as shown on plans.

B. Related work covered by other sections:

1. Section 32 13 13: Concrete Paving

### 1.3 DEFINITIONS

A. Reference to percent maximum density shall mean a soil density not less than the stated percentage of maximum density for soil as determined by ASTM D698, "Moisture Density Relations of Soils", using 5.5-lb. rammer and 12 inch drop. (Standard Proctor Method).

### 1.4 TESTING

A. Contractor shall employ and pay for services of an independent testing laboratory for tests required to show compliance with specifications.

B. Contractor to provide equipment and materials as required for de-watering site areas for excavation operations.

C. Contractor to plan work and provide temporary means for routing storm water drainage as necessary during construction.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. Earth: All materials not classified as rock or rubble including loam, silt, gumbo, peat, clay, soft shale, sand, gravel, and fragmentary rock or boulders which can be handled by normal earth moving equipment.

B. Rock: Boulders so large that they cannot be handled by normal earth moving equipment or solid deposits so firmly cemented together that they cannot be removed without continuous use of pneumatic tools or blasting.

C. Rubble: Buried concrete foundations, beams, walls, and other materials which cannot be removed without continuous use of pneumatic tools or blasting.

D. Topsoil: Organic well-draining soil free from clay lumps, rocks, stones, concrete, toxic minerals, roots over 1/4" in diameter or other material which will not provide good turf growth. Secure from stripping operations as required or provide as necessary for finish grading.

E. Contractor shall notify the Owner if unsuitable soils are encountered during construction. Acceptable materials for construction shall include:

1. Fill used for site construction shall be free of organic matter and debris. The soils shall have a liquid limit less than 45 and a plasticity index less than 20 to 25.

2. All backfill and subgrade for pavements shall be compacted to 95% of standard proctor and shall be within a range of 0% to 4% of the materials optimum moisture content.

## PART 3 - EXECUTION

### 3.1 EROSION PROTECTION

A. Code Compliance: The Contractor shall comply with soil erosion control requirements of the Iowa Code, the Iowa Department of Natural Resources NPDES Permit, the construction drawings and local ordinances. The Contractor shall take all necessary measurements to protect against erosion and dust pollution on this project site and all off-site borrow or deposit areas, during performance or as a result of performance.

B. Damage claims: The Contractor will hold the Owner harmless from any and all claims of any type whatsoever resulting from damages to adjoining public or private property, including reasonable attorney's fees incurred to Owner. Further, if the Contractor fails to take necessary steps to promptly remove earth sedimentation or debris which comes onto adjoining public or private property, the Owner may, but need not, remove such items and deduct the cost thereof from amounts due the Contractor.

C. The Contractor shall be responsible for compliance and fulfillment of all requirements of the Storm Water Pollution Prevention Plan and the NPDES General Permit No. 2 for Storm Water Discharge Associated with Industrial Activity for Construction Activities.

3.2 Protection of existing utilities: The contractor shall protect existing gas, electric, water, fiber optic, subdrain lines, storm and sanitary service lines encountered during construction. Any damage shall be repaired by the Contractor to the Owners specifications at the Contractor's expense.

3.3 EXCAVATION

A. Excavate, load, transport and place excavated materials as necessary to conform to lines, grades and slopes as shown on plans.

B. Roll and compact cut areas to density not less than specified for fill area.

C. If soft or yielding materials are encountered near finished grade in cut areas, remove unstable materials at a depth specified by Owner and replace with suitable materials and compact.

D. Excavate in manner to avoid construction of lenses, pockets, streaks or layers of material differing from surrounding materials in fill areas.

E. Cooperate with Owner in selection of locations for placement of excavated materials which differ appreciably from surrounding materials.

F. Maintain excavation in free draining condition; provide drainage for any water or springs which may be encountered.

G. The Contractor shall notify the Owner should existing drain tile be encountered during excavation and earthwork activities. Contractor is to connect all existing tiles encountered during construction to the storm sewer system.

H. Provide temporary drainage facilities to prevent damage when necessary to interrupt natural drainage or flow of storm sewers, culverts or subdrains.

I. Maximum height of vertical cut shall be three (3) feet.

3.4 EARTHWORK

A. Prepare areas for fill by discing, plowing and scarifying to depth of 4 to 6 inches following topsoil removal under building pad or proposed paved areas.

B. If soft or yielding materials at existing grade are encountered, remove unstable materials and replace with suitable materials and compact prior to fill operations.

C. When fill meets natural grade of slope, cut bench in existing slope to connect existing grade with new fill.

D. Step or bench all existing slopes greater than 5 horizontal to 1 vertical to connect existing grade with new fill.

E. Place no roots, brush, grass or other organic material in fill under buildings, pavement, and pond areas. Place no material on fill when material or foundation is frozen.

F. Select material for each portion of fill with approval of the Engineer; select materials to avoid sharp change in texture.

G. Use fill material free of lenses, pockets, streaks or layers of materials differing from surrounding materials.

H. Construct fill in horizontal layers not more than 9 inches in loose thickness.

I. Deposit each layer over full width of fill as separate and distinct operation.

J. After layer is deposited, smooth to uniform depth by means of suitable motor patrol or bulldozer.

K. Maintain fill in free draining condition, provide drainage for any water or springs which may be encountered, except in the pond areas.

L. If soft or yielding materials are encountered within fill areas due to trapped water, remove unstable materials and replace with suitable materials and compact.

## 3.5 COMPACTION

A. Contractor is responsible for all required compaction tests. Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality control testing.

1. Allow testing agency to inspect and test subgrades and fill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

2. Perform soil density and moisture tests on earthwork at locations selected by Owner to show compliance of compaction with specifications. Provide one test every 1,000 square yards of subgrade preparation, 1,800 square yards of fill placement, or as may be required by geotechnical engineer. Intent is to provide sufficient test to adequately control and represent the compaction procedures.

3. If compaction fails density and moisture tests, rework fill by mechanical means until specified density and moisture is obtained; Contractor shall pay all costs for testing and retesting.

B. Compact all materials placed in fill.

C. Compact selected materials in horizontal layers with tamping or sheepsfoot roller; use roller designed to provide at least 200 psi distributed on one row of knobs; tamping feet must project not less than 6½ inches from face of drum.

D. Compact layer by rolling with tamping type roller until full weight of roller is supported by tamping feet.

E. Roller will be considered to be supported entirely on its tamping feet when feet do not penetrate more than 3 inches into material being compacted.

F. If soil is wet so that it will not sufficiently compact by one passage of roller per inch of loose thickness, provide one discing per 2 inches of loose thickness.

1. Cut and stir full depth of layer.

2. Allow interval of not longer than 2 hours between successive discings, or as directed by Geotechnical Engineer.

3. After discing is completed, compact layer by specified rolling.

G. If soil is dry so that it will not satisfactorily compact by rolling, moisten material before compaction; manipulate material to secure proper distribution of moisture before compaction.

H. Compact fill slopes progressively until slopes are stable.

I. Place fill and compact on all sides of structures to same level as fill operation progresses to protect structures against displacement or other damage.

J. Areas adjacent to structures which cannot be tamped with rollers: hand tamp with mechanical tamper to same degree of compaction as specified for other parts of fill.

K. Place fill material in maximum of 8-inch lifts.

L. Whenever operations are suspended during period, when rain is likely to occur, smooth and compact surface to shed water readily.

M. Compact all fill material in non-paved areas to not less than 85% maximum density as determined by ASTM D698 (Standard Proctor Method) with moisture content within 0% to plus 4% points optimum moisture.

N. Compact all fill material in the upper 12 inches below paved areas, proposed building area, proposed future building area, and below footing elevations to not less than 95% maximum density as determined by ASTM D 698 (Standard Proctor Method) with moisture content within 0% to plus 4% points of optimum.

## 3.6 SUBGRADE PREPARATION

A. Shape and consolidate subgrade for placement of pavements.

B. Prepare subgrade as separate and distinct construction operation just prior to pavement placement.

C. Provide a uniform composition below top of subgrade of at least 12 inch depth under new paving plus 2 feet outside pavement limits.

D. Compact upper 12 inches with moisture and density control (95% MD). Moisture content to be 0% to 4% points of optimum.

E. Excavate top 6 inches of subgrade, scarify, pulverize, mix and recompact with moisture and density control. Pulverize, mix and replace top 6 inches of subgrade and compact with moisture and density control (95% MD).

F. Other methods for construction of subgrade preparation may be considered for use if uniform composition of finished subgrade is obtained and moisture and density tests taken at top of final subgrade and at 6 inches below top of final subgrade meet specified requirements as approved by Owner.

G. Remove stones over 3 inches in size from subgrade and stockpile as directed by Owner.

H. If ruts or other objectionable irregularities form in subgrade during construction, reshape and reroll subgrade before placing pavement; fill ruts or other depressions with material similar to other subgrade material and compact. No extra payment will be made for subsequent subgrade re-compaction.

I. Construct to elevation and cross section such that, after rolling, surface will be above required subgrade elevation.

J. Proof roll all subgrade with loaded tandem axle truck to determine uniformity and stability of subgrade.

K. If soft or yielding areas are located, remove unstable materials and replace with suitable materials and compact as specified.

L. Complete final subgrade within drive areas by excavation to grade by use of steel-shod template supported on side forms or support rollers or by use of automatically controlled subgrade excavating machine.

M. Check subgrade elevation and grade within drives and parking areas by method approved by Owner prior to paving. No additional payment will be made for rework of subgrade after rain or snow events. The Contractor is responsible for scheduling subgrade operations with pavement installations to ensure proper timing of construction.

N. Maintain subgrade prior to and during paving operations; repair any damaged or disturbed areas prior to paving. No additional payment will be allowed for the re-compaction of subgrade area if work is not protected.

## 3.7 FINISH GRADING

A. Finish excavating and fill areas to conform to lines, grades and slopes as shown on plans or as directed by Owner.

B. Maximum allowable variation in finished earth grade from design grade outside of paved areas is 0.2 feet. Grade and slope all earth surfaces to drain.

C. Smooth and finish all earth surfaces disturbed by construction operations.

D. Provide continuous use of blade grader, dozer or similar equipment of adequate size and power to handle materials encountered during finishing of excavation and fill.

E. Respread stockpiled topsoil as required for finish grading to a minimum 6 inch depth.

F. Disc earth surfaces to depth of 3 inches and place topsoil 6 inches deep on finished earth surfaces; smooth and grade ready for turf bed preparation.

G. Schedule and coordinate topsoil respreading with seeding, sodding, and planting operations.

END OF SECTION

SECTION 31 23 16

TRENCH AND BACKFILL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Trench excavation for pipe systems, manholes, intakes and other structures.

B. Trench bedding and foundation stabilization.

C. Pipe and structure placement and backfill.

1.2 DESCRIPTION OF WORK

A. Perform all excavations required to complete the work shown on the plans.

B. Prepare trench excavations and shoring for new work, and install the utility lines, structures, and system components, including bedding and foundation stabilization.

C. Complete specified backfill operation.

D. Reference is made to the Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2001, and all current General Supplemental Specifications and Materials Instructional Memorandum by the term "Iowa DOT Specifications" and/or "Iowa DOT I.M."

1.3 SUBMITTALS

A. Submit under provisions of Division 1.

B. Samples, granular bedding material: submit 10-pound samples of each type, if required.

C. Samples, granular backfill material: submit 10-pound samples, if required.

D. Gradation reports for fill materials and bedding materials.

E. Results of Proctor and In-Place Density Tests on backfill.

F. Contractor will provide Material Certifications to the Engineer.

G. Contractor’s dewatering plan.

1.4 SUBSTITUTIONS

A. Use only materials conforming to these specifications unless permitted otherwise by Engineer.

B. Obtain approval of Engineer for all substitutions prior to use.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver only materials that fully conform to these specifications or for which submittals have been provided to Engineer and approved for use.

B. Store delivered materials and excavated materials in locations that will not interfere with operations and minimize environmental damage.

C. Grade and shape stockpiles for drainage and protect adjacent areas from runoff. Provide erosion control around stockpiles.

D. Remove unsuitable and excess materials from the site.

1.6 SCHEDULING AND CONFLICTS

A. Construction Sequence:

1. Attend a preconstruction meeting if required by Engineer.

2. Submit plan for construction sequence and schedule prior to commencing construction.

B. Conflict Avoidance:

1. Expose possible conflicts in advance of construction, such as utility lines and drainage structures. Verify elevations and locations of each and verify clearance for proposed construction.

2. Complete other elements of the work that can affect line and grade in advance of other open cut construction unless noted on the plans.

3. Notify Engineer of conflicts discovered or changes needed to accommodate unknown or changed conditions.

1.7 SPECIAL REQUIREMENTS

A. Stop Work: Stop work and notify Owner immediately if contaminated soils, historical artifacts, or other environmental or historic items are encountered.

B. Use of Explosives: Not allowed.

C. Conform to local, state, and federal requirements.

D. Abandoned Utilities: Remove and dispose of abandoned utility lines including gas mains, water mains, sewer mains, telephone conduits, service lines, etc. required to complete the work. Said work shall be incidental to the project unless otherwise specified.

PART 2 - PRODUCTS

2.1 EXCAVATED MATERIALS

A. Unclassified Excavation: Excavation of all materials encountered, except rock and over-excavation.

B. Rock Excavation: Boulders or sedimentary deposits that cannot be removed without continuous use of pneumatic tools or blasting.

C. Over-excavation: Excavation of soil or rock in trenches below the pipe zone, see Figure 3010.1.

D. Suitable Excavated Materials for Backfill:

1. Soil, clay, silt, sand, and gravel with moisture content suitable to achieve required compaction. ASTM D 2321, Class II through IVA (see 312316, 2.01, E).

2. Fine-grained soils according to ASTM D 2321 Class IVB (inorganic) (see 312316, 2.01, E) may be used in the final backfill upon approval of the Engineer.

3. Adjust moisture content of excessively wet, but otherwise acceptable, material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.

4. Adjust moisture content of excessively dry, but otherwise acceptable material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.

5. Lime or fly ash may be added to soils to produce a suitable backfill material. Uniformly mix soil and additive. Determine Standard Proctor maximum density and optimum moisture content of the modified material. Amount of additive applied is subject to Engineer’s approval.

E. Non-Manufactured (Excavated) Backfill Materials: See Sections 3010, 2.03 and 2.04. Also applies for manufactured backfill.

F. Unsuitable Material: Remove unsuitable materials from the site, including, but not limited to, the following:

1. Rock with gradation not meeting the stated gradation for stabilization material.

2. Individual stones or concrete chunks larger than 6 inches, and averaging more than one per each cubic foot of soil.

3. Frozen materials.

4. Stumps, logs, branches, and brush.

5. Trash, metal, or construction waste.

6. Soil in clumps or clods larger than 6 inches, and without sufficient fine materials to fill voids during placement.

7. Unsuitable soils, as defined in Section 311000, 2.03, excluding material used as topsoil.

8. Class V Material (ASTM D 2321), as defined in Section 312316, 2.08.

9. Environmentally-contaminated soils.

10. Soils deemed unsuitable by the geotechnical engineer.

G. Replacement of Unsuitable Soils:

1. If the excavated material is determined by the Engineer to be unsuitable and cannot be conditioned so that it becomes suitable, furnish all necessary backfill material.

2. Remove and dispose of unsuitable material from the site.

2.2 STABILIZATION (FOUNDATION) MATERIALS

A. Clean 2-1/2 inch crushed stone or crushed portland cement concrete (PCC) material, with the following gradation:

| Sieve | Percent Passing |
|---|---|
| 2-1/2” | 100 |
| 2” | 90 to 100 |
| 1-1/2” | 35 to 70 |
| 1” | 0 to 20 |
| 1/2” | 0 to 5 |

B. Engineer may authorize a change in gradation subject to materials available locally at time of construction. Subject to the Engineer’s approval, crushed concrete may be used if it is within plus or minus 5% of the gradation for each size of material.

2.3 CLASS I GRANULAR BEDDING AND BACKFILL MATERIAL (Storm Sewers and Sanitary Sewers)

A. Use gravel or crushed stone for granular bedding, complying with the following gradation:

| Sieve | Percent Passing |
|---|---|
| 1-1/2” | 100 |
| 1” | 95 to 100 |

| | |
|---|---|
| 1/2" | 25 to 60 |
| No. 4 | 0 to 10 |
| No. 8 | 0 to 5 |

Note: Engineer may authorize the use of crushed PCC, for pipe sizes up to 12 inches, or a change in gradation subject to materials available locally at time of construction.

B. Use aggregates having a percentage of wear, Grading A or B, not exceeding 50%, determined according to AASHTO T 96.

C. Compaction: See Section 312316, 3.06.

2.4 CLASS II BACKFILL MATERIAL (Storm Sewers, Sanitary Sewers, and Water Mains)

A. Class II material is manufactured and non-manufactured open graded (clean) or dense graded (clean) processed aggregate, clean sand, or coarse-grained natural soils (clean) with little or no fines.

B. Class II material is non-plastic soil less than 1-1/2 inches in size and consists of the following:

| SOIL TYPE | DESCRIPTION OF MATERIAL CLASSIFICATION | REMARKS SECTION |
|---|---|---|
| GW | Well-graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean. | Where hydraulic gradient exists check gradation to minimize migration. Clean groups suitable for use as drainage blanket and underdrain. |
| GP | Poorly graded gravels and gravel sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean. | |
| SW | Well-graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean. | |
| SP | Poorly graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean. | |

C. Compaction: See Section 312316, 3.06.

D. Class II material may be specified in the contract documents by the Engineer between the pipe embedment zone and the top 2 feet of final backfill when the trench is under the pavement.

2.5 CLASS III BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

A. Class III material is natural coarse-grained soils with fines.

B. Class III material follows Section 31 23 16, 2.01, G and consists of the following:

| SOIL TYPE | DESCRIPTION OF MATERIAL CLASSIFICATION | REMARKS SECTION |
|---|---|---|
| GM | Silty gravels, gravel-sand-silt mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve. | Do not use where water condition in trench may cause instability. |
| GC | Clayey gravels, gravel-sand-clay mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve. | |
| SM | Silty sands, sand-silt mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve. | |
| SC | Clayey sands, sand-clay mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve. | |

C. Compaction: See Section 31 23 16, 3.06.

2.6 CLASS IVA BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

A. Class IVA material is natural fine grained inorganic soils.

B. Class IVA material follows Section 31 23 16, 2.01, G and consists of the following:

| SOIL TYPE | DESCRIPTION OF MATERIAL CLASSIFICATION | REMARKS SECTION |
|---|---|---|
| ML | Inorganic silts, very fine sands, rockflous, silty or clayey fine sands. Liquid limit 50% or less. 50% or more passes No. 200 sieve. | Obtain geotechnical evaluation of proposed material. May not be suitable under deep fills, surface applied wheel loads, and under heavy vibratory compactors and tampers. Do not use where water conditions in trench may cause instability. |
| CL | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Liquid limit 50% or less. 50% or more passes No. 200 sieve. | |

C. Compaction: See Section 31 23 16, 3.06.

D. Suitable only in dry trench conditions.

2.7 CLASS IVB BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer and Water Mains)

A. Class IVB material is natural fine-grained inorganic (high elastic silts and plastic clays - fat clay) with a liquid limit greater than 50%.

B. Class IVB material follows Section 31 23 16, 2.01 and consists of the following:

| SOIL TYPE | DESCRIPTION OF MATERIAL CLASSIFICATION | REMARKS SECTION |
|---|---|---|
| MH | Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts. Liquid limit greater than 50%. 50% or more passes No. 200 sieve. | Not to be used in pipe embedment zone. |
| CH | Inorganic clays of high plasticity, fat clays. Liquid limit greater than 50%. 50% or more passes No. 200 sieve. | |

C. Compaction: See Section 31 23 16, 3.06.

D. When approved by the Engineer, Class IVB material may be used as final trench backfill in a dry trench.

E. Do not use in the pipe embedment zone.

2.8 CLASS V BACKFILL MATERIAL (Topsoil)

A. Class V Material is natural highly organic soils with a liquid limit greater than 50%. See Section 31 23 16, 2.01.

B. Use Class V Material only as topsoil outside of the pavement, unless otherwise specified or allowed by the Engineer.

C. Do not use Class V Material in the pipe embedment zone.

2.9 BEDDING AND BACKFILL MATERIALS FOR PIPE CULVERTS

A. Bedding:

1. Use minimum Type C embedment (see plan details).

2. Install water stop or curtain wall at culvert inlet, as specified in the contract documents.

B. Backfill Material:

1. Use all suitable material excavated for pipe culvert work, as specified in Section 31 23 16, 2.01, for backfill material.

2. Dry suitable material that has excessive moisture prior to placement.

3. Remove unsuitable material, as specified in Section 31 23 16, 2.01, from the project site.

2.10 BEDDING AND BACKFILL MATERIALS FOR SUBDRAINS

A. Drainable Bedding and Backfill Materials Include:

1. Porous backfill material.

2. Pea gravel.

3. Use as shown on the plans or on the detailed drawings.

B. Porous Backfill Material: Crushed stone or gravel with the following gradation.

| Sieve | Percent Passing |
|---|---|
| 3/4" | 100 |
| 1/2" | 95 to 100 |
| 3/8" | 50 to 100 |
| No. 4 | 0 to 50 |
| No. 8 | 0 to 8 |

Iowa DOT Gradation No. 29.

C. Coarse Aggregate: Use Stabilization Materials, per Section 31 23 16.

D. Pea Gravel: Use commercially available pea gravel.

E. Impervious Bedding: Use least permeable on-site materials.

F. Engineering Fabric: Use Iowa DOT 4196.

2.11 SPECIAL PIPE EMBEDMENT MATERIAL

A. Concrete Supports: Where specified in the contract documents, construct concrete support systems according to Figures 3010.2 to 3010.7.

B. Concrete Bedding, Arch, or Encasement:

1. Concrete: commercial, 4,000 psi compressive strength.

2. Unreinforced, unless otherwise shown on the plans.

3. Minimum concrete thickness: 6 inches or as shown on the plans.

C. Flowable Mortar:

1. Approximate quantities per cubic yard:

a. Cement 100 pounds

b. Fly ash 300 pounds

c. Fine aggregate 2,600 pounds

d. Water, approximate 70 gallons

2. Compressive strength at 28 days; 100 psi to 200 psi.

D. Controlled Low Strength Material (CLSM):

1. Approximate quantities per cubic yard:

a. Cement 50 pounds

b. Fly ash 250 pounds

c. Fine aggregate 2910 pounds

d. Water, approximate 60 gallons

2. Compressive strength at 28 days 50 psi.

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. When natural soils for Class II, III, and IV backfill material is required as specified in plan details, provide written certification from a testing laboratory that the material meets the class specified if so requested by the Engineer.

B. Locate, mark, and protect existing utilities and facilities in the work area.

C. Provide access to utility service locations, such as valves, manholes, and utility poles.

D. Identify owners of utilities on or near the site, and notify them of operations to occur.

E. Protect existing facilities and landscaping features, or replace as shown on the plans.

F. Protect bench marks, control points and land survey monumentation, or replace at Contractor's expense.

### 3.2 TRENCH EXCAVATION

A. Notify the Engineer prior to the start of excavation activities.

B. Remove and stockpile the top 8 inches of topsoil for subsequent reuse.

C. Place excavated material away from trench. Grade spoil piles to drain. Do not allow spoil piles to obstruct drainage.

D. Remove rock, rubbish, boulders, debris, and other unsuitable materials at least 6 inches below, and on each side of the pipe. Restore grade using soil suitable for backfill.

E. Correct unauthorized excavation at no cost to Owner, using bedding or stabilization materials.

F. Provide protective fences and barricades around open excavations, appropriate to the surrounding area.

G. Provide weight tickets for stabilization material to the Owner at the time of delivery.

H. Provide safety fence around open excavations.

I. Trench Excavation for Sanitary Sewers, Storm Sewers, Water Mains, and Pipe Culverts:

1. Maximum and minimum pipe trench width: See plan details.

2. Flat trench bottom, conduit bearing directly on trench bottom (not applicable for rock excavation) for water main pipe only with bell hole shaping:

    a. Shape trench bottom to support pipe around 1/4 of perimeter for the full length of the pipe barrel.

    b. Provide bell holes.

3. Trench bottom, conduit supported by bedding material:

    a. Excavate trench as shown on the detailed drawings.

    b. Install bedding material to support the full length of the pipe barrel.

4. Trench depth:

    a. See plan details.

    b. For those material types not shown in the plan details, the maximum height of bury will be 20 feet. Installations greater than 20 feet require submittal of licensed professional engineer trench design and certification.

5. Conform all trench operations to current OSHA regulations.

J. Structure Excavation:

1. For concrete structures and parts of structures without footings, 18 inches outside the horizontal projection of the structure.

2. For concrete structures with footings, 18 inches outside the footings.

3. For anchor rods, 12 inches on each side of the rod.

4. For buried anchors, the face of the buried anchor on one side and 24 inches outside the buried anchor on the other face.

3.3 ROCK OR UNSTABLE SOILS IN TRENCH BOTTOM

A. Notify the Engineer prior to over-excavation.

B. Contractor will determine the need for trench bottom stabilization prior to installation of pipes and structures.

C. See plan details for over-excavation of rock and wet or soft foundations.

D. Provide weight tickets for the stabilization material to the Owner at the time of delivery.

3.4 SHEETING, SHORING, AND BRACING

A. Conform sheeting and bracing of all excavations to the latest state and federal regulations governing safety of workers in the construction industry.

B. Leave in place all temporary sheeting below 2 feet over top of pipe unless sheeting removal plan is approved by Engineer. Conform all trench operations to current OSHA regulations.

C. Move trench boxes carefully to avoid excavated wall displacement or damage.

D. When necessary or required, install adequate sheeting and bracing to prevent ground movement that may cause damage or settlement to adjacent structures, pipelines, and utilities.

E. Any damage due to settlement because of failure to use sheeting or because of inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.

F. For sides of trenches in unsuitable, loose, or soft material, shore, sheet, brace, slope, or otherwise support by means of sufficient strength to protect employees working within them.

G. Where excavations are made with vertical sides that require supporting, use sufficient strength for sheeting and bracing to sustain the sides of the excavations and to prevent movement that could in any way injure the work or adjacent structures, or diminish the working space sufficiently to delay the work

H. Select sheeting and bracing material of sufficient dimensions and strength to

adequately support the sides of trenches and excavations, which will not split when driving and will be free of imperfections that may impair its strength or durability.

I. Drive sheeting to true alignment and ensure contact of adjacent pieces.

J. In wet excavation, use grooved sheeting to prevent passage of soil. Fill any voids between sheeting and face of excavation with suitable material.

K. Do not remove sheeting and bracing before the completion of the work, unless otherwise directed by the Engineer.

L. For sheeting left in place, cut off 18 inches for clearance below the bottom of the pavement in streets/highways and 18 inches below the original ground surface, unless otherwise required by the contract documents or the Engineer. Leave in place all temporary sheeting below 2 feet over top of pipe, unless a sheeting removal plan is approved by Engineer.

3.5 DEWATERING

A. Do all work in dry conditions; do not install pipes on excessively wet soil.

B. Perform the dewatering operation according to the dewatering plan submitted to the Engineer. Dewatering operations may be modified from the plan for actual field conditions, with approval of the Engineer.

C. Adequate dewatering is the Contractor’s responsibility unless otherwise stated in the contract documents.

D. Install dewatering system appropriate for the soil conditions.

E. Maintain water levels sufficiently below the bottom of trench excavation, (typically 2 feet) to prevent upward seepage.

F. Provide for handling water encountered during construction:

1. Prevent surface water from flowing into excavation. Remove water as it accumulates.

2. Do not use sanitary sewers for disposal of trench water. Discharging water into storm sewers requires Engineer's approval.

3. Do not discharge water onto adjacent property without property owner's approval.

4. Maintain and control water discharge as necessary to prevent a safety hazard for vehicular and pedestrian traffic.

5. Direct water discharge away from electrical facilities or equipment and intersections.

6. Use noise and fume reducing dewatering equipment to minimize disturbance.

7. Provide at least two operating pumps for each trench opened in wet ground, and at the same time have one pump in reserve.

G. Place backfill in trenches prior to stopping dewatering operations.

H. Protect trench water discharge points from erosion.

I. Operate dewatering systems to prevent damage to adjoining structures and facilities.

J. Monitor adjoining structures and facilities during dewatering operations. Cease dewatering operations and notify the Engineer if damage is observed.

## 3.6 PIPE INSTALLATION

Refer to Figures 3010.2 to 3010.7, as appropriate, for the installation. Use only the types of materials shown for each position within the trench, for the given groundwater conditions, for the compaction to be provided, and for the type of pipe being installed.

A. Pipe Bedding:

1. Shape pipe bed to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe.

2. Install pipe and system components.

3. Place bedding simultaneously on both sides of the pipe. Correct any pipe displacements before proceeding.

4. Place bedding in lifts no greater than 6 inches thick, consolidate, and moderately compact.

5. Concrete encasement: Install where shown on the plans.

6. If required in the contract documents or if approved by the Engineer, flowable mortar or controlled low strength material may be used in lieu of other bedding material types.

7. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.

B. Haunch Support:

1. Place granular haunch material in lifts no greater than 6 inches thick, consolidate, and moderately compact by slicing with a shovel or using other approved techniques.

2. If required in the contract documents, or if approved by the Engineer, concrete, flowable mortar, or controlled low strength material may be used instead of other haunch material types. Secure pipe against displacement or flotation prior to placing flowable mortar, controlled low strength material, or concrete

encasement.

C. Primary and Secondary Backfill (Pipe Cover):

1. Place pipe cover material in 6-inch lifts. Compact Class I and II (cohesionless) materials to a minimum of 65% Relative Density. Compact Class III and IVA (cohesive) materials to a minimum of 95% of maximum Standard Proctor Density.

2. If required in the contract documents or if approved by the Engineer, flowable mortar or controlled low strength material may be used in lieu of other cover material types. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.

3. Special pipe support: If required, provide special pipe support as shown on the plans (See Figures 3010.4 to 3010.6).

D. Final Trench Backfill:

1. Place backfill in the trench immediately after recording locations of connections and appurtenances or at Engineer's direction.

2. Place backfill adjacent to structures immediately after concrete has reached design strength and connecting work has been completed.

3. Allow no more than 100 feet of trench to be open overnight or when work is not in progress except as provided on the plans.

4. Place suitable excavated backfill:

a. Carefully place backfill over top of pipe and around structures.

b. Compact as required.

5. Compaction:

a. Within street right-of-way, compact each lift to a minimum of 65% Relative Density for Class I and II (cohesionless) materials and a minimum of 95% of maximum Standard Proctor Density for Class III and IVA (cohesive) materials.

b. Outside of the street right-of-way, compact to a minimum of 50% Relative Density for Class I and II (cohesionless) materials and a minimum of 90% of maximum Standard Proctor Density for Class III and IVA (cohesive) materials.

c. In areas more than 3 feet below pavement structure, place backfill in lifts no thicker than 8 inches.

d. In areas less than 3 feet below pavement structure, place backfill in lifts no

thicker than 6 inches. Terminate backfill at 8 inches below finish grade in areas to remain unpaved, and to subgrade elevation in areas to be paved. Place 8 inches of topsoil in unpaved areas.

e. When crossing under levees, railroads, and State or Federal highways, comply with the compaction requirements of these jurisdictions, if more stringent than these requirements.

f. For Vitrified Clay Pipe (VCP), keep all heavy compaction equipment 5 feet above the top of the pipe. In the area less than 5 feet, use hand held compactors. Do not allow the compactor to come in contact with the pipe.

6. Moisture Range: Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

7. Dispose of surplus and unsuitable materials.

8. Hydraulic compaction (flooding with water) is not allowed.

E. Casing Pipe: Place bedding and backfill materials for casing pipe the same as for a rigid gravity flow pipe.

3.7 PIPE INSTALLATION IN CONSTRUCTED EMBANKMENTS

Install all pipes in trenches according to Section 3010. When allowed by the contract documents, pipes may be constructed in embankments as follows:

A. Placing Pipe Sections: (See Section 334100)

B. Placing Backfill for Pipes:

1. Thoroughly tamp backfill under and around the pipe and in layers not to exceed 8 inches for the full length and width of the pipe.

2. Place backfill and thoroughly tamp around and over the pipe for its full length.

3. Extend the completed embankment on both sides of the pipe from the original ground line to at least 1 foot above the top of the pipe with a slope as shown in the contract documents. Construct the embankment over the pipe with a width no less than the outside diameter of the pipe and centered over the pipe. If necessary to accommodate construction traffic, increase the height of fill to the nominal diameter of the pipe or 3 feet, whichever is greater.

4. When pipe are laid wholly or partly in a trench, granular backfill material may be required for backfill. Compact the remainder of the fill to at least 1 foot above the top of the pipe with slopes as outlined above.

5. If the trench has been cut wide enough to permit use of a roller, after the pipe is bedded, thoroughly tamp the backfill material under and alongside the pipe with a mechanical tamper to the mid-height elevation of the pipe.

6. The contract documents may require placement of pipe with moisture control. When not required, place roadway pipe after construction of an embankment by methods that will produce results equivalent to those required for construction of the embankment, except that moisture determinations will be waived for placing backfill completed within 48 hours after excavation.

7. In addition to the normal backfill material requirements, when directed by the Engineer, build such approach fills to provide a roadway 10 feet in width over the pipe with grades no steeper than 10%.

3.8 STRUCTURE BEDDING

A. Bedding for Structures Bearing on Undisturbed Soils:

1. Shape the bottom to accurate grade and size.

2. Remove loose material, large clods, stones, and foreign materials.

3. In unstable soils or rock conditions, see Section 312316, 3.03 for stabilization requirements. Follow bedding requirements as shown in Figure 312316.1.

B. Bedding for Structures Bearing on Bedding Material:

1. Over excavate to minimum of 8 inches or as specified in the contract documents.

2. Place bedding material for structures according to the contract documents and with the material and control specified in Figure 312316.1.

3.9 STRUCTURE BACKFILL

A. Removal of Forms and Falsework: See Section 333900, 3.06.

B. Placement of Backfill: Place backfill after structure concrete has reached at least 80% of the design strength and connecting work has been completed, unless otherwise specified. Determine strengths under comparable conditions. If strength is not determined, place backfill after 14 days.

C. Backfill Against Walls and Around Structures:

1. Where backfill is required on both sides of a concrete wall and around all sides of monolithic structures, proceed with filling operations simultaneously on all sides of walls and structures so the fill is kept at approximately the same elevation at all times. Consider concrete box, arch, and circular culvert monolithic structures.

2. Compact the 3 feet closest to all walls or wing faces by pneumatic or hand tampers only.

D. Placing Backfill with Excavated Material:

Unless otherwise specified, see Section 312316, 3.06, D for suitable excavated materials for backfill.

3.10 OPEN CUT CASING PIPE INSTALLATION

A. Casing Pipe: Install casing pipe according to Section 312316, 3.01 to 3.07, as appropriate.

3.11 FIELD QUALITY CONTROL

A. References:

1. ASTM C 136; Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

2. ASTM D 698; Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Moisture Using 5.5 pound (4.54 kg) Rammer and 12 inch (305 mm) Drop. (Standard Proctor Method)

3. ASTM D 1556; Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

4. ASTM D 2216; Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

5. ASTM D 2922 and D 3017; Test Methods for Density of Soil and Soil-Aggregate in Place and Water Content of Soil and Rock by Nuclear Methods (Shallow Depth).

6. ASTM D 4253 and D 4254, Test Methods for Maximum Index Density of Soils using a Vibratory Table and Minimum Index Density of Soils and Calculation of Relative Density.

B. Compaction Testing: Provide compaction testing of backfill, using the services of an independent testing laboratory approved by the Engineer.

C. Schedule Testing: Notify Engineer when work is prepared for testing.

D. Soil Testing:

1. Cohesive soils: Determine moisture-density relationships by ASTM D 698 (Standard Proctor). Perform at least one test for each type of cohesive soil used.

2. Cohesive soils: Determine in-place density and moisture content using ASTM D 1556 (sand-cone method) and D 2216 or ASTM D 2922 and D 3017 (nuclear).

3. Non-cohesive soils: Determine maximum and minimum index density and calculate relative density using ASTM D 4253 and D 4254 (cohesionless soils).

4. Gradation: Test according to ASTM C 136.

E. Testing Frequency and Locations: Perform testing of the final trench backfill, beginning at a depth of 2 feet above the top of the pipe, as follows:

1. Contractor provided:

a. Make one test per each 2 vertical feet of consolidated fill at each street crossing.

b. one test per each 2 vertical feet of consolidated fill for each 200 horizontal feet of trench.

c. Additional testing may be required by Engineer if non-compliance or a change in conditions occur.

d. Coordinate the timing of testing with the Engineer.

e. The Engineer will determine the location of testing.

f. If necessary, excavate to the depth and size as required by the Engineer to allow compaction tests. Place backfill and recompact.

F. Test Failure: Rework, recompact, and retest as necessary until specific compaction is achieved in all areas of the trench.

G. Retesting: In event of failed tests, Engineer may require retesting as deemed necessary. Costs of such retesting shall be paid by the Contractor, at no additional cost to the owner.

END OF SECTION

SECTION 31 25 00

EROSION AND SEDIMENT CONTROL

## PART 1 - GENERAL

### 1.1 SECTION INCLUDES

A. NPDES General Permit No. 2

B. Stormwater Pollution Prevention Plan (SWPPP)

C. Erosion Control Measures

D. Velocity and Flow Control Measures

E. Sediment Control Measures

F. Application/Installation of Measures

G. Removal/Replacement of Measures

H. NPDES General Permit Contractual Requirements

### 1.2 DESCRIPTION OF WORK

A. Furnish all materials; install, construct, maintain, and remove specified erosion control devices; at locations shown on the plans, or where specified by the Engineer, in accordance with the contract documents.

B. Complete the required construction work on this project, while minimizing soil erosion and controlling water pollution. Maintain these features as specified, from initial construction stages to final completion of the project.

### 1.3 SUBMITTALS

Follow the General Provisions, as well as the following:

Upon request, provide copies of all records and documentation related to compliance with the Iowa DNR NPDES Permit.

### 1.4 SUBSTITUTIONS

Follow the General Provisions.

## 1.5 DELIVERY, STORAGE, AND HANDLING

Follow the General Provisions.

## 1.6 SCHEDULING AND CONFLICTS

Follow the General Provisions, as well as the following:

A. Implement erosion and sediment control measures at the appropriate time(s).

B. Coordinate construction to minimize damage to erosion and sediment control devices.

## 1.7 SPECIAL REQUIREMENTS

A. Iowa DNR Permit:

1. When applicable, comply with the requirements of the Iowa Department of Natural Resources, *NPDES (National Pollutant Discharge Elimination System) General Permit No. 2 for Stormwater Discharge Associated with Industrial Activity for Construction Activities*, and the Stormwater Pollution Prevention Plan.

2. For projects covered under the Iowa DNR General Permit No. 2, sign on as a co-permittee with the owner and any other contractors or subcontractors.

B. Protection of Property: Prevent accumulation of earth, sediment, or debris from project site onto adjoining public or private property. Remove any accumulation of earth or debris immediately, and take remedial actions for prevention.

# PART 2 - PRODUCTS

## 2.1 FILTER MATERIAL

Material for use in filter socks, filter berms, and other areas, as specified.

A. Use material derived from wood, bark, or other, non-toxic vegetative feedstocks.

B. Use material with no visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.

C. Use material meeting the following particle sizes:

| Sieve Size | Percent Passing[1] |
|---|---|
| 2” | 100 |
| 1” | 90-100 |
| 3/8” | 0-30 |
| [1]The target flow rate of in-place material is 10 gal/min/lf. The Engineer may approve use of alternate materials meeting the target flow rate. | |

2.2 FILTER SOCK

A. For slope and sediment control applications, use a continuous, tubular, knitted, mesh netting with 3/8 inch openings, constructed of 5-mil thickness, photodegradable HDPE.

B. For inlet protection, use a continuous, tubular, knitted, mesh netting with 3/8 inch openings, constructed of 500-denier polypropylene.

C. Use 1 inch by 2 inch (minimum) hardwood stakes or stakes of equivalent strength.

2.3 SILT FENCE

Use silt fence that meets the following requirements:

A. Fabric: Conform to Iowa DOT Article 4196.01.

B. Posts: 4 foot minimum steel (T-section) weighing at least 1.25 pounds per foot, exclusive of anchor plate. Painted posts are not required.

C. Fastener: Wire or plastic ties with a minimum tensile strength of 50 pounds.

2.4 DUST CONTROL

A. Water: Use potable water or water from a source approved by the engineer.

B. Calcium Chloride: Conform to Iowa DOT Article 4194.01.

C. Lignosulfonate (Tree Sap): Use a commercially-available product with known lignin content.

D. Soapstock (Soybean Oil):

1. Use a commercially-available, undiluted, soybean oil soapstock emulsion.

2. Conform to specific storage, transportation, temperature, and application equipment requirements, as recommended by the manufacturer.

## 2.5 EROSION CONTROL MULCH

A. Conventional Mulch:

1. Use dry straw (oats, wheat barley, or rye) or hay (bromegrass, timothy, orchard grass, alfalfa, or clover).

2. Use material that is free of noxious weed, seed-bearing stalks, or roots and will be inspected and approved by the Engineer prior to use.

3. Other materials, subject to the approval of the Engineer may be used.

B. Hydromulch:

1. Wood Cellulose:

a. Use material that is a natural or cooked cellulose fiber processed from whole wood chips, or a combination of up to 50% of cellulose fiber produced from whole wood chips, recycled fiber from sawdust, or recycled paper (by volume).

b. Product contains a colloidal polysaccharide tackifier adhered to the fiber to prevent separation during shipment and avoid chemical co-agglomeration during mixing.

c. Form a homogeneous slurry of material, tackifier, and water.

d. Use a slurry that can be applied with standard hydraulic mulching equipment.

e. Dye the slurry green to facilitate visual metering during application.

f. Do not use materials that have growth or germination-inhibiting factors or any toxic effect on plant or animal life when combined with seed or fertilizer.

2. Bonded Fiber Matrix (BFM):

a. Produced from long-strand wood fibers, held together by organic tackifiers and bonding agents that, when dry, become insoluble and non-dispersible.

b. Upon curing 24 to 48 hours, form a continuous, 100% coverage, flexible, absorbent, erosion-resistant blanket that encourages seed germination.

c. Manufactured to be applied hydraulically.

d. Physical Properties:

1) Fibers: Virgin wood, greater than 88% of total volume.

2) Organic Material: Greater than 96% of total volume.

3) Tackifier: 8-10%.

4) pH: 4.8 minimum.

5) Moisture Content: 12% +/- 3%.

6) Water-holding Capacity: 1.2 gal/lb.

e. Dyed green to facilitate visual metering.

3. Mechanically-Bonded Fiber Matrix (MBFM):

a. Produced from long-strand wood fibers and crimped, interlocking synthetic fibers.

b. Within two hours of application, form a continuous, 100% coverage, flexible, absorbent, porous, erosion-resistant blanket that encourages seed germination.

c. Manufactured to be applied hydraulically.

d. Physical Properties:

1) Wood Fibers: 73% minimum.

2) Tackifier: 10% +/- 1%.

3) Crimped, Interlocking Synthetic Fibers: 5% +/- 1%.

4) Moisture Content: 12% +/- 3%.

5) Water holding capacity: 1.2 gal/lb.

6) Minimum pH: 4.8.

e. Dyed green to facilitate visual metering.

## 2.6 TEMPORARY ROLLED EROSION CONTROL PRODUCTS (RECP)

Use temporary rolled erosion control products that are classified and have material properties according to the Erosion Control Technology Council's (ECTC) guidelines as follows:

A. Material Classification:

1. RECP Type 1 (Ultra Short-Term): Functional longevity of three months or less and classified as follows:

a. RECP Type 1.A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.

b. RECP Type 1.B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.

c. RECP Type 1.C: Single-net erosion control blankets and open weave textiles, consisting of processed degradable natural and/or polymer fibers, mechanically bound together by a single rapidly-degrading, synthetic or natural fiber netting, or an open weave textile of processed rapidly-degrading natural or polymer yarns or twines woven into a continuous matrix.

d. RECP Type 1.D: Double-net erosion control blankets, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two rapidly-degrading, synthetic or natural fiber nettings.

2. RECP Type 2 (Short-Term): Functional longevity between 3 and 12 months and classified as follows:

a. RECP Type 2.A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.

b. RECP Type 2.B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.

c. RECP Type 2.C: Single-net erosion control blankets and open weave textiles, consisting of an erosion control blanket composed of processed degradable natural or polymer fibers, mechanically bound together by a single degradable synthetic or natural fiber netting to form a continuous matrix, or an open weave textile composed of processed degradable natural or polymer yarns or twines woven into a continuous matrix.

d. RECP Type 2.D: Double-net erosion control blanket, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two degradable synthetic or natural fiber nettings.

3. RECP Type 3 (Extended Term): Functional longevity between 12 and 24 months

and classified as follows:

a. RECP Type 3.A: Mulch control nets, consisting of a slow-degrading synthetic mesh or woven natural fiber netting.

b. RECP Type 3.B: Erosion control blankets and open weave textiles, consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two slow-degrading synthetic or natural fiber nettings to form a continuous matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.

4. RECP Type 4 (Long Term): Functional longevity of 36 months and classified as follows: Erosion control blankets and open weave textiles, consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.

B. Properties and Performance:

1. Testing performed according to the ECTC's Testing Procedures for Rolled Erosion Control Products. Verify manufacturer's test results by independent testing.

2. Material properties meeting the Erosion Control Technology Council's (ECTC) Standard Specifications for Rolled Erosion Control Products as follows:

| Classification | Slope Application | Channel Application | Min. Tensile Strength |
|---|---|---|---|
| | Max. Grade* | Permissible Shear Stress | |
| RECP Type 1.A | 5:1 (H:V) | 0.25 lb/ft$^2$ | 5 lb/ft |
| RECP Type 1.B | 4:1 (H:V) | 0.50 lb/ft$^2$ | 5 lb/ft |
| RECP Type 1.C | 3:1 (H:V) | 1.50 lb/ft$^2$ | 50 lb/ft |
| RECP Type 1.D | 2:1 (H:V) | 1.75 lb/ft$^2$ | 75 lb/ft |
| RECP Type 2.A | 5:1 (H:V) | 0.25 lb/ft$^2$ | 5 lb/ft |
| RECP Type 2.B | 4:1 (H:V) | 0.50 lb/ft$^2$ | 5 lb/ft |
| RECP Type 2.C | 3:1 (H:V) | 1.50 lb/ft$^2$ | 50 lb/ft |
| RECP Type 2.D | 2:1 (H:V) | 1.75 lb/ft$^2$ | 75 lb/ft |
| RECP Type 3.A | 5:1 (H:V) | 0.25 lb/ft$^2$ | 25 lb/ft |
| RECP Type 3.B | 1.5:1 (H:V) | 2.00 lb/ft$^2$ | 100 lb/ft |
| RECP Type 4 | 1:1 (H:V) | 2.25 lb/ft$^2$ | 125 lb/ft |
| *Product tested according to ECTC Test Method No. 2 and meeting the ECTC Standard Specifications for "C" factor. | | | |

C. RECP Anchors: Stakes or staples as recommended by manufacturer, with a minimum length of 6 inches.

## 2.7 TURF REINFORCEMENT MATS (TRM)

A. Material Classification:

1. TRM Type 1: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, or monofilaments fibers that are entangled to form a strong and dimensionally stable mat. Bonding methods include polymer welding, thermal or polymer fusion, or the placement of synthetic fibers between two high-strength, biaxially-oriented nets, mechanically bound by parallel stitching with polyolefin thread. Products may contain a degradable component.

2. TRM Type 2: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, monofilaments, or fibers that are entangled or woven to form a strong and dimensionally stable mat. Non-woven bonding methods include polymer welding, thermal or polymer fusion, or the placement of fibers between two high-strength, biaxially oriented nets, mechanically bound by parallel stitching with polyolefin thread. Use only components that are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation.

3. TRM Type 3: Use a high performance/survivability TRM that is composed of monofilament yarns woven into a resilient uniform configuration. Use a mat that has a matrix that exhibits very high interlock and reinforcement capacities with both soil and root systems and demonstrate a high tensile modulus. TRMs manufactured from discontinuous or loosely held together by stitched or glued, netting, or composites are not allowed in this category. Use only components that are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation. Use this category when field conditions exist with high loading and/or high survivability requirements. These requirements consist of maintenance, structural backfills protecting critical structures, potential traffic areas, abrasion, higher factors of safety, and/or general durability concerns.

B. Properties and Performance: Meet the minimum material and performance requirements contained in the following table:

| Property[1] | | Test Method | Type 1 | Type 2 | Type 3 |
|---|---|---|---|---|---|
| Material | Thickness | ASTM D 6525 | 0.25 in | 0.25 in | 0.25 in |
| | Tensile Strength[2] | ASTM D 6818 | 125 lb/ft | 240 lb/ft | 750 lb/ft |
| | UV Resistance[3] | ASTM D 4355 | 80% @ 500 hrs | 80% @ 1,000 hrs | 80% @ 1,000 hrs |
| Performance | Maximum Shear Stress[4] (Channel Applications) | ASTM D 4640 | 7 $lb/ft^2$ | 10 $lb/ft^2$ | 12 $lb/ft^2$ |
| | Maximum Slope Gradient (Slope Applications) | N/A | 1:1 (H:V) or flatter | 1:1 (H:V) or flatter | 1:1 (H:V) or greater |

1 For TRMs containing degradable components, all values must be obtained on the non-degradable portion of the matting.
2 Minimum Average Roll Values, machine direction only. Tensile strength from ASTM D5035 may be substituted upon approval.
3 Tensile strength of structural components retained after exposure.
4 Minimum shear stress that fully-vegetated TRM can sustain without physical damage or excess erosion (0.5 in soil loss) during a 30-minute flow event in large scale testing. Acceptable large scale testing protocol includes ASTM D6460 or independent testing conducted by the Texas Transportation Institute, Colorado State University, Utah State University, or other approved testing facility.

## 2.8 FLOW TRANSITION MATS

Use flow transition mats that meet the following requirements:

A. UV-stabilized HDPE plastic sheet with openings for vegetation growth and energy dissipation.

B. Use a nominal sheet size of 4 feet by 4 feet by 1/2 inch.

C. Use duckbill style anchors, as specified by the mat manufacturer.

## 2.9 SEDIMENT BASIN OUTLET STRUCTURES

A. Base: Class C concrete unless otherwise specified.

B. Riser:

1. CMP per Section 4020.

2. Diameter as specified.

C. Dewatering Device:

1. Drill holes in the riser of the number, diameter, and at the elevation specified in the contract documents.

2. Hardware cloth: 1/4 inch by 1/4 inch or 1/2 inch by 1/2 inch wire mesh.

D. Barrel:

1. CMP per Section 4020.

2. Diameter as specified.

E. Anti-Vortex Device:

1. CMP per Section 4020.

F. Anti-Seep Collar:

1. Corrugated metal sheet of same material and gage as barrel section.

2.10 INLET PROTECTION

A. Drop-In Intake Protection:

1. Use a manufactured device that is inserted into the intake, and is capable of trapping or filtering sediment from runoff prior to entering the storm sewer.

2. All components must be contained entirely below the surface of the intake grate.

3. Incorporate means of emergency outflow to prevent flooding if plugged with sediment.

B. Surface-Applied Intake Protection:

1. Use devices or filter socks, placed around or over the intake, that are capable of trapping or filtering sediment from runoff prior to entering the storm sewer.

2. Do not allow the device to completely block or plug the intake, preventing inflow.

2.11 ENGINEERING FABRIC

Comply with Iowa DOT Article 4196.01, C (Embankment Erosion Control).

2.12 REVETMENT AND EROSION STONE

A. Class A Revetment: Conform to Iowa DOT Section 4130.

B. Class B Revetment: Conform to Iowa DOT Section 4130.

C. Class D and E Revetment: Conform to Iowa DOT Section 4130.

D. Erosion Stone: Conform to Iowa DOT Section 4130.

2.13 REVETMENT AND EROSION STONE

A. Class A Revetment: Conform to Iowa DOT Section 4130.

B. Class B Revetment: Conform to Iowa DOT Section 4130.

C. Class D and E Revetment: Conform to Iowa DOT Section 4130.

D. Erosion Stone: Conform to Iowa DOT Section 4130.

2.14 STABILIZED CONSTRUCTION ENTRANCE

A. Entrance Stone: Use Iowa DOT Section 4122, Gradation 13, Macadam crushed stone.

B. Subgrade Stabilization Material:

1. Use woven, UV-stabilized geotextile.

2. Minimum tensile strength of 135 lb/ft.

PART 3 - EXECUTION

3.1 SWPPP PREPARATION

A. The Owner shall prepare a Stormwater Pollution Prevention Plan (SWPPP) according to the requirements of the Iowa DNR NPDES General Permit No. 2.

B. The Contractor shall ensure that controls utilized for the SWPPP conform to the type and quantity of erosion and sediment controls shown in the contract documents.

3.2 SWPPP MANAGEMENT

Coordinate and carry out all requirements of Iowa DNR NPDES General Permit No. 2 and any local ordinance requirements, including:

A. Update the SWPPP according to the requirements of the NPDES General Permit No. 2.

B. Revise the SWPPP and implement changes, as necessary, to prevent sediment or hazardous materials from being transported off the site.

C. Submit all SWPPP revisions to the Engineer for review and approval.

D. Perform, and maintain records of, weekly erosion and sediment control site inspections, unless otherwise specified.

E. Maintain records of transferal of responsibility under the NPDES General Permit No. 2.

F. Retain all records on-site, or as required by the NPDES General Permit No. 2.

G. After final stabilization, file a Notice of Discontinuation, according to the NPDES General Permit No. 2.

H. Provide all records and documentation to the Engineer upon completion of the project.

Retain a copy of all records for the period required under the Permit.

I. Continue to perform the work required under this item throughout the duration of the project, and until final stabilization is achieved, and a Notice of Discontinuation is filed.

## 3.3 EROSION AND SEDIMENT CONTROL INSPECTION

A. Perform inspections according to and at frequency required by the Iowa DNR NPDES General Permit No. 2.

B. Schedule necessary maintenance or improvements for items that are included in the contract documents.

C. Notify the Engineer immediately of situations requiring attention beyond that provided for in the contract documents.

D. Provide copies of the inspection reports to the Engineer.

## 3.4 FILTER BERMS

A. Construct berm with filter material, unless otherwise specified.

B. Install filter berm along the contour as specified in the contract documents, or as directed by the Engineer.

C. Turn the ends of the filter berm uphill to prevent runoff from flowing around the end of the berm.

D. When a vegetated berm is specified, apply seed to the surface of the berm.

E. Replace the berm when sediment accumulation reaches one-half of the height of the berm.

## 3.5 FILTER SOCKS

A. Installation:

1. Pneumatically fill mesh filter sock of size and length indicated in the contract documents, or as directed by the Engineer. Alternative methods of filling the sock may be allowed upon approval of the Engineer.

2. Fill socks with filter material.

3. Place the filter sock along the contour as specified in the contract documents, or as directed by the Engineer.

4. Place additional filter material or soil from the site, on the upstream side of the

sock, in the seam between the tube and the ground.

5. Construct a “J-hook” at each end of a continuous run of filter sock, by turning the end of the sock uphill, as necessary to prevent runoff from flowing around the ends when water behind the sock ponds up to a level even with the top of the sock.

6. Drive stakes into the ground at a maximum spacing of 10 feet, and as required to secure the sock and prevent movement.

B. Maintenance: Perform the following incidental work.

1. Repair or replace non-functioning filter socks that allow water to flow under the sock, are torn, or are otherwise damaged, due to inadequate installation.

2. Remove filter material from damaged socks that are located along streambanks, around intakes, in ditches, or in other locations where the material may be carried to surface waters.

C. Removal: When indicated in the contract documents, or as directed by the Engineer; remove the filter sock upon completion of the project, and after final stabilization is achieved; or as indicated in the SWPPP, if applicable.

1. Upon completion of the project, completely remove socks and filter material that are located along streambanks, around intakes, in ditches, or in other locations where the filter material may be carried to surface waters if the sock degrades and/or tears.

2. Slice the sock longitudinally. Remove and dispose of the filter sock material and stakes.

3. Spread the filter material and accumulated sediment to match finished grade and to ensure proper drainage.

4. If the site has been brought to finished grade and prepared for permanent seeding, spread and incorporate the filter material into the surface by tilling, or as required to break up any large particles and provide a finished surface suitable for permanent seeding.

D. Replacement:

1. When accumulated sediment reaches a level one-half the height of the sock, or when the sock becomes clogged with sediment and no longer allows runoff to flow through, remove the sock as described above, and replace according to the installation instructions above.

2. At the Engineer’s option, the existing filter sock and accumulated sediment may be left in place, and a new filter sock installed up-slope from the existing filter sock.

3.6 SILT FENCES

A. Installation:

1. Install material along the contour of the ground, as specified in the contract documents, or as directed by the Engineer.

2. Install silt fence with a mechanical soil slicing machine that creates a slit in the ground while simultaneously installing the fabric. The trenching method may be used when situations will not allow soil slicing, as determined by the Engineer.

3. Construct a “J-hook” at each end of a continuous run of silt fence, by turning the end of the silt fence uphill, as necessary to prevent runoff from flowing around ends when water behind the fence ponds to a level even with the top of the fence.

4. Insert 12 inches of fabric to a minimum depth of 6 inches (fabric may be folded below the ground line).

5. Compact installation by driving along each side of the silt fence, or by other means, as necessary to adequately anchor the material in the ground, to prevent pullout and water flow under the fence.

6. Drive steel posts into the ground alongside the silt fence, to a minimum depth of 20 inches, unless otherwise specified by the Engineer. Space posts, or as required to adequately support silt fence.

B. Maintenance: At the Contractor’s expense, repair or replace non-functioning silt fence that allows water to flow under the fence, is torn, or is otherwise damaged, due to inadequate installation.

C. Removal:

1. Remove the silt fence upon final stabilization of the project area, or according to the staging indicated in the SWPPP.

2. Remove and dispose of silt fence and posts.

3. Remove sediment or spread to match finished grade; ensure proper drainage.

4. Stabilize the area disturbed by removal operations.

D. Replacement:

1. When accumulated sediment reaches a level one-half the height of the fence, remove the silt fence as described above, and replace according to the installation instructions above.

2. At the Engineer’s option, the existing silt fence and accumulated sediment may be left in place, and a new silt fence installed up-slope from the existing silt

fence.

3. When permitted by the Engineer, the existing silt fence may be left in place and the accumulated sediment removed. Carefully inspect the existing silt fence for structural integrity and signs of undermining. Make any necessary repairs.

## 3.7 DUST CONTROL

A. Water: Apply frequent light watering to ground surface, as required to control dust.

B. Calcium Chloride: Apply according to Iowa DOT Section 2314.

C. Lignosulfonate (Tree Sap):

1. Loosen the top 1 to 2 inches of the roadway surface.

2. Apply solution with a 50% residual concentration, at a rate of 0.50 gal/yd$^2$, to deliver a 25% residual. For diluted solutions, increase the application rate, as required, to deliver an equivalent 25% residual.

3. Allow product to penetrate through the loosened material.

4. Tight-blade road surface.

D. Soapstock (Soybean Oil):

1. Loosen the top 1 to 2 inches of the roadway surface.

2. Apply undiluted soapstock at a rate of 0.70 gal/yd$^2$.

3. Allow product to penetrate through the loosened material.

4. Tight-blade road surface.

## 3.8 TEMPORARY EROSION CONTROL SEEDING

A. Temporary Erosion Control Seedmix

| Common Name | Application Rate lb/acre |
|---|---|
| *SPRING - March 1 - May 20* | |
| Oats | 65 |
| Annual ryegrass | 40 |
| | |
| *SUMMER - May 21 - August 14* | |
| Oats | 95 |
| Annual ryegrass | 50 |
| | |
| *FALL - August 15 - September 30* | |

| | |
|---|---|
| Oats | 65 |
| Annual Ryegrass | 40 |

## 3.9 EROSION CONTROL MULCHING

A. Conventional Mulching:

1. Use conventional mulching when the surface cannot be stabilized by seeding, due to season or ground conditions.

2. Uniformly distribute mulch over the required areas, at a rate of 2 tons/acre for dry cereal straw, or 2.5 tons/acre for prairie hay.

3. Work the mulch into the soil with a mulch tucker, designed to anchor the mulch into the soil, by means of dull blades or disks.

B. Hydromulching:

1. Place mulch and tackifier (if applicable) in equipment specifically manufactured for hydraulic mulching.

2. Mix materials with fresh, potable water; using a combination of re-circulation through the equipment's pump, and mechanical agitation to form a homogeneous slurry.

3. If necessary, dampen any dry, dusty soil, as required to prevent balling of the material during application.

4. Apply hydromulch in multiple layers from opposing directions, where possible.

5. Apply the slurry evenly over all specified areas, at the minimum component material rates specified:

   a. Wood Cellulose Mulch:
      1) Mulch: 2600 lb/acre dry weight.
      2) Tackifier: 50 lb/acre.
   b. Bonded Fiber Matrix: 3600 lb/acre dry weight.
   c. Mechanically Bonded Fiber Matrix: 3600 lb/acre dry weight.

6. Retain and count empty bags of mulch to ensure final application rate.

## 3.10 SURFACE ROUGHENING

A. Directional Tracking:

1. Do not use on slopes steeper than 3:1.

2. Operate tracked equipment up and down exposed slope, to create ridges

perpendicular to the slope.

3. Continue operation until the entire surface has been tracked.

B. Grooving/Furrowing:

1. May be used on all slopes.

2. Use rippers, disks, harrows, chisel plows, or other equipment, capable of operating on the slope and creating grooves a maximum of 15 inches apart and 3 inches deep.

3. Operate equipment along the contour of the slope, to create grooves that are perpendicular to the slope.

4. Perform over all exposed slopes as specified.

## 3.11 TEMPORARY ROLLED EROSION CONTROL PRODUCTS

Install temporary RECPs according to the manufacturer's published installation recommendations, subject to the following minimum requirements:

A. Slope Application:

1. Grade and smooth surface. Remove all rocks, clods, vegetation, or other obstructions that will prevent direct contact between the RECP and the soil surface.

2. When specified, prepare seedbed and place seed and fertilizer according to Section 9010 prior to placing RECP.

3. Installation:

a. Install anchor trench at top of slope. Seed and fertilize trench after backfill and compaction, if seeding is specified.

b. Unroll the RECP down or horizontally across the slope.

c. Place consecutive blankets down the slope end-over-end, shingle style.

d. Overlap ends of consecutive rolls a minimum of 3 inches, and install anchors at a maximum spacing of 18 inches along all overlaps.

e. Overlap edges of adjacent rolls a minimum of 2 inches.

f. Install anchors at edge seams between rows.

B. Channel/Ditch Application:

1. When specified, prepare seedbed and place seed and fertilizer according to Section 32 9219, prior to placing RECP.

## 3.12 TURF REINFORCEMENT MATS

Install according to the manufacturer's published installation literature, for the product specified and application (slope or channel).

## 3.13 TEMPORARY EARTH DIVERSION STRUCTURES

A. Construct at the location shown in the contract documents.

B. Construct to the dimensions specified in the contract documents.

C. Ensure positive drainage along the diversion toward the outlet area.

D. Adequately compact fill to prevent failures or seepage.

E. Outlet the diversion to undisturbed and/or stabilized areas only.

F. Stabilize the surface of the earth diversion with temporary erosion control seeding.

## 3.14 FLOW TRANSITION MATS

Install according to the manufacturer's published recommendations.

## 3.15 SEDIMENT TRAPS

A. Construct the storage area to the size and elevations indicated in the contract documents.

B. Construct the rock outlet to the dimensions indicated in the contract documents.

## 3.16 INLET PROTECTION

A. Install inlet protection devices according to the manufacturer's recommendations.

B. Remove the accumulated sediment, as required to maintain the inlet protection device in working order. Remove any accumulated sediment from streets open to traffic if it encroaches into the traveled roadway.

## 3.17 ROCK OUTLET PROTECTION

A. Install the quantity of revetment stone or erosion stone, as specified in the contract documents.

## 3.18 STABILIZED CONSTRUCTION ENTRANCE

A. Install a stabilized construction entrance at all locations where construction traffic leaving the site presents the potential for sediment track-out.

B. Remove the accumulated sediment and install new stone, as required to prevent track-out.

C. Remove construction entrance near completion of project, coordinate with construction schedule.

## 3.19 MAINTENANCE

A. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, and are ordered by the Engineer; perform such work at the Contractor's expense.

B. Prevent the accumulation of soil sediment or debris onto streets adjacent to project site. Remove any accumulation of earth or soil immediately, and take remedial actions for prevention.

C. In case of repeated failures on the part of the Contractor to control erosion, pollution, and/or siltation, the Engineer reserves the right to employ outside assistance, or to use the Jurisdiction's own forces to provide the necessary corrective measures. Such incurred direct costs, plus project engineering costs, will be at the Contractor's expense, and appropriate deductions will be made from the Contractor's monthly progress estimate and final payment.

## 3.20 NPDES GENERAL PERMIT CONTRACTUAL REQUIREMENTS

A. Contractor to review and sign attached certification as an extension to the contract.

END OF SECTION

SECTION 32 11 16

AGGREGATE BASE FOR SYNTHETIC TURF FIELD

PART 1 - GENERAL

1.1 Work Included: Furnishing, delivery, installation of a complete aggregate base under all synthetic turf areas.

1.2 Related Sections:

Section 31 23 00- Excavation and Earthwork
Section 32 18 23- Synthetic Turf System

PART 2 - PRODUCTS

2.1 Granular Base for Synthetic Turf System:

A. Granular base for Synthetic Turf System shall have a minimum thickness of 6", consisting of a 4" base course and a 2" finish course of clean crushed stone, Class 2 durability or better as per the following:

| BASE COURSE AGGREGATE: | | FINISH COURES AGGREGATE: | |
|---|---|---|---|
| Sieve | Percent Passing | Sieve | Percent Passing |
| 1 1/2" | 100 | 1/2" | 90-100 |
| 1" | 90-100 | 3/8" | 50-100 |
| 3/4" | 70-100 | #4 | 0-50 |
| 1/2" | 30-80 | #8 | 0-40 |
| 3/8" | 15-40 | #60 | 0-15 |
| #4 | 0-20 | #100 | 0-6 |
| #8 | 0-10 | #200 | 0-2 |
| #100 | 0-6 | | |
| #200 | 0-2 | | |

B. Contractors utilizing a synthetic turf product that requires a special aggregate base gradation or system different from the above described due to warranty requirements shall submit detailed specifications and gradation of the proposed aggregate base system material to the site for the Engineer's approval prior to delivering.

PART 3 - EXECUTION

3.1 General:

A. Verify suitability of material for use in constructing subbase.

B. Locate, mark and protect existing utilities and facilities in the work area.

C. Provide access to any utility service locations, such as valves, manholes, water

fixtures and irrigation components.

D. Protect existing facilities and new work during subbase preparation.

E. Subgrade to be compacted and shaped smooth before subbase material is placed.

F. Extend construction of granular subbase to depth as required by synthetic turf system manufacturer's specifications and recommendations.

G. Aggregate base to be placed on a geotextile barrier, separating the underlying soil from the aggregate base.

H. Geotextile: Mirafi N Series Nonwoven Polypropylene Geotextile, 140NL. Provide sample submittal and product information sheets from the manufacturer for Engineer's approval prior to construction.

3.2 Final Elevation:

A. Conform to the design elevations to the extent that no point is higher or lower than 1/4" than the designated elevation.

B. Upon completion of subbase construction, the Contractor shall initiate a joint inspection of the subbase as outlined in Section 1.04 Site Examination of Section 32 18 23 - Synthetic Turf System.

END OF SECTION

SECTION 32 13 13

CONCRETE PAVING

PART 1- GENERAL

1.1 SECTION INCLUDES

A. Includes construction of concrete drives, parking lots, curbs, and sidewalks.

1.2 DESCRIPTION OF WORK

A. Furnish all materials and labor to construct portland cement pavements, curbs, and sidewalks on prepared subgrade.

B. See Section 31 23 00 Excavation and Earthwork for subgrade preparation.

1.3 SUBMITTALS

A. Submit under provisions of Division 1.

B. Concrete mix including material components and origins.

C. Jointing plan for Engineer's review and approval prior to construction.

1.4 STORAGE AND PROTECTION OF MATERIALS

A. Aggregates: store and handle aggregates to avoid contamination and frequent variations in specific gravity, gradation or moisture content of materials used.

1. Store fine and coarse aggregates in separate piles or bins.

2. Minimize changes in aggregates with different specific gravities or gradations in working day.

3. Handle aggregates to prevent variations of more than 0.5 percent in moisture content of successive batches.

4. Thoroughly wet and allow to drain for at least one hour coarse aggregate having an absorption greater than 0.5 percent.

5. Drain fine aggregate at least 24 hours after washing and before batching.

B. Cement: store in suitable weathertight enclosures and handle to prevent loss.

1. If lumps develop in cement, it must be reprocessed, re-tested and re-approved prior to use.

2. Cement in storage at site or local warehouses for more than 60 days must be re-tested prior to use.

C. Admixtures: store in suitable weathertight enclosures that will preserve quality.

D. Reinforcing steel: store off ground on timbers or other supports.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT: ASTM C150, Type I.

2.2 ADMIXTURES

A. Air entraining: ASTM C260; no admixtures containing chlorides will be permitted.

B. Retarding: a suitable retarding admixture may be used during hot weather, with approval of Owner.

C. Calcium chloride shall not be used except as directed by the Owner.

D. Fly ash: Iowa DOT Section 4108. Use only as approved by Owner.

E. Other admixtures may be used subject to approval of Owner.

2.3 FINE AGGREGATE

A. Clean, hard, durable particles of natural sand, free from injurious amounts of silt, shale, coat, organic matter or other deleterious substances.

B. Deleterious substances: not more than 2.0% shale and coal by weight retained on No. 16 sieve.

C. Organic matter: other than coal, not more than standard reference color; ASTM C40.

D. Conform to the following sieve analysis:

| Sieve Size | % Passing |
|---|---|
| 3/8" | 100 |
| No. 4 | 90-100 |
| No. 8 | 70-100 |
| No. 200 | 0.-1.5 |

E. Percent passing one sieve and retained on next higher number sieve not more than 40% when sieved through 4, 8, 16, 30, 50 and 100 numbered sieves.

F. Mortar strength at 7 days not less than 1.5 times standard sand strength when tested in accordance with Iowa DOT Laboratory Test Method 212.

## 2.4 COARSE AGGREGATE

A. Clean, hard, durable particles of crushed limestone free from injurious amounts of objectionable materials; Class 2 durability limestone; Iowa DOT 4115.04.

B. Objectionable materials not more than:

| | Percent | |
|---|---|---|
| Clay lumps | 0.5 | |
| Coal and carbonaceous shale | | 0.5 |
| Sticks (wet weight) | 0.1 | |
| Total of all shale and coat combined | 1.0 | |
| Organic material other than coal and sticks | 0.0 | |
| Unsound chert particles* retained on 3/8" sieve | | 3.0 |

*Chert particles breaking into three or more pieces in freezing and thawing test, Iowa DOT Laboratory Test Method 211, Method A, are considered unsound.

C. Conform to the following sieve analysis:

| Sieve Size | % Passing |
|---|---|
| 1 1/2" | 100 |
| 1" | 50-100 |
| 3/4" | 30-100 |
| 1/2" | 20-75 |
| 3/8" | 5-55 |
| No. 4 | 0-10 |
| No. 8 | 0-5 |
| No. 200 | 0-1.5 |

D. Percent of wear, AASHTO T96, Grading A or B, shall not exceed 35% for gravel, 50% for crushed stone.

E. Particle durability: aggregate considered durable when it has no adverse affect upon durability of concrete in which used; minimum percent of durable particles in aggregate: 95; durability based on the following:

1. That loss in freezing and thawing test, Iowa DOT Laboratory Test Method 211, Method A, does not exceed 6%.

2. Behavior of existing air-entrained concrete pavement over 10 years of age containing aggregate of similar geological origin or chemical and mineral composition.

F. Water: clean and clear, free from salt, oil, acid, strong alkalis, vegetable matter, or other substances injurious to concrete.

G. Water may be heated for cold weather paving operations; anti-freezing agents not permitted.

## 2.5 REINFORCING STEEL

A. Deformed bars: ASTM A615, Grade 40, epoxy coated.

B. Plain and smooth dowel bars: ASTM A615; Grade 40, epoxy coated.

C. Epoxy coated reinforcement: AASHTO M284 and Iowa DOT 4151.03B.

D. Metal expansion tubes: fabricated steel tubes; provide tubes with internal diameter 1/16" larger than dowel bar; bar stop capable of withstanding 20 lbs. push, minimum.

E. Metal keyways: fabricated 24 gauge sheet steel; conform to details shown on plans; provide lengths in multiples of tie bar spacing; punch to receive tie bars.

## 2.6 SUPPORTS FOR REINFORCING STEEL

A. Support tie bars as required to place and maintain correct location during construction.

B. Support dowel bars at expansion and contraction joints as shown on plans.

C. Epoxy coated reinforcement: support with metal chairs and supports coated with epoxy or other inert material reviewed by Engineer; tie with plastic coated tie wires.

## 2.7 PAVEMENT JOINTS

A. Joint Sealers: Comply with Iowa DOT Section 4136.02, see specification.

B. Preformed Expansion Joint Fillers and Sealers:

1. Use the following types of preformed materials for filling expansion joints that comply with Iowa DOT Article 4136.03. Use resilient filler.

C. Joint Caps: Provide preformed, removable joint caps to assure that the top of the joint filler is at the proper depth for installation of sealant.

D. Liquid curing compound: white pigmented curing compound: Iowa DOT 4105.

## 2.8 PROPORTIONS FOR MIX

A. Mix No. C-4 in accordance with Iowa DOT 2301.04; proportions as follows:

1. Basic absolute volumes of materials per unit volume of concrete:

| | |
|---|---|
| Cement Minimum | 0.118 |
| Water | 0.159 |
| Entrained Air | 0.060 |
| Fine Aggregate | 0.331 |
| Coarse Aggregate | 0.332 |

2. Approximate quantity of dry materials per cubic yard of concrete: cement: 624 lbs.; fine aggregate: 0.739 tons; coarse aggregate: 0.741 tons.

3. Above quantities based on specific gravity of cement: 3.14; specific gravity of aggregates: 2.65; water-cement ratio: 0.430 pound of water per pound of cement; air voids: 6.0%.

4. Maximum water-cement ratio: 0.488 pound of water per pound of cement including free water in aggregate.

5. Air entraining admixture: produce 6.5% $\pm$ 1.5% air voids in fresh concrete measured by pressure method.

B. Adjustments:

1. Basis: when actual quantity of concrete is more than 101% or less than 99% of calculated quantity or if combination of materials does not produce quality of concrete specified.

a. Fine aggregate shall not exceed 50% of total aggregate in any adjustment.

b. Do not exceed maximum water-cement ratio specified.

## 2.9 WATER QUANTITY AND CONCRETE CONSISTENCY

A. Use proper amount of mixing water to produce concrete of uniform consistency; adapt to mix, characteristics of materials used, methods of consolidation, weather conditions and slope of finished surface.

B. Modify proportions if maximum water-cement ratio does not produce workability; increase cement to aggregate proportion to produce specified degree of workability without exceeding maximum water-cement ratio.

## 2.10 CONCRETE PROPORTIONING AND MIXING EQUIPMENT

A. Plant batching and mixing equipment shall be Iowa DOT calibrated and approved. Provide copy of current certification.

B. Equipment may be either stationary central plant mixer or central plant-proportioned, truck mounted transit mixer.

C. If concrete is centrally mixed; it may be transported in agitating or non-agitating units.

1. Concrete must be placed on grade within 30 minutes after mixing if transported in non-agitating units.

2. Concrete must be placed on grade within 90 minutes after mixing if transported in agitating units.

D. When concrete is mixed on truck mounted transit mixers and agitated thereafter, it must be placed on grade within 90 minutes after materials added to mixer.

E. Truck Mounted Transit Mixers: capacities and mixing capability as defined in ASTM C94 with attached plate containing required information.

1. Equipment shall include reliable reset-revolution counter that will register the number of revolutions at mixing speed.

2. Unit must have signed certification that concrete producer or authorized representative has inspected unit within previous 30 day period and that interior of mixing drum is clean and reasonably free of hardened concrete, that fins or paddles are not broken or worn excessively and that other parts are in proper working order.

F. Plant or transit mixers must produce concrete with consistent quality; if uniformity entrained air or slump varies, concrete producer must take corrective action.

G. Each truck load of concrete must be identified by an acceptable plant charge ticket showing plant name, contractor, project name, date, quantity, class and time batched.

## 2.11 PLACEMENT EQUIPMENT

A. Subgrade finishing equipment: use mechanical excavating equipment designed for purpose and approved by Owner.

1. Form line or path area for slip-form paving machine constructed to final grade by form-line excavating equipment with automatic grade controls.

2. Subgrade between forms or between path areas for slip-form machines constructed to final grade with steel shod template or automatically controlled subgrade excavating machine.

B. Side forms: steel, minimum thickness: 5 gage, height at least equal to design thickness of pavement, base width at least 6".

1. Minimum section length: 10’, joint connections designed to permit horizontal and vertical adjustment with locking device to hold abutting sections firmly in alignment when set.

2. Bracing, support and staking must prevent deflection or movement of forms from pressure of concrete or weight or thrust of machinery operating on forms.

3. Forms must be free from scale and surface irregularities; coat with form oil prior to concrete placement.

C. Flexible forms: use steel or wood flexible forms for curves with radius less than 100'.

1. Bracing, support, and staking must prevent deflection or movement of forms from pressure of concrete or weight or thrust of machinery operating on forms.

2. Forms used to form back of curbs at returns shall have height at least equal to design thickness of pavement and curb height.

3. Forms must be free from scale and surface irregularities; coat with form oil prior to concrete placement.

D. Consolidating and finishing equipment: fixed form or slip form paving machines specifically designed for placing, striking off, consolidating and finishing in single passage to required cross section.

1. Consolidation of concrete by single pass of approved surface, tube or internal vibrator operated in accordance with manufacturer's recommendations.

2. Slip form equipment: automatic horizontal and vertical controls required; equipment must spread concrete to uniform depth prior to striking off.

3. Air screeds and vibrating screeds are not approved consolidating and finishing equipment.

4. Equipment subject to approval of Owner.

E. Hand finishing equipment: Contractor shall provide tools including wood or magnesium floats, wood hand floats, pointing trowels, edgers or other equipment necessary for proper finishing of concrete.

1. Provide two light straightedges, 10' long, with handles not less than 12' long for use in detecting irregularities in surface; provide two heavy straightedges of similar size for use in correcting surface; provide two light straightedges 6' long for checking curb and gutter line.

2. Provide approved vibrators for consolidating concrete.

3. Provide metal or wood screed true to crown.

F. Curing equipment: use pressure sprayer capable of applying a continuous uniform film of curing compound.

G. Concrete saws: power operated concrete saws capable of cutting hardened concrete neatly to dimensions shown on plans.

H. Joint sealing equipment: equipment capable of heating and installing sealant in joints in accordance with manufacturer's recommendations.

## PART 3 EXECUTION

### 3.1 GENERAL

A. Place, strike off, consolidate and finish concrete with fixed form or slip form mechanical paving equipment to cross section shown on plans.

B. Use paving machine for all uniform width slabs 8 1/2' or more in width and 200' or more in length.

C. Use hand placing, consolidating, and finishing in areas of irregular dimensions or narrow widths.

### 3.2 SETTING AND REMOVING FORMS

A. Use form line excavating machine to establish subgrade for forms used to support mechanical subgrader, mechanical spreader or finisher or other similar equipment.

B. Set base of forms at or below subgrade elevation with top of forms at pavement surface elevation at edge of slab.

C. Extra height forms may be used to back up integral curb; set base at or below subgrade elevation with top of form at top of curb elevation.

D. Set forms accurately to required grade and alignment and secure in place to maintain grade and alignment during concrete placement and finishing.

E. If voids occur under forms, remove forms and rework subgrade to proper elevation and density.

F. If soil supporting form is softened by rain or standing water so that form is inadequately supported, remove forms and rework subgrade to proper elevation and density.

G. Check forms joints with 10 foot straightedge prior to paving; adjust as necessary to proper grade and alignment; maximum deviation of top surface is 1/4" in 10'

H. Coat forms with form oil before concrete is placed to prevent adherence of concrete.

I. Leave side forms in place not less than 6 hours after concrete is placed; if form removal damages concrete, Owner may require remaining forms to remain in place more than 6 hours.

J. Remove forms with care to prevent cracking, spalling or overstressing concrete; remove form stakes prior to raising forms.

K. Clean forms before resetting.

## 3.3 CONCRETE AND STEEL PLACEMENT

A. Place plastic film on prepared subgrade, lap joints 12" or uniformly moisten subgrade just prior to concrete placement.

B. Adjust manhole castings, valve boxes or other fixtures within pavement to finished surface grade; clean outside of castings.

C. Place dowel and tie bars as shown on plans or specified; support and secure bars by approved chairs and wire assemblies.

D. Place concrete to full depth in single operation; do not pile concrete more than 8" above design elevation of surface.

E. Carefully place concrete on subgrade to prevent segregation of materials and at locations which require minimum rehandling; do not displace reinforcing.

F. Vibrate and consolidate to prevent formation of voids; do not displace reinforcing.

## 3.4 FINISHING

A. Begin finishing operations promptly after concrete has been placed and consolidated.

B. Screed surface to grade and crown as shown on plans.

C. Finish surface with wood or magnesium floats, finish from both sides simultaneously if pavement is placed to full width with one pass of paving machine.

D. Check surface longitudinally with 10' long straightedge while concrete is still plastic; correct any surface deviations greater than 1/8" in 10'.

E. Provide finish as designated on the plans.

1. Uniformly gritty surface with astroturf drag; round edges of pavement to 1/8" radius.

F. Check pavement surface longitudinally after concrete has hardened with 10' long straightedge; grind high spots over 1/8" with approved grinding device or device consisting of multiple saw blades.

## 3.5 CURBS

A. Construct integral curb or rolled curb, as shown on plans, along with pavement or immediately following finishing of pavement.

B. Use paving machine with integral slip-form for curb, curb mule or similar mechanical where possible.

C. Construct depressed curb where sidewalks intersect street; use templates to form faces of such curbs.

D. Form and construct curb by hand only where barrier or depressed curb is required and where small radii or other special sections preclude use of mechanical equipment.

E. Construct curb as rapidly as finishing operations on pavement permit; maximum distance behind paving machine: 100’.

F. Remove free water, laitance, dust, leaves or other foreign matter prior to placing concrete for curb.

G. Use freshly mixed concrete; do not store concrete in receptacles at side of pavement for use in curb at a later time; do not use concrete require retempering.

H. Vibrate or puddle concrete to secure bond with paving slab and eliminate rock pockets.

I. Secure final finish on curbs by hand method, including 6' straightedge or 6' slipform.

J. Edge, protect and cure curb in same manner as pavement.

K. Check surfaces of curb and gutter with 10' straightedge; correct variations greater than 1/8"; remove and replace curbs having varying cross section.

## 3.6 CURING AND PROTECTION

A. Apply liquid curing compound in fine spray to form continuous, uniform film on surface and vertical edges of pavement and curbs.

B. Apply compound with power sprayer; rate of application not less than 0.067 gal. per square yard (15 square yards per gallon); do not dilute compound.

C. Apply to pavement surface after finishing and after surface moisture has disappeared; apply to pavement edges within 30 minutes after forms are removed.

D. Protect concrete pavement during cold weather for at least 36 hours after placement as follows:

| Forecast or Actual Temperature | Protection |
|---|---|
| 35 to 32 F. | One layer of burlap for concrete. Plastic top layer is required if burlap is exposed to rain or heavy winds. |
| 31 to 25 F. | Two layers burlap or one layer plastic film on one layer burlap |
| Below 25 F. | Four layers of burlap between layers of four mil plastic or equivalent commercial insulating material. |

1. Burlap: AASHTO M182, Class 3.

2. Use of straw shall not be allowed for temperature protection

3. Protect insulation from disturbance by wind; leave in place for 5 days, minimum, or until pavement is opened to traffic.

4. Lap plastic film 18" at junctions.

E. Provide cold weather protection as specified for temperature below 25 degrees F. for all concrete placed after November 15.

F. Provide burlap, paper, or plastic film and planks and stakes at or near job site to cover and protect fresh concrete and to construct temporary forms for protection against rain.

G. Contractor responsible for pavement protection against effects of rain; failure to properly protect may result in removal and replacement of defective pavement.

H. Curing of concrete containing calcium chloride shall be in accordance with IDOT Supplemental Specifications SS-1091, Section 1091.09A.

## 3.7 CONSTRUCTION OF JOINTS

A. General:

1. Longitudinal and transverse joints shall be constructed of the type, dimensions, and at the locations required, as described by these specifications, or as detailed by the plans or special provisions.

2. Longitudinal joints shall be coincident with or parallel to the pavement center line unless shown otherwise on the plans.

3. All transverse joints shall be at right angles to the center line and shall extend the full width of the pavement unless otherwise specified.

4. All joints shall be perpendicular to the finished grade of the pavement and the alignment across the joint shall not vary from a straight line by more than 1 inch.

5. All joint fillers shall be installed as shown in the contract documents.

6. The Contractor shall exercise care in placing, consolidating, and finishing the concrete at and about all joints.

7. The edges of the pavement at tooled joints shall be rounded, where required, as specified on the standard detailed plates.

8. Wet sawing shall be used when required by the contract documents for dust control.

B. Expansion Joint:

1. Install expansion joints where pavement meets building slabs, footings or other frost-protected items.

2. Prevent movement of or damage to joint assembly when placing concrete; set joint material low enough to clear the finish machine.

3. Construct double width expansion joint in curb over expansion joint in pavement. The backside of the joint must be clear of concrete.

4. The expansion joint shall be aligned straight and true.

5. If joint fillers are assembled in sections, or if joints as a whole are constructed in sections, then no offsets shall be between adjacent units.

6. Where more than one section is used in a joint, the sections shall be securely laced or clipped together. Damaged basket assemblies shall not be used.

C. Saw Joints:

1. Joint locations shall be chalked with a string line before sawing.

2. Joint dimensions:

a. All transverse contraction joints shall be sawed at a maximum spacing of 21T, where T is the thickness of the pavement in feet.

b. All joints shall be sawed to a depth shown below and on the detail plate.

| | Minimum Sawcut Depth | |
|---|---|---|
| | Conventional Saw | Early "Green" Saw |
| Transverse "C" Joint | T/3 | 1 1/4" |
| All other Transverse Contraction joints | T/3 | 1 1/4" |
| Longitudinal Joint | T/3 | Not Allowed |

c. The Contractor shall closely monitor joint sawing for both longitudinal and transverse joints for depth and spacing and immediately report any deviations from the specifications. The Contractor shall take immediate steps to correct any deviations.

3. In order to prevent shrinkage cracks, sawing shall be commenced promptly after the pavement has obtained sufficient strength to resist tearing of the concrete adjacent to the joint during the process of sawing.

4. Pavement pours shall be scheduled to allow transverse joints to be sawn within 24 hours of the concrete being placed.

5. Longitudinal joints shall be sawn within 24 hours of the concrete being placed.

6. If necessary, the sawing operations shall be carried on both day and night.

7. Joints sawed with an early "green" concrete saw shall be washed out prior to sealing. The concrete must be capable of supporting the sawing operations to allow the use of an early green concrete saw.

D. Construction Joints:

1. Longitudinal or transverse construction joints shall be placed between adjacent lanes of concrete and at end-of-day header runs.

2. Manhole boxouts shall be located and placed on grade prior to paving. Manhole boxouts are required for two piece castings for sanitary/storm manholes.

3. The longitudinal construction joints shall be an approved key type joint with legs unless machine placed.

4. Transverse construction joints shall employ load transfer devices (Header) and shall be placed whenever concrete placement is delayed for more than 30 minutes.

## 3.8 RESTRICTIONS ON OPERATIONS

A. Weather

1. Do not place concrete when stormy or inclement weather prevents good workmanship.

2. Use no aggregates containing frozen lumps and do not place concrete on frozen subgrade.

3. With favorable weather conditions, begin concrete mixing and placement when temperature is at least 34 degrees F. and rising.

4. Concrete delivered to subgrade must have temperature of at least 40 degrees F.

5. Stop concrete mixing and placement when air temperature is 38 degrees F. and falling.

6. Stop concrete mixing and placement when air temperature exceeds 95°F.

B. Night operation:

1. Place no concrete when darkness prevents good workmanship in placing and finishing.

2. Do not place or finish concrete under artificial light.

C. Use of pavement:

1. Time for opening pavement for use will be determined by results of tests on cylinders taken during concrete placement.

2. Pavement may be opened to Contractor's forces after 7 days for purpose of removing coverings and building shoulders if tests of cylinders from section show compressive strength of 3,000 psi or higher.

3. Open pavement to general traffic when authorized by Owner.

4. Concrete placed in cold weather may require additional curing time, as directed by Owner; keep all vehicles off pavement until such curing time has been completed.

## 3.9 TESTS ON TRIAL BATCHES AND CONCRETE PLACED AT PROJECT SITE

A. Slump: ASTM C143; 1-1/2" to 3" for machine finished concrete; 4", maximum, for hand finished concrete.

B. Air voids of fresh concrete, by pressure method: ASTM C231; 6.5% ± 1.5% without CaCl and 5.0% ± 2% with CaCl.

C. Minimum compressive strength: ASTM C39; 3,000 psi when tested at 7 days and 4,000 psi when tested at 28 days.

D. Provide a minimum of two 28 day compressive strength test cylinders for every 100 cubic yards of concrete placed for purpose of demonstrating compressive strength. Minimum of 1 test each day substantial pavement is placed, (25 CY).

## 3.10 DEFECTS OR DEFICIENCIES

A. Pavement containing excessive cracks, fractures, spalls or other defects shall be removed and replaced at no cost to Owner.

B. Pavement thickness: determined by random cores; one 4" diameter core taken for each section of approximately 2,000 square yards.

C. Restore core holes by tamping non shrink cement grout into hole, finishing and texturing surface.

D. If the concrete cores taken are less than the specified thickness, the following adjustments in payment will be made:

| Pavement Deficiency | Payment |
|---|---|
| 0 - 0.25" | 100% of Lump Sum for PCC Paving |
| 0.25" 0 - 0.50" | 90% of Lump Sum for PCC Paving |
| 0.50" - 0.75" | 83% of Lump Sum for PCC Paving |
| 0.75" - 1.00" | 77% of Lump Sum for PCC Paving |

E. Pavement with thickness deficient by more than 1":

1. Remove and replace at Contractor's expense.

2. Leave in place and paid for at 10% of Lump Sum for PCC Paving.

F. Area represented by each core is one-half of distance to next core or to end of pavement.

G. Additional core samples may be made and measured at Contractor's expense to determine the extent and severity of pavement deficiency; minimum distance between core samples: 100'. A maximum of 1 additional core may be taken for each deficient core.

## 3.11 DRIVES, PARKING LOTS, CURBS, SLABS AND SIDEWALKS

A. Construct drives, parking lots, curbs, slabs and sidewalks as shown on plans.

B. Use concrete with air entrainment and other materials as specified in Section 2.15 Proportions for Mix.

C. Forms: use wood or steel forms adequately staked and braced to maintain grade and alignment while concrete is placed and finished.

1. Set base of forms at or below subgrade elevation with top of forms at surface elevation at edge of slab.

2. Coat forms with form oil before concrete is placed to prevent adherence of concrete.

3. Leave forms in place not less than 24 hours after concrete is placed.

4. Remove forms with care to prevent cracking, spalling or overstressing concrete.

D. Concrete placement: place plastic film on prepared subgrade or uniformly moisten subgrade just prior to concrete placement.

E. Vibrate and consolidate to prevent formation of voids.

F. Screed concrete flush with forms; finish surface with wood or cork float.

G. Saw cut and seal joints in driveways and curb and gutter as shown on plans or as directed by Owner.

H. Cure and protect drives, curbs, slabs and sidewalks as specified for concrete pavement.

I. Restrictions on operations for drives, curbs, slabs and sidewalks as specified for concrete pavement.

END OF SECTION

SECTION 32 18 23

SYNTHETIC TURF SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Furnishing, delivery, installation and warranty of a complete synthetic turf system including field markings and resilient infill material.

1.2 RELATED SECTIONS

A. Section 32 11 16 – Aggregate Base for Synthetic Turf Field

1.3 REFERENCES

A. ASTM Standard Test Methods:

D1577 – Standard Test Method for Linear Density of Textile Fiber
D5848 – Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
D418 – Standard Test Method for Testing Pile Yarn Floor Covering Construction
D1338 – Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
D1682 – Standard Method of Test for Breaking Load and Elongation of Textile Fabrics
D5034 – Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
F1015 – Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity
D2859 – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
F355 – Standard Test Method for Shock-Absorbing Properties of Playing Surfaces
D1557 – Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

1.4 SITE EXAMINATION

A. The Contractor, along with the Engineer, Grading Subcontractor (if applicable) and Synthetic Turf Subcontractor (if applicable), shall attend a joint inspection of the completed granular base assembly for the purpose of determining the acceptability of that surface prior to installing the synthetic turf product and to confirm actual site dimensions.

B. The inspection shall include a check for planarity. The finished surface shall not vary from a true plane more than 1/4” in 10 feet when measured in any direction. The Contractor shall provide all required tools and materials needed for the planarity check, which may include but shall not be limited to, a laser level, string line, straight edge and/or other assessment materials. The Contractor shall mark in the field any deviations from grade in excess of those specified above, as well as provide a marked-up plan locating the deviations. The Contractor shall correct any deviations to the satisfaction of the Engineer and Synthetic Turf installer.

C. Surface tolerances shall not exceed ¼” over 10 feet.

D. The Contractor shall inspect and test subdrain systems to ensure free drainage through aggregate base. Any poorly drained areas must be corrected prior to acceptance.

Aggregate base along with existing drain system shall be certified by the Contractor prior to acceptance.

E. The Engineer's surveyor shall conduct an elevation survey of the field area in a 50' grid to determine and verify that subgrade elevations and slopes are with in previously specified tolerances. This elevation survey may require further verification of smaller areas within the 50' grid if determined necessary by the Engineer. Costs associated with this survey are to be considered incidental to, and included in the price of the synthetic turf system.

F. When any or all corrective procedures have been completed, the finished granular base surface must be re-inspected, with the same representatives attending as the initial inspection. If required, additional repair and inspections are to be conducted until the granular base surface is deemed acceptable by the Engineer and Synthetic Turf Installer.

G. Once the granular base surface has been deemed acceptable, the Contractor shall submit a written certificate indicating the acceptance of:

1. The granular base construction finished surface as wholly suitable for the application of the selected synthetic turf system, including sub-surface drainage system, and

2. The granular base construction as being suitable for work under this section to proceed with the final installation and full warranty of the synthetic turf system for the period and conditions specified herein.

H. Commencement of work under this section shall constitute acceptance of the work completed under other sections by the Contractor, acceptance of dimensions of the granular base, and hence, no claims for extra work based upon these conditions will be permitted.

1.5 ENVIRONMENTAL CONDITIONS

A. Install surfacing only when ambient air temperature is 45$^{o}$ F or above and the relative humidity is below 35% or as specified by the product manufacturer. Installation will not proceed if rain is imminent or forecasted for the following 24 hours. Temperatures shall not drop below 40 degrees for the entire 24 hour period during or after installation.

B. Install product only when prepared base is suitably free of dirt, dust, and petroleum products, is moisture free and sufficiently secured to prevent unwanted pedestrian and vehicular access.

1.6 QUALITY CONTROL

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The Turf Manufacturer:

1. Must be experienced in the manufacturing of tall pile synthetic infill grass systems with the same fiber as declared within the bid proposal.

2. Must have at least 10 fields of 45,000 sq. ft. or more of the exact proposed material, fiber, infill material and backing, in play in the United States.

B. Turf Provider Qualifications: Company specializing in performing the work of this section.

1. The Synthetic Turf Provider must provide competent workmen skilled in this specific synthetic turf product installation. All technicians must have installed this type of system on at least 5 previous installations.

2. The designated Supervisory Personnel on the project must be certified, in writing by the Turf Manufacturer, as competent in the installation of this synthetic turf system, including sewing seams and proper installation of the infill mixture.

C. The Synthetic Turf Provider shall provide the necessary testing data to the Owner's Authorized Contract Representative that the finished field meets the required initial shock attenuation, as per ASTM F355.

D. Remove defective Work, whether the result of poor workmanship, defective products or damage, which has been rejected by the Engineer as unacceptable. Replace defective work in conformance with the Contract Documents.

1.7 SUBMITTALS

A. Upon the selection of a pre-approved synthetic turf system after the bidding process is completed, submit the following:

1. Submit the exact product name/description as well as the name and location of the manufacturers and suppliers of each turf system component. Manufacturers and suppliers must not be changed after the contract is awarded unless approved by the Owner in writing.

2. Submit one (1) sample, 12"x12" minimum size, illustrating details of finished project, including pad if applicable.

3. Product Literature: Submit one (1) copy of manufacturer's recommended installation and maintenance information, including any technical criteria for evaluation of the installed product. Descriptions of all equipment recommended for the maintenance, repair or activities not recommended relative to the warranty.

4. A 1-lb sample of the selected infill material(s).

5. A letter and specification sheet certifying that the products of this section meet or exceed specified requirements.

6. Certified copies of independent (third-party) laboratory reports on ASTM tests as follows:

   a) Pile Height, Face Width & Total Fabric Weight, ASTM D418 or D5848
   b) Primary & Secondary Backing Weights, ASTM D418 or D5848
   c) Tuft Bind, ASTM D1335
   d) Grab Tear Strength, ASTM D1682 or D5034
   e) Verification that product meets Gmax minimums for ASTM F355 for life of installation.

7. List of existing installations, including Owner's representative and telephone number, for the following:

   a) A list of 5 full-sized baseball or softball fields using the specified fiber and infill in play for at least 6 months. These installations must have used the

same manufacturer and product as proposed for this field, including the same fiber and pad, if applicable.

b) A list of baseball and softball field installations within the State of Iowa or adjacent states.

8. A list of NCAA Division 1 fields of the same product installed by the company in play.

9. A list of 10 fields in the United States using the specified fiber and infill, or similar, that have been in play for the past 6 years.

10. Name and experience of the designated supervisory personnel assigned to this project shall be submitted with the proposal. Changes to this assignment after contract can only be made if approved in writing by the Owner. Include a listing of other on-site personnel and their experience.

11. The Synthetic Turf Provider and Turf Manufacturer shall provide evidence that the turf system does not violate any other manufacturer's patents, patents allowed or patents pending.

12. The Synthetic Turf Provider and the Turf Manufacturer shall provide complete information on product warranty/insurance policy and coverage, as noted in Section 1.8. Provide a complete sample copy for review.

B. Prior to ordering of materials:

1. The Contractor shall submit Shop Drawings indicating:

a) Field Layout.
b) Field Marking Plan and details for High School and NCAA Softball.
c) Roll/Seaming Layout.
d) Methods of attachment, field openings and perimeter conditions.
e) Location and design of all field logo inserts and lettering, if applicable.

2. The Turf Manufacturer must submit the fiber manufacturer's name, type of fiber and composition of fiber.

3. Shop Drawings: Shop drawings are to be submitted for review by the Engineer prior to manufacture of product and are to contain information regarding locations of seams, anchorage details, insert details, line and event marking locations and dimensions, turf roll widths and dimensions.

C. Prior to Final Acceptance, the Contractor shall submit to the Owner's Authorized Contract Representative:

1. Three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and markings. Also address remedial measures for graffiti removal.

2. Written verification confirming the scheduling of a suitable training session for the Owner's maintenance staff on how to maintain the completed installation.

3. Project Record Documents: Record actual locations of seams, drains or other pertinent information.

D. Test Results: Test certifications issued by an independent testing agency that the synthetic surface meets with the requirements of the ASTM F355 tests noted herein are to be submitted. Any test data not provided is to be made available at the request of the Engineer.

E. Base Conditions Acceptance: Prior to installation of the synthetic turf system, the Contractor is to submit in writing an acceptance of the compacted base and sub-base system as per Section 1.04 – "SITE EXAMINATION".

1.8 WARRANTY

A. The Contractor shall provide a minimum eight (8) year, 3rd party insured warranty policy from the turf system manufacturer, against defects in materials and workmanship. Defects shall include, but not be limited to ultraviolet ray fading, degradation, or excessive wear of fiber.

B. Warranty must be backed by a surety licensed to do business in the State of Iowa.

C. Submit information confirming that a 3rd Party Insurance Policy underwritten by a Best A Rated Insurance Carrier, pre-paid for the entire duration of the warranty, non-cancelable and non-prorated is in effect covering this installation with all warranty documents listing the Owner as the insured.

D. Warranty shall be for full replacement of any defective product or workmanship within the warranty period. Warranty shall be comprehensive and sufficient to replace the entire field if necessary.

E. Warranty shall become effective from the date of written final acceptance of the field improvements.

F. The Warranty shall contain no usage limits for the warranted field.

G. Submit Manufacturer's Warranty and ensure that all forms have been completed in Owner's name and registered with Manufacturer.

H. Supply Warranty Insurance Certificate with complete information for contacting the Insurance Carrier should a claim need to be made. All warranty insurance policy documents shall have the Owner listed as the insured.

I. The Contractor shall hold the Owner harmless from infringement of any current or future patent issued for the synthetic grass system, fibers, backings, installation methods and draining characteristics. The successful bidder will be required to submit a letter of consent from their surety.

PART 2 - PRODUCTS

2.1 APPROVED PRODUCTS

A. Approved Synthetic Turf Products

1. Products: The following synthetic turf system has been approved by the Owner for use for the field. Any alternative system must be approved prior to inclusion in any bid proposal and must be determined an equal product and system by the Engineer and Owner in order to be allowed.

Type “A” Synthetic Turf: AstroTurf Diamond Series

| | |
|---|---|
| Manufacturer: | AstroTurf www.astroturf.com |
| Product: | Infield Panels- Diamond Series ERA with Rootzone (90 oz)<br>Infield Area- Diamond Series OPS with Rootzone (52 oz)<br>Field Area- Diamond Series OPS with Rootzone (52 oz) |
| Local Contact: | Mid America Sports Construction<br>1621 SE Summit St.<br>Lees Summit, MO 64081<br>PH.: (816) 524-0010 |

3. Any synthetic turf system being included as part of a proposal submitted for consideration shall meet all of the stated product requirements and include the submittal items required herein in order to be considered complete for review. The Owner reserves the right to refuse consideration of any incomplete proposal or alternative product that does not meet their standards. The above Owner-approved product represents a synthetic turf system that has demonstrated the ability to meet product requirements during review by the Owner.

2.2 SUPPLIER QUALIFICATIONS

A. The Owner has conducted an extensive review of synthetic turf products, including visiting installed sites and review of other agencies review criteria. Based upon their research, they have established the following criteria for acceptance of a synthetic turf product. No variation from this criteria shall be allowed. The Owner’s review is considered final.

B. The turf product shall be installed with stitched seams. Glued and/or taped only seams shall not be considered an acceptable substitute, unless approved by the Owner.

C. The Synthetic Turf Provider shall have a minimum of 10 installations existing in the United States and a minimum of 5 installations that have been in place for the full eight year warranty period. In addition, the Synthetic Turf Installer shall submit, as a part of their proposal, written documentation that verifies that a minimum of 10 fields have been installed using their currently proposed, specified fiber, infill material and backing system.

## 2.3 TURF SYSTEM

A. The turf fiber mat shall consist of UV resistant, polyethylene blades tufted into a backing mat. Yarn density of fibers to be 10,000 denier or greater. The tufted fiber weight shall not be less than 30 ounces per square yard.

B. The fibers primary backing shall consist of a layered polypropylene fabric treated with UV inhibitors. The secondary backing shall consist of an application of heat activated urethane or moisture cured polyurethane to permanently lock fiber tufts in place. Permeability of the turf system shall not be less than 16 inches per hour. Fiber backing shall not weigh less than 23 ounces per square yard.

C. Turf roll seams to be securely joined on site so that no openings larger than the porous backing mat openings are created. Roll width to coincide with tufted-in sports line markings where possible. All turf fabric edges to be securely bound as per the perimeter detail design. All playing surface seams between rolls are to be secured through sewn

seams as per Turf Manufacturer's requirements. Thread for sewing seams of turf together shall be as recommended by the Turf Manufacturer.

D. Fabric surface shall be constructed and installed in minimum widths of 15 feet with no longitudinal or transverse seams, except for inlaid lines with a finish roll assembly. Rolls that do not comply with the proper length or conform to the seaming diagram, as approved prior to installation, shall be rejected from the site. No splicing in of pieces shall be allowed to correct a flawed roll condition. Parallel seams only are acceptable in the main playing areas. No head seams are acceptable on the sports field.

E. The installed system shall include provision of any special or proprietary maintenance tools and materials with a full instruction manual to the Owner.

F. The entire system shall be resistant to weather, including ultra-violet light and heat degradation, insects, rot, mildew and fungus growth and be non-allergenic and non-toxic.

G. Fiber Colors: Submit samples of the following colors for approval prior to placing order for turf:

Color 1: Grass (Green) areas, Owner to choose from Manufacturer's standard colors. See detail on plans.
Color 2: Alternating Grass (Green) areas, Owner to choose from Manufacturer's standard colors. See detail on plans.
Color 3: Clay (Brown) areas, Owner to choose from Manufacturer's standard colors. See detail on plans.
Color 4: Softball Markings- White. See detail on plans.

The Contractor will be required to submit a shop drawing showing dimensions and colors for review by the Owner.

H. Lettering shall be selected by the Owner from the manufacturer's list of standard fonts.

I. The turf material shall be non-combustible and have a smoke developed and flame spread rating not greater than those required by the International Building Code as adopted by the State of Wisconsin and pass the DIN standard Pill Burn test or ASTM D 2859.

## 2.4 LINES, MARKINGS AND IN-LAID TURF

A. All line material is to be identical dimensionally and of the same material to that used for the main playing field fiber system. Inlaid markings that cannot be tufted into the fabric shall be installed according to manufacturer's specifications, requirements and recommendations.

B. Inlaid material as indicated on the drawings to be identical, except for fiber color, as the main turf field.

C. All lines and markings shall be accurately set and surveyed to within ½" tolerance of the location shown on the drawings and in conformance with specified field marking standards.

D. All lines and markings shall be installed prior to any installation of in-fill material.

## 2.5 SYNTHETIC GLUE MATERIAL

A. Any adhesive products required for the installation of a proposed turf system shall be purpose-suited to the system. The material and application methods shall be as recommended by the turf manufacturer.

B. Disposal of adhesive containers and unused adhesives as well as any fees resulting from such disposal shall be the responsibility of the Contractor.

2.6 INFILL MATERIAL

A. The synthetic infill material shall consist of all treated and mixed ground rubber, or a blend of graded silica sand and treated and mixed ground rubber system, based on the pre-approved turf system products.

1. Rubber: SBR ambient (styrene butadiene rubber), crumb rubber or cryogenically formed rubber in the manufacturer's recommended proportions.
2. Sand: specially-graded, dust-free silica sand shall be from a source approved by the turf manufacturer and include test results to demonstrate compliance with the turf manufacturer's criteria.

B. Sufficient quantities of the top-dressing infill material must be stored on site at the time of installation to be used 90 days after the completion of the installation to mitigate the differential settling of high traffic zones on the field. This fill addition must be carried out by the Contractor within the time specified above.

2.7 EQUIPMENT

A. The turf installation shall include a synthetic turf groomer and a turf sweeper as equipment left to the owner for maintenance purposes. Include instructions and training for use in relation to maintaining manufacturer's warranty. Equipment shall be selected based on the turf manufacturer's recommendations. Equipment shall be new with a full manufacturer's warranty when arriving on site. Equipment shall be used for maintenance of turf system during construction. The equipment supplied must have a full-service repair center within 50 miles of the field location. Cost of the maintenance equipment to be included in the proposal price for the synthetic turf system.

2.8 EXTRA INSERTS FOR HIGH WEAR AREAS

A. Provide preassembled, Velcro-adhered sets of batters boxes (6), catcher's box (2), and pitcher's area (8) rectangular replacement panels to the Owner on completion of the project for the Owner to replace these high-wear areas (24 panels total). Pitcher's panel dimensions to extend to the white line of the pitching circle.

PART 3 - EXECUTION

3.1 GENERAL

A. Installation of the synthetic turf system is to comply with the manufacturer's specifications, requirements and recommendations and the reviewed and approved shop drawings.

B. Perform all work in strict accordance with the Contract Documents and the manufacturer's specifications and instructions. Only those skilled technicians identified in the proposal phase are to be assigned to this project by the Contractor.

C. The designated Supervisor for the Synthetic Turf Provider must be present during any and all construction activity associated with the field installation, including testing, clean-up and training.

D. All products and equipment are to be from sources approved by the selected turf manufacturer and conform to the specifications.

3.2 PRODUCT DELIVERY, STORAGE & HANDLING

A. Deliver products to site in original containers and wrappers as agreed between the Engineer and Contractor. Inspect products upon delivery for damage.

B. Store products in a location and in a position that protects them from crush damage or any other defects.

C. Handle and store (on and off site) all materials safely to ensure their physical properties are not adversely affected and that they are not subject to vandalism or damage.

D. Rubber infill shall arrive dry and loose. No rubber shall be accepted that is bulked or solid.

E. Adhesives shall arrive in dry, sealed containers.

F. Rubber infill shall arrive in large sacks or bags without tears or loose material about.

3.3 PLUGS AND FITTINGS

A. All permanent field fittings penetrating the turf mat indicated on the drawings shall be securely sealed to the mat surface so that no infill material is allowed to spill to the substrate.

3.4 TURF INSTALLATION

A. Install synthetic turf system in accordance with the manufacturer’s written installation instructions, requirements and recommendations.

B. All inlaid areas shall have full fastenings and no loose areas. At no time can pulling on the inlaid section separate the materials.

C. Turf shall be securely attached to the perimeter edge as per the manufacturer’s installation requirements.

D. All seams and inlaid areas shall be brushed thoroughly before infill materials are installed.

E. All terminations shall be as detailed and approved in the shop drawings.

3.5 INFILL INSTALLATION

A. The synthetic turf shall be thoroughly brushed prior to installation of infill materials to remove wrinkles.

B. The infill materials shall be installed in layers, in accordance with the turf manufacturer’s installation instructions. Any mix of materials shall be uniform and even in thickness.

C. Turf shall remain free draining at all times before, during and after the infill materials are

installed.

3.6 FIELD MARKINGS

A. Sports field lines and event markings as per the Contract Documents shall be accurately positioned and marked in accordance with the current rules of the NFHS. All lines shall be straight and true along the length of the marked boundary to within ½" along the length of any such boundary.

B. All marking shall be accurately measured and applied in widths and colors as required by the NFHS. See Section 2.02 G for field colors.

3.7 TESTING

A. At the time of substantial completion the Contractor shall perform a series of tests by use of an independent testing agency to evaluate the shock absorption characteristics of the field. The tests shall be performed on a 50 foot grid in both directions using an accelerometer in accordance with ASTM F1936 and ASTM F355. Test the field at a minimum of 12 points and submit the results to the Owner within 30 days of testing. At no point shall any reading exceed 150 Gmax during the life of the warranty. If any point exceeds the maximum deceleration value, the Contractor shall make corrections to provide the allowable Gmax deceleration at the Contractor's expense, as per warranty requirements.

3.8 CLEANING AND COMPLETION

A. Protect all installed work from other construction activities as installation progresses.

B. The Contractor shall keep the area clean throughout the construction period and free from debris.

C. Any usable leftover materials shall become the property of the Owner.

D. On completion of the installation, thoroughly clean surfaces and site of all refuse resulting from the installation process, including track surfaces.

E. Any damage to existing fixtures or facilities resulting from the installation of the synthetic turf system shall be repaired to original condition at the Contractor's expense prior to Final Completion and commencement of the Warranty Period.

F. A deficiency list will be produced by the Engineer at the conclusion of the project. All installation project deficiencies not in dispute must be remedied by the Contractor prior to the issuance of a certificate of Final Completion.

G. Contractor to provide a written acceptance by the turf manufacturer that the turf and base systems are installed in accordance with their recommendations prior to Final Completion.

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCING

PART 1 - GENERAL

1.1 Drawings and general requirements of contract, including general and supplementary conditions, apply to this section.

1.2 The intent of the specifications is to describe the construction desired, performance requirements, and standards of materials and construction.

1.3 Contractor shall furnish and install materials and perform all work and services for completed project described in Contract Documents.

1.4 DESCRIPTION OF WORK

A. Provide all labor, materials and equipment, and supervision required to construct the chain link fencing.

1.5 DELIVERY, HANDLING, AND STORAGE

A. Materials shall be delivered to the site in accordance with manufacturer’s recommendations for shipment and protection of materials.

B. Handling of materials as recommended by manufacturer.

C. Storage of materials in locations designated and approved by Owner.

1.6 CODES, INSPECTIONS, AND PERMITS

A. Obtain any necessary permits for this Section of Work and pay any fees required for permits.

B. The entire installation shall fully comply with all local and state laws and ordinances, and with all established codes applicable thereto.

1.7 SUBMITTALS

A. The Contractor shall submit certification that all materials used in the erection, assembly, and construction meet the minimum requirements as herein specified. Certification to be on either supplier, manufacturer, and/or Contractor's letterhead and submitted prior to final acceptance.

B. Submit shop drawings and product data. Indicate layout, spacing of components, accessories, and anchorage.

C. Submit manufacturer's specifications for proposed materials, technical data, method of installation instructions, and list of materials for the fencing and gates.

D. Upon request the Contractor will provide Material Certifications to the Engineer.

1.8 SITE CONDITIONS

A. Take precautions to insure that equipment and vehicles do not disturb or damage existing site grading, walks, drives, utilities, plants, etc.

B. Verify locations and depth of all underground utilities prior to excavation.

C. Repair and/or return to original condition any damage caused by Contractors negligence at no cost to Owner.

1.9 EXISTING UTILITIES:

A. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during this work.

B. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utilities companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

C. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.

D. Provide minimum 48-hour notice to Owner and receive written notice to proceed before interrupting any utility.

1.10 PROTECTION OF PERSONS AND PROPERTY:

A. Barricade open excavations occurring as part of this work and post with warning lights.

B. Operate warning lights as recommended by authorities having jurisdiction.

C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by this work.

PART 2 - PRODUCTS

2.1 FABRIC - ALL FENCING:

A. The fabric shall be chain link, zinc coated (galvanized) or aluminum coated No. 9 gauge wire woven in a 2-inch mesh. On all fabric the top and bottom selvage is to have a knuckled finish, unless specified otherwise in the drawings. Fabric height shall be the same as height of fence specified.

B. Zinc coated fabric shall meet the requirements of ASTM A 392, Class II coating.

C. Conform to ASTM Specification A392-55T and Federal Specification RR-F191A.

D. Wire in complete fabric to stand tensile strength test of 80,000 pounds per square inch after galvanizing.

2.2 All of the following posts, rails, braces, fitting, etc. shall have the following finish. See plans for location.

A. Hot dipped galvanized with 2 oz. coating.

2.3 End and Corner Post Tops: Heavy malleable iron or aluminum sand castings.

2.4 Linepost Tops:

A. Heavy malleable iron or aluminum sand castings.

B. Fitting over top and outside of post.

C. Provided with means of passing or supporting top rail.

2.5 Fabric Ties - All Fencing:

A. For attaching fabric to line posts or rails.

B. Provide steel ties (9 gauge galvanized).

2.6 Brace and Tension Bands - All Fencing: Unclimbable beveled edge type with 3/8” diameter square shouldered aluminum carriage bolts.

2.7 Bracing:

A. For bracing all end and corner posts.

B. 1-5/8” O.D. horizontal compression member weighting 2.27 pounds per foot.

2.8 Tension Bars - All Fencing:

A. For attaching fabric to end posts.

B. 3/6” x 3/4” high carbon steel.

2.9 Miscellaneous Fittings and Accessories - All Fencing:

A. Sand cast aluminum, pressed steel, aluminum or forgings.

B. Wire ties, etc., as required for complete assembly.

2.10 Bottom Tension Wire: 6 gauge galvanized.

2.11 Rails: Top, middle, and bottom rails, end, corner and line posts, bracing posts, gate posts, and gate frames:

A. Schedule 40 pipe. SS40 pipe may be substituted.

B. Hot dipped galvanized with 2 oz. coating.

C. Sizes as specified or as shown on the Drawings.

2.12 Fence Schedule:

A. 6' Height:

End and corner posts: 4” dia.
Concrete Footings: 12” dia./48” depth
Line posts: 3” dia. Spacing: 8’ O.C. max
Concrete footings: 12” dia./48” depth
Top rail: 1-5/8” dia.
Middle rail: not required
Bottom rail: nor required
Bottom tension wire: required
Bracing: 1-5/8” dia. All end and corner posts
Fabric: to be composed of No. 9 W&M gauge steel wire

B. 8’ Height Fence:

End and corner posts: 3” dia.
Concrete Footings: 12” dia./48” depth
Line posts: 2-1/2” dia. Spacing: 8’ O.C. max
Concrete footings: 12” dia./48” depth
Top rail: 1-5/8” dia.

Middle rail: 1-5/8” dia.
Bottom rail: 1-5/8” dia. (not required for outfield)
Bottom tension wire: 6 gauge (for outfield)
Bracing: 1-5/8” dia. All end and corner posts
Fabric: to be composed of No. 9 W&M gauge steel wire

2.13 Swing Gate Frames – For double leaf vehicular gate and pedestrian gates:

A. 2” O.D. standard weight pipe; 2.72 lbs. per foot.

B. Fabricate using welded construction or heavy pressed steel or malleable corner fittings securely riveted.

C. Galvanized by hot-dip process. See plans for location.

D. Equipped with positive type latching device with means for padlocking.

E. Equipped with catch and semi-automatic outer catches to secure gate in open position.

F. Provide field type center gate stop for 1 3/8” rod on 8’ leaf.

G. Gate height same as the fence height in which the gate is to be installed, unless otherwise detailed.

H. Fabricate using welded construction or heavy pressed steel or malleable corner fittings securely riveted.

I. Equipped with positive type latching device with means for padlocking.

2.14 Swing Gate Posts - All pedestrian gates:

A. 3” O.D. Schedule 40 pipe.

B. Galvanize by hot-dip process. See plans for location.

2.15 Swing Gate post: All double vehicular gates:

A. 4” O.D. Schedule 40 pipe.

B. Galvanize by hot-dip process. See plans for location.

2.16 Concrete Post Footings for All Fence and Gate Posts:

A. Minimum 3,000 psi compressive strength at 28 days.

B. Gravel aggregate.

PART 3 - EXECUTION

3.1 Fabric:

A. Place on spectator side of posts.

B. Attach to rails using Fabric Ties every 24 inches.

C. Attach to line posts using Fabric Ties every 14 inches.

D. Attach to end posts using Tension Bars – attach by means of beveled edge bands.

E. Install knuckled selvage at top and bottom of fence. Maintain 1/2” - 3/4” clearance between bottom selvage and finished ground surface.

3.2 Post Spacing: See Fence Schedule.

3.3 End and Corner Post Tops: Drive fitting outside of post to exclude moisture.

3.4 Bracing:

A. Brace all end and corner posts.

B. Securely attach to terminal and first line post with required fitting and beveled edge band, and truss braced from first line post to bottom of end and corner post with 3/8” rod and take-up.

C. Brace corner posts in both directions.

3.5 End, Corner, Second Line Posts, and Line Posts:

A. Top of footing as shown on the construction plans.

3.6 Swing Gate Posts:

A. Top of footing as shown on the construction plans.

3.7 Swing Gates:

A. Properly braced to eliminate possible sagging.

B. Hinges of sufficient strength and design to permit easy and trouble-free

operation. All hinges to be same throughout project.

C. All locking devices to be same throughout project on chain link fencing.

D. Shop construct all gates. If gates are welded, grind down all welds, burrs, and spurs and treat welds or galvanizing breaks with a cleaning and etching agent.

3.8 Assembly:

A. Plumb, true, and rigid.

B. Standard tolerances apply.

C. Installation by experienced fence erectors to lines and grades as shown on Drawings.

D. Unless shown otherwise, top of all footings to be flush with grade and slope away from posts to provide drainage.

E. All welds to be ground smooth, rust removed, cleaned, and painted with rust proof paint to match galvanized surface as per manufacturer's recommendations.

3.9 Clean-up:

A. Remove from the site and dispose of all debris resulting from this work.

B. Earth excavated from post holes to be disposed of off-site or, if suitable, used in fill areas as possible.

END OF SECTION

SECTION 32 92 00

SEEDING AND SOIL SUPPLEMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Description of Work

B. Warranty

C. Seeding Dates

D. Seedbed Preparation

E. Seed Preparation

F. Application of Seed

G. Watering

H. Reseeding

I. Cleanup

J. Acceptance

1.2 DESCRIPTION OF WORK

A. Drawings and general provisions of contract, including general and supplementary conditions apply to this section.

B. This section shall include materials, equipment, and labor for the preparation of the seedbed, furnishing and installing seed, fertilizer and mulch, maintenance, and guarantee for completed seeded areas, as shown on plans. Seed all areas disturbed by construction, unless otherwise noted.

C. The Contractor has the option of using either hydraulic or conventional seeding methods; unless specified otherwise in the contract documents.

D. Provide permanent seed at the earliest possible date following grading and topsoil re-spreading and/or irrigation installation operations, as approved by Engineer.

## 1.3 PROTECTION OF PROPERTY

A. Protect existing conditions at the site against damage including the following:

1. Take precautions to insure that equipment, vehicles, and seeding operations do not disturb or damage existing grades, walls, drives, pavement, utilities, plants, lawns, irrigation systems, and other facilities.

2. Verify locations and depths of all underground utilities prior to excavation and report conflicts with new seeding operations.

3. Any damage to existing trees or shrubs, including branches and root systems shall be repaired and/or pruned by an experienced tree surgeon or arborist.

4. Contractor shall replace plantings damaged due to watering of newly seeded areas with same species, size, 1-year warranty, and planted as approved by Engineer without additional compensation.

5. All existing lawn areas undisturbed by construction within the construction limits shall be mown by the Contractor until the project is accepted.

6. New seeding installed adjacent to existing lawns shall be installed to provide a smooth matching grade transition in a straight, neat alignment as approved by the Engineer.

7. Repair, replace, and/or return to original condition any damaged item, without additional compensation.

## 1.4 SUBMITTALS

A. Submit a laboratory analysis showing the seed provided meets or exceeds the minimum requirements of purity and germination stated on an independent certificate of seed analysis document in accordance with the AOSA (Association of Official Seed Analysts) rules. The seed certification tag and seed analysis document provided must be from the same lot number as shown on the seed tag. The date of test results shall be no greater than 9 months from seed application date. The following information shall be included on the seed laboratory analysis:

1. Name of company responsible for analysis,

2. Lot number of seed being provided and tested,

3. Kind - Species or common name of seed. Include cultivar or variety name if applicable,

4. Seed origin,

5. Percentage of purity and germination,

6. Percentage of dormant seed,

7. Percentage of inert matter, other crop seed and weed seeds,

8. Restricted and prohibited noxious seed. Provide name of and number per pound of seed.

B. Submit from an established seed dealer or certified seed grower the applicable Association of Official Seed Certifying Agencies (AOSCA) certified Blue, Gold or Yellow Tag, from each container seed mixture dated within 9 months of delivery, indicating bulk weight of bag or container, percentage by weight and percentage of purity, germination and weed seed for each grass, forb, legume, and cereal crop stating botanical and common name of each species as specified in contract documents.

C. Submit certificates of inspection as required by governmental authorities and manufacturer's or vendor's certified analysis for soil amendments.

1. Certification of the fertilizer analysis with scale weight and statement of guaranteed analysis.

2. Certification of the tackifier ingredients, recommended rates of application, and expiration date.

3. Certification of the inoculant ingredient for legumes and the specific seed to be inoculated with the application rate and expiration date.

4. Certification of the fungicide ingredients and applicable fungus disease control and recommended application rate of manufacturer.

5. Certification on the sticking agent ingredients with applicable use and rate by manufacturer.

6. Certification in the degradable wood cellulose fiber mulch ingredients with applicable use and rate, and the water retention capacity by manufacturer or supplier.

D. Submit written maintenance instructions recommending procedures for maintenance of seeded areas for one year, prior to final acceptance of the seeded areas.

E. Upon request the Contractor will provide additional Material Certifications to the Owner.

## 1.5 QUALITY ASSURANCE

A. All seed shall be certified and provided by an established seed dealer or certified seed grower.

B. All materials to be in accordance with Iowa Seed Law and Iowa Department of Agricultural Regulations and shall be labeled accordingly.

C. All materials and method of operation shall be subject to inspection and approval by Engineer.

D. Material not meeting requirements specified will be rejected.

1.6 DELIVERY, HANDLING, AND STORAGE

A. Packaged materials shall be delivered in original, unopened, and undamaged containers.

B. Deliver, handle and store all materials according to product recommendations and protect them from loss, damage and deterioration.

C. Deliver all seed in original containers. Seed shall not be mixed or blended except in the presence of the Engineer.

1.7 SCHEDULING

A. Coordinate the seeding schedule with all other work on the project. Notify the Engineer at least three working days prior to the start of seeding operations.

B. After all land-disturbing activities are complete and the seedbed has been approved by the Engineer, perform seeding operations.

1.8 WARRANTY

The seeding shall be installed as specified to germinate and provide a uniformly dense stand of the seed mix specified, free of weeds and undesirable species, debris, and free of eroded areas and bare spots. Re-rake areas failing to show a good dense stand within 60 days and reseed as originally specified.

A. A warranty is to be provided for completed seeded areas, starting upon the date of initial acceptance. The warranty is to guarantee completed seeded areas to provide a uniformly dense, live, and healthy stand of seed mix specified, free of weeds and undesirable species, debris, and free of eroded areas, bare spots, diseases, and insects at the end of the warranty period of 60 days for domestic/lawn grasses from date of project acceptance.

B. During warranty period, any defects in the seeded area and grass stand such as weedy areas, eroded areas and bare spots shall be corrected and reseeded as originally specified until all affected areas are accepted by the Engineer, without additional compensation.

C. Repair and replace to original condition all damages to property resultant from the seeding operation and all damages as a resultant from the remedying of these defects, without additional compensation.

PART 2 - PART 2 PRODUCTS

2.1 SEED

A. Provide fresh, clean, new crop, certified seed complying with tolerance for germination and purity and free of poa annua, bent grass, and noxious weed seed. Furnish all seeds, including grass, legume, forbs, and cereal crop seeds, from an established seed dealer or certified seed grower. All materials and suppliers are to follow Iowa Seed Law and Iowa Department of Agriculture and Land Stewardship regulations, and be labeled accordingly.

B. Athletic Seed Mix – Premium Athletic Gold: as supplied by Agriland, 2616 W. 2nd Ave., Indianola, IA 50125. Seed Rate: 9lbs per 1,000 sq.ft.

| Variety & Kind | Purity | Germiniation |
|---|---|---|
| Kentucky Bluegrass, Everglade | 19.92% | 85% |
| Kentucky Bluegrass, Award | 19.91% | 85% |
| Kentucky Bluegrass, Everest | 19.72% | 85% |
| Kentucky Bluegrass, Rugby 2 | 19.57% | 85% |
| Perennial Ryegrass, Fastball RGL | 9.90% | 90% |
| Perennial Ryegrass, Sunrise | 9.85% | 90% |

Crop: 0.01% Inert: 1.11% Weeds: 0.01%
Mix: 80% Kentucky Bluegrass, 20% Perennial Ryegrass (by weight)

C. Type 1 –Permanent Lawn Seed Mix: choose equal portions of three different cultivars of Kentucky Bluegrass and two different culitvars of Turf-Type Perennial Ryegrass at 20 pounds/acre each. Selected seed to be Blue or Gold Tag certified. Seed Rate: See table below.

| Variety & Kind | Purity | Germination | Application Rate lb/acre |
|---|---|---|---|
| Turf-Type Perennial Ryegrass cultivar blend | 95% | 90% | 40 |
| Creeping Red Fescue | 98% | 85% | 25 |
| Kentucky Bluegrass cultivar blend | 95% | 85% | 195 |

2.2 FERTILIZER

A. Fertilizer shall comply with the rules of the Iowa Department of Agriculture and Land Stewardship as follows:

1. The grade of fertilizer will be identified according to the percent nitrogen (N), percent of available phosphoric acid ($P_2O_5$), and percent water soluble potassium ($K_2O$), in that order, and approval will be based on that identification.

2. All fertilizer shall be furnished from an established fertilizer dealer and guaranteed percentage analysis shall be provided by the fertilizer supplier on each container with the proper scale weight records.

3. Fertilizer shall be of a type that can be uniformly distributed by the application equipment. Fertilizer may be furnished in a dry or liquid form.

4. When applied dry, the fertilizer shall be a granular, non-burning chemically combined product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer. Granular or pellet form shall be uniform in composition, dry, and free flowing without caking or other damage not suitable for use.

5. When applied in a liquid form, fertilizer may be chemically combined or may be furnished as separate ingredients.

6. Upon request of the Engineer, the Contractor shall provide a test of the fertilizer for conformance with the required analysis at no additional compensation; a tolerance of 1.0 percentage point plus or minus of that specified will be considered to be in substantial compliance.

## 2.3 WATER

A. Water shall be free of any substance harmful to seed growth.

B. The Contractor shall provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and labor necessary for the application of water.

## 2.4 MULCH

A. Hydraulic:

1. The material shall be a natural or cooked cellulose fiber processed from whole wood chips (no recycled material) which will disperse readily in water to form a homogeneous slurry and remain in such state when agitated in the hydraulic mulching unit. Material shall be completely photo-degradable or biodegradable.

2. The homogeneous slurry of material and water shall be capable of being applied with standard hydraulic mulching equipment.

3. The slurry shall be dyed green to facilitate visual metering during application with said material or homogeneous slurry having no growth or germination-inhibiting factors, being completely non-injurious to plant or animal life and having no toxic effect when combined with seed, fertilizer, and water.

4. When applied, the wood cellulose fiber slurry shall be free from weeds or other foreign matter toxic to seed, consisting of a classification of fibers with a minimum of 30 percent having an average length of 0.15 inches or passing a Clarke Classifier 24 mesh screen, will form an absorptive mat, but not a plant-

inhibiting membrane, which will allow moisture to percolate into the underlying soil.

5. Mulch shall have a water-holding capacity of not less than 9 pounds of water per pound of fiber.

6. The wood cellulose fiber shall have an equilibrium air dry moisture content of 12 percent or less a time of manufacture, as defined by the pulp and paper industry standards, and shall have a ph range of 4.0 – 5.5.

7. It shall be packaged in new labeled containers and be applied at a rate of 1,800 pounds per acre (41.3 lb/1,000 sf).

8. The mulch shall include a colloidal polysaccharide tackifier which shall be adhered to the fiber to prevent separation during shipment and avoid chemical co-agglomeration during mixing within the hydraulic mulching equipment.

9. The material shall be homogeneous within the slurry and shall have no growth or germination-inhibiting factors nor any toxic effect on plant or animal life when combined with seed or fertilizer. The material shall not form a water-resistant crust that can inhibit plant growth.

10. The tackifier shall be applied at a minimum rate of 50 pounds per acre (0.11lb/sq) and shall be packaged in new labeled containers.

11. All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.

## 2.5 INOCULANT FOR LEGUMES

A. An inoculant is a culture of bacteria specifically formulated for legume seeds (alfalfa, clovers, lespedesa, birdsfoot trefoil, hairy vetch, and crown vetch).

B. The manufacturer’s container shall indicate the specific legume seed to be inoculated, rate of application, and the expiration date.

C. All inoculant shall meet requirements of the Iowa Seed Law. Follow the safety precautions specified on the product label.

## 2.6 FUNGICIDE

A. A fungicide shall be a noncommercial protectant formulation to provide protection from soil-born fungus diseases of seeds.

B. The application shall be made at the rate of 5 1/2 ounces of a 75 percent concentrate or equivalent per 100 pounds of seed.

## 2.7 STICKING AGENT

A. A sticking agent shall be a commercial material recommended by the manufacturer to improve adhesion of inoculant and fungicide to the seed.

B. For small quantities, less than 50 pounds, the sticking agent need not be a commercial agent, but it must be approved by the Engineer and must be applied separately prior to application of inoculant and fungicide.

# PART 3 - PART 3 EXECUTION

## 3.1 AREA OF SEEDING

A. Areas to be seeded shall conform to the limits stated or shown on the construction plans and contract documents. Areas disturbed outside the contract limits approved for seeding shall be seeded by the Contractor at no additional compensation.

B. Temporary Erosion Control: Contractor to provide and seed temporary seeding as may be required to fulfill NPDES Permit requirements. Provide erosion control blankets as indicated on the plans.

## 3.2 SEEDING DATES

A. Seeding dates Premium Athletic Gold Seed Mix and Turf Type 1 seed shall be between March 1 to May 31 and between August 10 and September 30. Commence only when ground temperatures are 55 degrees Fahrenheit or greater.

B. At the option and at the full responsibility of the Contractor, seeding operations may be conducted under unseasonable conditions. The final results shall be as specified and guaranteed without additional compensation should the seeded areas require reseeding.

## 3.3 SEEDBED PREPARATION

A. Limit preparation of seedbed to areas which will be seeded immediately upon completion.

B. Remove all straw-mulch, weeds and weed debris where weed growth has developed, in the opinion of the Engineer. Straw-mulch, weed growth and weed debris removal process shall be approved by the Engineer and shall be done without additional compensation.

C. Use crawler type or dual-wheeled tractors for seedbed preparation. Operate equipment in a manner to minimize displacement of soil and disturbance of the design cross-section. Harrow ridging in excess of 4 inches due to operation of tillage

equipment prior to rolling with the cultipacker. Roll the area with no less than one pass of the cultipacker prior to permanent seeding.

D. The Contractor shall shape and fine grade to remove washes or gullies, water pockets, and irregularities to provide a smooth, firm, and even surface true to grade and cross-section.

E. Disk or rototill and cultivate seedbed to a minimum 3 inch depth to a fine texture and without soil lumps. Where the area is inaccessible to machinery, it shall be prepared by hand to a minimum depth of 2 inches after the fertilizer has been applied. For lawn seeding areas, prepare to a fine texture and without soil lumps. Coordinate preparation of all ditches designated for special ditch control with the seedbed preparation. Till parallel to the contours.

F. Smooth the seedbed with a cultivator-type tillage tool having a rake bar or a rock rake. Pick up and remove all debris, such as rocks, stones, concrete larger than 2 inches (1/2 inch maximum for lawn seeding areas), or roots and other objectionable material that will interfere with the seeding operation. A spring tooth cultivator may be used in lieu of a rock picker. Remove the rock by hand after each use of the cultivator; repeat the process until the soil is relatively free of rock as determined by the Engineer.

G. Choose equipment to minimize soil compaction. Operate equipment in a manner to minimize displacement of soil and disturbance of the design cross-section. Roll the area with at least one pass of the cultipacker. Remove ruts that develop during the sequence of operations before subsequent operations are performed. This must be completed just prior to seeding and the work approved by the Engineer before the seeding application.

H. Application of Fertilizer:

1. Apply fertilizer after shaping and fine grading and prior to the combined tillage and rock-removal operations. On areas inaccessible to machinery, the fertilizer may be spread prior to tillage and cultivated seedbed preparation and uniformly mixed into the top 1 1/2 inches of soil.

2. Fertilizer shall be spread with a mechanical spreader or sprayer uniformly to all areas to be seeded at the minimum rate specified herein. The fertilizer shall be tilled into the soil to a minimum depth of 3 inches.

3. The Contractor shall be permitted to substitute other fertilizer containing analysis percentages different from those specified, provided that the minimum amounts of actual nitrogen (N), phosphate (P), and potash (K) per acre are supplied and that in no case shall the total amount per acre of the three fertilizer elements (N), (P), or (K) be exceeded by 30 percent of the following minimum amounts.

4. Conventional Seeding (Lawn Seed Mixes Only):

a. Apply 6-24-12 commercial fertilizer or the equivalent units of nitrogen (N), phosphate (P), and potash (K) at the rate of 200 pounds per acre. A

minimum of 40 percent of the total nitrogen (N) shall be water insoluble nitrogen.

5. Tilling:

   a. After fertilizer has been applied, a mechanical rock picker shall be used on areas accessible to machinery to mix fertilizer in the soil to a depth of 3 inches and to remove all rocks, debris, and solid non-soil material larger than 1 inche in diameter from the upper 3 inches of the soil. A spring tooth cultivator may be used in lieu of a rock picker. The rock shall then be removed by hand after each use of the cultivator--the process to be repeated until the soil is relatively free of rock as determined by the Engineer.

   b. Remove all rock remnants from rock piles used on project smaller than 1 inch.

   c. The seedbed shall then be smoothed with a cultivator-type tillage tool having a rake bar-such as the Roseman rake-or a rock rake-such as the York-gauged by rear gauge wheels or by a blade gauged by a landscape roller-such as the Viking roller blade.

   d. Tilling shall be parallel to the contours.

   e. Ruts and wheel tracks in the seedbed from seedbed preparation are to be removed prior to seeding. This must be completed just prior to seeding and the work approved by the Engineer before the seeding application.

## 3.4 SEED PREPARATION

A. Treat all legume seed with a commercial sticking agent to be applied prior to application of inoculant, or as a mixture when the sticking agent is compatible with other materials. A sticking agent is not required if a liquid formulation of inoculant is used. Use mechanical mixing equipment to apply sticking agent and inoculant on seed quantities over 50 pounds.

B. Inoculate all legumes with a standard product humus culture before being mixed with other seeds for sowing.

C. Inoculate all legumes with a standard culture at the rate specified by the manufacturer of the inoculant according to Iowa DOT Article 4169.04. Do not expose inoculated seed to direct sunlight for more than 30 minutes. Re-inoculate seed that is not sown within 8 hours after inoculation prior to use. Pre-inoculated seed with manufacturer's recommended protective coating may be used in lieu of seed with Contractor-applied inoculant.

D. When the gravity or cyclone seeder is used for application of seed, inoculate legume seed according to the manufacturer's recommended procedures, before mixing with other grass seeds for sowing. Furnish and apply inoculant.

## 3.5 APPLICATION OF SEED

A. Prior to seeding, the seedbed shall be inspected and approved by the Engineer and Owner.

B. Conventional Seeding:

1. Sowing:

a. Domestic Grasses - On all areas accessible to machinery, all grasses shall be sown with a drop-type seeder attached to a landscape roller in such a manner that the seed is applied and then covered by rolling which firms the soil. Seeding to be completed with a minimum of two passes in different directions.

b. On areas inaccessible to field machinery, the use of cyclone seeders will be permitted, but no other hand-seeding methods will be accepted.

2. Hydraulic Mulching:

a. If approved by Engineer, hydraulic seeding shall be applied as specified.

b. All material, seed, fertilizer, mulch, tackifier, and fungicide shall be placed in hydraulic-mulching equipment specifically manufactured for hydraulic seeding and mulching.

c. Materials shall be mixed with fresh potable water using a combination of both recirculation through the equipment's pump and mechanical agitation to form a homogeneous slurry.

d. It shall be applied evenly over all specified areas in a workmanlike manner at component material rates specified.

e. If necessary, dampen dry, dusty soil, to prevent balling of the material during application.

f. Site cleanup shall be considered part of application and shall include the removal of hydraulic mulch slurry from buildings, landscaping, sidewalks, and any other areas not specified for application. All debris resulting from this application shall be removed from the site.

## 3.6 WATERING

A. All seeded areas shall be kept moist at all times. The areas shall be artificially watered a minimum of twice a day (early morning and evening) every day for the first week after seeding is completed.

B. For the second and third weeks after seeding, the seeded areas shall be artificially watered once a day (early morning or evening).

C. The quantity of water used shall be adequate to keep the soil and mulch moist to a depth of 1 inch and ensure growth of the seed. If natural rainfall is adequate to keep the soil and mulch moist as stated above, artificial watering may be deleted.

D. Any area seeded in the month of May shall be maintained for an additional 3 weeks. The seeded areas shall receive a minimum of 1 inch of water each week (either natural, artificial, or combination) for the fourth, fifth, and sixth week after seeding.

## 3.7 MAINTENANCE

A. Domestic Grasses - Maintenance shall begin immediately following the installation of seed and mulch and continue for a 60 day period from project acceptance.

B. Maintenance of seeded areas shall include protection against traffic, repairing of areas damaged, watering, rolling, and mowing when grasses are at an approximate 3-inch height;

1. If areas are seeded in the fall and not given a full maintenance period, or if seeding establishment is not acceptable at that time, continue maintenance the following spring until acceptable lawn or native seeded area is established.

## 3.8 RE-SEEDING

A. When all work related to seeding on an area has been completed but is washed out or damaged prior to final acceptance of the seeding area and that area involves seeding in combination with mulching or fertilizing or both, the area shall be reseeded, refertilized, and remulched at the contract unit price or prices when so ordered by the Owner.

B. Fertilized or seeded areas damaged by rain prior to required mulching or areas where the mulch is not tucked shall be refertilized or reseeded or both at a rate not to exceed the specified rate, as designated by the Engineer, without additional compensation.

## 3.9 CLEANUP

A. Perform cleanup operations during installation of work and upon completion.

B. Remove from site all excess materials, debris, and equipment.

C. Hose down and/or broom clean all paved surfaces.

D. Repair any damage resulting from seeding operations.

E. Remove hydraulic slurry from buildings landscaping and plantings, mulch, sidewalks, pavement, and any other areas not specified for application.

## 3.10 FINAL ACCEPTANCE

A. The areas seeded shall be given acceptance based upon the following criteria:

1. All requirements for the completed installation and a minimum of 60 days maintenance have been provided for domestic grasses.

2. Seeded areas shall be in a live, healthy, growing, and well-established condition without eroded areas, bare spots, free of weeds, undesirable grasses, disease, or insects.

3. Re-seeding operations are completed, as per original specifications.

B. Final acceptance may be given by the Owner upon fulfillment of all items completed as required.

END OF SECTION

SECTION 33 41 00

SUB-SURFACE DRAINAGE SYSTEM

## PART 1 GENERAL

### 1.1 DESCRIPTION OF WORK

A. Provide all labor, materials, equipment, and supervision required to construct the sub-surface drainage system including:

1. Trenching and disposal of trench excavation.

2. Provide and install drainage piping.

3. Provide sand.

4. Sand and earth backfill.

### 1.2 DELIVERY, HANDLING, AND STORAGE

A. Materials shall be delivered to the site in accordance with manufacturer's recommendations for shipment and protection of materials.

B. Handling of materials as recommended by manufacturer.

C. Storage of all materials in locations designated and approved by Owner.

### 1.3 CODES, INSPECTIONS AND PERMITS

A. Obtain any necessary permits for this Section of Work and pay any fees required for permits.

B. The entire installation shall fully comply with all local and State laws and ordinances, and with all established codes applicable thereto.

### 1.4 SITE CONDITIONS

A. Take precautions to insure that equipment and vehicles do not disturb or damage existing site grading, walks, drives, utilities, plants, etc.

B. Verify locations and depths of all underground utilities prior to excavation.

C. Repair and/or return to original condition any damage caused by Contractor's negligence at no cost to Owner.

D. Existing Utilities:

1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during this work.

2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.

4. Provided minimum of 48-hour notice to Owner and Engineer and receive written notice to proceed before interrupting any utility.

5. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

E. Protection of Persons and Property:

1. Barricade open excavations occurring as part of this work and post with warning lights.

2. Operate warning lights as recommended by authorities having jurisdiction.

3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by this work.

## PART 2 PRODUCTS

2.1 Perforated Corrugated Plastic Tubing:

A. Similar or equal to as manufactured by Advanced Drainage Systems, Inc., or Han-Cor.

B. With a drain guard similar or equal to Drain*Guard as manufactured by Advanced Drainage Systems, Inc.

C. Comply with all performance requirements of S.C.S. Code 606.

D. Comply with requirements of ASTM-F-405.

E. Sizes as shown on Drawings.

2.2 Non-Perforated Corrugated Plastic Tubing:

A. Similar or equal to as manufactured by Advanced Drainage System, Inc., or Han-Cor.

B. Comply with all performance requirements of S.C.S. Code 606.

C. Comply with requirements of ASTM-F-405.

D. Sizes as shown on Drawings.

2.3 Plastic Fittings:

A. Similar or equal to as manufactured by Advanced Drainage Systems, Inc., or Han-Cor.

B. Comply with all performance requirements of S.C.S. Code 606.

C. Comply with requirements of ASTM-F-405.

2.4 Sand Backfill:

A. Locally obtained, concrete sand.
B. Washed concrete sand having a fineness modulus of approximately 2.8.

C. Furnish test data and analysis for approval.

PART 3 EXECUTION

3.1 Layout: As shown on Drawings.

3.2 Trenching:

A. Trench width for specified tubing sizes as shown on Drawings.

B. Remove from site and dispose of all excavated material.

3.3 Installation of Tubing:

A. Slopes and grades as shown on Drawings.

B. Lay tubing on bottom of trench and centered in trench.

C. All tubing connections to be made as required and as recommended by manufacturer.

3.4 Backfilling:

A. Backfill all trenches having perforated corrugated plastic tubing with sand as specified in this Section. Settle sand by flooding.

B. Backfill all trenches having non-perforated corrugated plastic tubing with material excavated from trench.

C. Compact backfill to insure settlement does not occur. Place backfill in 4” layers mechanically compacted into place a minimum of 1' above the top of the pipe to 95% Standard Proctor density.

D. Top of backfill, after compaction, to be flush with finish surface grade.

3.5 Repair: If settlement occurs, add backfill, compact, and restore finish grade.

3.6 Clean-Up:

A. Contractor shall at all times keep premises on which work is being done, and adjoining premises within the Contract Limits, clean of rubbish caused by his work.

B. Upon completion of job, Contractor shall clean-up all debris caused by his work and leave area in a neat and clean condition.

C. Remove from the site and dispose of all debris and excess materials.

END OF SECTION

SITE PLANS

FOR

# ROGERS SPORTS COMPLEX -
# "YANKEE" FIELD IMPROVEMENTS PHASE 2

## 1628 NELSON AVE

## CITY OF FORT DODGE, WEBSTER COUNTY, IOWA


VICINITY MAP

### OWNER

CITY OF FORT DODGE
617 CENTRAL AVE.
FORT DODGE, IA 50501
CONTACT: LORI BRANDERHORST
PARKS, RECREATION, & FORESTRY DIRECTOR
PHONE: (515)-576-4551

### ENGINEER

SNYDER & ASSOCIATES
2727 SW SNYDER BLVD
ANKENY, IA 50023
CONTACT: TIM WEST, PLA
PHONE: (515)-964-2020

### Sheet List Table



0 500'
FEET

| MARK | REVISION | DATE | BY |
|---|---|---|---|
| Engineer: EDC | Checked By: TLW | Scale: 1" = ## | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |
| Project No:123.0895.01A | | Sheet C001 | |

ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

FORT DODGE, WEBSTER COUNTY, IOWA

TITLE SHEET


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
515-964-2020 | www.snyder-associates.com


SNYDER & ASSOCIATES

Project No: 123.0895.01A

Sheet C001

## LEGEND

| FEATURES | EXISTING | PROPOSED |
|---|---|---|
| Spot Elevation | X 1225.25 | X 1225.25 |
| Contour Elevation | 1225 | 1225 |
| Fence (Barbed, Field, Hog) | X | X |
| Fence (Chain Link) | // | // |
| Fence (Wood) | □ | □ |
| Fence (Silt) | ○ | ● |
| Tree Line | | |
| Tree Stump | | |
| Deciduous Tree \\ Shrub | | |
| Coniferous Tree \\ Shrub | | |
| Communication | C(*) | C |
| Overhead Communication | OC(*) | OC |
| Fiber Optic | FO(*) | FO |
| Underground Electric | E(*) | E |
| Overhead Electric | OE(*) | OE |
| Gas Main with Size | G(*) | G |
| High Pressure Gas Main with Size | | HPG |
| Water Main with Size | W(*) | W |
| Sanitary Sewer with Size | S(*) | S |
| Duct Bank | DUCT(*) | DUCT |
| Test Hole Location for SUE w/ID | | |

(*) Denotes the survey quality service level for utilities

| | | |
|---|---|---|
| Sanitary Manhole | | |
| Storm Sewer with Size | ST(*) | ST |
| Storm Manhole | | |
| Single Storm Sewer Intake | | |
| Double Storm Sewer Intake | | |
| Fire Hydrant | | |
| Fire Hydrant on Building | | |
| Water Main Valve | | |
| Water Service Valve | | |
| Well | | |
| Utility Pole | | |
| Guy Anchor | | |
| Utility Pole with Light | | |
| Utility Pole with Transformer | | |
| Street Light | | |
| Yard Light | | |
| Electric Box | EB | EB |
| Electric Transformer | E | E |
| Traffic Sign | | |
| Communication Pedestal | C | C |
| Communication Manhole | C | C |
| Communication Handhole | C | C |
| Fiber Optic Manhole | FO | FO |
| Fiber Optic Handhole | FO | FO |
| Gas Valve | | |
| Gas Manhole | G | G |
| Gas Apparatus | G | G |
| Fence Post or Guard Post | ● | ● |
| Underground Storage Tank | UST | |
| Above Ground Storage Tank | AST | |
| Sign | | |
| Satellite Dish | | |
| Mailbox | | |
| Sprinkler Head | + | + |
| Irrigation Control Valve | ⋈ICV | ⋈ICV |

## CONTROL POINTS

IOWA REGIONAL COORDINATE SYSTEM ZONE #4 NAD83(2011)(EPOCH 2010.00)
!ARTN DERIVED - US SURVEY FEET

1 N=8608179.39 E=14677718.48 Z=1145.16
SET MAG NAIL IN SOUTH EDGE OF SIDEWALK 3 TREES + 20' EAST OF GATE.
2 N=8608103.08 E=14678005.54 Z=1149.28
SET MAG NAIL SOUTH SIDE OF CONCESSION @ 3RD JOINT SOUTH OF GREY DOOR.
3 N=8608149.74 E=14678352.90 Z=1140.10
½" REBAR WITH RED PLASTIC CAP @ SOUTHWEST CORNER OF DETENTION POND @ LEFT FIELD GATE.
4 N=8607608.59 E=14678432.52 Z=1139.20 Z=1139.20
SET ¾" REBAR RED PLASTIC CAP @ MOW LINE ON SOUTH SIDE OF PROJECT, +/- 40' WEST OF EAST FENCE.
5 N=8607664.34 E=14678074.43 Z=1152.89
SOUTH SIDE BETWEEN FIELDS @ BLEACHERS STRAIGHT SOUTH OF CONCESSION BUILDING +/- 500'.
6 N=8607686.26 E=14677585.76 Z=1152.89
CUT 'X' ON FENCE SUPPORT ON WEST SIDE OF GRAVEL @LIGHT POLE.

## BENCHMARKS

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88 - GEOID12A)
!ARTN DERIVED - US SURVEY FEET

RIM ELEV=1149.10
MANHOLE ON WEST SIDE OF CONCESSIONS

## DATE OF SURVEY

JULY 24, 2023

## UTILITY CONTACT INFORMATION

W-WATER FORT DODGE, CITY OF
BRETT DANIEL
5155735071
IOWAONECALL@FORTDODGEIOWA.ORG

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Dial before you dig

## GENERAL NOTES

A. NOTIFY UTILITY PROVIDERS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES AND COORDINATE WITH UTILITY PROVIDERS AS NECESSARY DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXISTENCE, EXACT LOCATION, AND DEPTH OF ALL UTILITIES. PROTECT ALL UTILITY LINES AND STRUCTURES NOT SHOWN FOR REMOVAL OR MODIFICATION. ANY DAMAGES TO UTILITY ITEMS NOT SHOWN FOR REMOVAL OR MODIFICATION SHALL BE REPAIRED TO THE UTILITY OWNER'S SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.

B. CONSTRUCTION OF ALL STREET AND UTILITY IMPROVEMENTS SHALL CONFORM TO THE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS AND THE SOILS REPORTS PREPARED BY OTHERS.

C. LENGTH OF UTILITIES SHOWN ON PLANS ARE DIMENSIONED FROM CENTERLINE OF STRUCTURE TO CENTERLINE OF STRUCTURE.

D. ALL TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). WHEN CONSTRUCTION ACTIVITIES OBSTRUCT PORTIONS OF THE ROADWAY, FLAGGERS SHALL BE PROVIDED. FLAGGERS SHALL CONFORM TO THE MUTCD IN APPEARANCE, EQUIPMENT AND ACTIONS.

E. NOTIFY OWNER, ENGINEER, CITY OF FORT DODGE AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.

F. CONSTRUCT MANHOLES AND APPURTENANCES AS WORK PROGRESSES. BACKFILL WITH SUITABLE MATERIAL AND COMPACT TO 95% MAXIMUM DENSITY.

G. IN THE EVENT OF A DISCREPANCY BETWEEN THE QUANTITY ESTIMATES AND THE DETAILED PLANS, THE DETAILED PLANS SHALL GOVERN.

H. ALL FIELD TILES ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED AND NOTED ACCORDINGLY ON THE AS-BUILT DOCUMENTS. TILE MUST BE CONNECTED IF BROKEN DURING CONSTRUCTION.

I. DIMENSIONS, BUILDING LOCATION, UTILITIES AND GRADING OF THIS SITE ARE BASED ON AVAILABLE INFORMATION AT THE TIME OF DESIGN. DEVIATIONS MAY BE NECESSARY IN THE FIELD. ANY SUCH CHANGES OR CONFLICTS BETWEEN THIS PLAN AND FIELD CONDITIONS ARE TO BE REPORTED TO THE ARCHITECT/ENGINEER PRIOR TO STARTING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT VERIFICATION OF ALL SITE IMPROVEMENTS PRIOR TO CONSTRUCTION.

J. CONTRACTOR TO LOAD AND TRANSPORT ALL MATERIALS CONSIDERED TO BE UNDESIRABLE TO BE INCORPORATED INTO THE PROJECT TO AN APPROVED OFF-SITE WASTE SITE.

K. CONTRACTOR TO STRIP AND STOCKPILE TOPSOIL FROM ALL AREAS TO BE CUT OR FILLED. RESPREAD TO MINIMUM 6" DEPTH TO FINISH GRADES.

L. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN ARE FINISHED GRADES AND/OR TOP OF PAVING SLAB (GUTTER), UNLESS OTHERWISE NOTED.

M. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING DIRT AND DEBRIS FROM NEIGHBORING STREETS, DRIVEWAYS, AND SIDEWALKS CAUSED BY CONSTRUCTION ACTIVITIES IN A TIMELY MANNER.

N. THE ADJUSTMENT OF ANY EXISTING UTILITY APPURTENANCES TO FINAL GRADE IS CONSIDERED INCIDENTAL TO THE SITE WORK.

O. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING EROSION CONTROL MEASURES AS NECESSARY. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING ANY EXISTING EROSION CONTROL MEASURES ON SITE AT THE TIME OF CONSTRUCTION. GRADING AND SOIL EROSION CONTROL CODE REQUIREMENTS SHALL BE MET BY CONTRACTOR. A GRADING PERMIT IS REQUIRED FOR THIS PROJECT.

P. CONTRACTOR TO VERIFY ALL UTILITY CROSSINGS AND MAINTAIN MINIMUM 18" VERTICAL AND HORIZONTAL CLEARANCE BETWEEN UTILITIES. CONTRACTOR TO COORDINATE UTILITY ROUTING TO BUILDING AND VERIFY CONNECTION LOCATIONS AND INVERTS PRIOR TO CONSTRUCTION.

Q. CONSTRUCTION STAKING PROVIDED BY CONTRACTOR.

## NOTES

1. BUILDING LINES AND CORNERS ARE FOR USE IN PREPARING CIVIL SITE PLAN DOCUMENTS. BUILDING CORNERS AND BUILDING LINES SHOULD BE SPECIFICALLY VERIFIED, AS NECESSARY, PRIOR TO DESIGN FOR CONSTRUCTION OF ANY PROPOSED EXPANSION OR CONNECTION OF BUILDING COMPONENTS.
2. FOR CLARITY PURPOSES, SURVEY SPOT ELEVATIONS ARE NOT SHOWN ON THIS SURVEY, BUT ARE CONTAINED WITHIN THE DIGITAL CADD FILES.
3. FOR THE PURPOSE OF THIS SURVEY, STORM SEWER, SANITARY SEWER AND WATER MAIN LINES ARE ASSUMED TO FOLLOW A STRAIGHT LINE FROM STRUCTURE TO STRUCTURE.
4. UTILITY SERVICE LINES TO BUILDINGS ARE APPROXIMATE ONLY. AN INTERNAL BUILDING INVESTIGATION, EXCAVATION AND/OR SUBSURFACE LOCATING/DESIGNATING WOULD NEED TO BE PERFORMED TO DETERMINE THE LOCATION OF SERVICES ENTERING THE BUILDING.
5. UNDERGROUND PIPE MATERIALS AND SIZES ARE BASED UPON VISIBLE EVIDENCE VIEWED FROM ACCESS MANHOLES/STRUCTURES. DUE TO THE CONFIGURATION AND/OR CONSTRUCTION OF THE STRUCTURE, IT MAY BE DIFFICULT TO ACCURATELY DETERMINE THE PIPE MATERIAL AND/OR SIZE. THE SURVEYOR WILL USE THEIR JUDGMENT AND EXPERIENCE TO ATTEMPT TO DETERMINE, BUT COMPLETE ACCURACY CANNOT BE GUARANTEED.

## UTILITY QUALITY SERVICE LEVELS

QUALITY LEVELS OF UTILITIES ARE SHOWN IN THE PARENTHESES WITH THE UTILITY TYPE AND WHEN APPLICABLE, SIZE. THE QUALITY LEVELS ARE BASED ON THE CI / ASCE 38-02 STANDARD.
QUALITY LEVEL (D) INFORMATION IS DERIVED FROM EXISTING UTILITY RECORDS OR ORAL RECOLLECTIONS.
QUALITY LEVEL (C) INFORMATION IS OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION WITH QUALITY D INFORMATION.
QUALITY LEVEL (B) INFORMATION IS OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.
QUALITY LEVEL (A) IS HORIZONTAL AND VERTICAL POSITION OF UNDERGROUND UTILITIES OBTAINED BY ACTUAL EXPOSURE OR VERIFICATION OF PREVIOUSLY EXPOSED SUBSURFACE UTILITIES, AS WELL AS THE TYPE, SIZE, CONDITION, MATERIAL, AND OTHER CHARACTERISTICS.

## UTILITY WARNING

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR RECORDS OBTAINED. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN COMPRISE ALL SUCH ITEMS IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN ARE IN THE EXACT LOCATION INDICATED EXCEPT WHERE NOTED AS QUALITY LEVEL A.


## PHASE 1 CONSTRUCTION COORDINATION NOTES

1. PHASE 1 CONSTRUCTION ACTIVITY WILL BE ON-GOING DURING THE PHASE 2 CONSTRUCTION PERIOD. THE PHASE 2 CONTRACTOR IS TO COORDINATE THEIR WORK WITH THE PHASE 1 CONTRACTOR AND THEIR ASSOCIATED CONSTRUCTION SCHEDULE. PHASE 1 WORK IS SCHEDULED TO BE FULLY COMPLETE BY MAY 1, 2024
2. THE PHASE 1 CONTRACTOR IS DOYLE CONSTRUCTION
   516 N. 16TH STREET, FORT DODGE, IOWA 50501
   CONTACT: ERIC DOYLE- (515) 570-7718
3. PHASE 1 CONSTRUCTION INCLUDES THE FOLLOWING (BY OTHERS);
   A. DEMOLITION OF FENCING, EXISTING FIELD AMENITIES, AND EXISTING DUGOUTS
   B. DUGOUT FOUNDATION, STRUCTURE, ROOF, SIDEWALLS/FENCING AND SLAB
   C. INSTALLATION OF SCORER'S TABLE AND ELECTRICAL SERVICE
   D. RELOCATION AND INSTALLATION OF EXISTING SCOREBOARD

| MARK | REVISION | DATE | BY |
|---|---|---|---|
| Engineer: EDC | Checked By: TLW | Scale: 1" = ##' | |
| Technician: STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No: 123.0895.01A

Sheet C002

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

FORT DODGE, WEBSTER COUNTY, IOWA

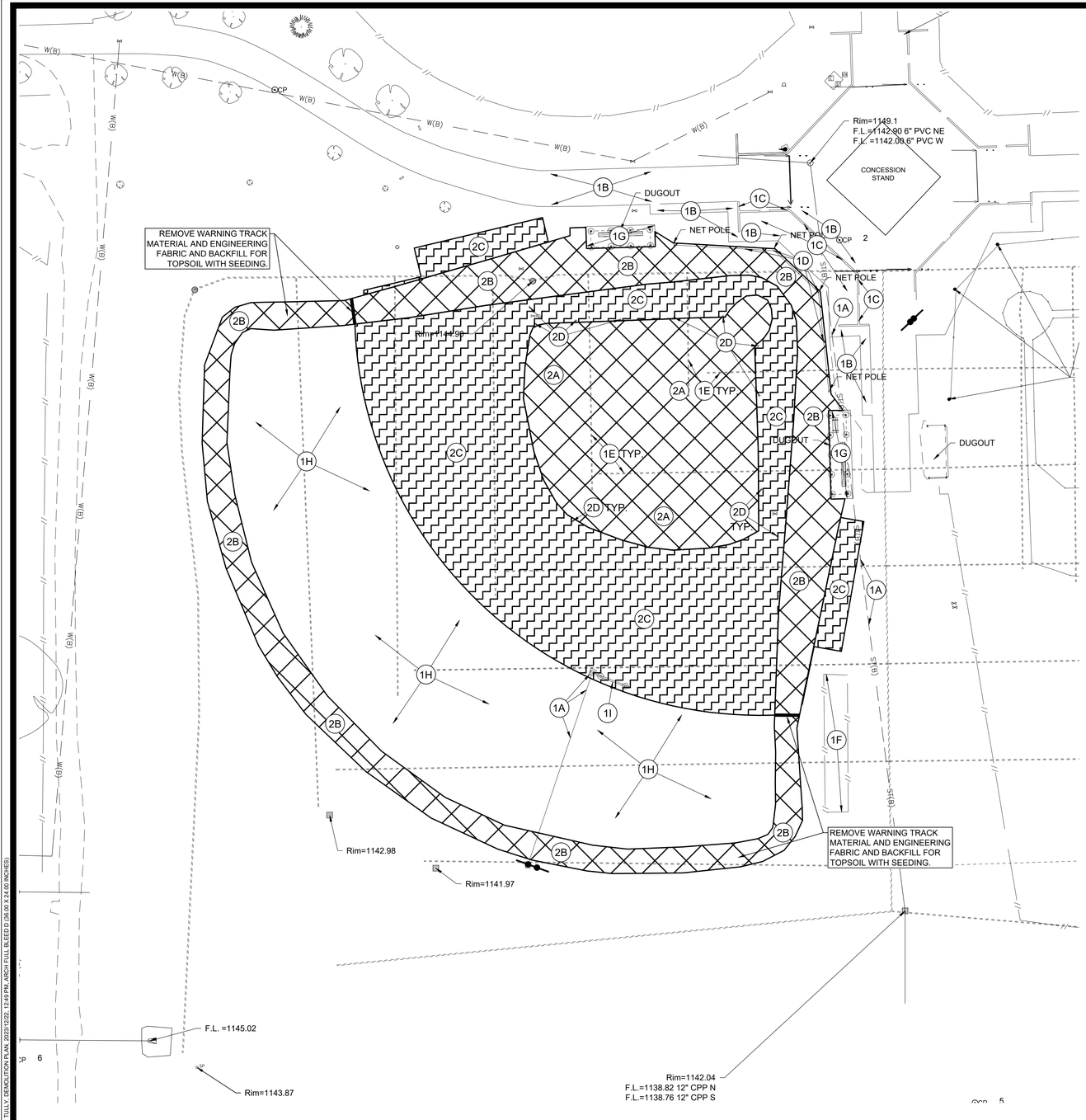
PROJECT INFORMATION


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
515-964-2020 | www.snyder-associates.com


SNYDER & ASSOCIATES

Project No: 123.0895.01A

Sheet C002




## DEMOLITION PLAN NOTES

1. EXISTING FEATURES. PROTECT THE FOLLOWING FROM DAMAGE:
   - A. UNDERGROUND UTILITY.
   - B. SIDEWALK/PAVEMENT.
   - C. CONCRETE BLEACHER BASE AND WALLS.
   - D. BACK STOP NETTING SYSTEM, POLES, FOOTINGS AND TIE-BACK WIRES.
   - E. FIELD SUBDRAINS. ANY SUBDRAINS ENCOUNTERED DURING CONSTRUCTION SHALL BE CONNECTED TO THE PROPOSED SUBDRAIN SYSTEM.
   - F. BATTING CAGE.
   - G. TEAM DUGOUT.
   - H. EXISTING OUTFIELD TURF.
   - I. SCOREBOARD AND ELECTRIC BOX.

2. DEMOLITION. REMOVE AND DISPOSE OF THE FOLLOWING:
   - A. INFIELD SAND/SPECIALTY AGGREGATE INFIELD MIX.
   - B. WARNING TRACK AGGREGATE AND ASSOCIATED LANDSCAPE FABRIC.
   - C. GRASS TURF AND TOPSOIL.
   - D. IRRIGATION SYSTEM (LATERAL LINES, VALVE BOXES, SWING JOINTS, MAIN LINE, WIRING).

REMOVAL OF INFIELD SAND/SPECIALTY AGGREGATE INFIELD MIX AND WARNING TRACK AGGREGATE AND ASSOCIATED LANDSCAPE FABRIC. REMOVE TO DEPTH NECESSARY TO ACCOMMODATE FINISHED GRADES OF PROPOSED SYNTHETIC TURF FIELD.

REMOVE EXISTING TURF AND UNDERLYING TOPSOIL TO DEPTH NECESSARY TO ACCOMMODATE FINISHED GRADES OF PROPOSED SYNTHETIC TURF FIELD.

| MARK | REVISION | DATE | BY |
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| Engineer: EDC | Checked By: TLW | Scale: 1" = ##' | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No: 123.0895.01A

Sheet C100

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

## FORT DODGE, WEBSTER COUNTY, IOWA

## DEMOLITION PLAN


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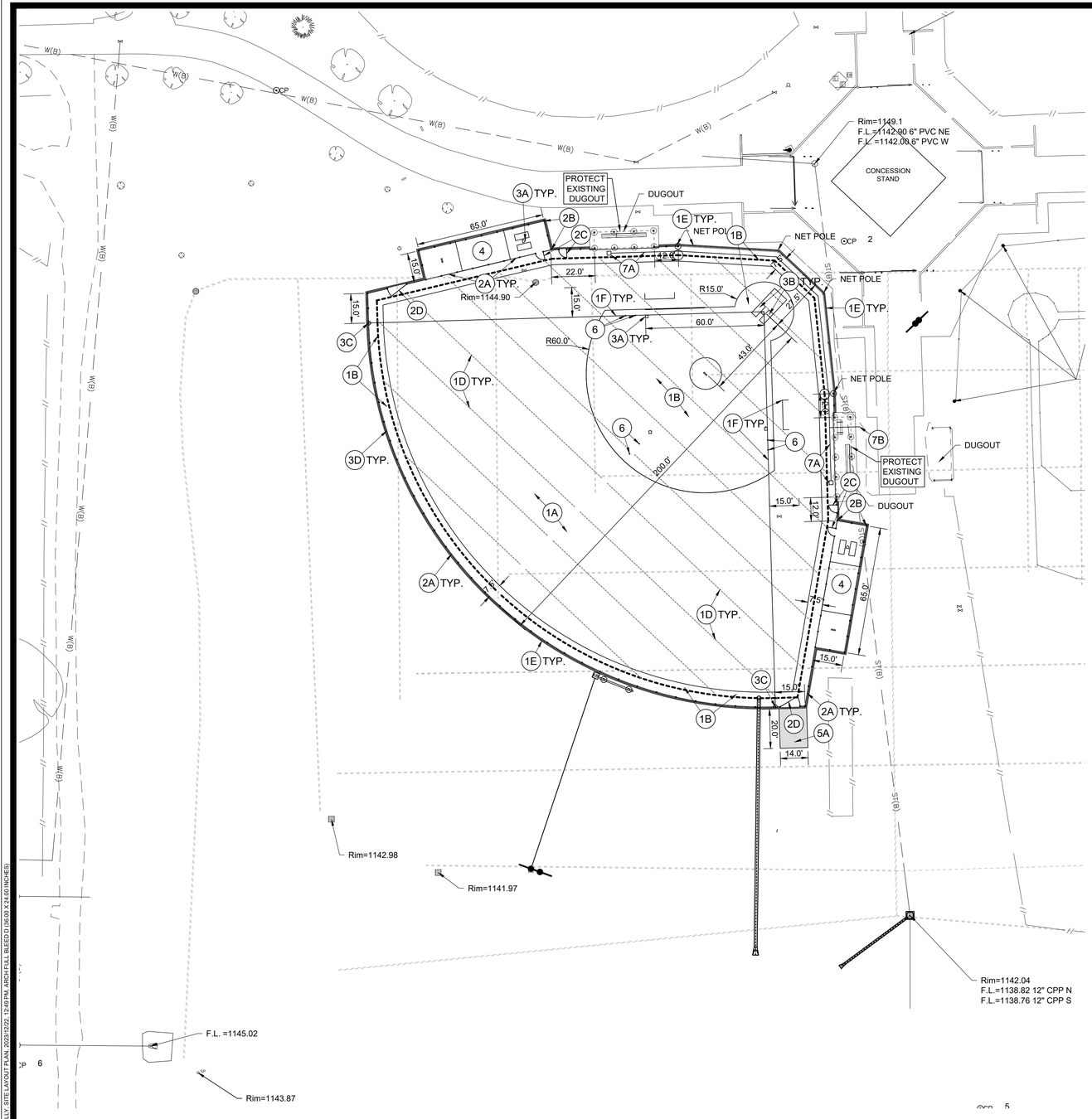
Sheet C100




## SITE LAYOUT PLAN NOTES

1. SYNTHETIC FIELD CONSTRUCTION:
   - A. GREEN SYNTHETIC TURF AREA (OUTFIELD AREAS (STRIPED), FOUL TERRITORY, AND PORTIONS OF BULLPEN AREAS). COLOR SELECTED BY OWNER. SEE DETAIL ON SHEET C500.
   - B. BROWN SYNTHETIC TURF AREAS (INFIELD, WARNING TRACK, AND PORTIONS OF BULLPEN AREAS). COLOR SELECTED BY OWNER. SEE DETAIL ON SHEET C500.
   - C. TWO-LAYER GRANULAR BASE, UNDERLAID WITH GEOTEXTILE FABRIC.
   - D. SUBDRAIN SYSTEM, 20' O.C., WITH PERIMETER DRAINS. SEE GRADING AND DRAINAGE PLAN.
   - E. 6" X 18" CONCRETE TURF CURB WITH NAILER BOARD ON FIELD PERIMETER.
   - F. FIELD MARKINGS TO BE WHITE, SET IN SYNTHETIC TURF. LAYOUT AS PER NCAA AND IAAHS.

2. FENCING. PROVIDE THE FOLLOWING:
   - A. 8' HT. GALVANIZED CHAIN LINK FENCING.
   - B. 12' HT. GALVANIZED CHAIN LINK FENCING (BEHIND CATCHER AREA ON BULLPENS ONLY)
   - C. 4' W X 8' HT GATE, GALVANIZED CHAINLINK.
   - D. 10' W X 8' HT GATE, GALVANIZED CHAINLINK.

3. FIELD AMENITIES. FURNISH AND INSTALL THE FOLLOWING:
   - A. BASES AND HOME PLATE ON FIELD AND IN BULLPENS.
   - B. HOME PLATE AREA WITH REPLACEMENT TURF PANELS. SEE DETAIL.
   - C. FOUL POLES WITH WING AND GROUND SLEEVE.
   - D. FENCE TOPPER. SEE EQUIPMENT SPECIFICATION.

4. BULLPEN CONSTRUCTION WITH PITCHING/BATTING AREAS. SEE DETAIL.

5. PAVEMENT.
   - A. 6" DEPTH PCC.

6. PROVIDE AND INSTALL GROUND ANCHORS FOR ALTERNATE BASE LOCATIONS AND PITCHING RUBBER FOR 9/10U LEVEL ( 65' BASE PATHS) AND 11/12U LEVEL (70' BASE PATHS). ADDITIONAL BASES BY OTHERS.

7. IRRIGATION.
   - A. PROVIDE AND INSTALL 1" 200 PSI RATED PVC IRRIGATION SERVICE TO QUICK COUPLER VALVES IN GROUND BOXES. CONNECT SERVICE TO IRRIGATION MAINLINE NEAR 3RD BASE DUGOUT AND 1ST BASE DUGOUT AS SHOWN. SEE DETAIL.
   - B. EXISTING IRRIGATION LINE. COORDINATE EXACT LOCATION WITH CITY STAFF PRIOR TO CONSTRUCTION.

| MARK | REVISION | DATE | BY |
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| Engineer: EDC | Checked By: TLW | Scale: 1" = 30' | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No: 123.0895.01A

Sheet C200

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

## FORT DODGE, WEBSTER COUNTY, IOWA

## SITE LAYOUT PLAN


SNYDER & ASSOCIATES, INC.

2727 S.W. SNYDER BLVD
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Sheet C200

## UTILITY NOTES

1. SYNTHETIC TURF DRAIN SYSTEM. SEE DETAIL.
2. UTILITY CROSSING. CONTRACTOR TO VERIFY AND MAINTAIN A MINIMUM VERTICAL SEPARATION OF 18" BETWEEN UTILITY LINES AT ALL CROSSINGS. CONFIRM EXACT LOCATION AND DEPTH OF EXISTING UTILITIES AT CROSSINGS POINTS PRIOR TO INSTALLATION OF UTILITIES. REPORT ANY POTENTIAL CONFLICTS TO THE ENGINEER IMMEDIATELY. IF A CONFLICT OCCURS IN THE FIELD WITH AN EXISTING UTILITY LINE, THE CONTRACTOR IS RESPONSIBLE FOR MITIGATING SUCH SITUATION BY LOWERING OR RAISING THE CONFLICTING NON-GRAVITY FLOW UTILITY AS NECESSARY TO MAINTAIN SEPARATION.
3. COORDINATE LOCATIONS OF FENCE POSTS WITH EXISTING AND PROPOSED UTILITIES PRIOR TO INSTALLATION TO AVOID DAMAGE TO IMPROVEMENTS.

CONCESSION STAND
Rim=1149.1
F.L.=1142.90 6" PVC NE
F.L.=1142.09 6" PVC W
DUGOUT
NET POLE
NET POLES
12" PERF. HDPE @ 0.5%
F.L.=1142.50
HP SUBDRAIN
F.L.=1143.00
Rim=1144.90
1143.86
12" PERFORATED PANEL DRAIN (TYP.)
20.0'
NYLOPLAST DRAIN BASIN WITH SOLID COVER
RIM= 1144.78 (UNDER SYN. TURF/@ TOP OF GRANULAR BASE)
F.L. = 1141.00 (E AND W)
130 LF OF 18" PERF. HDPE @ 0.5%
Rim=1142.98
Rim=1141.97
44 LF OF 12" PERF. HDPE @ 0.75%
18" F.E.S.
F.L.=1140.35
12" F.E.S.
F.L.=1139.30
Rim=1142.04
F.L.=1138.82 12" CPP N
F.L.=1138.76 12" CPP S
RECONSTRUCT INTAKE
24" NYLOPLAST BASIN WITH FLAT SLOTTED LID
RIM=1142.05
F.L.(N)= MATCH
F.L.(S)=MATCH
F.L.(SW)=1139.00
F.L. =1145.02
Rim=1143.87
CP 1
CP 2
CP 5
CP 6

0 30
FEET

| MARK | REVISION | DATE | BY |
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| Engineer: EDC | Checked By: TLW | Scale: 1" = ##' | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No:123.0895.01A

Sheet C300

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

## FORT DODGE, WEBSTER COUNTY, IOWA

## STORM DRAINAGE PLAN


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
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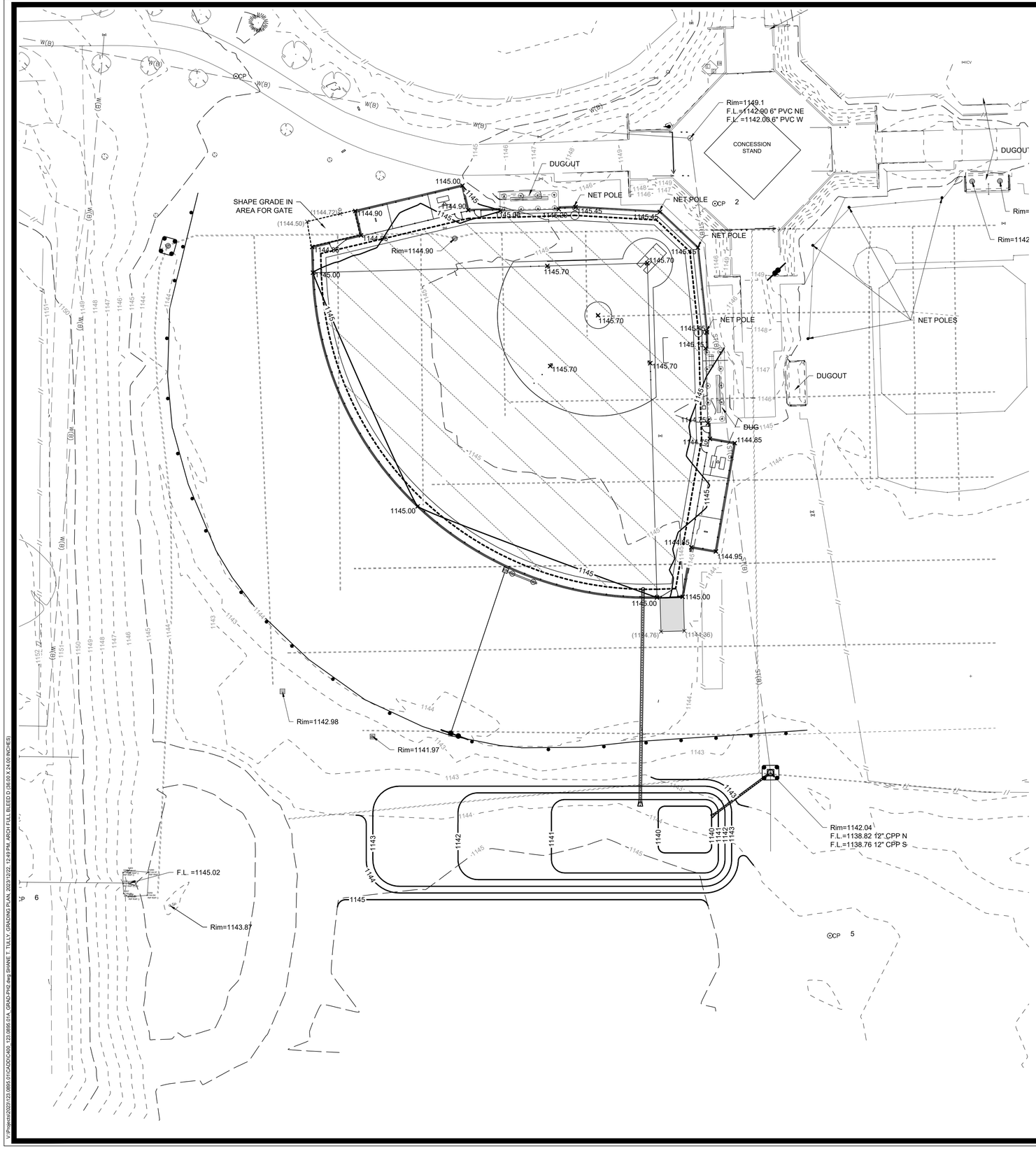
Project No: 123.0895.01A

Sheet C300




## GRADING & DRAINAGE NOTES

A. UTILITY WARNING:
THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR RECORDS OBTAINED. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEY FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.

B. NOTIFY UTILITY OWNERS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXISTENCE, EXACT LOCATION AND DEPTH OF ALL UTILITIES. AVOID DAMAGE TO UTILITIES AND SERVICES DURING CONSTRUCTION. ANY DAMAGE DUE TO THE CONTRACTOR'S CARELESSNESS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. COORDINATE AND COOPERATE WITH UTILITY COMPANIES DURING CONSTRUCTION.

C. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN ARE FINISHED GRADES AND/OR TOP OF PAVING SLAB (GUTTER), UNLESS OTHERWISE NOTED.

D. ALL STORM SEWER PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE AND INCLUDE FLARED END SECTION.

E. CONTRACTOR TO STRIP AND STOCKPILE TOPSOIL FROM ALL AREAS TO BE CUT OR FILLED. RESPREAD TO MINIMUM 8" DEPTH TO FINISH GRADES.

F. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING DIRT AND DEBRIS FROM STREETS, DRIVEWAYS, AND SIDEWALKS CAUSED BY CONSTRUCTION ACTIVITIES.

## POLLUTION PREVENTION NOTES

A. POLLUTION PREVENTION AND EROSION PROTECTION

1. CODE COMPLIANCE: THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL POTENTIAL POLLUTION AND SOIL EROSION CONTROL REQUIREMENTS OF THE IOWA CODE, THE IOWA DEPARTMENT OF NATURAL RESOURCES (IDNR) NPDES PERMIT, THE U.S. CLEAN WATER ACT AND ANY LOCAL ORDINANCES. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO PROTECT AGAINST EROSION AND POLLUTION FROM THIS PROJECT SITE AND ALL OFF-SITE BORROW OR DEPOSIT AREAS DURING PERFORMANCE OR AS A RESULT OF PERFORMANCE.

2. DAMAGE CLAIMS: THE CONTRACTOR WILL HOLD THE OWNER AND ARCHITECT / ENGINEER HARMLESS FROM ANY AND ALL CLAIMS OF ANY TYPE WHATSOEVER RESULTING FROM DAMAGES TO ADJOINING PUBLIC OR PRIVATE PROPERTY, INCLUDING REASONABLE ATTORNEY FEES INCURRED TO OWNER. FURTHER, IF THE CONTRACTOR FAILS TO TAKE NECESSARY STEPS TO PROMPTLY REMOVE EARTH SEDIMENTATION OR DEBRIS WHICH COMES ONTO ADJOINING PUBLIC OR PRIVATE PROPERTY, THE OWNER MAY, BUT NEED NOT, REMOVE SUCH ITEMS AND DEDUCT THE COST THEREOF FROM AMOUNTS DUE TO THE CONTRACTOR.

B. POLLUTION PREVENTION PLAN

2. THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS A SEPARATE DOCUMENT IN ADDITION TO THESE PLAN DRAWINGS. THE CONTRACTOR SHOULD REFER TO THE SWPPP FOR ADDITIONAL REQUIREMENTS AND MODIFICATIONS TO THE POLLUTION PREVENTION PLAN MADE DURING CONSTRUCTION.

3. THE SWPPP ILLUSTRATES GENERAL MEASURES AND BEST MANAGEMENT PRACTICES (BMP) FOR COMPLIANCE WITH THE PROJECT'S NPDES PERMIT COVERAGE. ALL BMP'S AND EROSION CONTROL MEASURES REQUIRED AS A RESULT OF CONSTRUCTION ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY, NOTE AND IMPLEMENT. ADDITIONAL BMP'S FROM THOSE SHOWN ON THE PLAN MAY BE REQUIRED.

4. THE SWPPP AND SITE MAP SHOULD BE EXPEDITIOUSLY REVISED TO REFLECT CONSTRUCTION PROGRESS AND CHANGES AT THE PROJECT SITE.

5. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE GENERAL PERMIT AND SWPPP, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING BMP'S UNLESS INFEASIBLE OR NOT APPLICABLE:

a. UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE WHEN DISCHARGING FROM BASINS, PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS, DIRECT STORM WATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORM WATER INFILTRATION, AND MINIMIZE SOIL COMPACTION.

b. INSTALL PERIMETER AND FINAL SEDIMENT CONTROL MEASURES SUCH AS SILT BARRIERS, DITCH CHECKS, DIVERSION BERMS, OR SEDIMENTATION BASINS DOWNSTREAM OF SOIL DISTURBING ACTIVITIES PRIOR TO SITE CLEARING AND GRADING OPERATIONS.

c. PRESERVE EXISTING VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION AND LIMIT TO A MINIMUM THE TOTAL AREA DISTURBED BY CONSTRUCTION OPERATIONS AT ANY TIME.

d. MAINTAIN ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES IN WORKING ORDER, INCLUDING CLEANING, REPAIRING, REPLACEMENT, AND SEDIMENT REMOVAL THROUGHOUT THE PERMIT PERIOD. CLEAN OR REPLACE SILT CONTROL DEVICES WHEN THE MEASURES HAVE LOST 50% OF THEIR ORIGINAL CAPACITY.

e. INSPECT THE PROJECT AREA AND CONTROL DEVICES (BY QUALIFIED PERSONNEL ASSIGNED BY THE CONTRACTOR) EVERY SEVEN CALENDAR DAYS. RECORD THE FINDINGS OF THESE INSPECTIONS AND ANY RESULTING ACTIONS IN THE SWPPP WITH A COPY SUBMITTED WEEKLY TO THE OWNER OR ENGINEER DURING CONSTRUCTION. REVISE THE SWPPP AND IMPLEMENT ANY RECOMMENDED MEASURES WITHIN 7 DAYS.

f. PREVENT ACCUMULATION OF EARTH AND DEBRIS FROM CONSTRUCTION ACTIVITIES ON ADJOINING PUBLIC OR PRIVATE PROPERTIES, INCLUDING STREETS, DRIVEWAYS, SIDEWALKS, DRAINAGEWAYS, OR UNDERGROUND SEWERS. REMOVE ANY ACCUMULATION OF EARTH OR DEBRIS IMMEDIATELY AND TAKE REMEDIAL ACTIONS FOR FUTURE PREVENTION.

g. INSTALL NECESSARY CONTROL MEASURES SUCH AS SILT BARRIERS, EROSION CONTROL MATS, MULCH, DITCH CHECKS OR RIPRAP AS SOON AS AREAS REACH THEIR FINAL GRADES AND AS CONSTRUCTION OPERATIONS PROGRESS TO ENSURE CONTINUOUS RUNOFF CONTROL. PROVIDE INLET AND OUTLET CONTROL MEASURES AS SOON AS STORM SEWERS ARE INSTALLED.

h. RESPREAD A MINIMUM OF 6 INCHES OF TOPSOIL (INCLUDING TOPSOIL FOUND IN SOD) ON ALL DISTURBED AREAS, EXCEPT WHERE PAVEMENT, BUILDINGS OR OTHER IMPROVEMENTS ARE LOCATED.

i. STABILIZE UNDEVELOPED, DISTURBED AREAS WITH MULCH, TEMPORARY SEED MIX, PERMANENT SEED MIX, SOD, OR PAVEMENT IMMEDIATELY AS SOON AS POSSIBLE UPON COMPLETION OR DELAY OF GRADING OPERATIONS. INITIATE STABILIZATION MEASURES IMMEDIATELY AFTER CONSTRUCTION ACTIVITY IS FINALLY COMPLETED OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WHICH WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.

j. COORDINATE LOCATIONS OF STAGING AREAS WITH THE OWNER AND RECORD IN THE SWPPP. UNLESS NOTED OTHERWISE, STAGING AREAS SHOULD CONTAIN THE FOLLOWING: JOB TRAILERS, FUELING / VEHICLE MAINTENANCE AREA, TEMPORARY SANITARY FACILITIES, MATERIALS STORAGE, AND CONCRETE WASHOUT FACILITY. CONTROL RUNOFF FROM STAGING AREAS WITH DIVERSION BERMS AND/OR SILT BARRIERS AND DIRECT TO A SEDIMENT BASIN OR OTHER CONTROL DEVICE WHERE POSSIBLE. CONCRETE WASHOUT MUST BE CONTAINED ONSITE.

k. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND SITE WASTE PRIOR TO FILING OF THE "NOTICE OF DISCONTINUATION".

| MARK | REVISION | DATE | BY |
|---|---|---|---|
| Engineer: EDC | Checked By: TLW | Scale: 1" = ### | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No: 123.0895.01A

Sheet C400

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

## FORT DODGE, WEBSTER COUNTY, IOWA

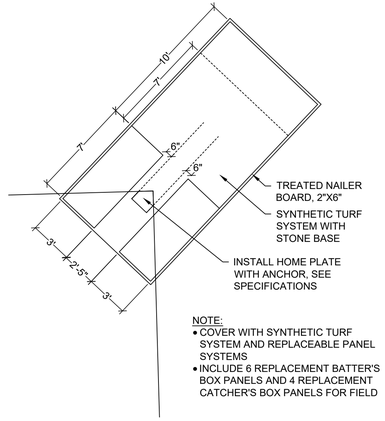
## GRADING PLAN


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
515-964-2020 | www.snyder-associates.com


SNYDER & ASSOCIATES

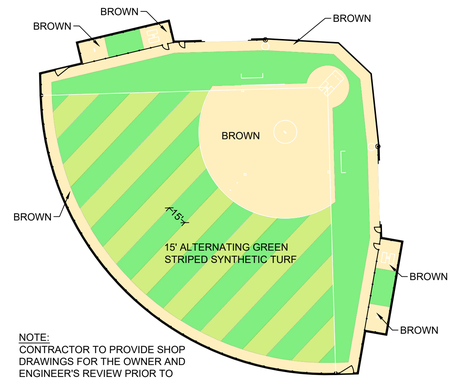
Project No: 123.0895.01A

Sheet C400



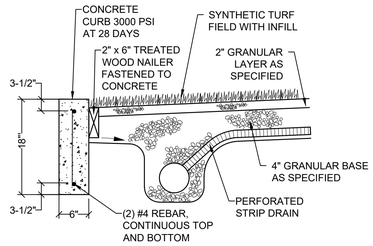

NOTE:
- COVER WITH SYNTHETIC TURF SYSTEM AND REPLACEABLE PANEL SYSTEMS
- INCLUDE 6 REPLACEMENT BATTER'S BOX PANELS AND 4 REPLACEMENT CATCHER'S BOX PANELS FOR FIELD

2 / C500 — HOME PLATE - FIELD
NO SCALE

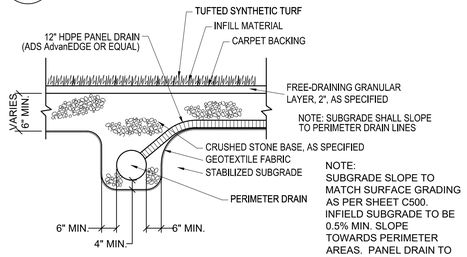



NOTE:
CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR THE OWNER AND ENGINEER'S REVIEW PRIOR TO ORDERING TURF.

3 / C500 — SOFTBALL FIELD TURF COLORS LAYOUT
NO SCALE

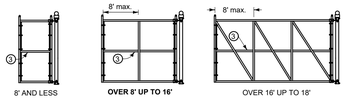



4 / C500 — FIELD EDGE PERIMETER DRAIN DETAIL
NO SCALE




NOTE:
SUBGRADE SLOPE TO MATCH SURFACE GRADING AS PER SHEET C500. INFIELD SUBGRADE TO BE 0.5% MIN. SLOPE TOWARDS PERIMETER AREAS. PANEL DRAIN TO SIT IN 6" ROCK BASE. PERIMETER DRAINS TO BE TRENCHED WITH VARYING DEPTH ON PIPE SLOPE.

5 / C500 — SYNTHETIC TURF
NO SCALE

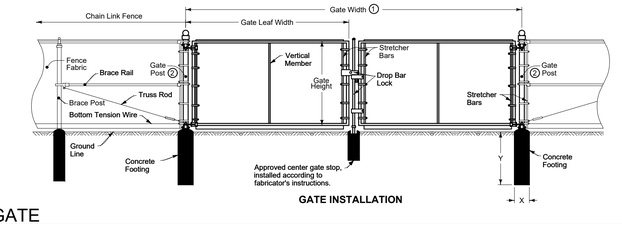



1. Double swing gate is required only for widths greater than 16 feet. Exact details of gate design are subject to approval of the Engineer. Furnish gate with approved stop, latch, and means for locking. Install as recommended by the manufacturer.
2. End post used to terminate run of fence if no gate is proposed.
3. Horizontal members are required only if the fabric height is 8 feet or greater.

FRAME PATTERNS FOR VARIOUS GATE OPENINGS

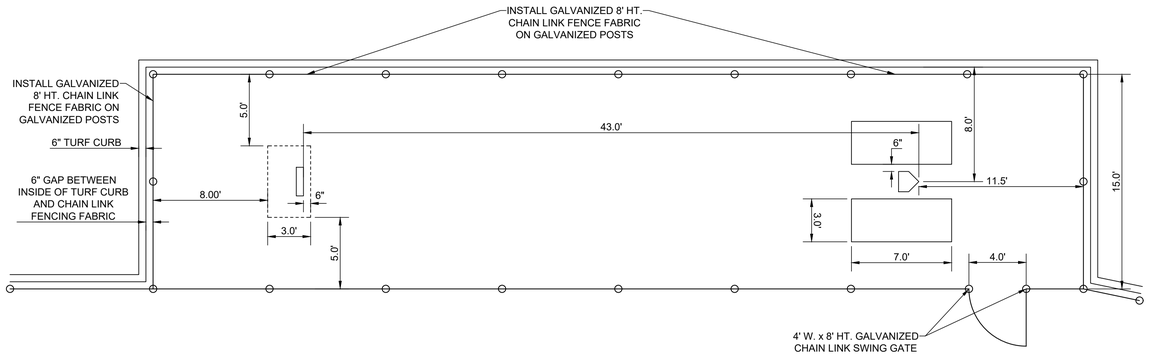
**GATE POST FOOTING DEPTH AND DIAMETER**

| GATE HEIGHT | GATE LEAF WIDTH | X | Y |
|---|---|---|---|
| 6'-0" or less | 4'-0" or less | 0'-10" | 3'-0" |
| 6'-0" or less | over 4'-0" to 10'-0" | 0'-12" | 3'-0" |
| 6'-0" or less | over 10'-0" to 18'-0" | 1'-2" | 3'-0" |
| over 6'-0" | 6'-0" or less | 0'-10" | 3'-0" |
| over 6'-0" | over 6'-0" to 12'-0" | 1'-0" | 3'-0" |
| over 6'-0" | over 12'-0" to 18'-0" | 1'-4" | 3'-6" |
| over 6'-0" | over 18'-0" to 24'-0" | 1'-6" | 4'-0" |

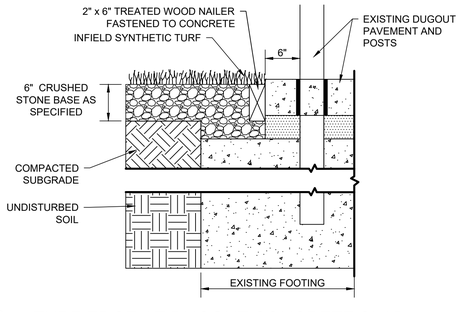



GATE INSTALLATION

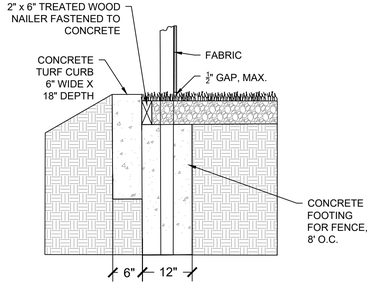
6 / C500 — CHAIN LINK FENCE AND GATE
NO SCALE




1 / C500 — BULLPEN DETAIL
NO SCALE




7 / C500 — TURF EDGE AT DUGOUT CONCRETE SLAB
NO SCALE




8 / C500 — TURF EDGE AT FENCE
NO SCALE

| MARK | REVISION | DATE | BY |
|---|---|---|---|
| Engineer: EDC | Checked By: TLW | Scale: 1" = ##' | |
| Technician: STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |

Project No: 123.0895.01A

Sheet C500

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

FORT DODGE, WEBSTER COUNTY, IOWA

SOFTBALL DETAILS


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
515-964-2020 | www.snyder-associates.com


SNYDER & ASSOCIATES

Project No: 123.0895.01A

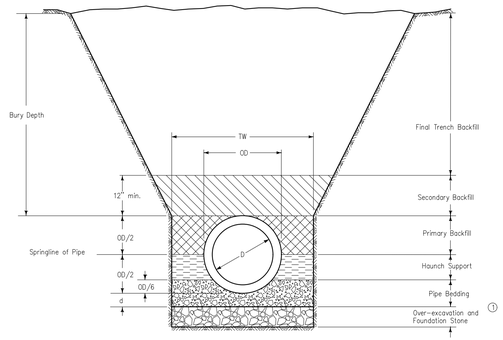
Sheet C500

Refer to the contract documents for specific material and placement requirements.

① Required only when specified in the contract documents or when directed by the Engineer.

Key

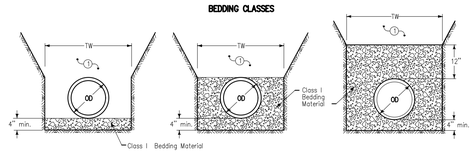
OD = Outside diameter of pipe
D = Inside diameter of pipe
TW = Trench width at top of pipe
d = Depth of bedding material below pipe




## 1 C501 TRENCH BEDDING AND BACKFILL ZONES

NO SCALE

**BEDDING CLASSES**




① Place remainder of bedding and backfill materials as specified in the contract documents.

ALLOWABLE BEDDING CLASSES

| Pipe Material | Storm Sewer | Sanitary Sewer |
|---|---|---|
| Ductile Iron | F-1, F-2, F-3 | F-1, F-2, F-3 |
| HDPE | F-2, F-3 | Not allowed |
| PVC | F-2, F-3 | F-3 |

Key

OD = Outside diameter of pipe

TW = Trench width at top of pipe: Min. = OD+18 inches OR 1.25xOD+12 inches (whichever is greater)

**ALLOWABLE BURY DEPTH**

PVC PIPE
(Bedding Class F-2 or F-3)

| Pipe Diameter (inches) | ASTM D 3034 | | | ASTM F 679 | ASTM F 949 | ASTM F 1803 | ASTM D 2680 |
|---|---|---|---|---|---|---|---|
| | Solid Wall | | | Solid Wall | Corrug. Exterior | Closed Profile | Composite (Truss Type) |
| | SDR 23.5 | SDR 26 | SDR 35 | SDR 35 | | | |
| 8 | 30' | 28' | 24' | --- | 24' | --- | 32' |
| 10 | 30' | 28' | 24' | --- | 24' | --- | 32' |
| 12 | 30' | 28' | 24' | --- | 24' | --- | 32' |
| 15 | 30' | 28' | 24' | --- | 24' | --- | 32' |
| 18 | --- | --- | --- | 24' | 24' | --- | --- |
| 21 | --- | --- | --- | 24' | 24' | 24' | --- |
| 24 | --- | --- | --- | 24' | 24' | 24' | --- |
| 27 | --- | --- | --- | 24' | --- | 24' | --- |
| 30 | --- | --- | --- | 24' | 24' | 24' | --- |
| 33 | --- | --- | --- | 24' | --- | --- | --- |
| 36 | --- | --- | --- | 24' | 24' | 24' | --- |
| 42 | --- | --- | --- | 24' | --- | 24' | --- |
| 48 | --- | --- | --- | 24' | --- | 24' | --- |
| 54 | --- | --- | --- | --- | --- | 24' | --- |
| 60 | --- | --- | --- | --- | --- | 24' | --- |

DUCTILE IRON, AWWA C151, CLASS 52
(Bedding Class F-1, F-2, or F-3)

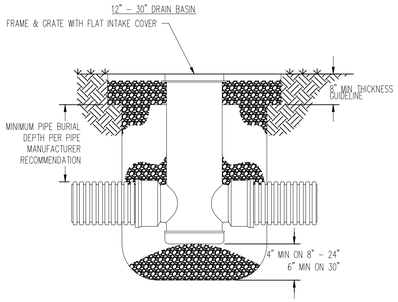
| Pipe Diameter (inches) | Class F-1 Bedding | Class F-2 Bedding | Class F-3 Bedding |
|---|---|---|---|
| 4 | 40' | 40' | 40' |
| 6 | 40' | 40' | 40' |
| 8 | 40' | 40' | 40' |
| 10 | 40' | 40' | 40' |
| 12 | 37' | 40' | 40' |
| 14 | 31' | 40' | 40' |
| 16 | 28' | 37' | 40' |
| 18 | 25' | 34' | 40' |
| 20 | 23' | 32' | 40' |
| 24 | 20' | 29' | 38' |
| 30 | 18' | 23' | 31' |
| 36 | 18' | 22' | 30' |
| 42 | 17' | 21' | 29' |
| 48 | 16' | 19' | 27' |
| 54 | 16' | 19' | 27' |

HDPE PIPE
(Bedding Class F-2 or F-3)

| Pipe Diameter (inches) | AASHTO M 294 |
|---|---|
| 12 | 8' |
| 15 | 9' |
| 18 | 9' |
| 24 | 9' |
| 30 | 9' |
| 36 | 9' |
| 42 | 8' |
| 48 | 8' |
| 54 | 8' |
| 60 | 8' |

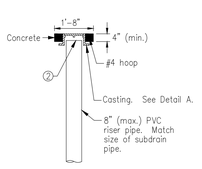
## 2 C501 FLEXIBLE GRAVITY PIPE TRENCH BEDDING

NO SCALE

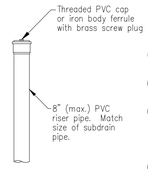



## 3 C501 NYLOPLAST DRAIN BASIN DETAIL

NO SCALE




TYPE A-1 CLEANOUT



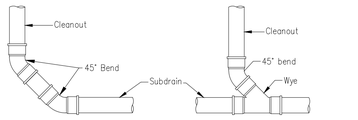

TYPE A-2 CLEANOUT
(Non-traffic areas only)

① Heavy duty casting. Mark lid with "Storm" or "Storm C.O."

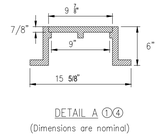
② Do not allow casting to bear on top of riser pipe; provide 2 inch clearance, minimum.

③ 24 inch diameter RCP for subdrain 8 inches or smaller; 30 inch diameter RCP for 10 to 12 inch subdrain. A manufactured cleanout may be used in lieu of a Type B cleanout, if approved by the Engineer.

④ Design is intended for use in conjunction with 8 inch PVC riser pipe. Other sized caps may be used with smaller pipe, as approved by the Engineer.



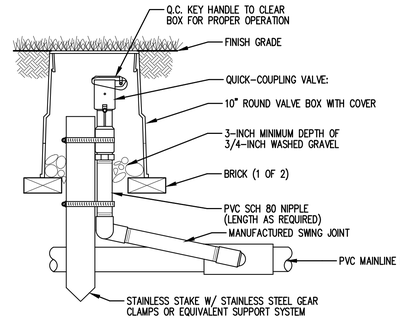

TYPE A CLEANOUT CONNECTIONS




DETAIL A ①④
(Dimensions are nominal)

## 4 C501 SUBDRAIN CLEANOUTS

NO SCALE

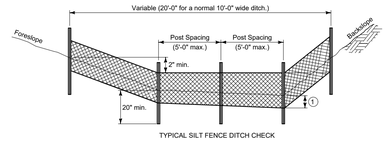



NOTE:

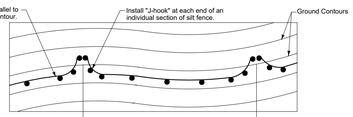
1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.

## 5 C501 QUICK COUPLER

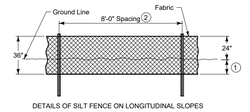
NO SCALE




TYPICAL SILT FENCE DITCH CHECK



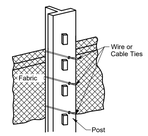

TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Plan View)



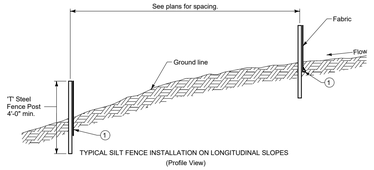

DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES

① Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).

② Reduce post spacing to 5'-0" at water concentration areas, or as required to adequately support fence.




ATTACHMENT TO POST




TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Profile View)

## 6 C501 SILT FENCE DETAILS

NO SCALE

| MARK | REVISION | DATE | BY |
|---|---|---|---|
| Engineer: EDC | Checked By: TLW | Scale: 1" = ##' | |
| Technician:STT | Date: 12-21-2023 | T-R-S: TTN-RRW-SS | |
| Project No:123.0895.01A | | Sheet C501 | |

# ROGERS SPORTS COMPLEX - "YANKEE" FIELD IMPROVEMENTS PH. 2

FORT DODGE, WEBSTER COUNTY, IOWA

SITE DETAILS


SNYDER & ASSOCIATES, INC.
2727 S.W. SNYDER BLVD
ANKENY, IOWA 50023
515-964-2020 | www.snyder-associates.com


SNYDER & ASSOCIATES

Project No: 123.0895.01A

Sheet C501