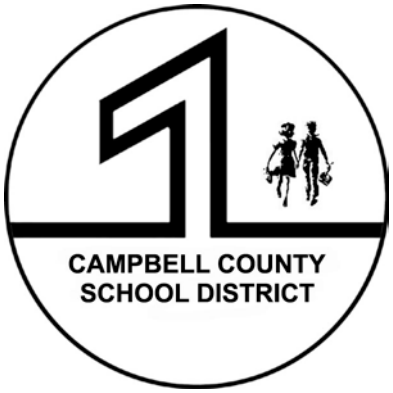


1000 West 8th St.
PO Box 3033
Gillette, WY 82717-3033
(307) 682-5171

BID FOR:

CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS

MANDATORY PRE-BID MEETING WALK THRU

MARCH 26, 2019 at 1:00 PM
CAMPBELL COUNTY SCHOOL DISTRICT MAINTENANCE
109 N GURLEY AVE
GILLETTE, WY 82716

BID OPENING:

APRIL 3, 2019 at 10:00 AM
CCSD CENTRAL WAREHOUSE
1000 W. 8TH STREET, GILLETTE, WY
(307)682-5171
FAX: (307)682-2997

KLJ

TABLE OF CONTENTS

FORM OF BID
FOR
CAMPBELL COUNTY SCHOOL DISTRICT
CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD

Campbell County School District invites sealed bids for **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS** to be in accordance with the bid documents. Sealed bids will be received by the Purchasing Department, located in the Warehouse Building, 1000 West 8th St., Gillette, Wyoming, until **April 3, 2019 at 10:00 AM** and then publicly opened and read aloud.

As a Bidder I have examined the plans, specifications, and related Contract documents, the site of the proposed work and being familiar with all the conditions surrounding the proposed project, including the availability of materials and labors, hereby proposed to furnish all labor, materials, supplies and to complete the project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below. These prices are to cover all expenses incurred in the performance of the work required under the Contract Documents.

BASE BID PRICE AND ALTERNATE BID PRICE SHALL BE ALL INCLUSIVE INCLUDING MATERIAL, LABOR, & SUBCONTRACTOR'S COSTS.

As a Bidder I will complete the Work in accordance with the Contract Documents for the following Items Bid on a Lump Sum basis:

The following Schedule of Values is for reference only and is not considered as part of the Lump Sum basis required below. The following Schedule of Values is typically required upon Award of the Project to the successful Bidder to assist with Progress Payments etc., however this is requested at the time of Bidding.

Bid Item	Item Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	$	$
2	Contract and Payment Performance Bond	1	LS	$	$
3	Construction Stormwater Management	1	LS	$	$
4	Construction Signing and Traffic Control	1	LS	$	$
5	Remove Sod	157,100	SF	$	$
6	Remove Tree	3	EA	$	$
7	Topsoil Stockpile	2,920	CY	$	$
8	Topsoil Placement	879	CY	$	$
9	Removal of Concrete Pavement	190	SY	$	$
10	Removal of Asphalt Pavement	25	SY	$	$
11	Removal of Concrete Sidewalk	1,260	SF	$	$
12	Removal of Curb and Gutter	120	LF	$	$
13	Remove Existing Storm Drain	10	LF	$	$
14	Removal of Chain Link Fence	1,330	LF	$	$
15	Relocate, Adjust and Repair Irrigation System	1	LS	$	$
16	Remove and Store Football Goal Post	4	EA	$	$
17	Relocate Existing Storage Building	1	LS	$	$
18	Unclassified Excavation/Grading	1,466	CY	$	$
19	Surplus Material Disposal	2,062	CY	$	$
20	Perform 12" Subgrade Preparation	13,247	SY	$	$
21	Install PCC Thickened Edge Spread Footing Foundation	1	LS	$	$
22	Install 6" PCC Surfacing W/ Thickened Edge	370	SY	$	$
23	Install 6" Asphaltic Concrete Patch	27	SY	$	$
24	Install Replacement 30" Spill Curb and Gutter	120	LF	$	$
25	Install Miscellaneous Curb (6"x12" Nailer Curb)	1,350	LF	$	$
26	Install 6" PCC Surfacing/Sidewalk	6,285	SF	$	$
27	Install 6" Reinforced PCC Sidewalk W/ Handrail	2,400	SF	$	$

Bid Item	Item Description	Quantity	Unit	Unit Price	Total
28	Install 6" PCC Valley Pan	900	SF	$	$
29	Install 6" Aggregate Base Course (Grading B Drain Rock)	11,670	SY	$	$
30	Install 4" Aggregate Base Course (Grading "W")	1,542	SY	$	$
31	Install 2" Aggregate Base Course (Top Stone Finishing)	11,670	SY	$	$
32	Install Material Separation Fabric	13,212	SY	$	$
33	Install Synthetic Turf, Striping, and Components	104,750	SF	$	$
34	Synthetic Turf Additional Equipment	1	LS	$	$
35	Install 18" N-12 HDPE Storm Pipe	445	LF	$	$
36	Install 12" N-12 HDPE Storm Pipe	650	LF	$	$
37	Install 10" N-12 HDPE Storm Pipe	110	LF	$	$
38	Install 10" PERF. N-12 HDPE Storm Pipe	770	LF	$	$
39	Install 1.5"x12" Flat Panel ADS Under Drain	3,220	LF	$	$
40	Install 2" Solid N-12 HDPE Sleeve Drain	20	LF	$	$
41	Install 24" Nyloplast Storm Inlet w/ Pedestrian Grate	8	EA	$	$
42	Install 48" Dia. Storm Drain Manhole	1	EA	$	$
43	Install 18" Flared End Section, Rip Rap Protection	1	EA	$	$
44	Install Irrigation System and Components	1	LS	$	$
45	Install Sod	32,850	SF	$	$
46	Install Hydroseed/Landscaping	5,000	SF	$	$
47	Install 144" Galv. Chain Link Fencing	500	LF	$	$
48	Install 120" Galv. Chain Link Fencing	400	LF	$	$
49	Install 72" Galv. Chain Link Fencing	870	LF	$	$
50	Install Temporary Fencing	870	LF	$	$
51	Connect to Primary Electrical Service (Contractor)	1	LS	$	$
52	Install 4" SCH 40 Elec. Conduit (Bored)	170	LF	$	$
53	Install 4" SCH 40 Elec. Conduit (Trenched)	230	LF	$	$
54	Install 3" SCH 40 Elec. Conduit (Trenched)	220	LF	$	$
55	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	225	LF	$	$
56	Install 1-1/2" SCH 40 Elec. Conduit (Trenched)	2,195	LF	$	$
57	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	720	LF	$	$
58	Install 3" SCH 40 Elec. Conduit (Trenched, Pull String Only)	610	LF	$	$
59	Install Pull (Junction) Box	12	EA	$	$
60	Install 3 Phase Transformer Pad	1	EA	$	$
61	Install Single Phase Transformer and Pad	1	EA	$	$
62	Install 3 Phase Control Panel and Service	1	EA	$	$
63	Install Single Phase Control Panel and Service	1	EA	$	$
64	Install Exterior Athletic Lighting	1	LS	$	$
65	Install Pedestrain Overhead Light Fixture	7	EA	$	$
66	Install Exterior Power Pedestal	1	EA	$	$
67	Install Scoreboard	1	LS	$	$
68	Install Emergency Access Area Striping	1	LS	$	$
69	Install Backstop System	2	EA	$	$
70	Install Soccer Goal	2	EA	$	$
71	Install Football Goal Post	2	EA	$	$
72	Install Team and Coaching Benches	4	EA	$	$
73	Install Corner Flags	4	EA	$	$
74	Install Aluminum Bleachers	6	EA	$	$
75	Install Trash Receptacles	8	EA	$	$
76	Install Stored Football Goal Post	2	EA	$	$
77	Install Flag Pole	1	EA	$	$

Lump Sum Total Base Bid: _____

(numerals)

$_____

(in words)

Bid Item	Item Description	Quantity	Unit	Unit Price	Total
78	**Alternate 1:** Crow's Nest Building	1	EA	$	$

Lump Sum Total Alternate Bid: _____

(numerals)

$_____

(in words)

There are no Unit Price items to be considered.

PROJECT TIMELINE:

Work to begin upon receipt of the finalized Notice to Proceed and to be completed on or before **August 2, 2019**.

RECEIPT OF ADDENDA:

The Bidder has examined copies of all Bidding documents and of the Addenda, (receipt of all which is hereby acknowledged):

_____, _____ , _____, _____ ,

REPRESENTATIVE FOR THE SCHOOL DISTRICT:

Any questions in regard to this bid should be directed to:

Tim Volk
Buildings and Grounds
109 N. Gurley
Gillette Wyoming 82716
Phone 307-682-2750

WYOMING PREFERENCE:

Are you submitting this bid as a Wyoming Resident Contractor?
____ No
____ Yes, and my Contractor Residency Certification Number is _____, and my bid complies with Wyoming Statute 16-6-103. The project will be awarded based on the Contractor's statement of meeting the requirements of Wyoming Statute 16-6-103. Subsequent information verifying the statute requirements have been met will be required up to and including possible audits. The audit is to confirm that the contractor has not subcontracted more than a total of 30% of the work covered by his contract to non-resident subcontractors and non-resident sub-tier contractors. (Certificate of Residency must be current and on file with the State of Wyoming Department of Employment, Labor Standards Division (307) 777-7261. **Please do not check this box if you have subcontracted 30% or more to out of state firms.**

Apprenticeship Utilization Program (W.S. 16-6-901 - 16-6-902).
"For all public works awarded by the State of Wyoming, the University of Wyoming, a community college or a school district pursuant to W.S. 16-6-101 through 16-6-206 estimated to cost one million dollars ($1,000,000.00) or more, a contractor who commits to ensure that not less than ten percent (10%) of the labor hours shall be worked by apprentices shall have his bid considered as if his bid were one percent (1%) lower than the actual dollar value of his bid."

The Apprenticeship Utilization Program allows for a One percent (1%) bid preference on all public works projects costing over $1,000,000.00.

If contractors elect to invoke the bid preference on this project, additional paperwork will be submitted with the bid package.

For example, if electing the preference, the contractor will submit a Letter of Certification stating the Apprenticeship Program is approved by and registered with the U.S. Department of Labor, Wyoming's Bureau of Apprenticeship and Training with the bid documents. Bids may then be considered as if they were one percent (1%) lower than the actual face value.

Are you requesting bid preference for having an Apprenticeship Utilization Program in place?
☐Yes ☐No

If yes, you must attach the appropriate documentation with your bid.

The undersigned, pursuant to the Invitation to Bid, and all other bidding requirements, being familiar with existing conditions, the site and other local conditions affecting the cost and performance of the work, hereby proposes and agrees to perform all work including labor, materials, services, etc. in strict accordance with the Contract Documents.

By signing this document the contractor will comply with all Wyoming Statute requirements.

LIST OF SUBCONTRACTORS

Do not combine categories of work; list separately as requested.

DESCRIPTION OF WORK	SUBCONTRACTOR'S OR SUPPLIER'S COMPANY NAME	Resident	Non Resident
		$	$
		$	$
		$	$
		$	$
A	TOTALS	$	$

B	**BASE BID AMOUNT**	$
D	**CONTRACT AMOUNT** **(B - Base Bid) =Contract Amount**	$
E	**Non Resident Contract Percentage** (A – Total Non Resident) / (D – Contract Amount)	%

RIGHT TO AWARD:

Campbell County School District reserves the right to accept or reject any items, any part or all parts, any section or all sections, any bid or all bids as stated in the specifications; to waive any irregularities or informalities, or to re-bid or re-advertise for bids if it is determined to be necessary or desirable; and reserves the right to let the bid in any manner it sees fit. Campbell County District will not be bound to accepting the low bid, but rather the bid they feel will be in the best interest of the School District.

BID BOND:

Each Bid must be accompanied by a Bid Bond payable to Campbell County School District for ten (10) percent of the Base Bid. The Bid Bond pledges that the Bidder will enter into a contract with Campbell County School District on the terms stated in the bid.

PERFORMANCE AND PAYMENT BOND:

The successful Bidder shall provide a 100% percent of the contract Performance and Payment Bond or a Letter of Credit or any other security as approved by Campbell County School District as stated in the Instructions to the Bidder.

EQUAL OPPORTUNITY EMPLOYER:

Campbell County School District is an Equal Opportunity Employer, and all awards will be governed by the Equal Opportunity Clause.

The General and Detailed Specifications attached are considered as an integral part of this proposal and any changes are duly noted and made part of this proposal at the prices, quantity, quality, and specified delivery date.

I hereby agree that this bid is irrevocable for a period of forty-five (45) days after the date set for the opening of bids and prices shall remain firm:

BIDDER INFORMATION:

Signature of Bidder:_____

Typed Name and Title:_____

Name of Company: _____

Company Organization:_____
(Individual, Partnership, Corporation)

Incorporated in the State of _____

Wyoming Resident Contractor: _____YES _____NO

How many years has the organization been in business as a contractor? _____

Under what other or former names has your organization operated?_____

Date of organization or incorporation under the present name: _____

Names of other partners or officers:_____

Company Address:_____

_____
(City /State / Zip Code)

Company Telephone Number: (_____)_____Company Fax Number: (_____)_____

Company / Contact E-mail Address: _____

CAMPBELL COUNTY SCHOOL DISTRICT
CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS
SPECIFICATIONS

SCOPE OF WORK

Project area includes major improvements to the eastern extent of the grassed practice fields, generally located south of the Boiler Room Building, and southeast of the Campbell County High School campus, and minor improvements along the east extent heading to the east parking lot, as identified in the plans. Scope generally includes replacement and new PCC surfacing, sidewalk, ramps, curb and gutter, landscape curb, minor AC patch, site grading, aggregate base of varying types, subgrade processing, athletic field synthetic turf installation, athletic field components, scoreboard, pedestrian lighting, high mast exterior athletic lighting, extension and new primary and secondary electrical services, sound and data conduit, storm sewer utility and inlets, pavement striping, replacement and new fencing, replacement and new landscaping, replacement and new irrigation, and small framed building relocation.

GENERAL SPECIFICATIONS

The guiding specifications for the project are as listed below and incorporated herein:

1. The 2017 City of Gillette Standard Construction Specifications are hereby incorporated by reference, and the General Conditions contained within the bid documents. Changes, amendments, and supplements to the stated Construction Specifications are contained in the Special Provisions of this Project Manual or as noted in the drawings.

2. The following specification sections are provided within this Project Manual:

   DIVISION 10 – SPECIALITIES

   Section 10 7500 – Flagpoles

   DIVISION 11 – EQUIPMENT

   Section 11 6643 – Scoreboard
   Section 11 6833 – Athletic Field Equipment

   DIVISION 26 – ELECTRICAL

   Section 26 6000 – Electrical General Requirements
   Section 26 0519 – Electrical Power Conductors and Cables
   Section 26 0526 – Grounding and Bonding for Electrical Systems
   Section 26 0529 – Hangers and Supports for Electrical Systems
   Section 26 0533 – Raceway and Boxes for Electrical Systems
   Section 26 0553 – Identification for Electrical Systems
   Section 26 2200 – Low-Voltage Transformers
   Section 26 2416 – Panelboards
   Section 26 2713 – Underground Electric Service
   Section 26 5600 – Exterior Lighting
   Section 26 5668 – Exterior Athletic Lighting

   DIVISION 32 – EXTERIOR IMPROVEMENTS

   Section 32 1123 – Aggregate Base Courses (Synthetic Turf)
   Section 32 1293 – Artificial Grass Athletic Field Turf System
   Section 32 3300 – Site Furnishings

DIVISION 26 – ELECTRICAL (ALTERNATE CROW'S NEST)

Section 26 0500 – Common Work Results for Electrical
Section 26 0519 – Conductors
Section 26 0526 – Grounding and Bonding for Electrical Systems
Section 26 0533 – Raceways
Section 26 0534 – Outlet, Pull & Junction Boxes
Section 26 0553 – Identification
Section 26 2416 – Panelboards
Section 26 2726 – Wiring Devices & Device Plates
Section 26 5100 – Luminaires

DIVISION 10 - SPECIALTIES

SECTION 10 7500
FLAGPOLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum Flagpoles.

1.02 RELATED REQUIREMENTS

A. City of Gillette "Standard Construction Specifications (2017)", unless otherwise noted by this document.

1.03 REFERENCE STANDARDS

A. AASHTO M 36 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains; 2014.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

C. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2012.

1.04 SUBMITTALS

A. See City of Gillette Standard Construction Specification Section 01340 – Submittals.

B. Product Data: Provide data on pole, accessories, and configurations.

C. Shop Drawings: Indicate detailed dimensions, base details, anchor requirements, support systems, accessories and imposed loads.

D. Samples: Submit two finish samples, 3 by 3 inch in size, illustrating pole material, color, and finish.

E. Closeout submittals: Operation and Maintenance Data - For flagpoles to include in operation and maintenance manuals.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Design flagpole foundation under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed the State in which the Project is located.

B. Source Limitations: Obtain each flagpole as complete unit, including fittings, accessories, bases, and anchorage devices, from single source from single manufacturer.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.

B. Store bare flagpoles in a dry location, protected from the weather and moisture, as recommended by manufacturer.

C. Protect flagpole and accessories from damage or moisture.

D. Ship to project site in one piece or as specified. If more than one piece is necessary, provide snug fitting precision joints with self-aligning, internal splicing sleeve arrangements for weather tight, hairline field joints.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Flagpoles:

1. American Flagpole; Titan Series – IRW/IWW: www.americanflagpole.com.
2. Concord Industries, Inc.: Titan Series- IWW: www.concordamericanflagpole.com
3. Substitutions: As Approved by Engineer.

2.02 FLAGPOLES

A. Flagpole (30' mount height): Aluminum.

1. Design: Cone tapered.
2. Mounting: Ground mounted type.
3. Outside Butt Diameter: 6 inches.
4. Outside Tip Diameter: 3.5 inches.
5. Nominal Wall Thickness: 0.188 inches.
6. Nominal Height (Mounting Height): 30 feet; measured from nominal ground elevation.
7. Halyard: Internal type with winch.
8. Flagpole Sections: 1
9. Flagpole Weight: 214 lbs. (approximate)
10. Max. Flag Size: 5 feet by 8 feet (Owner provided).

B. Performance Requirements:

1. Structural Performance: Provide flagpole assembliess, including anchorage and supports, capable of withstanding the effects and stresses within limits and under conditions of gravity loads and windload as determined according to NAAMM FP 1001-07, "Guide Specifications for Design of Metal Flagpoles", or to specified wind speed, whichever is more stringent. Referencing wind loads per SEI/ASCE 7 as required.
2. Flagpole Design: Base design on maximum standard size nylon flag(s) suitable for use with pole or flag size indicated, whichever is more stringent.
3. Flagpole With Flag(s) Flying: Resistant without permanent deformation to 100 miles/hr wind velocity; non-resonant, safety design factor of 2.5.
4. Flagpole Without Flag(s): Resistant without permanent deformation to 130 miles/hr wind velocity; non-resonant, safety design factor of 2.5.

2.03 POLE MATERIALS

A. Aluminum: Cone-tapered fabricated from seamless extruded tubing complying with ASTM B241/B241M, 6063 alloy, T6 temper, 3/16 inch minimum wall thickness, butt diameter not less than 6 inch.

2.04 ACCESSORIES

A. Internal Single Revolving Truck Assembly: Cast aluminum; non-fouling revolving, stainless steel ball bearings, non-fouling.

B. Internal Halyard, Winch System: Manually operated winch with control stop device and removable handle, stainless-steel cable halyard, and concealed revolving truck assembly with plastic-coated counterweight and sling. Winch shall be gearless, and self-locking at any point. Provide flush access door secured with cylinder lock. Finish truck assembly to match flagpole.

C. Finial Ball: Manufacturer's standard flush-seam ball, sized as indicated or, if not indicated, to match flagpole-butt diameter.

1. 0.063 inch spun aluminum, finished to match flagpole.

D. Halyard: 1/8 inch diameter stainless steel wire cable.

E. Halyard Flag Snaps: Provide two (2) stainless steel swivel snap hooks with neoprene covers.

F. Flash Collar: Heavy Duty Spun Aluminum Collar to match flagpole. Perimeter caulked by Installer.

1. Alloy 3003 (.125 inch Thick)
2. Satin Finish (80 Grit)
3. Flagpole Butt Dia.: 6 inch
4. Manufacturer: Same as flagpole.

G. Owner Provided Flag(s) to be installed: Owner provided United States flag, and Wyoming State flag. Approximate size is 36 inch x 60 inch for each flag.

2.05 MOUNTING COMPONENTS

A. Foundation Tube Sleeve: AASHTO M 36M, corrugated, galvanized, 16 gage, 0.0635 inch nominal steel minimum wall thickness, depth of 36 inches minimum for 30 foot flagpole or as indicated by flagpole manufacturer. Ground sleeve shall include steel centering wedges, 3/16 inch minimum thickness steel base plate, 3/16 inch minimum thickness steel support plate, and 3/4 inch dia. X 18 inch long steel ground lightning spike. Foundation tube will consist of all welded construction. Galvanize after assembly. Provide loose hardwood wedges at top of foundation tube for plumbing pole.

2.06 FINISHING

A. Metal Surfaces in Contact With Concrete: Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

B. Concealed Steel Surfaces: Galvanized to ASTM A123/A123M requirements.

C. Aluminum (AA): Natural Satin Finish: Provide directional-sanded satin finish (AA-M33); buff complying with AA-M20.

D. Elastomeric Joint Sealant: Single-component nonsag urethane joint sealant complying with requirements in the City of Gillette "Standard Construction Specifications (2017)", Section 03251 for cold applied joint sealants for Use NT (nontraffic) and for Use M, G, A, and, as applicable to joint substrates indicated, for Use O.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, including foundation; accurate placement, pattern, orientation of anchor bolts as needed, ground spike orientation as needed, and other conditions affecting performance of the Work.

B. Verify that concrete foundation is ready to receive work and dimensions are as indicated on shop drawings.

C. Verify that electric power is available and of the correct characteristics as required.

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

3.02 PREPARATION

A. Excavation: For foundations, excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete.

B. Foundation: Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade.

C. Prepare uncoated metal flagpole, metal sleeve surfaces below grade that are set in foundation tubes, and surfaces in contact with dissimilar materials, by painting below-grade portions with a heavy coat of bituminous paint

3.03 INSTALLATION

A. Install flagpole, base assembly, and fittings in accordance with manufacturer's instructions.

B. Ground Sleeve Set:

1. Place foundation tube seated on bottom plate between steel centering wedges and install hardwood wedges to secure flagpole in place, and centered. Secure forms and sleeve assembly in position and brace to prevent displacement during concreting.
2. Place concrete, as specified in the City of Gillette "Standard Construction Specifications (2017)" i.e. Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for cast-in-place concrete. Compact concrete in place by using vibrators. Plumb and level the foundation tube and allow concrete to cure. Moist-cure exposed concrete for not less than seven days or use non-staining curing compound.
3. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks, and uniform in texture and appearance. Provide positive slope for water runoff to perimeter of concrete base.
4. Place and compact sand in foundation tube to within 2" of the top of the tube.

5. Remove hardwood wedges and seal top of foundation tube with a 2-inch layer of elastomeric joint sealant, and cover with flashing collar.
6. Electrically ground flagpole installation.

3.04 ADJUSTING

A. Adjust operating devices so that halyard and flag(s) function smoothly.

3.05 SCHEDULES

A. Front Yard Pole 1: One 30 feet, to be used with Owner provided United States flag, and Wyoming State flag.

END OF SECTION

SECTION 116643
SCOREBOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and the City of Gillette "Standard Construction Specifications (2017)", apply to this Section unless otherwise noted by this document.

1.2 SUMMARY

A. Section includes exterior scoreboard, video board and related clocks.

B. Audio Control System

C. Sound Reinforcement System

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. (to be provided with bid submittal)
   1. If applicable, include assembly, disassembly, and storage instructions for removable equipment.
      a. Product Specifications of the technology proposed for displays
      b. Product cut sheets for all displays proposed to include at a minimum manufacturer, active areas, total resolutions, total weight and total electrical requirements
      c. Product cut sheets for Soccer Scoreboard
      d. Product cut sheets for Soccer Scoreboard Controller
      e. Sound Reinforcement System

B. Shop Drawings: For scoreboards/video display.
   1. Include plans, elevations, sections, details, and attachments to other work.
   2. Include details of connections, installation, mountings, inserts, attachments to other work, and operational clearances.
   3. Overall dimensions of each proposed display component. Active area and visual opening dimensions of each display(s), maximum weight of each display component.
   4. Shop drawings for the scoreboard structure and attachments to the primary structure or secondary structure need to be stamped by a licensed engineer in the state of Wyoming. Soils information specific to the site is provided in the grading plans and the geotechnical report.
      a. Light for flagpole to be mounted to the scoreboard.

C. Riser Diagrams:
   1. Display Riser/Schematic Diagrams showing power requirements of each display component, as well as display interconnectivity.
   2. Equipment locations of all equipment in racks, and control room layout.
   3. Utility service connections for data and power; include roughing-in dimensions.

D. Samples for Verification: For each factory-applied finish.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

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

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Source Limitations: Obtain each type of scoreboard and controller through one source from a single manufacturer.

C. Scoreboard manufacturer shall have a minimum of 5 outdoor installations. Bidder to provide photo of installation, name and contact information for the installations.

D. Outdoor products must be designed for intent of outdoor use.

E. All products must be new and must be built for this project specifically. Prior to installation, successful bidder must provide verification of manufacturing date of all equipment to be after the date of submittal approval, to ensure equipment is new and of latest design and technology.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify position and elevation of inserts and layout for scoreboards.

1.8 COORDINATION

A. Coordinate locations and requirements of utility service connections.

B. Coordinate installation of inserts with structural installation.

C. Coordinate layout and installation of scoreboards and support system components with other construction including sound system that will be installed above the video board.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of scoreboards that fail in materials or workmanship within specified warranty period. Warranty shall cover the following:
   1. Provide 5 years of no cost parts exchange including standard shipping on electronics parts and radios due to manufacturing defects
   2. Provide toll-free service coordination
   3. Provide technical phone support during Daktronics business hours

1.10 DELIVERY, STORAGE AND HANDLING

A. Products shall be delivered and stored onsite as recommended by manufacturer. Contractor shall protect projects from damage, vandalism or theft.

PART 2 - PRODUCTS

2.1 SCOREBOARDS

A. Soccer Scoreboard, Basis of Design: Daktronics
   1. Daktronics SO-2019 single-sided outdoor LED soccer scoreboard displays period time to 99:59.99, HOME and GUEST scores to 99, along with SHOTS (or SOG) and C. KICKS (or SAVES) to 99 for both teams. Arrows indicate the current HALF. During the last minute of the period, the clock displays time to 1/10 of a second.
      a. Top Section of Scoreboard: SO-2019, 4'-0" high x 18'-0" wide.

b. Bottom Section of Scoreboard: SO-2019, 4'-0" high x 18'-0" wide.

2.2 SCORING CONSOLE

A. Scoreboard Scoring Console, Basis of Design: Daktronics
   1. Console is an All Sport® 5010 Control Console Kit with 2.4 GHz spread spectrum radio system, with transmitter installed inside the console and a receiver installed inside the scoreboard, 12VDC Trumpet Horn, and Team Name Message Center (8x32-34 mm) Red LED.

2.3 CABLE AND CONTROL WIRING

A. Scoreboard and Audio System Cable and Control Wiring, Basis of Design: Daktronics
   1. All cables must be installed in conduit or closed raceway areas. Use plenum cable as necessary. Exposed cable is not acceptable. Cable specifications are as follows:
      a. Multi-mode fiber optic cable from audio control to sound cabinet
      b. Microphone level cables: No. 22 shielded jacketed - Belden 9451 with blackjacket

2.4 SOUND REINFORCEMENT AND AUDIO CONTROL SYSTEM

A. Sound Reinforcement and Audio Control System, Basis of Design: Daktronics
   1. Sound cabinet is a Sportsound 500HD Sound Cabinet (SS500HD-D), Dual Coverage, *BLACK*, Mesh Color: Purple #78796 with Camel logo. Mounting to be on a painted fabricated steel support structure with catwalks and access per manufacturer specifications.
   2. Announcers mixer is an Sportsound Announcers Mixer (SSR-AM), 2Ch Tabletop, Microphone and MP3 Inputs, Includes Single-Muff Headset, 1/8"to1/8" stereo cable, XLR output cable and power supply.
   3. Media input plate is a 2 Channel Wall Mixer (SSR-WMX), MP3 and microphone inputs, line level output and independent level controls, low cut microphone input feature and LED indicator. Mounted in Stainless Steel Lockable Enclosure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for layout, alignment of mounting substrates, installation tolerances, operational clearances, accurate locations of connections to lectrical system, and other conditions affecting performance.
   1. Verify critical dimensions.
   2. Examine supporting structure and footings.
   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. All power and control cables to scoreboards and displays will be routed in conduit. Power to the scoreboards/displays as well as raceways shown on electrical plans by the Electrical Contractor. Scoreboard control wiring including conduit will be the responsibility of the contractor assigned the scoreboard equipment.

B. Install scoreboards and exterior displays to beams in location detailed and in accordance with manufacturer's instructions. Verify unit is plumb and level.

3.3 CLEANING

A. After completing scoreboards installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.

B. Replace scoreboards and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate and maintain scoreboards. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 11 6643

SECTION 11 6833

ATHLETIC FIELD EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Football field equipment.

B. Soccer field equipment.

1.02 RELATED REQUIREMENTS

A. City of Gillette "Standard Construction Specifications (2017)" Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for cast-in-place concrete: Footings for field equipment.

City of Gillette "Standard Construction Specifications (2017)" i.e. Section 02210, Section 02220, Section 02222, Section 02225, Section 02280, Section 02290: Grading - Shaping subgrade to specified grade levels; removal of excess soil and rocks.

1.03 ABBREVIATIONS

A. NFHS - National Federation of State High School Associations; www.nfhs.com and www.nfhs.org.

B. U.S. CPSC - United States Consumer Product Safety Commission; www.cpsc.gov.

1.04 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

B. ASTM A135/A135M - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2009 (Reapproved 2014).

C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

D. ASTM A513/A513M - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing; 2018.

E. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2017a.

F. ASTM D648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position; 2016.

G. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test; 2005, with Editorial Revision (2012).

H. ASTM D6662 - Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards; 2017.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: Convene a meeting one week before starting this work to discuss coordination between various installers.

1. Require attendance by personnel responsible for grading and installers of athletic field equipment, footings, and adjacent work.
2. Include representatives of Contractor.
3. Notify Engineer at least two weeks prior to meeting.

1.06 SUBMITTALS

A. Product Data: Provide athletic field equipment manufacturer's product data indicating materials of construction, compliance with specified standards, installation procedures, and necessary safety limitations for Engineer's review. Data shall be submitted a minimum of five (5) working days prior to procurement.

B. Shop Drawings: Submit detailed scale drawings showing athletic field equipment and perimeter layout. Provide drawings of the manufacturer's recommended installation and foundation requirements prior to actual field installation work for Engineer's review.
   1. Indicate locations and dimensions of footings and anchorage points.
   2. Identify mounting elevations in relation to fixed survey point on site, and subgrade elevation.
   3. Indicate location of underground utilities, storm drainage system, and irrigation system.

C. Samples: Submit color chart for each item that color must be selected showing full range of colors and finishes.

D. Maintenance Data: Submit manufacturer's recommended maintenance instructions and list of replaceable parts for each athletic field equipment item, along with supplier's address and phone number.

E. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than 10 years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

C. Installer should have a minimum of five (5) football goal post installations or similar experience in the previous three (3) years.

D. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to industry standards and inspection requirements.

E. The Manufacturer shall have a current American Sports Builders Association (ASBA) Supplier Certificate of Distinction designation.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owners representative. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule.

B. Store materials in a dry, covered area, and elevated above grade and in accordance with Manufacturer's requirements or recommendations.

1.09 WARRANTY

A. See City of Gillette "Standard Construction Specifications (2017)" Section 01340 – Submittals, for additional warranty requirements unless otherwise noted by this document.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Athletic Field Equipment:

2.02 ATHLETIC FIELD EQUIPMENT - GENERAL

A. High School Sports: Provide equipment that complies with NFHS requirements.

B. Mount supporting posts in concrete footings, unless otherwise indicated, per the City of Gillette "Standard Construction Specifications (2017)" i.e. Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for additional cast-in-place concrete footing installation requirements.

2.03 FOOTBALL FIELD EQUIPMENT

A. Manufacturers:
   1. Sportsfield Specialties, Inc., Delhi, NY 13753, Ph. 888.975.3343, www.sportsfieldspecialties.com.
   2. Substitutions: Not permitted.

B. High School Goal Post: Football goal post with single support post, crossbar and two uprights.
   1. Base: GP820HS Ground Sleeve Insert High School Football Goal Posts and Accessories as manufactured and/or supplied by:
      a. Sportsfield Specialties, Inc., P.O. Box 231, 41155 State Highway 10, Delhi, NY 13753, p. 888-975-3343, f. 607-746-8481, www.sportsfieldspecialties.com.
      b. Or otherwise approved by Engineer and Owner.
   2. Components:
      a. Single Ground Sleeve Insert Gooseneck Support: Fabricated of 6" Schedule 40 Aluminum Pipe (6.625" O.D.), 5' Radius, 8' Offset, Custom Offsets Available
      b. Ground Sleeve: Fabricated of 8" Schedule 40 Steel Pipe (8" I.D.)
         i. Length: 60-inches.
      c. Crossbar: Fabricated of 6" Schedule 40 Aluminum Pipe (6.625" O.D.)
         i. Length: 23'-4" – High School
         ii. Includes Patented AdjustRight® feature allowing for easy installation through the adjustment of an internal locking rotating sleeve at both the gooseneck/crossbar and upright/crossbar connections. This adjustment can easily be repeated throughout the life of the football goal post ensuring proper alignment of all components for years of competition and all with the added benefit of no exposed hardware on the face of the goal. Thermal arc sprayed internal textured mating surfaces and anti-vibration enhancements such as serrated washers and nyloc coated bolt ends ensure the AdjustRight® Football Goal Posts remain in position.
      d. Uprights: Fabricated of Extruded 6061-T6 Aluminum Tube (4" O.D.) with Rigid Wire Loop Welded to Upper End.
         i. Length: 20'-0".
      e. Powder Coat Color: White or Yellow, selected by Engineer.
      f. Installation Package Consisting of the Following Components:
         i. Ground Sleeve
         ii. Optional Access Frame Kit: 1/8" (0.125") Aluminum Construction with 1" PVC Drain Stub, Includes Two (2) Half Moon Filler Plugs, Optional Full Size Filler Plug and SG2S® Patented Soccer Goal Rear Bottom Ground Bar Retractable Safety Clamp System Available, Use GFAFIT for Synthetic Turf Installation Applications and GPAFNG for Natural Grass Installation Applications as outlined in Paragraph 2.04.B.
      g. Included Accessories:
         i. Directional Wind Flags
         ii. Touch-up Paint (Powder Coat Finish Specific)
         iii. Model Specific Hardware Kit and Installation Instructions
      h. Optional Accessories:
         i. Football Goal Post Pads: 18 oz. Vinyl with Polyester Scrim and Vertically Sewn in Hook and Loop Securement, Standard 6' in Height, Various Standard Vinyl Colors Available, Custom Digitally Printed Lettering and/or Graphics Available Upon Request.
            1. GPPR – Round, Fully Encased Vinyl, 18" O.D. and 7" I.D. Polyurethane Foam Core.
   3. Semi-Permanent Ground Sleeve Installation: Mount ground sleeve in accordance with Manufacturer's recommendation and provide footing design in accordance with details and specifications as provided by a Structural Engineer licensed in the state of Wyoming.

2.04 SOCCER FIELD EQUIPMENT

A. Manufacturers:
   1. Sportsfield Specialties, Inc., Delhi, NY 13753, Ph. 888.975.3343, www.sportsfieldspecialties.com.
   2. Substitutions: As otherwise Approved by Engineer and Owner.

B. Soccer Goal Safety System: SG2SGP - SG2S® GoalPak® Stand Alone Soccer Safety System:
   1. Base: SG2SGP - SG2S® GoalPak® Stand Alone Soccer Safety System - United States Patent #7,331,880 - Issued February 19, 2008 and United States Patent #7,527,569 - Issued May 5, 2009 as Manufactured and/or Supplied by:
      a. Sportsfield Specialties, Inc., P.O. Box 231, 41155 State Highway 10, Delhi, NY 13753, p. 888-975-3343, f. 607-746-8481, www.sportsfieldspecialties.com.
      b. Or otherwise approved by Engineer and Owner.
   2. Components:
      a. Safety Clamp
         1) Fabricated of 3/16" (.1875") Aluminum and 16 Ga. Stainless Steel
         2) Powder Coated White
         3) Stainless Steel Hardware
      b. Access Box
         1) Fabricated of 1.8" (.125") Aluminum, Welded
         2) 3/32" (.090") Aluminum Exterior Synthetic Turf Attachment Ledge
         3) Includes Flexible gasket Seals to Prevent Horizontal Infill Migration (Factory Pre-Installed - Inside and Outside Perimeters)
         4) Pre-Installed 1" Positive Drainage Stub
         5) Stainless Steel Assembly Hardware
         6) Galvanized Steel Anchoring Hardware
      c. Full Cover part # 4522 for (GP4570 and GP4550)
         1) Fabricated of 1/8" (.125") Aluminum, Welded
         2) 3/32" (.090") aluminum Exterior Synthetic Turf Attachment Ledge
         3) Includes Flexible gasket Seals to Prevent Horizontal Infill Migration (Factory Pre-Installed - Inside and Outside Perimeters)
         4) Stainless Steel Assemble Hardware

C. Soccer Goals: SG824R 8' x 24' Regulation Size Round Faced Soccer Goals and Accessories:
   1. Base: SG824R 8' x 24' Regulation Size Round Faced Soccer Goals and Accessories as Manufactured and/or Supplied by:
      a. Sportsfield Specialties, Inc., P.O. Box 231, 41155 State Highway 10, Delhi, NY 13753, p. 888-975-3343, f. 607-746-8481, www.sportsfieldspecialties.com.
      b. Or Otherwise approved by Engineer and Owner.
   2. Components:
      a. SG824R 8' x 24' Regulation Size Round Faced Soccer Goals:
         1) Top Crossbar Fabricated of 6061-T6 Extruded Aluminum Tube Having the Following Attributes:
            (a) Length: 24' - Regulation Size
            (b) 4.375" Square x 4.688" Round Faced Crossbar, 3/16" (.1875") Wall Thickness
            (c) Super Durable Powder Coated White Finish with Enhanced Resistance to UV and Fade
            (d) 3/16" (0.1875") Thick Formed Aluminum Channel Crossbar Attachment Brackets with Welded Tap Blocks, Mill Finish
         2) One Piece End Frame Construction Fabricated of 6061-T6 Extruded Aluminum Tube Having the Following Attributes:
            (a) 4.375" Square x 4.688" Round Faced Corner Post, 8'H, 3/16" (.1875") Wall Thickness

(b) Rolled Side Frame, 2" x 3" x 0.125" Thick Wall, TIG Welded to Corner Upright Posts
(c) Radius Backside Corners
(d) Super Durable Powder Coated White Finish with Enhanced Resistance to UV and Fade

3) Rear Bottom Ground Bar Fabricated of 6061-T6 Extruded Aluminum Tube Having the Following Attributes:
(a) 2" x 2" x 0.25" Thick Wall with Welded ½" Aluminum End Plates
(b) Super Durable Powder Coated White Finish with Enhanced Resistance to UV and Fade

4) Included Accessories:
(a) Welded Aluminum Net Clips with Lifetime Guarantee
(b) 5mm Braided, Knotless White High Tenacity Polypropylene Soccer Net with Rope Bound Perimeter and 4" Square Mesh - 8.2'H x 24.4'L x 4.3'B x 8.6'D
(c) Model Specific Hardware Kit and Installation Instructions
(d) Ground Stake Storage Compartments
(e) All SG824R 8' x 24' Regulation Size Round Faced Soccer Goals Meet and Exceed Current ASTM F2950-14 Standard Safety and Performance Specification for Soccer Goals and F1938-98 Standard Guide for Safer Use of Movable Soccer Goals
(f) Five (5) Year Limited Manufacturer's Product Warranty

5) Optional Accessories
(a) SGMobile® SGMKR - Internal Soccer Goal Portable Mobility Wheel Kit and Handle:
(1) Mobility Wheel Kit and Handle:
(2) Welded 13 Gauge Stainless Steel Frame
(3) Ultra High Molecular Weight Polyethylene (UHMWPE) Plastic Wheel
(4) Stainless Steel Hardware
(5) Roll Formed Stainless Steel Rod with Stainless Steel Spring and Cushioned Rubber Handle
(b) SG2S® - Patented Soccer Goal Safety System: As outlined in 2.04.B. above.

D. Soccer Backstop Kit:
1. KwikGoal 7B101 Soccer Backstop System as manufactured by:
a. Kwik Goal, 140 Pacific Drive, Quakertown, PA 18951, p. 800.531.4252, email: info@kwikgoal.com; website: www.kwikgoal.com.
2. System Description: Soccer backstop system comprised of 4" mesh netting, 4 upright posts and 4 ground sleeves with a manual hoist to raise and lower net.
a. Height: 20'-0"
b. Width: 65'-0"
c. Weight: 193 lbs. (43 lbs. each post)
d. Material (Uprights): Aluminum
e. Material (Ground Sleeves): Aluminum with caps
f. Net: Braided Knotless HTPP Net (20 ft. x 65 ft with 3mm x 4" mesh)
g. Finish: Black Powder Coat
h. Accessories: Ground pegs to hold net to groud during play.
3. Or Otherwise Approved by Engineer and Owner.

E. Corner Flags and Ground Sleeve System:
1. KwikGoal International Corner Flags and Ground Sleeves Model No. 6B701 as manufactured by:
a. Kwik Goal, 140 Pacific Drive, Quakertown, PA 18951, p. 800.531.4252, email: info@kwikgoal.com; website: www.kwikgoal.com.
2. Or as otherwise approved by Engineer and Owner.

2.05 MATERIALS

A. Steel Pipe and Tube: Complying with ASTM A135/A135M, ASTM A500/A500M, or ASTM A513/A513M; hot-dip galvanized and free of excess weld and spatter.
   1. Tensile Strength: 45,000 psi, minimum.
   2. Yield Point: 33,000 psi, minimum.
   3. Galvanizing: Hot-dip metal components in zinc after fabrication, in accordance with ASTM A123/A123M; remove tailings and sharp protrusions and burnish edges.

B. Powder Coating for Steel: Electrostatically applied and oven cured polyester powder over electrostatic zinc coating.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that athletic field equipment area has been graded to subgrade elevations required and that excess soil, rocks, and debris has been removed as necessary for installation of footings.

B. Verify location of underground utilities and facilities in athletic field equipment area; damage to underground utilities and facilities will be repaired at Contractor's expense.

3.02 PREPARATION

A. Stake location of athletic field equipment elements, including necessary athletic field perimeters, surfacing, access and egress points, hard surfaces, walls, fences, and/or structures.

B. Stake layout of athletic field equipment perimeter in accordance with approved shop drawings before starting any work.
   1. Verify that athletic field perimeters do not overlap hard surfaces, whether currently installed or not.
   2. Verify that athletic fields are free of obstructions.
   3. If conflicts or obstructions are found, notify Engineer.
   4. Do not proceed with this work until revised drawings have been provided, showing corrected layout, and that any obstructions have been removed or corrections to layout have been made.

3.03 INSTALLATION

A. Install athletic field equipment in accordance with manufacturer's instructions, and rules and regulations of specified athletic association indicated for this work.

B. Install athletic field equipment without sharp points, edges, or protrusions; entanglement hazards or pinch, crush, or shear points.

3.04 CLEANING

A. Clean athletic field equipment of construction materials, dirt, stains, filings, and blemishes due to shipment or installation; clean in accordance with manufacturer's instructions, using cleaning agents as recommended by manufacturer.

B. Clean athletic field area of excess construction materials, debris, and waste.

C. Remove excess and waste material and dispose of off-site in accordance with requirements of authorities having jurisdiction.

3.05 PROTECTION

A. Protect installed products until Date of Substantial Completion.

B. Replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 26 00 00
ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 ELECTRICAL REQUIREMENTS

A. The electrical requirements are supplemental to the General and Supplementary Conditions and the General Requirements of these Specifications. The Electrical Sections shall apply to phases of the work specified, shown on the Drawings, or required to provide for the complete installation of Electrical Systems for this project.

B. The work shall include all items, articles, materials, operations and methods listed, mentioned or scheduled in these specifications and the accompanying drawings. All material, equipment and labor shall be furnished together with all incidental items required by good practice to provide the complete systems described.

C. Examine and refer to all Architectural, Structural, Utility, Landscape and Mechanical drawings and specifications for construction conditions which may affect the electrical work. Inspect the building site and existing facilities for verification of present conditions. Make proper provisions for these conditions in performance of the work and cost thereof.

D. See general requirements for listed Alternate Bids. Note alternates listed and include any changes in work and price required to meet the requirements of the respective alternate.

1.2 CODES AND STANDARDS

A. Work shall meet the requirements of the plans and specifications and shall not be less than the minimum requirements of applicable sections of the latest Codes and Standards of the following organizations:

1. American National Standards Institute (ANSI)
2. Americans with Disabilities Act (ADA)
3. Certified Ballast Manufacturers (CBM)
4. Electrical Testing Laboratories (ETL)
5. Independent Testing Laboratories (ITL)
6. International Building Code (IBC)
7. International Fire Code (IFC)
8. National Electrical Code (NEC) Latest Edition
9. National Electrical Manufacturers Association (NEMA)
10. National Fire Protection Association (NFPA)
11. Occupational Safety & Health Act (OSHA)
12. Underwriters Laboratories (UL)
13. Rules and Regulations of the State Fire Marshal
14. Requirements of the Serving Utility Company
15. Local and State Codes and Ordinances

1.3 FEES AND PERMITS

A. The electrical contractor shall pay all fees and arrange for all permits required for work done under his contract and under his supervision by subcontract.

B. Cost of primary work noted to be by Utility Company not to be included in Contractor's Bid. All charges made by the Utility Company for their part of the primary work will be billed directly to the Owner and paid for by the Owner.

1.4 MATERIALS AND EQUIPMENT

A. Manufacturer's trade names and catalog numbers listed are intended to indicate the quality of equipment or materials desired. Manufacturers not listed must have prior approval. Written prior approval must be obtained from the Architect/Engineer/Owner ten (10) business days prior to bid opening. Requests are to be submitted sufficiently ahead of the deadline to give ample time for examination. The items approved will be listed in an addendum and only this list of equipment will be accepted in lieu of specified products. Submittals must indicate the specific

item or items to be furnished in lieu of those specified, together with complete technical and comparative data on specified items and proposed items.

B. Electrical equipment shall be installed with manufacturer's standard finish and color except where specific color, finish or choice is indicated. If the manufacturer has no standard finish, equipment shall have a prime coat and two finish coats of gray enamel.

C. The electrical contractor shall be responsible for materials and equipment installed under this contract. Contractor shall also be responsible for the protection of materials and equipment of others from damage as a result of his work.

D. Manufactured material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer unless herein specified to the contrary.

E. The electrical contractor shall make the required arrangement with General Contractor for the introduction into the building of equipment too large to pass through finished openings.

F. Materials and equipment shall be stored indoors at the job site or, if this is not possible, stored on raised platforms and protected from the weather by means of waterproof covers. Coverings shall permit circulation of air around the materials to prevent condensation of moisture. Screen or cap openings in equipment to prevent the entry of vermin.

G. Lighting fixtures proposed as substitutes to those specified must have prior approval by Architect/Engineer/Owner as noted above. Approval will not be considered unless the request has all of the following information:
   1. Manufacturers data showing catalog number.
   2. Construction details.
   3. Photometrics.
   4. Recommended maintenance factor.

1.5 INTENT OF DRAWINGS

A. The drawings are partly diagrammatic and do not necessarily show exact location of conduit unless specifically dimensioned. Riser and other diagrams are schematic and do not necessarily show the physical arrangement of the equipment. They shall not be used for obtaining quantities or lineal runs of conduit. Discrepancies shown on different plans, or between plans and actual field conditions shall be brought to the attention of the Architect/Engineer for resolution.

1.6 JOURNEYMAN TO APPRENTICE RATIO

A. General Requirements – The Journeyman to Apprentice ratio of one (1) journeyman to two (2) apprentices will be strictly adhered to on this project. The required number of journeyman shall remain on the project at all times apprentices are working. Journeyman shall not leave the job to run parts or go to the office at any time while apprentices are working, regardless of what year of training the apprentices are in.

B. Successful Contractor is to submit a list of all employees along with their current classification and ID numbers. All electricians shall have an identification card on them at all times.

C. The engineer and/or the Owner's representative will be checking cards during the course of the project. Failure to comply with the Journeyman-to-Apprentice ratio, or lack of I.D. cards, will result in a $500.00 penalty per incident.

1.7 RESPONSIBILITY

A. The electrical contractor shall be responsible for the installation of satisfactory and complete systems in accordance with the intent of the drawings and specifications and shall provide, at no extra cost, all incidental items required for completion of the work even though they are not specifically mentioned or indicated on the drawings or in the specifications.

B. The drawings do not attempt to show complete details of the building construction which affect the electrical installation; and reference is therefore required to the Architectural, Structural, Landscape and Mechanical drawings and specifications and to shop drawings of all trades for

additional details which affect the installation of the work covered under this Division of the Contract.

C. Location of electrical system components shall be checked for conflicts with openings, structural members and components of other systems having fixed locations. In the event of any conflicts, the Architect/Engineer shall be consulted and his decision shall govern. Necessary changes shall be made at no additional expense to the Architect/Engineer or Owner.

D. The electrical contractor shall determine, and be responsible for, the proper location and character of inserts for hangers, chases, sleeves and other openings in the construction required for the work, and obtain this information well in advance of the construction progress so work will not be delayed. Roughing-in fixtures, etc., must be laid out accurately. Connections to equipment of the same class shall be equal heights, plumb, and at right angles to the wall, unless otherwise directed.

E. Final location of inserts, hangers, etc., required for each installation, must be coordinated with facilities required for other installations to prevent interference.

F. The electrical contractor shall take extreme caution not to install work that connects to equipment until such time as complete Shop Drawings of such equipment have been approved by the Architect/Engineer. Any work installed by the Contractor, prior to approval of Shop Drawings, will be at the Contractor's risk.

G. At all times during the performance of this contract, the electrical contractor shall properly protect work from damage and protect the Owner's property from injury of loss. The contractor shall make good any damage, injury or loss, except such as may be directly due to errors in the Bidding Documents or caused by Agents or Employees of the Owner. The electrical contractor shall adequately protect adjacent property as provided by law and the Bidding Documents. The electrical contractor shall provide and maintain passageways, guard fences, lights and other facilities for protection required by Public Authority or Local conditions.

H. Circuiting and switching shall be exactly as shown on drawings. Combining of home runs is acceptable but neutrals shall not be shared. Contractor shall refer to NEC Article 310-15 and adjust accordingly. Combining of wiring of various systems in conduit runs is not acceptable unless otherwise specified herein or noted on drawings.

I. Neutrals shall not be shared to avoid the requirement of installing handle-ties on breakers.

J. Contractor is responsible for providing UL-listed fire rated materials where required by applicable codes and other sections of this specification to seal fire-rated membrane penetrations. In particular this applies to requirements of IBC Section 712 as it pertains to:

1. Electrical Boxes: Provide minimum 6 inch separation in non-rated walls. Provide minimum 24 inch horizontal separation in fire rated walls. In rated walls locate boxes so as to comply with IBC Section 712 separation and membrane penetration requirements. Apply fire-rated putty pads (SpecSeal Series SSP Intumescent Putty Pads, or equal) to all boxes where 24" box-to-box separation cannot be maintained or where openings exceed allowable limits under IBC section 712.
2. Flush-Mounted Panels (panelboards, fire alarm panels and any other flush-mounted electrical enclosure exceeding 16 square inches of area): Coordinate with the general contractor for gypsum board lined framing pockets where any flush-mounted panelboards are located in 1 or 2-hour rated walls. Provide fire-rated putty pads on top and bottom of panelboards to seal around conduits.
3. Conduit and Cable: Apply fire seal where conduit or cables penetrate fire-rated assemblies as required by NEC Article 300-21 and IBC section 712. Fire seal shall be equal to International Protective Coating Corp. #FSC or #FS series or Chase Technology Corp. #PR-855 Fire Stop.

1.8 INSPECTION

A. All work and material is subject to inspection at any time by the Architect/Engineer or his representative. If the Architect/Engineer or his representative finds material that does not conform with these specifications or that is not properly installed or finished, correct the

deficiencies in a manner satisfactory to the Architect/Engineer at no additional expense to the Owner.

1.9 WORKMANSHIP
- A. GENERAL
  1. Work under this contract shall be performed by workmen skilled in the particular trade conducting all work necessary to properly complete the installation in a workmanlike manner to present a neat and finished appearance.
- B. EXCAVATION AND BACKFILL
  1. Provide all excavating and backfilling as required, with backfilling only after approval of the Architect. Backfill to be free of all debris and decayable matter. See Excavation and Backfill requirements per City of Gillette "Standard Construction Specifications (2017)", unless otherwise noted by this document.
- C. CUTTING, PATCHING AND FRAMING
  1. Obtain Architect's/Engineer's approval before performing any cutting on structural members or patching of building surfaces. Any damage to the building or equipment by this Contractor shall be the responsibility of this Contractor and shall be repaired by skilled craftsmen of the trades involved at no additional expense to the Owner.
  2. Chases, openings, sleeves, hangers, anchors, recesses, equipment pads, and framing for equipment are provided by others only if so noted on the drawings. Otherwise, they will be provided by this contractor for his work. Whether chases, etc., are provided by this contractor or others, this contractor is responsible for correct size and locations.

1.10 COORDINATION
- A. The electrical contractor shall plan his work to proceed with a minimum interference with other trades and it shall be his responsibility to inform the General Contractor of all openings required in the building structure for installation of work, and to provide sleeves as required. Dimensions of equipment installed and/or provided by others shall be checked in order that correct clearances and connections may be made.

1.11 CLEAN UP
- A. The electrical contractor shall keep the premises free from accumulation of waste material or rubbish caused by his work or employees.
- B. Upon completion of work, remove materials, scraps and debris relative to his work and leave the premises, including tunnels, crawl spaces, and pipe chases in clean and orderly condition. Remove all dirt and debris from the interior and exterior of all devices and equipment. After construction is completed, wash all light fixtures and lamps, remove all labels from fixture lenses. Clean all gear interiors including: panelboard, starters and disconnects. Cleaning shall be performed with the use of a vacuum cleaner. Do not utilize compressed air for cleaning of any electrical item.

1.12 DUST PROTECTION
- A. Contractor will provide suitable dust protection for all existing areas prior to beginning of cutting or demolition. Contractor will obtain approval of partition from Owner before proceeding with work involved in these rooms.

1.13 TEMPORARY FACILITIES
- A. OFFICES
  1. The electrical contractor shall provide temporary offices for himself including lights, heat and telephone, if required.
- B. REMOVAL
  1. The electrical contractor shall completely remove his temporary installations when no longer needed and the premises shall be completely clean, disinfected, patched, and refinished to match adjacent areas.

C. LADDERS AND SCAFFOLDS
   1. The electrical contractor shall provide their own ladders, scaffolds, etc. of substantial construction for access to their work in various portions of the building as may be required. When no longer needed, they shall be removed by the contractor.

D. PROTECTION DEVICES
   1. The electrical contractor shall provide and maintain his own necessary barricades, fences, signal lights, etc. required by all governing authorities or shown on the drawings. When no longer needed, they shall be removed by the contractor. The contractor shall assume all responsibility for which the owner may be held responsible because of lack of above items.

E. TEMPORARY WATER
   1. The electrical contractor shall provide all water required by his trade for construction. Temporary drinking water shall be provided from a proven safe source dispensed by single service containers, until such time as the construction water outlet has been install, disinfected and approved for drinking purposes.

F. TEMPORARY FIRE PROTECTION
   1. The electrical contractor shall provide all necessary first-aid hand fire extinguishers for Class A, B, C and special hazards as may exist in his own work area only in accordance with good and safe practice and as required by jurisdictional safety authority. The contractor shall provide general area fire extinguishers only.

1.14 TEMPORARY ELECTRICAL FACILITIES

A. ELECTRICAL POWER
   1. The electrical contractor shall provide temporary construction power to the project to support construction activities of all trades. All temporary power shall be derived from a separate temporary construction service arranged and paid for by the contractor. No tie-ins or connections to the Owner's system shall be made without the Owner's consent. Construction power shall the following unless otherwise agreed to by the General Contractor:
      a. Three temporary panels located as directed by the General Contractor with provision for 100A, 3-phase, 4-wire service at voltage available.
      b. Power centers for miscellaneous tools and equipment used in the construction period, so that power can be secured at any desired point from temporary service panel within building proper.
      c. Lighting for safe and adequate working conditions throughout the buildings, stairways, and crawl spaces. Provide at least 1/2 watt of incandescent lighting per square foot of floor area. Maintain a socket voltage of at least 110 volts. Use a minimum of 100 watt bulbs.
      d. Power for construction site offices and for other temporary storage and construction buildings.
      e. Power to maintain continuous construction during changeover of electrical equipment.
      f. Power for testing and checking equipment.

1.15 SHOP DRAWINGS

A. Provide eight (8) copies of manufacturer's literature and/or certified prints as soon as possible but within thirty (30) days after awarding of Contract, for items of materials, equipment, or systems where called for in specifications. Shop drawings and literature complete showing item used, size, dimensions, capacity, rough-in, etc., as required for complete check and installation. Manufacturer's literature showing more than one item shall be clearly marked as to which item is being furnished or it will be rejected and returned without review.

B. Each copy of each item submitted must be clearly marked as follows for purposes of identification and record. Submittals not marked (typewritten only) as described below will be rejected and returned without review.

Date:
Name of Project:
Branch of Work:
Submitted by:
Specification or Plan Reference:

C. Prior to their submission, each submittal shall be thoroughly checked by the contractor for compliance with the Contract Document requirements, accuracy of dimensions, relationship to the work of other trades, and conformance with sound, safe practices as to erection and installation. Each submittal shall then bear a stamp evidencing such checking and shall show corrections made, if any. Submittals requiring extensive corrections shall be revised before submission. Each submittal not stamped and signed by the contractor evidencing such checking will be rejected and returned without review.

D. All submittals will be examined when submitted in proper form for compliance. Such review shall not relieve the contractor of responsibility for errors, for deviation from the contract Documents, nor for violation of sound safety practices.

E. The contractor shall keep in the field office one print of each submittal which has been reviewed and stamped by the Architect or Engineer.

F. Submittals will be required for each item of material and equipment furnished as noted in specifications.

G. All submittals shall be organized into a single binder or PDF digital document and transmitted in one delivery. Transmittal of individual sections is not permitted. Exceptions will be considered upon request for exceptionally long-lead equipment or voluminous submittals that cannot reasonably fit into a single binder of PDF document.

H. Submittals which are incomplete relative to quality requirements, capacity, engineering data, dimensional data or detailed list of specialty or control equipment will be rejected. Lists shall include descriptive coding as specified or shown on drawings.

THE ENGINEER WILL PERFORM SHOP DRAWING REVIEW OF EACH ITEM, HOWEVER, SUBSEQUENT REVIEW OF ITEMS PREVIOUSLY REJECTED WILL BE BILLED TO THE CONTRACTOR AT A RATE OF $75 PER HOUR.

I. Schedule of Shop Drawings.

ITEM	MFG LIT	SHOP DWG	WIRING DIAG.	O&M BOOK
RACEWAYS AND FITTINGS	X			
WIRE AND CABLE	X	X		X
OUTLET BOXES	X			
WIRING DEVICES	X	X		X
SUPPORTING DEVICES	X			
FUSES	X	X		X
DISCONNECT SWITCHES	X	X		X
PANELBOARDS	X	X		X
MOTOR CONTROLS	X	X		X
LIGHTING FIXTURES	X	X		X

1.16 OPERATION AND MAINTENANCE MANUALS

A. At the time orders are placed for any item of equipment requiring service or operating maintenance, the contractor shall request the manufacturer furnish three (3) copies of OPERATION AND MAINTENANCE INSTRUCTIONS for each piece of equipment. These shall be included in the brochure of equipment.

1.17 BROCHURE OF EQUIPMENT

A. Upon completion of work, prepare a "Brochure of Equipment" containing data pertinent to equipment and systems on job. Binders containing materials shall be one or more three ring binders of sufficient number to hold all literature. Contained in binders shall be: Installation, maintenance, and operating instructions for each piece of equipment; parts lists; wiring diagrams; one clean copy of each shop drawing and literature submittal that reflect shop drawing review comments; record drawings, etc.

B. All literature shall be clean, unused and filed under divider headings corresponding to the specifications.

C. These brochures shall be submitted to the Architect/Engineer and approved by him before authorization of final payment.

1.18 "AS-BUILT" DRAWINGS

A. The electrical contractor shall furnish to the Owner and Architect/Engineer a red line marked print set of drawings, each sheet stamped as the "As-Built" drawing and bearing the contractor's name, date and signature. The As-Built drawing shall show the location of all concealed or underground conduit runs and other equipment, devices, outlets, etc., installed other than as shown on the drawings. Dimension underground lines from established building lines. As-Built drawings to be developed from a job site record drawing set and shall be clean, neat and all changes legible and shown in the same format and symbols used on the contract drawings. The As-Built drawing set shall be submitted to the architect/engineer for approval, and any deficiencies noted by the architect/engineer corrected and resubmitted until approved by the architect/engineer at no cost to architect/engineer or owner.

B. Provide (2) Hard copies and (1) Electronic Copy of completed and approved as-built drawings to owner.

1.19 PLACING SYSTEMS IN OPERATION

A. At the completion of the work and at such time as the Owner shall direct, prior to final acceptance, the electrical contractor performing this work shall put into satisfactory operation the various systems installed under the specifications. At no additional cost to the Owner, furnish the services of a person completely familiar with the installations performed under this specification, to instruct the Owners operating personnel in the proper operation and servicing of the equipment and systems. These services shall be available for a period of no less than one (1) day.

B. Upon placing systems in operation the contractor shall measure phase currents at each main and branch panel within the facility, including existing panels, and balance the phase currents to within 20% of each other by moving circuit breakers to different phases.

1.20 GUARANTEE-WARRANTY

A. The electrical contractor shall and hereby does warrant and guarantee that all work executed under this Division will be free from defects of materials and workmanship for a period of one year from the date of final acceptance of this work and that he will, at his own expense, repair and/or replace all such defective materials and work and all other work damaged thereby which becomes defective during the term of warranty, except that lamps and tubes shall be his responsibility only for normal lamp life or one year, whichever occurs first.

END OF SECTION 26 00 00

SECTION 26 05 19
ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes the following:
  1. Building wires and cables rated 600 V and less.
  2. Connectors, splices, and terminations rated 600 V and less.
  3. Sleeves and sleeve seals for cables.

1.2 SUBMITTALS
- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES
- A. Copper and Aluminum Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN, XHHW.
- C. Multiconductor Cable: Comply with NEMA WC 70 for metal-clad cable (Type MC) with ground wire.
- D. Aluminum conductors only permitted for 200 amperage and above.

2.2 CONNECTORS AND SPLICES
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. AFC Cable Systems, Inc.
  2. Hubbell Power Systems, Inc.
  3. O-Z/Gedney; EGS Electrical Group LLC.
  4. 3M; Electrical Products Division.
  5. Tyco Electronics Corp.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SLEEVES FOR CABLES
- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.4 SLEEVE SEALS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Advance Products & Systems, Inc.

2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Size and material per feeder schedule on plans. All conductors copper as otherwise noted on plans.
B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-THWN or type XHHW for aluminum, single conductors in raceway.
B. Exposed Feeders: Type THHN-THWN or type XHHW for aluminum, single conductors in raceway.
C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-THWN or type XHHW for aluminum, single conductors in raceway.
D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
E. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.
F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway; Metal-clad cable, Type MC.
    1. Type MC Cable must have insulated copper ground conductor and outer metal armor qualifying as an equipment ground return path.
    2. Type MC cable is NOT permitted to be used for wiring of the homerun circuits.
G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.
I. Class 1 Control Circuits: Type THHN-THWN, in raceway.
J. Class 2 Control Circuits: Type THHN-THWN, in raceway or power-limited tray cable, in cable tray.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
D. Increase conductor sizes as necessary to limit branch circuit voltage drop to 3 percent and service and feeder voltage drop to 2 percent.
E. Install an insulated ground wire in all conduit.
F. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
G. Support cables according to Division 26 Sections "Hangers and Supports for Electrical Systems."
H. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

I. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
J. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
   1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
K. Wiring at Outlets: Install conductor at each outlet, with at least EIGHT inches of slack.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS
A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."
B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
C. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
D. Cut sleeves to length for mounting flush with both wall surfaces.
E. Extend sleeves installed in floors 2 inches above finished floor level.
F. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
G. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.
H. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to Division 07 Section "Joint Sealants."
I. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to Division 07 Section "Penetration Firestopping."
J. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.
K. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
L. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.5 SLEEVE-SEAL INSTALLATION
A. Install to seal underground exterior-wall penetrations.
B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.6 FIRESTOPPING
A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "Penetration Firestopping."

3.7 FIELD QUALITY CONTROL
A. Perform tests and inspections and prepare test reports.
B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test all service entrance, switchboard, panelboard, motor or equipment feeder conductors larger than #6 AWG for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

C. Test Reports: Prepare a written report to record the following:
   1. Test procedures used.
   2. Test results that comply with requirements.
   3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 26 05 19

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes methods and materials for grounding systems and equipment.

1.2 SUBMITTALS
- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS
- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  1. Solid Conductors: ASTM B 3.
  2. Stranded Conductors: ASTM B 8.
  3. Tinned Conductors: ASTM B 33.
  4. Bonding Cable: 28 kc mil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
  5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
  6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
  7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS
- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
  1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES
- A. Ground Rods: Copper-clad, zinc-coated or stainless steel; 3/4 inch by10 feet or as otherwise accepted by local authority having jurisdiction.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, sized per plans. Bury at least 24 inches below grade.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Conductor Terminations and Connections:
   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
   3. Connections to Ground Rods at Test Wells: Bolted connectors.
   4. Connections to Structural Steel: Welded or bolted connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors in all circuits. Provide equipment grounding conductor in all armored or metalclad cable assemblies.

B. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.
   1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
   2. For grounding electrode system, install at least rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Where indicated on the plans provide a concrete-encased ("UFER") ground. Use bare conductor no smaller than #4 AWG and encase in bottom of concrete slab or footer no less than 2" from bottom of concrete. Bond to reinforcing bars or encase at least 20' of bare conductor.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:
   1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
   2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.
      a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
      b. Perform tests by fall-of-potential method according to IEEE 81.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify engineer promptly and include recommendations to reduce ground resistance.

END OF SECTION 26 05 26

SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY
- A. Section includes:
  1. Hangers and supports for electrical equipment and systems.
  2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS
- A. Provide supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Provide equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads imposed with a minimum structural safety factor of five times the necessary force.

1.3 SUBMITTALS
- A. Product Data: Submit product data for all proposed materials.

1.4 QUALITY ASSURANCE
- A. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
- A. Do not use wooden materials for support, anchorage or attachment components unless the facility is framed of wooden materials.
- B. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
     a. Allied Tube & Conduit.
     b. Cooper B-Line, Inc.; a division of Cooper Industries.
     c. ERICO International Corporation.
     d. GS Metals Corp.
     e. Thomas & Betts Corporation.
     f. Unistrut; Tyco International, Ltd.
     g. Wesanco, Inc.
  2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
  4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
  5. Channel Dimensions: Selected for applicable load criteria.
- C. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- D. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; galvanized or painted.

G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1) Hilti Inc.
      2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      3) MKT Fastening, LLC.
      4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-plated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
   a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1) Cooper B-Line, Inc.; a division of Cooper Industries.
      2) Empire Tool and Manufacturing Co., Inc.
      3) Hilti Inc.
      4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates, if applicable.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 40 percent in future without exceeding specified design load limits.
   1. Secure raceways and cables to these supports with single or two-bolt conduit clamps.
D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inchand smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION
A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lbs.
D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
   1. To Wood: Fasten with lag screws or through bolts. Use washers.
   2. To New Concrete: Bolt to concrete inserts.
   3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
   4. To Existing Concrete: Expansion anchor fasteners.
   5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
   6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 or Spring-tension clamps.
   7. To Light Steel: Sheet metal screws.
   8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS
A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports, if applicable.
B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES
A. Coordinate with general contractor for the construction of concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors (if present) will be a minimum of 10 bolt diameters from edge of the base.
B. Anchor equipment to concrete base.
   1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   2. Install anchor bolts to elevations required for proper attachment to supported equipment.

3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
   1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touchup: Comply with requirements per manufacturer requirements and Division 09, if applicable, for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 26 05 29

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes raceways, fittings, boxes, floor-boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS
- A. Product Data: For boxes, surface raceways, wireways and fittings, hinged-cover enclosures, and cabinets.

1.3 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING
- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.
- C. EMT: ANSI C80.3.
- D. FMC: Zinc-coated steel.
- E. LFMC: Flexible steel conduit with PVC jacket.
  1. Not permitted for use as a low voltage raceway, such as serving tel/data rough-ins.
- F. Fittings for Conduit (Including all types and flexible and liquid-tight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
  1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
  2. Fittings for EMT: Steel or die-cast, set-screw or compression type.

2.2 NONMETALLIC CONDUIT AND TUBING
- A. Nonmetallic conduit or tubing is not permitted above-grade under any circumstance in plenums or healthcare projects unless specifically noted on plans.
- B. ENT: NEMA TC 13.
- C. RNC: NEMA TC 2, Type EPC-40-PVC unless otherwise indicated.
- D. LFNC: UL 1660.
- E. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.
- F. Fittings for LFNC: UL 514B.

2.3 METAL WIREWAYS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Cooper B-Line, Inc.
  2. Hoffman.
  3. Square D; Schneider Electric.
- B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, 12, or 3R, unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
D. Wireway Covers: Hinged type, screw-cover type, or flanged-and-gasketed type as necessary or as indicated on plans.
E. Finish: Manufacturer's standard enamel finish.

2.4 SURFACE RACEWAYS
A. Permitted only in utility spaces (mechanical or electrical rooms, crawl spaces, data closets), or where indicated on plans or with written permission from the Architect.
B. Surface Metal Raceways: Galvanized steel with snap-on covers. Manufacturer's standard enamel finish.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Thomas & Betts Corporation.
b. Walker Systems, Inc.; Wiremold Company.
c. Wiremold Company; Electrical Sales Division.
C. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color indicated on plans.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Butler Manufacturing Company; Walker Division.
b. Enduro Systems, Inc.; Composite Products Division.
c. Hubbell Incorporated; Wiring Device-Kellems Division.
d. Lamson & Sessions; Carlon Electrical Products.
e. Panduit Corp.
f. Walker Systems, Inc.; Wiremold Company.
g. Wiremold Company; Electrical Sales Division.

2.5 BOXES, ENCLOSURES, AND CABINETS
A. Sheet Metal Outlet and Device Boxes: NEMA OS 1. Provide 2-1/8" x 4" square boxes with mud ring for wall-mounted boxes and 2-1/8" x 4" octagonal boxes for fixture outlets.
B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover.
C. Nonmetallic Outlet and Device Boxes: Not permitted unless specifically noted otherwise on plans.
D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
E. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
F. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel. Provide backplate.
2. Nonmetallic Enclosures: Not permitted unless noted on plans.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION
A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
1. Exposed Conduit: EMT or RNC, Type EPC-40-PVC, as identified on plans.
2. Concealed Conduit, Aboveground: EMT or RNC, Type EPC-40-PVC, as identified on plans.
3. Underground Conduit: RNC, Type EPC-40 PVC, direct buried.

4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC or LFNC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R unless noted otherwise on plans.

B. Comply with the following indoor applications, unless otherwise indicated:
1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed and Subject to Severe Physical Damage: IMC. Includes raceways in the following locations:
   a. Loading docks.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
3. Concealed in Ceilings and Interior Walls and Partitions: EMT (see also specification 260519 for permitted uses of AC and MC cable).
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
5. Damp or Wet Locations: EMT.
6. Raceways for Optical Fiber or Communications Cable: EMT.
7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations. See plans for specific enclosure or box specifications.

C. Minimum Raceway Size: 3/4-inchtrade size. ½-inch is acceptable only where specifically noted on plans or other specifications.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways installed under Slabs:
1. All raceways must maintain at least 6" of cover under the bottom of all slabs.
2. Run conduit larger than 1-inch trade size, parallel or at right angle.
3. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
4. Change from PVC to RNC, Type EPC-40-PVC, rigid steel conduit before rising above the floor.

I. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

J. Install pull wires in ALL empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lbtensile strength. Leave at least 24inchesof slack at each end of pull wire.

K. Raceways for Optical Fiber and Communications Cable: Install as follows:
1. 3/4-InchTrade Size and Smaller: Install raceways in maximum lengths of 50 feet.
2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless drawings show stricter requirements. Separate lengths with pull or junction boxes

or terminations at distribution frames or cabinets where necessary to comply with these requirements.

L. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
   1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
   2. Where otherwise required by NFPA 70.

M. Expansion-Joint Fittings for PVC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.
   1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:
      a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
      b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
      c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
      d. Attics: 135 deg F temperature change.
   2. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

N. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit or pre-wired fixture whips for recessed and semi-recessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
   1. Use LFMC in damp or wet locations subject to severe physical damage.
   2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

O. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

P. Set floor boxes level and flush with finished floor surface. Provide a dedicated 1" conduit from an accessible ceiling space to each floorbox intended for tel/data use. This is in addition to the power conduit required.

Q. Support all wall-mounted boxes with B-Line BB8 (or equal) mounting brackets or BB4 (or equal) box support brackets. Do not use materials not specifically intended for the purpose such as scrap EMT and ty-wraps.

R. Mark all junction boxes with panel and circuit numbers. Mark boxes of emergency systems as required by NEC 700.9. Use indelible ink.

S. Do not install boxes back to back in walls, Provide minimum 6 inch separation in non-rated walls. Provide minimum 24 inch horizontal separation in fire rated walls. In rated walls locate boxes so as to comply with IBC Section 712 separation and membrane penetration requirements. Apply fire-rated putty pads (SpecSeal Series SSP Intumescent Putty Pads, or equal) to all boxes where 24" box-to-box separation cannot be maintained or where openings exceed allowable limits under IBC section 712.

T. Wherever receptacles are shown adjacent to tel/data, video or other low voltage locations, install boxes side-by-side with a consistent distance separating the boxes of no more than 3" between adjacent faceplates. Provide or coordinate additional framing as required.

U. Set non-metallic floor boxes level. Trim after installation to fit flush with finished floor surface. Provide a dedicated 1" conduit from an accessible ceiling space to each floorbox intended for tel/data use. This is in addition to the power conduit required.

V. Coordinate all device locations with architectural elevations and other plans before rough-in. Adjust device locations to accommodate casework elevations or knee-space locations or any other architectural or other trade obstruction. Contact the architect or engineer if any conflicts are present that cannot be resolved without substantially changing the layout of devices. The contractor shall be responsible to relocate any devices that are improperly coordinated.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified per the City of Gillette "Standard Construction Specifications (2017)" for pipe less than 6 inches in nominal diameter, unless otherwise modified by this document.
2. Install backfill as specified per the City of Gillette "Standard Construction Specifications (2017)", unless otherwise modified by this document.
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified per the City of Gillette "Standard Construction Specifications (2017)", unless otherwise modified by this document.
4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
   a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
   b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
6. Warning Planks: Bury warning planks or tape approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit.

3.4 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 26 05 33

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes the following:
  1. Identification for conductors and communication and control cable.
  2. Warning labels and signs.
  3. Equipment identification labels.

1.2 SUBMITTALS
- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE
- A. Comply with ANSI A13.1.

1.4 COORDINATION
- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

PART 2 - PRODUCTS

2.1 CONDUCTOR AND COMMUNICATION- AND CONTROL-CABLE IDENTIFICATION MATERIALS
- A. Marker Tape: Vinyl or vinyl -cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.2 WARNING LABELS AND SIGNS
- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.
- C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inchgrommets in corners for mounting. Nominal size, 7 by 10 inches.
- D. Metal-Backed, Butyrate Warning Signs: Weather-resistant, non-fading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.
- E. Fasteners for Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.
- F. Warning label and sign shall include, but are not limited to, the following legends:
  1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
  2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES".

2.3 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and ultraviolet-resistant seal for label.

B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

PART 3 - EXECUTION

3.1 APPLICATION

A. Auxiliary Electrical Systems Conductor and Cable Identification: Use marker tape to identify field-installed alarm, control, signal, sound, intercommunications, voice, and data wiring connections.
   1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and cable pull points. Identify by system and circuit designation.
   2. Use system of designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

B. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply metal-backed, butyrate warning signs. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.
   1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
      a. Power transfer switches.
      b. Controls with external control power connections.
   2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.

C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
   1. Labeling Instructions:
      a. Indoor Equipment: Adhesive film label with clear protective overlay or self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inchhigh letters on 1-1/2-inchhigh label; where 2 lines of text are required, use labels 2 incheshigh.
      b. Outdoor Equipment: Engraved, laminated acrylic or melamine label, drilled for screw attachment.
      c. Elevated Components: Increase sizes of labels and legend to those appropriate for viewing from the floor.
      d. All labels to include equipment tag (e.g. HWP-1), equipment description (e.g. HOT WATER PUMP 1), voltage and phase (e.g. 208V 3-Ø), and panel and circuit number of source (e.g. 1N1L-23/25/27).
      e. All labels shall be black letters on white background. Use red letters onwhite background for any equipment fed from an emergency (generator or UPS) power source.
   2. Equipment to Be Labeled:
      a. Panelboards, electrical cabinets, and enclosures.
      b. Electrical switchgear and switchboards.
      c. Transformers.
      d. Motor-control centers.

e. Disconnect switches.
f. Enclosed circuit breakers.
g. Motor starters.
h. Push-button stations.
i. Power transfer equipment.
j. Contactors.

3.2 INSTALLATION

A. Verify identity of each item before installing identification products.
B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
C. Apply identification devices to surfaces that require finish after completing finish work.
D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
E. Attach non-adhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.
F. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors in all cases where the insulation of the wire is not color coded.
   1. Color shall be factory applied.
   2. Colors for 208/120-V Circuits:
      a. Phase A: Black.
      b. Phase B: Red.
      c. Phase C: Blue.
   3. Colors for 480/277-V Circuits:
      a. Phase A: Brown.
      b. Phase B: Orange.
      c. Phase C: Yellow.
G. Color-Coding for Low Voltage Cabling Identification.
   1. Colors shall be factory applied.
      a. Fire Alarm – RED
      b. Phone – WHITE
      c. Intercom – ORANGE
      d. Surveillance – YELLOW
      e. Door Access – GRAY
      f. Networking – BLUE
      g. HVAC - GREEN

END OF SECTION 26 05 53

SECTION 26 22 00
LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes the following types of dry-type transformers rated 600 V and less, with capacities up to 1000 kVA:
  1. Distribution transformers.

1.2 SUBMITTALS
- A. Product Data: For each product indicated.
- B. Shop Drawings: Indicate dimensions and weights.
  1. Wiring Diagrams: Power, signal, and control wiring.
- C. Manufacturer Seismic Qualification Certification: Submit certification that transformers, accessories, and components will withstand seismic forces.
- D. Field quality-control test reports.
- E. Operation and maintenance data.

1.3 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

PART 2 - PRODUCTS

2.1 MANUFACTURERS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. General Electric Company.
  2. Square D; Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS
- A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.
- B. Cores: Grain-oriented, non-aging silicon steel.
- C. Coils: Continuous windings without splices except for taps.
  1. Internal Coil Connections: Brazed or pressure type.
  2. Coil Material: Aluminum or Copper as indicated on contract documents. If unstated, coil material shall be aluminum.
- D. All transformers larger than 112.5 kva shall have an insulation system equal or greater than class 155 and shall be completely enclosed except for ventilation openings.

2.3 DISTRIBUTION TRANSFORMERS
- A. Comply with NEMA ST 20, and list and label as complying with UL 1561.
- B. Provide transformers that are constructed to withstand seismic forces specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- C. Cores: One leg per phase.
- D. Enclosure: Ventilated, NEMA 250, Type 2.
  1. Core and coil shall be encapsulated within resin compound, sealing out moisture and air.
  2. Provide weathershield for NEMA 3R rating for all transformers located outdoors.
- E. Transformer Enclosure Finish: Comply with NEMA 250.
  1. Finish Color: Manufacturer's Standard.

F. Taps for Transformers Smaller Than 3 kVA: None.
G. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.
H. Taps for Transformers 25 kVA and Larger: Minimum of two 2.5 percent taps above and two 2.5 percent taps below normal full capacity.
I. Insulation Class: 220 deg C, UL-component-recognized insulation system with a maximum of 115 deg C rise above 40 deg C ambient temperature.
J. Energy Efficiency for Transformers Rated 15 kVA and Larger:
   1. Complying with NEMA TP 1, Class 1 efficiency levels.
   2. Tested according to NEMA TP 2.
K. Electrostatic Shielding: Transformers indicated to be shielded shall have each winding shielded with an independent, single, full-width copper electrostatic shield arranged to minimize inter-winding capacitance.
L. Wall Brackets: Manufacturer's standard brackets.

2.4 IDENTIFICATION DEVICES
A. Nameplates: Engraved, laminated-plastic or metal nameplate. Nameplates are specified in Division 26 Section "Identification for Electrical Systems."

PART 3 - EXECUTION

3.1 INSTALLATION
A. Install wall-mounting transformers level and plumb with wall brackets fabricated by transformer manufacturer.
   1. Brace wall-mounting transformers as specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
B. Construct concrete bases and anchor floor-mounting transformers according to manufacturer's written instructions and requirements in Division 26 Section "Hangers and Supports for Electrical Systems."

3.2 FIELD QUALITY CONTROL
A. Perform tests and inspections.
B. Tests and Inspections:
   1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

3.3 ADJUSTING
A. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 10 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.
B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.
C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 26 22 00

SECTION 26 24 16
PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY
A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 PERFORMANCE REQUIREMENTS
A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified.

1.3 SUBMITTALS
A. Product Data: For each type of product indicated.
B. Shop Drawings: For each panelboard and related equipment.
1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Include evidence of NRTL listing for series rating of installed devices.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include wiring diagrams for power, signal, and control wiring.
8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.
C. Seismic Qualification Certificates: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
D. Operation and maintenance data.

1.4 QUALITY ASSURANCE
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
B. Comply with NEMA PB 1.
C. Comply with NFPA 70.

1.5 WARRANTY
A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS
A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
B. Enclosures: Surface-mounted cabinets as indicated on panel schedules.
1. Rated for environmental conditions at installed location.
a. Outdoor Location Dry and Clean Locations: NEMA 250, Type 3R.

2. Hinged Front cover: Entire front trim hinged to box and with standard door within hinged trim cover. Standard Door-in-Door Construction Cover
3. Directory Card: Inside panelboard door, mounted in transparent card holder.
   a. All circuit directories shall be typed. Hand written circuit directories are not acceptable.

C. Incoming Mains Location: Determined by Contractor unless otherwise noted on plans.
D. Phase, Neutral, and Ground Buses: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity.
E. Conductor Connectors: Suitable for use with conductor material and sizes.
   1. Material: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity.
   2. Main and Neutral Lugs: Compression or Mechanical type.
   3. Ground Lugs and Bus Configured Terminators: Compression or Mechanical type.
   4. Feed-Through Lugs: Compression or Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
   5. Subfeed (Double) Lugs: Compression or Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.
G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
H. Panelboard Short-Circuit Current Rating: Rated for fully-connected system with integral or remote upstream overcurrent protective devices and labeled by a NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for fully-connected short-circuit rating by an NRTL.

2.2 DISTRIBUTION & SERVICE ENTRANCE PANELBOARDS
A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   1. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
   2. Square D; a brand of Schneider Electric.
B. Panelboards: NEMA PB 1, power and feeder distribution type.
C. Doors: Secured with vault-type latch with tumbler lock; keyed alike. Provide two keys for every panelboard provided. All keys keyed alike. Door-in-Door Construction.
D. Mains: Circuit breaker or lugs only as indicated on panel schedules.
E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers. Plug-in style breakers are not permitted.
F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers. Plug-in style breakers are not permitted.
G. Fused switches are not permitted in panelboards unless specifically noted on contract documents.
H. All main service panelboards shall be rated for use as a service-entrance.
I. On all main service entrance panelboards, and on other panelboards specified on the plans, provide integral surge protective devices (SPD) with 100 kA surge current rating at 240 VAC or 480 VAC. SPD shall be internal to the panel connecting directly to the bus. Device shall be equal to Square-D SurgeLogic.
J. Provide GFI protection for the main service circuit breaker for all 277/480 volt services of 1000 amperes or more in accordance with NEC 230-95.
K. Short-Circuit Current Rating: Fully Rated connected system with integral or remote upstream overcurrent protective devices and labeled by a NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for fully rated connected short-circuit rating by an NRTL.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   1. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
   2. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs only as indicated on panel schedules.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units. Plug-in style breakers are not permitted.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike. Provide two keys for every panelboard provided. All keys keyed alike. Door-in-Door construction.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
   1. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
   2. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with series-connected rating to meet available fault currents. Provide thermal-magnetic breakers unless otherwise indicated on contract documents.
   1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 175 A and smaller.
   2. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip circuit-breaker frame sizes 200 A and larger; and the following field-adjustable settings:
      a. Instantaneous trip.
      b. Long- and short-time pickup levels.
      c. Long- and short-time time adjustments.
      d. Ground-fault pickup level, time delay, and I^2t response.
   3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
      a. Standard frame sizes, trip ratings, and number of poles.
      b. Lugs: Mechanical or Compression style, suitable for number, size, trip ratings, and conductor material.
      c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
      d. Ground-Fault Protection: When indicated on the plans provide circuit breaker with integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
      e. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.
      f. Communication Capability: Circuit-breaker-mounted communication module with functions and features compatible with power monitoring and control system specified in Division 16 Section "Electrical Power Monitoring and Control.", if applicable.
      g. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
      h. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
      i. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.

j. Key Interlock Kit: When indicated on plans provide externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.

4. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (5-mA trip). Provide only when indicated on panel schedule.
5. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip). Provide only when indicated on panel schedule.
6. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration. Provide only when indicated on panel schedule.
7. Molded-Case Circuit-Breaker (MCCB) Features and Accessories, provide where indicated on plans:
   a. Standard frame sizes, trip ratings, and number of poles.
   b. Lugs: Compression or Mechanical style, suitable for number, size, trip ratings, and conductor materials.
   c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
   d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
   e. Communication Capability: Circuit-breaker-mounted or Integral-mounted communication module with functions and features compatible with power monitoring and control system if specified in Division 26 Section "Electrical Power Monitoring and Control."
   f. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
   g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
   h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

C. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.
   1. Fuses, and Spare-Fuse Cabinet: Comply with requirements specified in Division 26 Section "Fuses."

2.5 ACCESSORY COMPONENTS AND FEATURES

A. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NECA 407.
B. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
C. Mount top of trim 72 inches above finished floor unless otherwise indicated.
D. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
E. Install overcurrent protective devices and controllers not already factory installed.
   1. Set field-adjustable, circuit-breaker trip ranges.
F. Install filler plates in unused spaces.
G. At all flush-mounted panelboards in finished spaces, stub spare (6) 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.
H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NECA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 26 24 16

SECTION 26 27 13
UNDERGROUND ELECTRIC SERVICE

PART 1 - GENERAL

1.1 SUMMARY
- A. Arrange with the utility department for the City of Gillette for permanent electric service including all charges or fees levied by the serving utility company relative to this project. All service fees shall be paid by Owner.
- B. Underground service entrance, items furnished by serving utility company:
  1. Pad mounted transformer.
  2. Current transformers, installed by EC.
  3. Meter and meter conductors.
  4. Primary cable and installation.

1.2 WORK INCLUDED
- A. Items furnished by contractor (verify all requirements with Utility Company):
  1. Secondary conduit and conductors.
  2. Meter base.
  3. Primary Trenching and Conduit per Utility requirements
  4. 1 1/2" Conduit from CT cabinet to the meter base.
  5. Transformer pad and vault.

1.3 SYSTEM DESCRIPTION
- A. System voltage: 480Y/277 volts, three phase, four wire, 60 hertz.

1.4 QUALITY ASSURANCE
- A. Utility company: City of Gillette
- B. Install service entrance in accordance with Utility Company's rules and regulations.

PART 2 - EXECUTION

2.1 INSTALLATION
- A. Coordinate all work relative to the electrical service with the serving Utility Company prior to construction.

END OF SECTION 26 27 13

SECTION 26 56 00
EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY
- A. This Section includes the following:
  1. Exterior luminaires with lamps and ballasts.
  2. Luminaire-mounted photoelectric relays.
  3. Poles and accessories.
- B. See Division 26 Section "Interior Lighting" for exterior luminaires normally mounted on exterior surfaces of buildings.

1.2 SUBMITTALS
- A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, and finishes.
- B. Shop Drawings: Include anchor-bolt templates keyed to specific poles and certified by manufacturer.

1.3 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with IEEE C2, "National Electrical Safety Code."
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
- A. Available Manufacturers: As indicated on Light Fixture Schedule or as approved through prior approval process.

2.2 LUMINAIRES, GENERAL REQUIREMENTS
- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
- B. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.
- G. Exposed Hardware Material: Stainless steel.
- H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
- I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.
- J. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

L. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

M. Factory-Applied Finish for Steel Luminaires: Color as selected by Architect. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

N. Factory-Applied Finish for Aluminum Luminaires: Color shall be as specified on Light Fixture Schedule or selected by Architect, if so specified. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.3 LED LUMINAIRES

A. LED Luminaire with a minimum CRI of 70 and color temperature equal or greater than lamp specified on Light Fixture Schedule. L70 lamp life minimum of 50,000 hours

2.4 POLES AND SUPPORT COMPONENTS, GENERAL REQUIREMENTS

A. Structural Characteristics: Comply with AASHTO LTS-4.
   1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in Part 1 "Structural Analysis Criteria for Pole Selection" Article, with a gust factor of 1.3.
   2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts, unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.
   1. Materials: Shall not cause galvanic action at contact points.
   2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication, unless stainless-steel items are indicated.
   3. Anchor-Bolt Template: Plywood or steel.

D. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Division 03 Section "Cast-in-Place Concrete."

E. Breakaway Supports: Frangible breakaway supports, tested by an independent testing agency acceptable to authorities having jurisdiction, according to AASHTO LTS-4.

2.5 STEEL POLES

A. Poles: Comply with ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psig; 1-piece construction up to 40 feet in height with access handhole in pole wall.
   1. Shape: As specified on Light Fixture Schedule.
   2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

B. Brackets for Luminaires: Detachable, cantilever, without underbrace.
   1. Adapter fitting welded to pole and bracket, then bolted together with plated or galvanized-steel bolts.

2. Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire.
3. Match pole material and finish.

C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.

D. Steps: Fixed steel, with nonslip treads, positioned for 15-inch vertical spacing, alternating on opposite sides of pole; first step at elevation 10 feet above finished grade.

E. Grounding and Bonding Lugs: Welded 1/2-inch threaded lug, complying with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

F. Cable Support Grip: Wire-mesh type with rotating attachment eye, sized for diameter of cable and rated for a minimum load equal to weight of supported cable times a 5.0 safety factor.

G. Prime-Coat Finish: Manufacturer's standard prime-coat finish ready for field painting.

H. Galvanized Finish: After fabrication, hot-dip galvanize complying with ASTM A 123/A 123M.

I. Factory-Painted Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Color shall be as specified on Light Fixture Schedule or selected by Architect, if so specified selected by Architect.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

A. Install lamps in each luminaire.

B. Fasten luminaire to indicated structural supports.
1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Adjust luminaires that require field adjustment or aiming to satisfaction of Owner.

3.2 POLE INSTALLATION

A. Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features, unless otherwise indicated on Drawings:
1. Fire Hydrants: 8'.
2. Water, Gas, Electric, Communication, Storm Drainage and Sewer Lines: 6'.
3. Trees: 15'.

C. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements as specified in the City of Gillette "Standard Construction Specifications (2017)", Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for cast-in-place concrete.

D. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.
1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.
2. Grout void between pole base and foundation. Use non-shrink or expanding concrete grout firmly packed to fill space.
3. Install base covers, unless otherwise indicated.
4. Use a short piece of 1/2-inchdiameter PVC pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

E. Raise and set poles using web fabric slings (not chain or cable).

F. All poles shall be checked after one (1) year of operation for proper vertical alignment and shall be adjusted to true plumb if necessary.

3.3 INSTALLATION OF INDIVIDUAL GROUND-MOUNTING LUMINAIRES

A. Install on concrete base with top 4 inches above finished grade or surface at luminaire location, unless otherwise specified on plans. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing requirements as specified in the City of Gillette "Standard Construction Specifications (2017)", Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for cast-in-place concrete.

3.4 GROUNDING

A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
   1. Install grounding electrode for each pole, unless otherwise indicated.
   2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

B. Ground nonmetallic poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
   1. Install grounding electrode for each pole.
   2. Install grounding conductor and conductor protector.
   3. Ground metallic components of pole accessories and foundations.

END OF SECTION 26 56 00

SECTION 26 56 68
EXTERIOR ATHLETIC LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for Campbell County School District North Campus Football using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. Electrical Contractors shall submit previous successful athletic pole lighting or high mast pole lighting projects completed with positive references available.

D. The sports lighting will be for the following venues:
   1. Soccer Field – 360'x225'

E. The primary goals of this sports lighting project are:
   1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
   2. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors. The LED design should provide better control than a good HID design.
   3. Life-cycle Cost: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
   4. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

1.2 LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Soccer Field	60 foot-candles	2:1	72	30'x30'

B. Hours of usage: Designs shall be based on the following hours of usage

Area of Lighting	Annual Usage Hours	25 year Usage Hours
Soccer Field	200	5,000

C. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.

D. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be as described below. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
4	F1, F2, F3 and F4	80'

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following.

C.

	Average	Maximum
Spill at 200' **Maintained Maximum Vertical Foot-candles**	0.18 fc	1.50 fc
Spill at 200' **Maintained Horizontal Foot-candles**	0.15 fc	1.35 fc
Candela at 200' **Max Candela (per fixture)**	6406.29 Cd	29500.17 Cd

D. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

E. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified independent testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

1.4 LIFE-CYCLE COSTS

A. Manufacturer shall submit a 25-year life cycle cost calculation as outlined in the required submittal information.

B. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

PART 2 - PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per

ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:
   1. Galvanized steel poles and cross-arm assembly.
   2. Non-approved pole technology:
      a. Square static cast concrete poles will not be accepted.
      b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
   3. Lighting systems shall use concrete foundations. See Section 2.3 for details.
      a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
      b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
   4. Manufacturer will supply all drivers and supporting electrical equipment
      a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.
      b. Alternate: Integral drivers mounted at the top of the pole will require a pole mounted enclosure approximately 10 feet above grade. The enclosure shall include a disconnect per circuit and surge protection.
   5. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
   6. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
   7. All luminaires, visors, and cross-arm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment.
   8. Control cabinet to provide remote on-off control and monitoring of the lighting system. See Section 2.4 for further details.
   9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
      a. Integrated grounding via concrete encased electrode grounding system.
      b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
   1. Electric power: 480 Volt, 3 Phase
   2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be 79.10 kW.

2.3 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2015 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115 and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2015 IBC Table 1806.2.

2.4 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Remote Lighting Control System:
   1. System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
   2. The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.
   3. Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

E. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

F. Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.
   1. Cumulative hours: shall be tracked to show the total hours used by the facility
   2. Report hours saved by using early off and push buttons by users.

G. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

PART 3 - EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
   1. Providing engineered foundation embedment design by a registered engineer in the State of CA for soils other than specified soil conditions;
   2. Additional materials required to achieve alternate foundation;
   3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING
   A. Delivery Timing Equipment On-Site: The equipment must be on-site 6 to 8 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL
   A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

A. Field Light Level Accountability
   1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 Years.
   2. The contractor/manufacturer shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and will utilize the owner's light meter in the presence of the owner.
   3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

B. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE
A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 - DESIGN APPROVAL

4.1 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)
A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design

meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Approved Product: Musco's Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

26 56 68
EXTERIOR ATHLETIC LIGHTING

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID
All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. Submit checklist below with submittal.

Yes / No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.
	F	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	G	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	H	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of WY, if required by owner.

	I	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system to include monitoring. They will also provide five (5) references of customers currently using proposed system in the state of CO or WY.
	J	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of WY.
	K	Warranty	Provide written warranty information including all terms and conditions. Provide five (5) references of customers currently under specified warranty in the state of WY.
	L	Project References	Manufacturer to provide a list of five (5)projects where the technology and specific fixture proposed for this project has been installed in the state of CO or WY. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	M	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
	N	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	O	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	P	Life-cycle Cost Calculation	Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included in the warranty. All costs should be based on 25 Years. (complete table below)

25-Year Life Cycle Operating Cost			
a.	Luminaire energy consumption #_____ luminaires x _____ kW demand per luminaire x 0.07 kWh rate x 200 annual usage hours x 25 years		_____
b.	Cost for maintenance, not covered, for 25 years Assume #_____ repairs at $_____ each if not included with the bid	+	_____
	TOTAL 25 -Year Life-cycle Operating Cost	=	_____

The information supplied herein shall be used for the purpose of complying with the specifications for Campbell County High School Football North Campus. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ Signature: _____

Contact Name: _____ Date: _____/_____/_____

Contractor: _____ Signature:_____

END OF SECTION 26566

SECTION 32 1123

AGGREGATE BASE COURSES (SYNTHETIC TURF)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base courses including:
   1. 6" Grading B Drain Rock Aggregate Base Course for synthetic turf and intrinsic storm sewer drain within the extents of the synthetic turf field area.
   2. 2" Top Stone Finishing Aggregate Base Course for synthetic turf.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section.

B. Comply with Section 02190, Aggregates, of the City of Gillette's "Standard Construction Specifications (2017)", unless otherwise modified by this document or the "Geotechnical Investigation" prepared for this Project by Strata.

C. Comply with Section 02231, Aggregate Sub-Base and Base Courses, of the City of Gillette's "Standard Construction Specifications (2017)", unless otherwise modified by this document or the "Geotechnical Investigation" prepared for this Project by Strata.

1.03 REFERENCE STANDARDS

A. City of Gillette "Standard Construction Specifications (2017)".

B. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop; 2017.

C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

D. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012, with Editorial Revision (2015).

E. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012, with Editorial Revision (2015).

1.04 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).

1.05 SUBMITTALS

A. See City of Gillette "Standard Construction Specifications (2017)" Section 01340 – Submittals, Section 02190 – Aggregates, and Section 02231 – Aggregate Sub-Base and Base Courses, for submittal procedures unless otherwise modified by this document.

B. Samples: Supply Owner with a one (1) gallon sample of product for visual inspection and testing.

C. Materials Sources: Submit name of imported materials source.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Lab analysis of aggregate materials, including but not limited to gradation and permeability analysis.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. Aggregate Storage, General:
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.

2. Prevent contamination.
3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. 6" Grading B Drain Rock Aggregate Base Course: Clean crushed stone, quality crushed stone standards for base- coarse material for in-fill turf field. LA Abrasion of 45 or lower; 10 or better on the Type A freeze and thaw; 6 or less on the Absorption; and 5 or less on the shale test. Per minimum gradation requirements of the City of Gillette "Standard Construction Specifications (2017)" Section 02190 Aggregates unless otherwise modified by this document.

B. 2" Top Stone Finishing Aggregate Base Course: Clean crushed stone, quality crushed stone standards for surface- coarse material for turf field. LA Abrasion of 45 or lower; 10 or better on the Type A freeze and thaw; 6 or less on the Absorption; and 5 or less on the shale test. Per following;
   1. Graded in accordance with ASTM C136/C136M, within the following limits:
      a. 3/8 inch sieve: 100 percent passing.
      b. 1/4 inch sieve: 25 to 95 percent passing
      c. No. 4 sieve: 1 to 6 percent passing.

2.02 SOURCE QUALITY CONTROL

A. See City of Gillette "Standard Construction Specifications (2017)" Section 02190 – Aggregates, and Section 02231 – Aggregate Sub-Base and Base Courses for general requirements for testing and analysis of aggregate materials unless otherwise modified by this document.

B. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

C. Examine substrates and adjoining construction, and conditions under which work is to be installed. Do not proceed with work until satisfactory conditions are corrected.

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting, per the "Geotechnical Investigation" prepared for this Project by Strata.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. The aggregates should be one of the last items installed on the facility to maintain the physical properties.

B. Do not install the aggregates until geosynthetic separation fabric and various drain pipe are installed and connected to drainage system.

C. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements per "Geotechnical Investigation" prepared for this Project by Strata and City of Gillette "Standard Construction Specifications (2017)" Section 02190 – Aggregates, and Section 02231 – Aggregate Sub-Base and Base Courses. Grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

D. Place aggregate in maximum 4 inch layers and roller compact to specified density. Comply with compaction requirements per "Geotechnical Investigation" prepared for this Project by Strata and City of Gillette "Standard Construction Specifications (2017)" Section 02190 – Aggregates, and Section 02231 – Aggregate Sub-Base and Base Courses.

E. Level and contour surfaces to elevations and gradients indicated.

F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/2 inch measured with 10 foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation From Design Elevation: Within 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirement

C. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556/D1556M and ASTM D 2216 or ASTM D 2922 and ASTM D 3017 as applicable within compaction requirements of the "Geotechnical Investigation" prepared for this Project by Strata and City of Gillette "Standard Construction Specifications (2017)" Section 02190 – Aggregates, and Section 02231 – Aggregate Sub-Base and Base Courses. Tests will be performed at the following locations and frequencies:

1. Finished subgrade for synthetic grass surfacing: at subgrade and at each compacted fill and backfill layer, at least 1 test for every 10,000 sq ft. or less of finished subgrade area.
2. Engineer will select test locations.
3. Additional testing may be required by Owner if noncompliance or change in conditions occurs.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.06 CLEANING

A. Upon completion of installation, test operation to demonstrate satisfactory drainage of top cap stone and base stone acceptable to Owner.

B. Clean or replace unsuitable materials.

C. Remove unused stockpiled materials, leave area in a clean and neat condition. Clean and sweep any parking areas or other pavements used to store materials to satisfaction of Owner.

END OF SECTION 32 1123

SECTION 32 12 93

ARTIFICIAL GRASS ATHLETIC FIELD TURF SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish all labor, materials, tools and equipment necessary to install monofilament artificial grass FieldTurf as indicated on the plans and as specified herein; including components and accessories required for a complete installation including but not limited to
   1. Acceptance of prepared sub-base.
   2. Synthetic material field edge track strip.
   3. Coordination with related trades to ensure a complete, integrated, and timely installation: Aggregate base course, sub-base material (tested for permeability), grading and compacting, piping and drain components (when required); as provided under its respective trade section.

1.2 REFERENCE STANDARDS

A. FM Factory Mutual
   1. P7825 - Approval Guide; Factory Mutual Research Corporation; current edition

B. ASTM – American Society for Testing and Materials.
   1. D1577 - Standard Test Method for Linear Density of Textile Fiber
   2. D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
   3. D1338 - Standard Test Method for Tuft Bind of Pile Yarn Floor Covering
   4. D1682 - Standard Method of Test for Breaking Load and Elongation of Textile Fabrics
   5. D5034 - Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
   6. F1015 - Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
   7. D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
   8. D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
   9. F355 - Standard Test Method for Shock-Absorbing Properties of Playing Surfaces.
   10. F2117 – Standard Test Method for Vertical Rebound Characteristics of Sports Surface Systems: Acoustical Measurements (Soccer)
   11. BS7044, Section 2.2 Methods for Determination of Person/Surface Interaction Method 1: Determination of Traction (Rotational Resistance)
   12. F1551-03 Suffix: DIN 18-035, Part 6: Water Permeability of Synthetic Turf Systems

1.3 SUBMITTALS

A. Substitutions: Other products are acceptable if in compliance with all requirements of these specifications. Submit alternate products to Architect for approval prior to bidding in accordance with project documents.
   1. Provide substantiation that proposed system does not violate any other manufacturer's patents, patents allowed or patents pending.
   2. Provide a sample copy of insured, non-prorated warranty and insurance policy

information.

B. Comply with Submittal Procedures per the City of Gillette "Standard Construction Specifications (2017)" Section 01340 – Submittals, unless otherwise noted by this document. Submit for approval prior to fabrication.

C. Shop Drawings:
   1. Indicate field layout; field marking plan and details for the specified sports; i.e., NCAA Football; roll/seaming layout; methods of attachment, field openings and perimeter conditions.
   2. Show installation methods and construction indicating field verified conditions, clearances, measurements, terminations, drainage.
   3. Provide joint submission with related trades when requested by Architect.

D. Product Data:
   1. Submit manufacturer's catalog cuts, material safety data sheets (MSDS), brochures, specifications; preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
   2. Submit fiber manufacturer's name, type of fiber and composition of fiber.
   3. Submit data in sufficient detail to indicate compliance with the contract documents.
   4. Submit manufacturer's instructions for installation.
   5. Submit manufacturer's instructions for maintenance for the proper care and preventative maintenance of the synthetic turf system, including painting and markings.

E. Samples: Submit samples, 9 x 12 inches, illustrating details of finished product in amounts as required by General Requirements, or as requested by Architect.

F. Product Certification:
   1. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
   2. Submit test results indicating compliance with Reference Standards.

G. Project Record Documents: Record actual locations of seams, drains and other pertinent information in accordance with Specifications, General Requirements.

H. List of existing installations: Submit list including respective Owner's representative and telephone number.

I. Warranties: Submit warranty and ensure that forms have been completed in Owner's name and registered with approved manufacturer.

J. Submit Bills of Lading/Material Delivery Receipts for synthetic turf infill materials. Bills of lading shall bear the name of the project/delivery address, quantity of materials delivered, source/location of origin of infill materials and/or manufacturer, and date of delivery.

K. Testing Certification: Submit certified copies of independent (third-party) laboratory reports on ASTM testing:
   1. Pile Height, Face Weight & Total Fabric Weight, ASTM D5848.
   2. Primary & Secondary Backing Weights, ASTM D5848.
   3. Tuft Bind, ASTM D1335.
   4. Grab Tear Strength, ASTM D1682 or D5034.
   5. Water Permeability, ASTM D4491

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The turf contractor and/or the turf manufacturer:
   1. Shall be experienced in the manufacture and installation of specified type of infilled spined and/or ridged monofilament grass system for a minimum of three years. This includes use of a spined and/or ridged monofilament fiber, backing, the backing coating, and the installation method.
   2. The manufacturer shall own and operate its own manufacturing plant. Manufacturing the fiber, tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer.
   3. The manufacturer must have ISO 9001, ISO 14001 and OHSAS 18001 certifications demonstrating its manufacturing efficiency with regards to quality, environment and safety management systems.
   4. The manufacturer must be a FIFA Preferred Producer and a FIFA Licensee
   5. The manufacturer must be licensed by all of the following major international governing bodies: FIFA, International Rugby Board (IRB), International Hockey Federation (FIH), Australian Football League (AFL).
   6. Shall have 500 fields in play for at least two years with a spined and/or ridged monofilament fiber. Fields shall be 65,000 ft² or more
   7. Shall have a minimum of 500 fields that are at least 8 years old, which is equal to the respective warranty period, with the same infill system.
   8. Shall have a minimum of 30 installations in the Rocky Mountain Region of WY, MT, UT.
   9. Shall have 10 fields in the State of Wyoming.
   10. Shall have a minimum of four fields within 30 miles of Gillette, WY.
   11. Shall have a minimum of 1 FIFA 2-Star recommended field in North America.
   12. Shall have a minimum of 5 NFL game and/or practice fields in play for the previous year.
   13. Shall have minimum 25 NCAA Division 1 game and/or practice fields installed for (football or soccer)
   14. Shall have a minimum of 1000 installations in North America, each of 65,000 ft² or more. Fields shall be 65,000 ft² or more of the specified infill material and a spined and/or ridged monofilament fiber.
   15. Shall provide third party certification confirming minimum requirement of 9 lbs tuft bind.
   16. Shall have an ASBA Certified Field Builder & Licensed Civil Engineer in-house on staff.

B. Installer: Company shall specialize in performing the work of this section. The Contractor shall provide competent workmen skilled in this specific type of synthetic grass installation.
   1. The designated Supervisory Personnel on the project shall be certified, in writing by the turf manufacturer, as competent in the installation of specified monofilament material, including sewing seams and proper installation of the infill mixture.
   2. Installer shall be certified by the manufacturer and licensed.
   3. The installer supervisor shall have a minimum of 5 years experience as either a construction manager or a supervisor of synthetic turf installations

C. Pre-Installation Conference: Conduct conference at project site at time to be determined by Architect. Review methods and procedures related to installation including, but not limited to, the following:
   1. Inspect and discuss existing conditions and preparatory work performed under

other contracts.

2. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Architect.

D. The Contractor shall verify special conditions required for the installation of the system.

E. The Contractor shall notify the Architect of any discrepancies.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Prevent contact with materials that may cause dysfunction.

B. Deliver and store components with labels intact and legible.

C. Store materials/components in a safe place, under cover, and elevated above grade.

D. Protect from damage during delivery, storage, handling and installation. Protect from damage by other trades.

E. Inspect all delivered materials and products to ensure they are undamaged and in good condition.

F. Comply with manufacturer's recommendations.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate the Work with installation of work of related trades as the Work proceeds.

B. Sequence the Work in order to prevent deterioration of installed system.

1.7 WARRANTY AND GUARANTEE

A. The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf for a period of eight (8) years from the date of substantial completion. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the Owner or the manufacturer. The warranty shall be fully third party insured; pre paid for the entire 8 year term and be non-prorated. The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. The insurance policy must be underwritten by an "AM Best" A rated carrier and must reflect the following values:

   1. Pre-Paid 8-year insured warranty.

   2. Insured Warranty Coverage must be provided in the form of 1 single policy

   3. Maximum per claim coverage amount of $32,000,000.

   4. Minimum of thirty-two million dollar ($32,000,000) annual aggregate

5. Must cover full 100% replacement value of total square footage installed, minimum of $7.00 per sq ft. (in case of complete product failure, which will include removal and disposal of the existing surface)

6. Policies that include self insurance or self retention clauses shall not be considered.

7. Policy cannot include any form of deductible amount.

8. Sample policy must be provided at time of bid to prove that policy is in force. A letter from an agent or a sample Certificate of Insurance will not be acceptable.

C. The artificial grass system must maintain a G-max of less than 200 for the life of the Warranty as per ASTM F1936.

1.8 MAINTENANCE SERVICE

A. Contractor shall train the Owner's facility maintenance staff in the appropriate maintenance practices of the synthetic turf system and the turf manufacturer's recommended maintenance equipment.

B. Manufacturer must provide maintenance guidelines and a maintenance video to the facility maintenance staff.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Approved manufacturers are as follows:

1. FieldTurf USA Inc.
175 N. Industrial Blvd
Calhoun, GA 30701
P: 800-724-2969

Model: FieldTurf Revolution 360

B. Other manufacturers may be considered at the discretion of the Owner.

2.2 MATERIALS AND PRODUCTS

A. Artificial grass FieldTurf system materials shall consist of the following:
1. Carpet made of “spined and/or ridged” monofilament polyethylene fibers tufted into a fibrous, non-perforated, porous backing.
2. Infill: Controlled mixture of graded sand and cryogenic rubber crumb that partially covers the carpet.
3. Glue, thread, paint, seaming fabric and other materials used to install and mark the artificial grass monofilament FieldTurf.

B. The installed artificial grass monofilament FieldTurf shall have the following properties:

Standard	Property	Specification
ASTM D1577	Fiber Denier	10,800
	HALS UV Stabilizer	10,000ppm

	Inner Face Support Ridges	≥6
	Outer Face Support Ridges	≥10
ASTM D5823	Pile Height	2.25"
ASTM D5793	Stitch Gauge	3/4"
ASTM D5848	Pile Weight	36oz/square yard
ASTM D5848	Primary Backing	7+oz/square yard
ASTM D5848	Secondary Backing	14+oz/square yard
ASTM D5848	Total Weight	57+oz/square yard
ASTM D1335	Tuft Bind (Without Infill)	8+ lbs
ASTM D5034	Grab Tear (Width)	200 lbs/force
ASTM D5034	Grab Tear (Length)	200 lbs/force
ASTM D4491	Carpet Permeability	>40 inches/hour
ASTM F1936	Impact Attenuation (Gmax)	<200
	Infill Material Depth	1.5 inches
	Sand Infill Component	6.2lbs/square foot
	SBR Rubber Infill Component	2.2lbs/square foot
	Total Product Weight	1267oz/square yard

C. Carpet shall consist of spined and/or ridged monofilament fibers tufted into a primary backing with a secondary backing.

D. Carpet Rolls shall be 15' wide rolls.
   1. Rolls shall be long enough to go from field sideline to sideline.
   2. Where the playing field is for football, the perimeter white line shall be tufted into the individual sideline rolls.

E. Backing:
   1. Primary backing shall be a double-layered polypropylene fabric
   2. Secondary backing shall consist of an application of porous, heat-activated urethane to permanently lock the fiber tufts in place.
   3. Perforated (with punched holes), backed carpet are unacceptable.

F. Fiber shall be 10,800 denier, low friction, and UV-resistant fiber measuring not less than 2.25 inches high.
   1. Systems with less than a 2.25 inch fiber are unacceptable.

G. Infill materials shall be approved by the manufacturer.
   1. Infill shall consist of a resilient layered granular system, comprising selected and graded sand and cryogenically hammer-milled SBR rubber crumb.
   2. Artificial Grass products without cryogenically processed rubber or a finish application of straight rubber cryogenically processed will not be acceptable.
   3. The sand component of the infill must represent a minimum of 51% or more of the total infill, by weight.

H. The sand infill will comply within the following characteristics:

   - Average Particle size between 20 and 30 mesh [calculated based on summing the midpoint of sieve pan fractions times the % retained on given screen fractions]
   - Average Particle shape > 0.4 on the Krumbein scale
   - Particle structure predominantly single grain
   - Produce < 0.4%, -50M in API crush test at 80psig

I. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

J. Thread for sewing seams of turf shall be as recommended by the synthetic turf manufacturer.

K. Glue and seaming fabric for inlaying lines and markings shall be as recommended by the synthetic turf manufacturer.

2.3 QUALITY CONTROL IN MANUFACTURING

A. The manufacturer shall own and operate its own manufacturing plant. Manufacturing the fiber, tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer. Outsourcing of any of these major processes is unacceptable.

B. The manufacturer shall have full-time certified in-house inspectors at their manufacturing plant that are experts with industry standards.

C. Primary backing shall be inspected by the manufacturer's full-time certified in-house inspectors before tufting begins.

D. The manufacturer's full-time in-house certified inspectors shall verify "pick count", yarn density in relation to the backing, to ensure the accurate amount of face yarn per square inch.

E. The manufacturer's full-time, in-house, certified inspectors shall perform turf inspections at all levels of production including during the tufting process and at the final stages before the turf is loaded onto the truck for delivery.

F. The manufacturer shall have its own, in-house laboratory where samples of turf are retained and analyzed, based on standard industry tests, performed by full-time, in-house, certified inspectors.

G. The manufacturer must have ISO 9001, ISO 14001 and OHSAS 18001 certifications demonstrating its manufacturing efficiency with regards to quality, environment and safety management systems.

2.4 QUALITY CONTROL IN FIBER MANUFACTURING

A. Synthetic turf fiber must perform in a uniform manner or manufacturer quality control issues in the extrusion processes will be suspected. Linear Low-Density Polyethylene Polymer ("LLDPE") and batch additives obtained from a reputable manufacturer are required to manufacture superior quality monofilament yarn. The master batch formula must include a UV stabilizer package added to its polymer base.

B. The LLDPE used to make the artificial grass fiber needs to be a "C6" LLDPE which contains 6 carbon atoms and 13 hydrogen atoms; A C6-based LLDPE produces strong and resilient artificial grass fibers over prolonged periods and thus should provide the basis for long term performance of the system.

C. Adequate UV protection is essential to the long-term durability of any artificial grass fiber. Typically, stabilizer packages for polyethylene fibers have three components that protect the fibers from degradation: (1) primary antioxidants; (2) secondary antioxidants; and (3) UV stabilizers (i.e., hindered amine light stabilizers ("HALS")). HALS are a particularly important aspect of the stabilizer package. A typical HALS concentration is 10,000 ppm.

More developed HALS molecules are methyl stabilized to prevent from degradation.

D. Streaking refers to color variation in a field due to different degrees of fiber relaxation. Fiber in one row stands up, while fiber in an adjacent row lies flat. The inconsistent relaxation causes differences in the reflection of light off of the fiber, and results in the field having a streaked or striped appearance. Adequate UV protection minimizes the appearance of streaking and other visual flaws during the warranty period.

E. Each finished fiber should have at least 6 inner face support ridges and 10 outer face support ridges

2.5 MAINTENANCE EQUIPMENT

A. Supply new and complete equipment as part of the work.
   1. Provide one (1) Field Groomer to include a towing attachment compatible with a field utility vehicle. Field Groomer shall be a FieldTurf GroomRight or approved equal.
   2. Provide one (1) Field Sweeper to include a towing attachment compatible with a field utility vehicle. Field Sweeper shall be a FieldTurf SweepRight or approved equal.
   3. Provide one (1) snow removal Turf Pusher from Pro-Tech or approved equal.
   4. Provide Owner with multiple options for a single piece of equipment capable of utilizing all grooming, sweeping, and snow removal equipment.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that all sub-base leveling is complete prior to installation.

B. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to the beginning of installation.
   1. Acceptance is dependent upon the Owner's test results indicating compaction and planarity are in compliance with manufacturer's specifications.
   2. The surface shall be accepted by Installer as "clean" as installation commences and shall be maintained in that condition throughout the process.

C. Compaction of the aggregate base shall be 95%, in accordance with ASTM D1557 (Modified Proctor procedure); and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0-½" from design grade.

D. Correct conditions detrimental to timely and proper completion of Work.

E. Do not proceed until unsatisfactory conditions are corrected.

F. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.

B. Sub-base acceptance shall be subject to receipt of test results (by others) for compaction and planarity that sub-base is in compliance with manufacturer's specifications and recommendations.

C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.

D. When requested by Architect, installed sub-base shall be tested for porosity prior to the installation of the monofilament turf. A sub base that drains poorly is an unacceptable substrate

3.3 INSTALLATION - GENERAL

A. The installation shall be performed in full compliance with approved Shop Drawings.

B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.

C. The designated Supervisory personnel on the project must be certified, in writing by the turf manufacturer, as competent in the installation of this material, including sewing seams and proper installation of the Infill mixture.

D. Designs, markings, layouts, and materials shall conform to all currently applicable National Collegiate Athletic Association rules, NFHS rules, and/or other rules or standards that may apply to this type of synthetic grass installation. Designs, markings and layouts shall first be approved by the Architect or Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

3.4 INSTALLATION

A. Install at location(s) indicated, to comply with final shop drawings, manufacturers'/installer's instructions.

B. The Contractor shall strictly adhere to specified procedures. Any variance from these requirements shall be provided in writing, by the manufacturer's on-site representative, and submitted to the Architect and/or Owner, verifying that the changes do not in any way affect the Warranty. Infill materials shall be approved by the manufacturer and installed in accordance with the manufacturer's standard procedures.

C. Carpet rolls shall be installed directly over the properly prepared aggregate base. Extreme care shall be taken to avoid disturbing the aggregate base, both in regard to compaction and planarity.
   1. Repair and properly compact any disturbed areas of the aggregate base as recommended by manufacturer

D. Full width rolls shall be laid out across the field.
   1. Turf shall be of sufficient length to permit full cross-field installation from sideline to sideline.
   2. No cross seams will be allowed in the main playing area between the sidelines.
   3. Each roll shall be attached to the next roll utilizing standard state-of-the- art sewing procedures.
   4. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed at right angles to the playing surface.

E. Artificial turf panel seams shall be sewn along the selvedge edging flap of the turf roll. Seams secured by other means including gluing are unacceptable. Installation shall be 99% sewn.
   1. Minimum gluing will only be permitted to repair problem areas, corner completions,

and to cut in any logos or inlaid lines as required by the specifications.

2. Seams shall be flat, tight, and permanent with no separation or fraying.
3. In the case of all lines and logos, turf carpet/field fibers must be sheared to the backing (do not cut the backing) and adhered using hot melt adhesives.

F. Infill Materials:
   1. Infill materials shall be applied in numerous thin lifts. The turf shall be brushed as the mixture is applied. The infill material shall be installed to a depth determined by the manufacturer.
   2. Three-layered infill shall be installed in a systematic order.
   3. Infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional. The Infill installation consists of a base layer of sand followed by a homogenous mixture of the sand and the cryogenically processed rubber. A final application of specifically sized cryogenically processed rubber completes the system. The Infill shall be installed to the depth of 1 1/2". Infill density shall consist of no more than 6.2 pounds of sand and at least 2.2 pounds of rubber per square foot. The Infill shall be placed so that there is a void of ¾" to the top of the fibers.

G. Non-tufted or inlaid lines and markings shall be painted in accordance with turf and paint manufacturers' recommendations. Number of applications will be dependent upon installation and field conditions.

H. Synthetic turf shall be attached to the perimeter edge detail in accordance with the manufacturer's standard procedures.

I. Upon completion of installation, the finished field shall be inspected by the installation crew and an installation supervisor.

3.5 FIELD MARKINGS

A. Field markings shall be installed in accordance with approved shop drawings based on the provided Drawings per the Owner. Soccer shall be marked as primary sport with white. Football shall be marked as secondary sport with black.

B. Additional school specific boundary lines are requested for the soccer area field of play boundary, the team and coaching area boxes, and the officials area box are requested per the Drawings.

C. Balance of sports markings will be inlaid or painted in accordance with the Drawings.

D. Center field logo shall be either painted or inlaid according to artwork indicated on Drawings and in accordance with manufacturer's standard palette of turf colors. Center field logo to be read and seen from the west side of the field or from the team and coaching area boxes.

E. Additional school specific lettering is requested along as indicated on the Drawings within the east buffer (outside of the field of play), generally centered at mid field within the buffer, to be read and seen from the east side of the field or from the spectator bleachers.

3.6 RECYCLING

A. Manufacturer must commit to a "take back" program once the useful life of the turf surface has lapsed. Upon removal of the turf surface, at least 75% of the turf surface must be recycled.

3.7 FIELD MAINTENANCE

A. Perform regularly scheduled periodic maintenance twice per year. The maintenance will include but not be limited to a complete inspection and repair including all materials and cleaners of all areas of the field including: Fiber fibrillation analysis, Seam analysis, Perimeter anchoring, Excessive wear analysis, UV fade inspection, Infill – consistency in depth, Infill – migration analysis, Glued inlay analysis, Base stability analysis, Painted marking inspection, Debris removal, Brushing, Aerating, Grooming, Removal of weeds and moss, Removal of stains, Keeping the infill level.

B. The inspection and maintenance will be performed by a FieldTurf Authorized Maintainer, if the person is not the same as the previous visit, then credentials will be submitted for approval before the visit.

C. Approximate number of times is 2 times per year for 8 years through the warranty period.

D. The maintenance activities will include and not be limited to the most current FieldTurf Maintenance Guidelines at the time the maintenance is being undertaken, including the following FieldTurf Products: FieldTurf Scrub Detergent, FieldTurf Static Control, FieldTurf Gum Remover.

3.8 ADJUSTMENT AND CLEANING

A. Do not permit traffic over unprotected surface.

B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.

C. All usable remnants of new material shall become the property of the Owner.

D. The Contractor shall keep the area clean throughout the project and clear of debris.

E. Surfaces, recesses, enclosures, and related spaces shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.9 PROTECTION

A. Protect installation throughout construction process until date of final completion.

END OF SECTION 32 1293

SECTION 32 3300

SITE FURNISHINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Spectator Bleachers

B. Team Benches.

C. Waste receptacles.

1.02 RELATED REQUIREMENTS

A. City of Gillette "Standard Construction Specifications (2017)" Section 02520, Section 02530, Section 03100, Section 03200, Section 03251, Section 03304, Section 03305, Section 03310, Section, 03345, Section 03370 for cast-in-place concrete: Bollard infill and underground encasement.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

1.04 SUBMITTALS

A. Product Data: Provide manufacturer's specifications and descriptive literature, installation instructions, and maintenance information.

1.05 WARRANTY

A. Provide manufacturer's warranty against defects in materials or workmanship for ductile iron castings for a period of 10 years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Furnishings/Suppliers:
   1. Anova, St. Louis, MO 63141, as distributed by Made In The Schade, PO Box 2870, Evergreen, CO 80437, p. 303.670.3789, Contact: Daumantus Dvilevicius, email: daumantas@anovafurnishings.com
   2. Wabash Valley Manufacturing, Inc., Silver Lake, IN 46982, p. 800.253.8619, website: www.wabashvalley.com
   3. Substitutions: As approved by the Engineer and Owner.

2.02 METAL FURNISHINGS

A. Metal Furnishings, General:
   1. Steel components: Plates, bars, and shapes complying with ASTM A36/A36M and tubing complying with ASTM A500/A500M; cleaned, treated, and powder-coated.
      a. Color: Black.
   2. Hardware: Stainless steel.

B. Waste Receptacles: Steel frame with thermoplastic coated steel expanded metal sheet and removable lid.
   1. Capacity: 32 gallons.
   2. Shape: Round.
   3. Diameter: Approx. 24 inches.
   4. Height: Approx. 30 inches.
   5. Inserts: Removable plastic containers for waste material.
   6. Lids:
      a. Material: Steel.
      b. Type: Flat.
   7. Mounting: Anchored into surfacing.

8. Products:
   a. Anova Furnishings Model F1021M
   b. Wabash Valley Model 9557
   c. Or otherwise approved by Engineer and Owner.

2.03 PORTABLE BLEACHERS AND TEAM BENCHES

A. Exterior Bleachers: BLO02104AA Weatherbeater™ Premium Outdoor 7 ½', 4-Tier Portable Bleacher as manufactured by:

1. Bison, Inc., 603 L Street, Lincoln, NE 68508, p. 800.247.7668, www.bisoninc.com

2. System Description:
   a. BLO02104AA Weatherbeater™ Premium Outdoor 21', 4-Tier Portable Bleachers Bleacher framework shall be constructed of welded steel angles and bolt-on horizontal support members. All steel parts shall be hot dip galvanized after welding to eliminate rust. Seat planks shall be 10" wide x 1 ¾" thick clear anodized aluminum extrusions with aluminum end caps and be mounted on two steel support frames. Premium Bleachers include extra foot plank.
   b. When in use, bleachers shall sit on 2" x 4" rot proof recycled plastic runners, and steel support frames are to be anchored into surfacing. Bleachers shall provide four rows of 21' seating with a total approximate capacity of 56 persons.
   c. Bleacher structure shall have a 5-year limited warranty and seat planks shall have a 2-year limited warranty. Approximate weight shall be 710# each.

B. Player Bench (21'-0" Length): BNP2101BAA 21' Fixed Player Bench with Back Rest as manufactured by:

1. Bison, Inc., 603 L Street, Lincoln, NE 68508, p. 800.247.7668, www.bisoninc.com

2. Product Description:
   a. Bench legs shall be constructed of 2" x 2" square tubing with a 12 ga. wall thickness and a polyester powder coated finish. Provide optional powder coated seat planks for each plank. 3" diameter rubber molded feet shall attach to the bottom of legs at eight places to prevent scratching of floors and synthetic turf. All exposed tube ends shall be enclosed by means of molded plastic end caps. Bench shall be 21' in length to accommodate up to 14 players. Seat and seat back shall be extruded aluminum with clear anodized finish designed to provide a 10" wide plank with an overall thickness of 1 ¾" and have molded end caps. The aluminum planks shall have a minimum cross section thickness of 2/25". Plank and setback shall be attached to four tubular leg assemblies. All assembly hardware shall be zinc plated. Installation to be completed in accordance to manufacturer's instructions.
   b. Bench shall carry a 5-year limited warranty on legs and a 2-year limited warranty on aluminum planks. Approximate weight shall be 110#.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that mounting surfaces, preinstalled anchor bolts, or other mounting devices are properly installed; and ready to receive site furnishing items.

B. Do not begin installation until unacceptable conditions are corrected.

3.02 INSTALLATION

A. Install site furnishings in accordance with approved shop drawings, and manufacturer's installation instructions.

END OF SECTION

SECTION 26 05 00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 – GENERAL

1.1 DESCRIPTION

A. Specification Format

1. These Specifications are written in imperative and abbreviated form. This imperative language of the technical sections is directed at the Contractors, unless specifically noted otherwise. Incomplete sentences shall be completed by inserting "shall", "the Contractor shall", and "shall be", and similar mandatory phrases by inference in the same manner as they are applied to notes on the Drawings. The words "shall be" shall be supplied by inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, perform all indicated requirements whether stated imperatively or otherwise.
2. Three Part Format
   a. "Part 1.00 - General": Covers those areas which relate to the Work, and which define the general administrative and technical requirements specific to a particular section.
   b. "Part 2.00 - Products": Defines, in detail, the acceptance equipment and materials to be incorporated into the Work.
   c. "Part 3.00 - Execution": Describes, in detail, the manner in which items covered by Part 2 are to be incorporated into the Work.
3. Where Codes, Specifications and Drawings are in conflict, the Contractor will be deemed to have bid the more expensive method. Refer all such discrepancies immediately to the Engineer prior to commencing related work.

B. Definitions

1. "Furnish" - Supply equipment as required by these Drawings and Specifications, delivered to the job site for installation or use by others.
2. "Install" - Fix in position for total operational use all apparatus as shown, specified or required. Provide all miscellaneous fittings and wiring supplies.
3. "Or Approved Equal" - Equipment or materials selected by Contractor subject to Engineer's acceptance.
4. "Or Equivalent" - Equipment or materials selected by Contractor matching the function and performance of equipment or materials listed.
5. "Provide" - Furnish and install in place, total and operational.
6. “Manufacturer’s Representative” – person properly trained/certified for the specific equipment and a regular employee of the Manufacturer, the Manufacturer’s Representative Agency, a third party specializing company, or the selling distributor.
7. "Substantial Completion" - The date when the project has been completed, inspected, and accepted by the Engineer and Owner.

C. Work Included

1. Provide labor, equipment and materials in connection with Work specified and shown on Drawings.
2. Work of this Division is subject to requirements of Instructions to Bidders, General Conditions, Supplementary Conditions, Division One, and all other sections of this Specification.
3. Examine site and all Contract documents prior to submittal of bid.

D. Work Installed But Furnished Under Other Directives

1. Provide service for electrically operated equipment not specified in Division 26, 27 & 28. Verify size and locations of such connections by securing all rough-in requirements from the equipment supplier.
2. Equipment requiring electrical service shall be furnished with motors, special controls and remote electrical devices as specified in other Divisions.
3. Verify extent of controls and devices furnished by referring to Divisions where Work is specified.
4. Provide disconnects, starters, control devices, thermal units, fuses, switches and all necessary power and control wiring. Include the installation of remote electrical devices furnished separately with the equipment. Provide identification for remote devices as directed by the Engineer.
5. Contractors of other Divisions providing electrically operated equipment shall verify with the Electrical Contractor the proper voltage and phase before releasing equipment for shipment.
6. Unless otherwise specified, Contractor responsible for furnishing such equipment is also responsible for setting in place.

1.2 NOT USED

1.3 NOT USED

1.4 SUBMITTALS

A. Substitution and Prior Approval to Quote.

1. The reference to manufacturer's name and catalog or model numbers shall be interpreted as establishing a standard of quality, not as limiting competition.
2. Suppliers wishing to price material or equipment not referenced in Specifications or on Drawings shall apply in writing to Engineer for approval to quote. Electronic submittals shall be in PDF format. Include complete descriptive technical data on the proposed item consisting of: model numbers, type, size and performance characteristics. Procedure also applies to requests by Contractor. Self-addressed, stamped envelope required for return reply.
3. The request for prior approval to quote shall be received in Engineer's office no later than 192 hours (eight days) prior to bid opening. All substitute items approved for quotation will be listed in Addenda sent to all planholders in advance of bid opening.
4. Contractors choosing to use material or equipment other than those shown on Drawings or specified in detail, but approved for quotation, shall be responsible for physical dimensions and coordination. Architect, Engineer, or Owner will not be responsible for costs of necessary changes and additional work required by Contractor or any other trades.
5. Substitutions will not be permitted after bid opening.

B. Correspondence

1. Direct all correspondence concerning Division 26, 27, & 28 submittals to:

Jeremy Butman
PRAIRIE ENGINEERING, P.C.
619 RIVERWOOD DRIVE, SUITE 205
BISMARCK, ND 58504
jbutman@prengrbis.net

C. Shop Drawings

1. Before any of the materials are delivered to the job, submit to Engineer via the Prime Contractor complete Shop Drawings for each item indicated. (Minimum six copies).
2. Include catalog numbers, performance data, dimensions and other descriptive information.
3. Shop Drawings may be in the form of printed catalog sheets showing all necessary information and shall be **completely indexed and tabbed, and be bound in Duo-Tang, Mead or equivalent folders**. Electronic submittals shall be in PDF format organized in similar fashion.
4. Each Shop Drawing folder shall be **stamped, initialed, and dated**, by Prime Contractor to indicate he has thoroughly reviewed them in accordance with General Conditions. Electronic submittals shall include similar cover sheet attachment in PDF format. **Email message text not acceptable.**
5. Shop Drawings not in conformance with Specification will be returned to Prime Contractor without review.
6. Two copies will be retained by Engineer after review and balance will be returned to Prime Contractor.

D. As-Built Drawings

1. Designate one set of clean blueprints at project site as As-Built Drawings. Make As-Built Drawings available to Engineer during project visitation.
2. As work progresses, Contractor's field supervisor shall mark As-Built Drawings in red pencil to indicate actual conditions of installation.
3. Show same general details as Drawings.
4. Give particular attention to marking actual locations of feeders and underground runs.
5. Affix all addendum and change order descriptions to appropriate as-built drawing sheet, utilizing spray adhesive.
6. Submit As-Built Drawings to Engineer along with Record Manuals at close of project.
7. Upon Engineer's review, provide **additional three** photocopies of As-Built Drawings.

E. Record Manuals

1. Upon completion of Work of this Division and as condition of its acceptance, Contractor shall compile three Record Manuals in loose-leaf hardcover binders.
2. List project name, date, Contractor's name, address and telephone number on exterior label of each Record Manual.
3. Include an index sheet indicating each major piece of equipment, supplier and supplier's telephone number. Provide tabbed dividers indicating major groupings of equipment.
4. Record Manual information shall be included for all equipment/material where Shop Drawings are required. **Also include all installation, operation and maintenance data packaged with any equipment.**
5. Turn over to Owner all spare equipment and devices specified and shown. List quantities on Contractor letterhead or invoice, obtain signature of Owner's representative acknowledging receipt, and include with each Record Manual.
6. Include one copy of formal instructional recordings, properly identified as to specification section.
7. Include copy of State Electrical Board Wiring Certificate in each Record Manual.

8. Include service equipment fault current calculation and step-down transformer fault current calculations in Record Manuals. Utility transformer fault current shall be calculated per Section 260553-3.3. Step-down transformer fault current shall be calculated per Section 262200-1.2. Provide in tabular form, as per the following example:

Transformer	kVA	Sec. Voltage	Phase	Impedance	Fault Current	Date Calculated
Utility	300	480	3	1.06%	34,043 amps	11/15/2016
T-1	150	208	3	3.8%	10,958 amps	11/15/2016

9. Calculate the available fault current (AFC) for the mechanical and electrical equipment listed and provide the information in tabular form, utilizing naming convention on the drawings.
   a. HVAC Equipment 1HP and larger
   b. Refrigeration Equipment
   c. Elevator Equipment
   d. Industrial Control Panels
   e. Electrical Distribution Equipment
   f. Branch Panelboards
   g. MCC's.

10. Fault Current Table Format Example:

Equipment	Voltage	Phase	AFC at Equip.	Date Calculated
AH-1	480	3	5,289 amps	11/15/2016
CU-1	208	3	2,321 amps	11/15/2016

11. Transformer fault current table and equipment fault current calculation table shall be grouped together in the same tabbed section of the Record Manuals.

1.5 QUALITY ASSURANCE

A. Qualifications of Installers

1. For installation and testing, use only trained licensed and experienced workmen familiar with items required and manufacturer's recommended methods.
2. In acceptance or rejection of installed work, no allowance will be made for lack of skill on the part of the workmen.
3. To the maximum extent possible, retain the same supervisory personnel throughout the duration of the Work.

B. Licenses, Permits, Codes and Standards

1. Materials, workmanship and installation: comply with the latest editions of all applicable codes, local ordinances, industry standards, utility company regulations, insurance carrier requirements and these Specifications.
2. Codes and standards shall include, but not necessarily be limited to, the following:
   a. Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory (NRTL)
   b. National Electrical Code (NEC)
   c. National Fire Protection Association (NFPA)
   d. Occupational Safety and Health Act (OSHA)
   e. State and local wiring standards
   f. Building and fire codes

3. The more stringent provisions shall govern where provisions of pertinent codes and standards conflict with these Specifications or Drawings. Where Codes, Specifications or Drawings differ with one another, the Contractor will be deemed to have bid the more expensive method. Refer all such discrepancies to the Engineer immediately.
4. Pertinent codes and standards shall not be cited to furnish less than specifically shown or specified.
5. Obtain and pay all permits, inspections, licenses and other charges pertaining to the Work. Upon completion of the Work, furnish proof of acceptance by proper agency having jurisdiction.

1.6 GUARANTEE AND WARRANTY

A. Unless otherwise modified by other sections of this specification, Contractor shall guarantee materials, workmanship and the proper operation of equipment for a period of one year. Warranty period shall begin at date of substantial completion, or date of specific equipment commissioning, whichever is later. Contractor shall correct all equipment, material and workmanship found to be defective or non-conforming to the contract documents without cost to Owner.

B. Guarantee shall include trips to the project site by Contractor to adjust electrical equipment as required, ensuring it is operating as intended.

C. Specified guarantee shall not relieve Contractor from liability arising from improper installation or non-compliance with applicable codes.

D. Contractor shall include written warranty statement, indicating start and end dates of warranty period. Warranty statement shall be included with each copy of the Record Manuals.

1.7 CHANGES TO CONTRACT

A. Any required changes to the contract after bid date shall be in accordance with General Conditions/Division 1 and this section. Where any discrepancies between the sections are encountered, the more restrictive section shall apply.

B. Proposed changes shall be accompanied with complete substantiating documentation.

1. Provide an itemized list of quantities for materials, equipment, and supplies.
   a. Include unit costs for each item and extended price.
   b. Include unit labor for each item and extended time.
2. Provide subcontractor proposals that include the same substantiating documentation.
3. Provide quotations from suppliers for any specially ordered equipment.

C. Material costs shall be actual costs to the Contractor, obtaining the materials through normal supply channels, including trade and quantity discounts. Utilizing “suggested pricing” from national pricing organizations for unit costs shall not be accepted. Upon request, the Contractor or Subcontractor shall submit evidence to substantiate the costs.

D. Labor units shall be industry accepted standard labor hours to perform one unit of work. If the work is being performed in a location that is not considered to be standard working conditions for that specific task, additional labor shall be itemized.

E. Labor rates shall be the actual rate paid for the workman category along with associated labor burden. Labor burden shall consist only of the mandatory fringe benefits, labor taxes, and labor insurances as affected by payroll. The Owner reserves the right to reject any labor burden which is inconsistent with other similar contractors or where the fringe benefit cost is in excess of established labor agreements.

F. Allowable markups for Contractor and Subcontractors
1. Overhead on work performed by own forces: 12% maximum.
2. Profit on work performed by own forces: 10% maximum.
3. Commission on work performed by Subcontractors: 5% maximum.
4. Sales tax.
5. Bond and permit increases where applicable.

G. No additional markups shall be allowed for:
1. Field and/or office supervision/administration time.
2. Tool burden.
3. Shop burden.
4. Overhead/Profit applied to work performed by others.

H. Additional costs for travel and subsistence shall only be allowed if the proposal includes a request for extension of the completion date. Furthermore, those costs shall be proportional to the number of working days of the extension.

I. Subcontractors shall compute their costs in the same manner as the Contractor. Subcontractors are subject to the same markup constraints as described herein.

J. For changes resulting in credit to the costs, no restocking fees for materials shall be applied by the Contractor or Subcontractors.

1.8 TEMPORARY FACILITIES

A. Refer to Special Conditions and/or Division 1 for details of temporary facilities.

1.9 APPLICATIONS FOR PAYMENT

A. Refer to Division 1 "Applications for Payment".

B. Provide one additional copy, sent directly to the Engineer.

C. Format and content:

1. When included with the Bid, the following categories shall be indicated on the application for payment:
   a. *Project mobilization.*
   b. *Demolition.*
   c. *Service & Distribution* (all switchgear, panels, transformers, motor control centers, and loose controls/disconnects, installed in place).
   d. *Lighting* (all fixtures and lamps, installed in place, including pre-fabricated wiring system).
   e. *Wiring Devices* (all switches, receptacles, and plates, except voice-data, installed in place).
   f. *Equipment Connections* (HVAC, elevator, food service, etc., connected in place).
   g. *Basic Materials* (all conduit, wire, boxes, supports, fittings, grounding materials, except special systems and voice-data cabling systems, installed in place).
   h. *Fire Alarm & Detection* (all system equipment, installed in place).

i. *Special Systems* (all system equipment and cabling, installed in place, broken out by Specification Section. Examples include Clock and Program, Intercom, Nurse Call, Public Address, Sound Reinforcement, Rescue Assistance, TV Signal Cabling, Architectural and Theatrical Lighting Controls, and the like).
j. *Generator* (all system equipment, installed in place).
k. *Voice-Data Cabling Systems* (all system equipment, installed in place).

PART 2 – PRODUCTS

2.1 MATERIAL

A. Material and equipment shall be as shown or specified. Provide material not specifically described but required for a complete and proper installation of the Work, subject to the acceptance of the Engineer.

B. All material and equipment shall be new when delivered to the job and be listed by a Nationally Recognized Testing Laboratory (NRTL).

C. Owner will not be liable for material installed in non-compliance with codes, standards, and these Contract Documents.

2.2 PRODUCT HANDLING

A. Protection

1. Use all means necessary to protect the materials of this Division before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements

1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 3 – EXECUTION

3.1 GENERAL

A. Engineer, Architect, or Owner shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by Contractor.

B. Engineer, Architect, or Owner shall not be responsible for safety precautions and programs incidental to work of Contractor.

C. It is the sole responsibility of Contractor to initiate, maintain, and supervise all safety precautions and programs in connection with the Work.

3.2 SURFACE CONDITIONS

A. Prior to work of each Section of Division 26, 27, & 28, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that work of this Division may be installed in accordance with all pertinent codes, regulations and standards.

3.3 COORDINATION

A. Order material in a timely fashion to assure it is on the job site when required.

B. Coordinate installation of material with schedule of other trades to prevent unnecessary delay in construction schedule.

3.4 DISCREPANCIES, CONSTRUCTION CONFLICTS AND DRAWINGS

A. Discrepancies

1. Prior to submitting bid, Contractor shall refer any apparent discrepancies or omissions to Engineer for clarification.
2. The Architect, Engineer or Owner will not be responsible for any oral instructions or modifications to the contract documents prior to opening of bids.
3. Written interpretation or clarification will be made by Addenda.

B. Construction Conflicts

1. Conflicts discovered during construction shall be immediately called to the attention of the Engineer for decision.
2. Do not proceed with installation in area of question until conflict has been fully resolved.
3. When so directed by Engineer, Contractor shall make minor adjustment to avoid interferences with other trades. Such minor adjustments shall be performed at no additional cost to the Architect, Engineer or Owner.

C. Drawings

1. Drawings indicate extent and general layout of electrical systems for project. Due to small scale, it is not possible to indicate all fittings and accessories that may be required. Provide such fittings and accessories as required to form a complete and operating system in general conformance with Specifications and Drawings.
2. Data indicated on Drawings and in these Specifications is as exact as could be secured, but absolute accuracy is not guaranteed.
3. Exact locations, distances, levels and other conditions will be governed by the structure. Field measurements shall take precedence over the Drawings. Use the Drawings and these Specifications for guidance. Secure the Architect's approval for all changes in locations.
4. Verify all measurements at site. No compensation will be made because of difference between locations shown on the Drawings and measurements at the building.
5. Refer to the architectural drawings for dimensions and locations of walls, partitions, doors, windows, ceiling heights, door swings and other details of construction.

3.5 UNDERGROUND UTILITIES

A. Locations of existing underground utilities are based on available site information and are shown approximately. Contractor shall determine exact utility locations before commencing work and shall be responsible for repair of damages resulting from his construction activities.

B. Trench and backfill for installation of underground conduits to depth shown or required. Remove any accumulated water in excavation by pumping. Shore and brace excavation as required by safety regulations. Provide temporary bridges to maintain normal traffic flow. Excavation and backfill required by electrical installations shall be accomplished in accordance with Earthwork Specifications by this Contractor.

3.6 CUTTING AND PATCHING

A. Carefully lay out all work in advance to minimize cutting, channeling or drilling.

B. Where necessary, all such cutting and patching shall be done in a manner approved by Architect.

C. Restore damaged surfaces to their original condition by skilled mechanics of the trade involved. Contractor at fault shall assume all cost.

D. Use only rotary type drilling tools to cut concrete.

E. Do not endanger the stability of the structure. Do not at any time cut or alter work of any other Contractor without Architect's consent.

3.7 TESTS

A. Perform all tests as required by Engineer during construction and as described in other Sections of these Specifications.

B. Testing of entire installation shall be completed before final inspection.

3.8 INSTRUCTIONS

A. After all required approvals of the Work have been obtained; demonstrate the operation and maintenance of all electrical equipment to the Owner's personnel.

B. Provide written and oral operating and maintenance instructions to Owner's representatives. The oral instructions shall be given before the Owner occupies the buildings. Instructions to include all building's electrical systems and equipment.

C. Copies of written operating and maintenance instructions shall be included with each Record Manual.

D. Electrical Contractor shall coordinate with Owner at Owner's convenience, formal instruction time for contractor personnel to instruct Owner's Representatives on all equipment. Provide similar equipment supplier's instructions where specified thus. Formal instruction to occur with each Record Manual, being referenced to and a part of the Manual.

E. Formal instructions shall be recorded when required by other Sections of this Specification by this Contractor. Format shall be digital media capable of being played on Windows or Mac operating systems, or shall be submitted on DVD. Digital media may be submitted on a flash drive that is rendered un-writable after the video instructions have been uploaded.

3.9 CLEAN UP

A. Remove all scrap material left on job during and after installation of Work.

B. All equipment having finished paint surfaces shall be examined upon completion for scratches and other damage. Touch up all surfaces as required with paint of color to match factory finish.

C. Perform all cleaning as required by other Sections of Division 26, 27, & 28.

END OF SECTION 26 05 00

SECTION 26 05 19
CONDUCTORS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Provide a complete system of conductors enclosed in a raceway.

1.2 SUBMITTALS

A. Record Drawings

1. Maintain accurate record drawings in accordance with Section 260500.

PART 2 – PRODUCTS

2.1 CONDUCTOR

A. Copper

1. Soft drawn, annealed.
2. Conductivity of not less than 98% pure copper.
3. Insulated for 600 volt service.
4. #10 AWG and smaller: Solid, Type THWN/THHN.
5. #8 AWG and larger: Stranded, Type THWN/THHN.
6. Provide Type USE where required by Code.

B. MC Cable

1. MC cable is not acceptable for use as a wiring method.

2.2 NOT USED

2.3 SPLICES

A. #10 AWG and smaller: Scotchlock Y, R or G as manufactured by 3M Company, or equivalent.

B. #8 AWG and larger: Compression type, as manufactured by Anderson, Burndy, Thomas and Betts Company, or equivalent.

2.4 LUBRICANT

A. General

1. NRTL-listed.
2. Flame resistant
3. Compatible with conductor insulation.

B. Acceptable Manufacturer

1. As selected by Contractor.

PART 3 – EXECUTION

3.1 INSTALLATION

A. General

1. Install in accordance with Code, product listing, and manufacturer's recommendations.
2. Install wire and cable in Code-conforming raceways after moisture and debris is swabbed from conduit.
3. Refer to system specified for conductor's peculiar to that system.
4. Conductor sizes: Standard AWG, #12 minimum unless otherwise indicated.
5. Fixture taps: minimum #16 AWG.
6. Conductor temperature ratings: Compatible with the equipment to which it is to be connected. Refer to product listing.
7. Make conductor length for parallel feeders identical.
8. Derate ampacities as required for high ambient temperatures or conductor fill.

B. Color

1. Multi-wire (shared neutral) circuits.
   a. 120/208 volt
      1) Phase conductors: Black, red or blue.
      2) Grounded conductor (neutral): White.
      3) Grounding conductor: Green or bare.
2. Separate neutral circuits:
   a. 120/208 volt
      1) Phase conductors: Black, red or blue.
      2) Grounded conductor (neutral): White with stripe colored to match phase.
      3) Grounding conductor: Green or bare
3. Switch legs: Same as phase conductors.
4. 120 volt isolated ground circuits:
   a. Phase conductor: Orange.
   b. Grounded conductor (neutral): White with orange stripe.
   c. Grounding conductor: Green with yellow stripe.

C. Splices

1. Eliminate wherever possible.
2. Made only at outlet or junction boxes.
3. Obtain special permission from Engineer for any splices in feeder conductors.

D. Voltage Drop

1. Increase size of circuit wiring in accordance with NEC 210.19(A)(1), fine print note, No. 4.
2. Use #10 AWG minimum for all home run conductors longer than 75 feet on 120/208/240 systems and 150 feet on 277/480 systems.

3.2 TESTS

A. After equipment and wiring is installed, and before it is energized, test all power circuits with a megohmmeter for insulation resistance, phase-to-phase and phase-to-ground faults.

B. Before testing, disconnect all equipment that might be damaged by the test voltages.

END OF SECTION 26 05 19

SECTION 26 05 26
GROUNDING & BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Bond and ground all electrical equipment in accordance with National Electrical Code, State/Local Codes, these Specifications, and as shown on Drawings.

B. Description of System

1. The service equipment, conduit systems, supports, cabinets and neutral conductor shall be solidly grounded and bonded in accordance with National Electrical Code to form a permanent effective and continuous grounded system.

PART 2 – PRODUCTS

2.1 GROUND RODS

A. Steel with a metallically bonded outer layer of electrolytically applied copper.

B. Minimum 1/2" diameter 10 foot length, unless otherwise indicated.

C. Sectional rods not permitted.

D. Manufacturer: ERITECH or equivalent.

2.2 GROUND ROD CLAMPS

A. Ground rod clamps shall be high strength silicone bronze.

B. Manufacturer: ERITECH or equivalent.

C. At Contractor's option, exothermic welding (CADWELD) or impact compression (ERITECH Hammerlock) may be used in place of ground rod clamps.

2.3 WATER PIPE GROUND CLAMPS

A. Steel U-bolt with bronze saddle.

B. Manufacturer: Thomas and Betts Company #3900 series or equivalent.

2.4 REBAR GROUND CLAMPS

A. Bronze alloy construction.

B. Sized as required by rebar stub out.

C. Manufacturer: ERITECH #RC series or #EK series as required by local authority. Equivalent products by Thomas and Betts Company acceptable.

PART 3 – EXECUTION

3.1 GENERAL

A. **Grounding conductors not shown or included on floor plans**.

B. **When required, increase trade size of raceway accordingly**.

C. Aluminum not acceptable for use as a grounding conductor.

3.2 SYSTEM GROUNDING

A. Provide grounding electrode system in accordance with NEC 250.50. If available, each of the items listed in 250.52(A)(1) through (A)(7) shall be bonded together to form grounding electrode system.

B. Connect grounding electrode conductor to grounded service conductor.

C. Provide raceway enclosing grounding electrode conductor. If metallic, bond as per NEC 250.64(E). Provide grounding bushing as required complete with jumpers same size as grounding electrode conductor.

D. To comply with NEC 250.53, provide two ground rods spaced minimum 6'-0" apart.

3.3 EQUIPMENT GROUNDING CONDUCTOR

A. Non-metallic conduit: Sized in accordance with NEC, except as further modified by this Specification.

B. Flexible Metal Conduit, Liquidtight Flexible Conduit.

1. Other than for connection of 120 volt recessed luminaires, not acceptable for use as means of grounding.
2. Provide bonding jumper sized in accordance with NEC around all flexible conduits. Use fittings having lugs for termination of jumper.
3. Spiral wrap not acceptable. Lay along surface, secured with cable ties.
4. Bonding jumper maximum length: 6'.
5. Bonding jumper not required where separate equipment grounding conductor is used.

C. Branch Circuits

1. **Separate equipment grounding conductor required for each raceway.**
2. Size: per NEC 250.122.
3. Bond to grounding bars, junction boxes and luminaire grounding screws.
4. Field-install grounding screw in luminaire if not provided by factory.

D. Feeders

1. **Separate grounding conductor required**.
2. Bond to grounding bars in switchboards, panelboards and motor control centers.
3. Provide grounding bushing at both ends of all feeders utilizing metallic raceway.
   a. Bond to grounding bars at both ends.
   b. Size bonding jumpers to match equipment grounding conductor.
4. Feeder Equipment Grounding Conductor Size:
   a. Size per NEC 250.122.

b. Copper equivalent ampacity when aluminum phase conductors utilized.

5. Do not splice grounding conductor.

E. Water Pipe System

1. Bond interior metal water piping per NEC Section 250.104(A) if water pipe system is not used as part of grounding electrode system.

END OF SECTION 26 05 26

SECTION 26 05 33
RACEWAYS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Provide all conduit systems as shown on Drawings or required by Codes and Specifications.

B. Description of System.

1. Provide code-conforming raceway system for all conductors unless specifically noted otherwise by phrase "not in conduit".

1.2 SUBMITTALS

A. Record Drawings

1. Maintain accurate record drawings for all raceway runs in accordance with Section 260500.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Metallic conduit and tubing: Allied Tube and Conduit, Republic Conduit, or equivalent.

B. Non-metallic conduit: Carlon Schedule 40 or Schedule 80 where required, Allied Tube and Conduit, Cantex Inc., or equivalent.

C. Flexible metal conduit: Aluminum.

D. Liquidtight, flexible metal conduit: Anaconda Sealtite, or equivalent.

E. Fittings

1. Rigid metal conduit: Appleton, Crouse-Hinds, or equivalent. **Pot metal condulet fittings not acceptable.**
2. EMT:
   a. **Steel**.
   b. Setscrew or watertight as required.
   c. Thomas and Betts Company, or equivalent.
   d. **Pot metal, "Sock-on" and indenter fittings not acceptable**.
3. Flexible metal conduit: STEEL, Thomas and Betts Company #XC-400 series, or equivalent.
4. Liquidtight flexible metal conduit:
   a. **Steel**.
   b. Straight or angled as required.
   c. Appleton, Thomas and Betts Company or equivalent.

F. Hangers and Supports

1. As required by Codes and Specifications.
2. Raco, Unistrut, or equivalent.
3. ERICO conduit clips, Type 8-M, 12-M and K-8 acceptable for individual branch circuit runs.

G. Metal Surface Raceway

1. Wiremold #500/700 metallic series or equivalent, unless otherwise indicated on Drawings.
2. Provide associated fittings as required.
3. Standard color as selected by the Architect.

H. Wireway

1. NRTL 870 listing throughout, including connectors and fittings.
2. Hinged cover construction.
3. Sealing capability where required.
4. Suitable for "lay-in" installation of conductors.
5. Rust inhibiting phosphatizing undercoat and baked enamel finish.
6. Plated hardware.
7. Square D "Square Duct", or equivalent.

I. Expansion Fittings

1. Metallic: OZ, Thomas and Betts Company, or equivalent.
2. Non-Metallic: Carlon, or equivalent.

J. Firestop Assemblies

1. Firestop systems shall consist of fittings and/or intumescent materials assembled as per UL (or other NRTL) System Details.
2. Product manufacturers: 3M, Chase Technology Corporation, Dow Corning Fire Stop, Hilti, International Protective Coatings Corp. (Flame Safe), or Nelson Fire Stop Systems.

K. Thru Wall and Floor Seals

1. OZ-Gedney Type "FSK", or equivalent.

PART 3 – EXECUTION

3.1 INSTALLATION

A. General

1. Electrically continuous throughout.
2. Plumb and level.
3. Cut square and reamed smooth.
4. Use commercial bender for offsets and bends.
5. Cap to prevent debris from entering during construction.
6. Swab conduit prior to installation of conductor.
7. Provide pull cord in empty conduits.
8. Alter conduit routing to avoid structural obstructions, minimizing crossovers.

9. It is the intent of this Specification to provide reasonable provisions for future expansion of electrical use (See NEC 90.8 and 90.1(B), FPN). Therefore, **install all branch circuit home runs as shown on Drawings. Do not combine home runs or increase quantity of conductors therein.**
10. Install raceway, conduit and fittings in accordance with Code, NRTL listing and manufacturer's recommendations.

B. Concealed Interior Raceway

1. Conceal all raceway within building construction.
2. May be run in a direct line for Contractor's convenience.
3. For Contractor's convenience, **concealed** stubs from concrete-encased PVC conduit runs may extend to first **concealed** junction box.
4. Where applicable, center within insulation any electrical conduit routed in attic space. Provide sealing as per NEC 300.7(A) for all conduits exposed to different temperatures.

C. Exposed Interior Raceway

1. Use limited to mechanical and electrical equipment rooms, motor connections, and panelboards scheduled as surface.
2. Shall not be used in finished area.
3. Run parallel or perpendicular to building lines.
4. **Provide RGSC or EMT stubs for concrete-encased PVC conduit runs.** Extend stub from RGSC coupling set flush in floor.
5. Provide flexible conduit as required for motor and equipment connections.

D. Concrete Encased Raceway

1. Shall not interfere with structural integrity of slab, column, or beam.
2. Installation subject to acceptance of Structural Engineer.
3. Maximum diameter 1/3 thickness of concrete member.
4. Install in center of section.
5. Provide expansion fitting when crossing building expansion joint. Grounding integrity of raceway to be maintained.

E. Exterior Raceway

1. Minimum 24" below grade.
2. PVC unless otherwise indicated.
3. **Exterior surface stubs for PVC conduit runs: RGSC, including final underground sweep.** Exterior surface stubs acceptable only where specifically shown.
4. Penetrating Watertight Walls or Floors: Provide block-out with 1/2" clearance around conduit for underground penetrations. Pack with Oakum and caulk with non-shrinking grout, or provide conduit entrance seal.
5. Penetrating Roof or Waterproofing Membranes: Provide flashing and pitch pocket.
6. Contractor responsible for providing a watertight penetration.
7. Coat RGSC penetrations with heavy asphaltic-base compound.
8. Unless otherwise indicated, route exterior conduits to interior distribution equipment concealed under slab.

F. Supports

1. Refer to NEC 300.11
2. **Tie wire supports not acceptable.**
3. Support Spacing: NEC.

G. Specific Locations

1. Allow 6" minimum clearance at flues, steam pipes and heat sources.
2. Conduit visible behind grills and registers: paint black.
3. Seal conduit where leaving heated area and entering unheated area.
4. Penetrating non-watertight walls or floors: Pack space between conduit and block-out on both sides with Oakum.
5. Penetrating fire rated walls or floors: Seal to prevent passage of fire or products of combustion.
6. From each flush mounted panel location, stub three additional 3/4" conduits into nearest accessible ceiling space.
7. Do not mount raceway on ductwork, cover access doors, panels, controls, or otherwise hinder normal maintenance and repair of the equipment.
8. Motors:
   a. Connect to motor feeder or branch circuit by means of flexible metal conduit or liquidtight flexible metal conduit in moist areas.
   b. Minimum flexible length: 18".
   c. Where practical, feed floor mounted motors from raceway installed in or under slab.
   d. When floor mounted motors are fed overhead, provide required support for raceway. Extend raceway to floor and provide a floor flange. Insert "T" condulet fitting at proper height and extend flexible conduit to motor.

3.2 SIZE

A. National Electrical Code, subject to stated minimums.

B. Minimum Size

1. Exterior raceway: 3/4".
2. In or under poured concrete (including precast concrete panels): 3/4".
3. Branch circuit home run: 3/4". Consider home run to include raceway length from panelboard, switchboard, or motor control center to nearest power consuming or switching device on that circuit.
4. Feeders: 3/4".
5. All others not listed: 1/2".

3.3 TYPE

A. Intermediate Metal Conduit (IMC)

1. May be used in place of rigid galvanized steel conduit for Contractor's convenience.
2. Comply with manufacturer's recommendations for bending, threading and cutting operations.
3. Install as specified for rigid galvanized steel conduit.

B. Rigid Galvanized Steel Conduit (RGSC)

1. Use:
   a. Overhead electric and telephone service entrance. IMC or Aluminum not acceptable for this application.
   b. All raceway exposed to weather. Aluminum not acceptable for this application.
   c. Where required by national, state and local codes.
2. Fittings: Threaded except at KO type boxes where double locknut/bushing method acceptable.
3. Waterproof entire length with heavy asphaltic base compound when:

a. Embedded directly in earth.
b. Embedded in concrete directly in contact with earth, with or without vapor barrier.
c. Penetrations run directly from concrete with earth, to soil burial.

4. Factory applied PVC coating acceptable in place of asphaltic base compound.

C. Rigid Non-Metallic Conduit (PVC)

1. Use only in slabs and exterior underground locations. See 3.1 B3, C4 and E3 for limitations.
2. Provide insulating bushing at all terminal adapters.
3. Provide equipment grounding conductor within raceway.
4. Increase trade size accordingly for equipment grounding conductor.
5. Utilize commercial heating element type bending equipment. **Do not use torches to bend PVC conduit.**

D. Electrical Metallic Tubing (EMT)

1. Use in all areas not prohibited by NEC and this Specification.
2. Do not use in concrete slabs on or under grade, or walls under grade.
3. Do not use in exterior underground applications.

E. Flexible Metal Conduit

1. Use for connections to transformers, motors, fixed appliances, recessed luminaires and other equipment as required.
2. Use liquidtight conduit with liquidtight fittings in areas of high moisture content.

F. Metal Surface Raceway

1. Install complete with matching boxes, fittings, and end caps, parallel or perpendicular to building construction.
2. Wire adjacent devices to alternate circuits where metal surface raceway contains devices integral to the channel.
3. Feed from flush connector in wall directly into raceway. Field cut base as required with 1/2" knockout for this purpose. Do not utilize Wiremold catalog #2051H for #2000/2100 series.

G. Fire Resistive Walls and Decks

1. Preserve integrity of fire rating through the use of UL (or other NRTL) Listed firestop assemblies of appropriate penetration type and rating time.
2. Install in accordance with manufacturer's recommendations.
3. All floor to floor penetrations and all wall penetrations into Mechanical, Electrical, and Communications Rooms shall be sealed with 1 hour firestop assemblies unless more stringent rating is required by building codes.
4. Include UL (or other NRTL) firestop assembly sheets and manufacturer product data sheets specifically used with the Project Closeout Documentation.

END OF SECTION 26 05 33

SECTION 26 05 34
OUTLET, PULL & JUNCTION BOXES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Provide all outlet, pull and junction boxes complete with associated covers and rings.

B. Work Installed But Furnished Under Other Directives.

1. Obtain manufacturer's backboxes or recommendations for special equipment.

1.2 SUBMITTALS

A. Record Drawings

1. Maintain accurate record drawings in accordance with Section 260500.

PART 2 – PRODUCTS

2.1 CEILING BOXES

A. Flush and Surface

1. 2-1/8" minimum depth.
2. Square or octagon as required.
3. Galvanized steel.
4. Manufacturer: Appleton, Raco, Steel City or equivalent.

2.2 WALL BOXES

A. Flush

1. One and two gang wall boxes: 4" square box, 2-1/8" minimum depth with appropriate plaster or tile ring.
2. More than three gang: Gangable 3-1/2" deep unless wall cavity limits depth to 2-1/2".
3. Use 4-11/16" square boxes where required by Code.
4. Single gang masonry boxes acceptable only for single conduit entrance. Feed-through circuiting not acceptable. Use 4" square box/tile ring for feed-through applications.

B. Surface Mounted Devices

1. 4" square box, 2-1/8" minimum depth with appropriate 1/2" raised cover.
2. Manufacturer: Appleton, B-Line, Raco, Steel City, Wiegmann, or equivalent.

C. **Sectional, through wall and handy boxes not acceptable.**

2.3 PULL AND JUNCTION BOXES

A. Galvanized steel with cover.

B. Size: National Electrical Code.

C. Manufacturer: Appleton, Raco, Hoffman, Shallbetter, Steel City, Wadsworth or equivalent.

PART 3 – EXECUTION

3.1 INSTALLATION

A. General

1. Install in accordance with code, product listing and manufacturer's recommendations.
2. Install boxes plumb, level and flush with finish surface.
3. Support securely and rigidly.
4. Verify wall depths to ensure adequate clearance for special backboxes.
5. Provide barriers in ganged switch outlets where voltage between adjacent switches exceeds 300 volts.

B. Location

1. Governed by structural conditions and obstructions.
2. Mount switch outlet on strike side of door, maximum 4" from door opening to first switch. Verify door swing with Architectural Plan.
3. Coordinate equipment outlets prior to installation for proper concealment.
4. Center outlets with respect to acoustical tile, paneling and furring trim.
5. Adjust outlets in masonry or tile construction to horizontal and vertical mortar joints.
6. Clear all piping, ductwork and other obstructions.
7. For outlet boxes on opposite sides of walls or partitions with separation distances of 24" or less, pack all interconnecting conduits with Duxseal after conductor installation, to prevent sound transmission.
8. Outlet boxes improperly located shall be corrected at Contractor's expense.

C. Mounting Heights

1. All device mounting heights shall conform to ADA Recommendations. Refer to Standard Electrical Symbol Legend for nominal mounting heights.
2. Verify height of all outlets to ensure installation above top of radiation covers, mirrors, counters and any other obstructions that may alter nominal mounting height.
3. **Measure from finish floor to centerline of outlet.**
4. Mount exterior outlets horizontally. Measure height from nearest interior finish floor below outlet.
5. Mount outlet designated AC (above counter) no less than 4" higher than top of countertop backsplash.

D. Fire Resistive Walls and Ceilings

1. Penetrations for steel electrical outlet boxes permitted, provided:
   a. Boxes do not exceed 16 square inches in area.
   b. Area of such openings to not exceed 100 square inches for any 100 square feet of area.
   c. Outlet boxes on opposite sides of walls or partitions separated by horizontal distance of 24 inches.

E. Pull and Junction Boxes

1. Pull and junction boxes are generally not indicated on Drawings.
2. Install in accordance with National Electrical Code and as required to facilitate wire pulling.

3. Do not install in finished spaces without approval of Engineer.

F. Identification

1. Identify pull and junction boxes containing system voltages in excess of 250 volts to ground with voltage markers.
2. Voltage markers: Not visible in finished areas.

END OF SECTION 26 05 34

SECTION 26 05 53
IDENTIFICATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Label electrical equipment as required by Codes and Specifications and as specifically directed by Engineer.

PART 2 – PRODUCTS

2.1 PANEL DIRECTORIES

A. Include directory cards with panelboards.

2.2 NAMEPLATES

A. Machine-engraved black laminate with white core, except as otherwise indicated.

B. Minimum letter size: 1/8".

C. Minimum plate size: 1" X 3".

2.3 VOLTAGE MARKERS

A. Vinyl impregnated cloth markers with legend as required.

B. Manufacturer: Ideal #44-360, or equivalent.

2.4 PRESSURE SENSITIVE TAPE

A. Use only when specifically referred to in other Sections.

B. Manufacturer: Dymo, or equivalent.

2.5 UNGROUNDED CONDUCTOR IDENTIFICATION

A. As per NEC 210.5(C) and 215.12(C).

B. Typewritten cards behind plastic shield, affixed with double-stick carpet tape. Heat surface prior to affixing directory.

PART 3 – EXECUTION

3.1 GENERAL

A. Directory Cards

1. **Typewritten only.** Hand lettering unacceptable, except at "spares" and "spaces", where neat hand lettering with erasable pencil is required.
2. Indicate type of load and rooms where load occurs.

3. **Do not use room numbers as shown on Drawings, but refer to name and numbers on door**.
4. Do not identify until final load balancing is accomplished.

B. Nameplates

1. Apply plumb and level with two counter-sunk screws.
2. Glue, double-stick tape, or similar adhesive not acceptable.

C. Device Plates

1. Machine-engrave directly on plate in lieu of separate nameplate.
2. Fill inscriptions with contrasting color.

D. Voltage Markers

1. Not visible in finished areas.

E. Pull and Junction Boxes

1. Mark all covers with indelible marker to indicate panelboard designation and circuit numbers for circuits contained within box.

3.2 NOT USED

3.3 SERVICE EQUIPMENT FAULT CURRENT NAMEPLATE

A. Provide warning nameplate on each service disconnecting means enclosure indicating the fault current of the system.

B. Fault current shall be calculated at the utility transformer, using an assumed infinite primary bus, and using the actual transformer impedance and kVA values.

C. Red laminate with white core.

D. Letter height: minimum 1/4".

E. Inscription:

SERVICE AVAILABLE FAULT CURRENT: _____
TRANSFORMER KVA: _____
TRANSFORMER IMPEDANCE: _____
DATE: _____

END OF SECTION 26 05 53

SECTION 26 24 16
PANELBOARDS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Provide panelboards where indicated and scheduled.

1.2 SUBMITTALS

A. Shop Drawings:

1. Submit information in accordance with Section 260500. Show all details of:
   a. Lugs.
   b. Locations for grounding bar, neutral bar, and directory.
   c. Main bus amperage and arrangement.
   d. Weight and physical dimensions of enclosures.
   e. Cover and lock type.
   f. Quantity of spaces.
   g. Quantity, arrangement, amperage and short circuit withstand ratings in RMS amperes for all circuit breakers.
   h. Any other pertinent data.
   i. Applicable series rating for this particular riser/fault current combination.

B. Record Manuals

1. Submit information in accordance with Section 260500.
   a. Include fault current available at buss. Fault current calculations shall be based on actual installation criteria (conductor lengths, raceway types, etc.).
2. Include installation and maintenance instructions accompanying equipment.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Product of same manufacturer.

B. Sizing and design based upon Eaton equipment; Eaton catalog numbers utilized for reference.

C. Other Acceptable Manufacturers.

1. Approved equal units by Siemens, or Square D.

D. Contractor is cautioned to verify all physical dimensions of "equal" units prior to accepting quotation for bid.

2.2 GENERAL

A. Provide sub-feed lugs, contactors, main breakers, or other equipment as scheduled.

B. Provide copper bus, copper isolated neutral bar and copper grounding bar in all panelboards.

C. Use load centers only where specifically indicated. Provide copper bus with plated aluminum neutral and grounding bars.

D. NRTL-listed, and "suitable for use as service equipment" when required.

E. Feeder risers are schematic only and not intended to infer lug arrangements. Contractor to indicate desired lug arrangements and sizes on shop drawings.

F. Connection from load side of main breaker to panel bus shall be bus bar. Insulated wire and backfed types not acceptable.

G. NRTL-recognized series ratings acceptable, with minimum ratings as specified herein.

2.3 BRANCH CIRCUIT PANELBOARDS

A. Circuit Breakers

1. Bolt-on.
2. Breaker Types:
   a. Under 400 ampere: Quick-make, quick-break, thermal magnetic unless otherwise indicated.
   b. 400 ampere and over: Solid-state molded case circuit breakers:
      1) Breakers shall contain electronic sensing, timing and tripping circuits.
         a) Long time current
            (i) Adjustable current pickup.
            (ii) Adjustable time delay.
         b) Short time current
            (i) Adjustable current pickup.
            (ii) Adjustable time delay.
         c) Instantaneous current
            (i) Adjustable current pickup
         d) Ground fault, where required, with integral test and reset buttons.
            (i) Adjustable current pickup.
            (ii) Adjustable time delay.
      2) Main disconnect devices shall include maintenance-mode override.
3. Trip indicating.
4. Common trip on multi-pole breakers; handle ties not acceptable.
5. Minimum SCCR rating:
   a. NRTL tested and certified series combinations acceptable.
      1) 10,000 for systems up to 240 volts.
      2) 35,000 for 277/480 volt systems.
6. Single pole 15 and 20 ampere ratings to be NRTL-listed as “Switching Breakers” and carry SWD marking.

B. Bus Assembly and Temperature Rise

1. Rating: As scheduled.
2. 98 percent conductivity.
3. "Distributed phase" or "Phase sequence" type bus bar connections.
4. Adjacent single pole breakers connected to opposite polarities.
5. Multi-pole breakers installable in any location.
6. Provisions for additional breakers such that field addition of connectors or mounting hardware will not be required.

C. Wiring Terminals

1. NRTL-listed as suitable for type of conductor specified.

D. Circuit Numbering

1. Starting at top, odd numbers in sequence down left-hand side and even numbers in sequence down right-hand side.

E. Cabinet

1. Enclose bus assembly in steel cabinet.
2. Wiring gutter sizes and steel gauge in accordance with NEMA and NRTL standards.
3. Fabricate box from galvanized steel or equivalent rust resistant steel.
4. Furnish **without** pre-punched knockouts.

F. Fronts

1. Code gauge, full finished steel with rust inhibiting primer and baked enamel finish.
2. Not removable with door in locked position.
3. Adjustable trim clamps.
4. Concealed steel hinges.
5. Door with tumbler-type cylinder lock, catch and spring-loaded door pull.
6. Flush lock not to protrude beyond door front.
7. Key all locks alike.
8. Circuit directory frame and card with clear plastic covering on inside of door.

G. Manufacturer

1. Eaton “Pow-R-Line Series”.

2.4 NOT USED

2.5 CABLE TIES

A. Thomas and Betts Company "Ty-Rap" or equivalent.

2.6 PLYWOOD BACKING FOR SURFACE MOUNTED PANELBOARDS.

A. 3/4" grade AD, fire-resistant, painted gray (including edges).

2.7 NOT USED

PART 3 – EXECUTION

3.1 STORAGE

A. Store panelboards in a cool, dry area prior to installation.

3.2 INSTALLATION

A. General

1. Install where shown on Drawings, plumb and level.
2. Top of trim 6'-3" above finished floor for wall-mounted panelboard.
3. Adjust operating mechanism for free mechanical movement.
4. Conductors neatly dressed and banded with nylon cable ties after final load balancing.

5. From each flush installation, stub three additional 3/4" conduits into nearest accessible ceiling space to provide for future utilization of spare circuits.
6. Provide 3/4" plywood backing for all surface-mounted panelboards.
7. Tighten all lugs in accordance with manufacturer's recommendations.
8. For all fusible distribution panelboards, arrange devices in descending order such that bussed space is at top and largest devices are at bottom.
9. Provide individual terminal or lug for each wire. Multiple wires to a common terminal, or several terminals for single stranded conductor not acceptable.

B. Identification

1. Identify panelboards and directories in accordance with Section 260553.
2. Provide nameplate similar to following example:

PANEL L6
120/208 VOLT 3∅ 4W
2" C – 4 #3/0
FED FROM SWBD #1

3. When required, provide identification as per NEC 210.5(C) at each branch circuit panelboard.

3.3 TESTS

A. Balancing Load

1. Circuiting shown on Drawings is designed to produce equal loading on all phases.
2. Under actual operating, check and make circuit adjustments as required to produce balanced condition.

3.4 CLEANING

A. **Clean** and **vacuum interior** to remove all wire and insulation scraps, dust and dirt.

B. Clean all exposed surfaces immediately prior to final inspection.

END OF SECTION 26 24 16

SECTION 26 27 26
WIRING DEVICES & DEVICE PLATES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Provide wiring devices complete with device plates of matching or specified color. Wiring devices include receptacles for the connection of portable equipment and switches used for the control of both lighting and fractional horsepower motor loads. Also included are dimmers, occupancy sensors, photoelectric switches and time switches.

B. Work Installed But Furnished by Others

1. Where indicated, install devices furnished by other Divisions of this Specification.

1.2 SUBMITTALS

A. Shop Drawings

1. Submit information in accordance with Section 260500.

B. Record Manuals

1. Provide information in accordance with Section 260500.
2. Include installation and maintenance instructions accompanying the equipment.

PART 2 – PRODUCTS

2.1 GENERAL

A. Device color: Gray or as selected by Architect. Verify with Architect. (Exception: Red devices on emergency circuits where applicable).

B. All devices shall be of the same manufacturer, except where specifically noted otherwise with the phrase "NO SUBSTITUTION".

2.2 SWITCHES

A. AC Toggle and Keyed Switches

1. 20-ampere 120/277 volt AC and HP rated.
2. Industrial Grade.
3. Color coded face or body by amperage.
4. Screw pressure plate back wire and side wire.
5. Federal Spec WS-896 listed.
6. Acceptable Manufacturers:
   a. Cooper — 2220 series
   b. Hubbell — 1220 series
   c. Leviton — 1220 series
   d. Pass & Seymour — PS20AC series

B. Pilot Light Switches

1. Neon lamp in red toggle handle, lit in "on" position.
2. 20 ampere, 120/277 volt AC rated.
3. Manufacturer: As listed above.

C. Remote Photoelectric Switches

1. Threaded swivel mounting with locking nut and neoprene gasket.
2. Light level adjustment slide.
3. Activation: 1-5 footcandle on, 3-15 footcandle off.
4. Manufacturer: Intermatic #K4200 series, wattage and voltage as required.
5. Other acceptable manufacturers: Paragon, Area Lighting Research, Precision, or Tork.

D. Spring Wound Timer Switch

1. As shown on Drawings.
2. Manufacturer: Intermatic.
3. Other acceptable manufacturers: Area Lighting Research, Rhodes Mark Time, or Tork.

2.3 RECEPTACLES

A. General Purpose

1. 20 ampere, self-grounding, NEMA 5-20R, industrial specification grade.
2. Nylon face with finder grooves and compact body.
3. Minimum 0.032" triple wipe brass contacts.
4. Corrosion resistant steel strap interlocked with face and body.
5. Screw pressure plate back wire and side wire.
6. Federal Spec WC-596 listed.
7. Acceptable Manufacturers:

a.	Cooper	5362
b.	Hubbell	5362
c.	Leviton	5362
d.	Pass & Seymour	CRB5362

B. Tamper Resistant

1. 20 ampere, self-grounding, NEMA 5-20R.
2. Energized only when two blade or three blade grounding cord cap is properly inserted.
3. Use only where indicated on the Drawings.
4. Acceptable Manufacturers:

a.	Cooper	TRBR20
b.	Hubbell	CR20TR
c.	Leviton	CR20TR
d.	Pass & Seymour	TR20

C. GFCI

1. 20 ampere, feed-through type.
2. Two utilization points per device, with vertical orientation.
3. Manufacturer: As listed above.

D. Surge Suppression Receptacle

1. 20 ampere.
2. Power-on indicator light.
3. Damage alert: Audible or visual annunciation to indicate surge protection no longer functional.
4. Three-mode protection: Line-to-neutral, line-to-ground, and neutral-to-ground.
5. Manufacturer: As listed above.

E. Damp & Wet Locations

1. All 15 and 20 ampere, 125 and 250 volt non-locking receptacles shall be listed weather-resistant type as per NEC 406.9(A) and 406.9(B)(1).
2. Manufacturer: As listed above.

2.4 DIMMERS

A. LED

1. Control of 0-10 Volt LED dimming for full range dimming control.
2. Wattage as required by luminaire count in room.
3. Integral power pack for positive off.
4. Provide separate power pack if required by total room wattage.
5. Manufacturer: Lutron Diva Series #DVSTV.

2.5 DEVICE PLATES

A. Flush Interior

1. Opening for device intended.
2. 430 or 302/304 stainless steel, or as selected by Architect.
3. Where plastic plates are selected by Architect, provide thermoplastic type.
4. Manufacturer: Cooper, Hubbell, Leviton and Pass & Seymour.

B. Surface Interior

1. 1/2" raised cover

C. Damp & Wet Locations

1. Damp locations:
   a. Refer to NEC 406.9(A).
   b. Die-cast aluminum construction with stainless steel springs.
   c. Unless indicated otherwise on the Drawings, Manufacturer: Pass & Seymour #4500 series or equivalent.
2. Wet locations:
   a. Refer to NEC 406.9(B).
   b. Unless indicated otherwise on the Drawings, Manufacturer: Red Dot #CKMU (horizontal) or #CKMUV (vertical), or approved equal by Hubbell.

PART 3 – EXECUTION

3.1 INSTALLATION

A. General

1. Install device and plates where shown on Drawings in accordance with Code, product listing and manufacturer's recommendations.
2. Refer to Section 260534-3.1C for mounting heights.
3. Plumb and level.
4. Tight to wall.
5. Thoroughly cover wall opening around device.
6. Replace all devices and plates that become discolored or burned during construction.
7. Provide blank plates for unused openings.
8. Connect wiring devices by means of single conductor tails. Multiple wire connections not acceptable.
9. Tighten unused connection screws.

B. Identification

1. Identify wall switches which control lighting or equipment not in sight.
2. Refer to Section 260553-3.1C.

C. Receptacles

1. Vertical mounting with grounding pole at bottom.
2. Provide GFCI receptacles at NEC 210.8 locations.

D. Dimmers

1. No common neutrals.
2. Individually mounted: No gang mounting.
3. Do not remove any fins.

E. Photoelectric Switches

1. Install on roof, in center of structure where viewing from ground is minimal.
2. Verify exact location with Architect.
3. Penetrate roof with 3/4" RGSC, securely fastened to structure.
4. Provide flashing to maintain roof integrity.
5. Mount 18" above finished roof surface.
6. Make connections in weatherproof junction box.

3.2 TESTS

A. Proper operation of lighting switches, dimmers and occupancy sensors.

B. Duplex Receptacles

1. Proper connections.
2. Test all receptacles with NRTL listed receptacle circuit tester similar to Bryant #5266-PT, or Ideal #EZ Check.

3.3 INSTRUCTIONS

A. Instruct Owner's personnel in proper operation, setting, and maintenance of time switches, dimmers, occupancy sensors, and GFCI receptacles.

END OF SECTION 26 27 26

SECTION 26 51 00
LUMINAIRES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Work Included

1. Furnish and install a complete luminaire for each lighting outlet.

1.2 SUBMITTALS

A. Shop Drawings

1. Submit information in accordance with Section 260500 including voltage, housing and door frame material, lens type, diffuser thickness and lamp quantity and type.

B. Record Manuals

1. Provide information in accordance with Section 260500.

1.3 GUARANTEES

A. Lamps are not included in the guarantee period but burned out lamps shall be replaced by Contractor until final acceptance by Owner.

1.4 COORDINATION

A. Confirm compatibility and interface of luminaire with other materials and job conditions prior to ordering. Report discrepancies to Engineer and defer ordering until clarified.

B. Provide frames, trim rings, and backboxes as required.

C. Coordinate with work of all other Divisions to avoid conflicts between luminaires, supports, fittings and mechanical equipment. Ceiling clearances are minimal. It is imperative that Contractors coordinate conduit and duct runs to facilitate luminaire installation as shown on reflected ceiling plans. Engineer will not be responsible for interferences arising from lack of field coordination between trades.

1.5 NOT USED

PART 2 – PRODUCTS

2.1 LUMINAIRES

A. General

1. UL or other NRTL listed.
2. Where shown to be installed in fire-rated assemblies, fluorescent troffers shall be listed in accordance with UL Standard 1598. Supplemental penetration protection (tenting) will be accomplished by General Contractor in accordance with UL Fire Resistance Directory. Coordinate installation with General Contractor. Supplemental protection shall be spaced minimum 1/2" away from the luminaire, per UL Standard 1598.

3. Verify ceiling finishes and equip all recessed luminaires with appropriate frames as required.
4. Furnish luminaires intended for use in lay-in grid ceilings with proper clips for compliance with NEC.
5. Refer to Section 260500 for "Prior Approval to Quote" procedure.
6. Provide master/satellite wiring method where multiple three-lamp or four-lamp luminaires are shown or specified to be dual-level switched. Use one two-lamp and one four-lamp ballast for each pair of three-lamp luminaires, and two four-lamp ballasts for each pair of four-lamp luminaires.
7. Troffers shall be post-painted stock, with regressed aluminum doors having spring-loaded door latches.

B. Lenses

1. Unless otherwise indicated, recessed troffer lenses shall be:
   a. Clear acrylic.
   b. Type 12 prismatic pattern with 3/16" square based female cones aligned 45 degrees to the length and width of the panel.
   c. 1/8" nominal thickness (.080" maximum penetration, 7.8 oz/square foot minimum weight).
2. Manufacturer: KSH-12 Clear. NO SUBSTITUTION.

C. LED Lighting Systems

1. General: All LED lighting system components must be UL or other NRTL approved.
2. Engines/lamps:
   a. Meets or exceeds 70% lumen maintenance at 50,000 hours based on IESNA LM-79-2008.
   b. Minimum 80+ CRI rating.
   c. Color temperature of 3500K, or as scheduled on the drawings.
   d. Minimum delivered lumens as scheduled on the drawings.
3. Electronic Drivers:
   a. Factory installed.
   b. Multi-volt for use on either 120-Volt or 277-Volt systems.
   c. THD: < 20%.
   d. Rated for a minimum of 50,000 hours.
   e. Factory installed quick-disconnect plug internal to luminaire for driver removal.
   f. 0-10 Volt dimming standard. Provide non-dimming drivers only as scheduled.
      1) Control and wiring shall be per manufacturer recommendations. Provide power packs for wall-box dimmers as required for positive luminaire off.
4. Emergency battery packs:
   a. Include self-testing/self-diagnostics, with audible alarm option.
   b. Factory installed.
5. Spare drivers:
   a. Provide 3% spare drivers of each type, minimum of one, maximum of three. Emergency battery packs not included.
   b. Luminaire manufacturer shall keep reasonable driver stocks on hand for replacement of defective drivers under guarantee period.
6. Guarantee period: Minimum 60 months from date of substantial project completion.
   a. Guarantee shall include all parts and labor required to bring luminaire to complete operation.
   b. Labor shall be performed by an Owner approved Electrical Contractor licensed in the area the work is to be performed.
   c. Any costs for equipment rentals required to service luminaires under warranty shall be the responsibility of the luminaire manufacturer.

PART 3 – EXECUTION

3.1 STORAGE

A. Store luminaires in a cool, dry space prior to installation.

3.2 INSTALLATION

A. General

1. Install luminaires plumb and true, free of light leaks, warps, dents and other irregularities.
2. Equip any outlets not specifically labeled with a luminaire the same as those in rooms used for similar purposes.
3. Run all lamps the same direction in rooms, corridors and other adjacent areas that contain square luminaires.
4. Continuous row fluorescent luminaires: Hang level in straight line and butt tightly together.
5. Verify exact location of light luminaires with reflected ceiling plan.
6. Coordinate with Mechanical Contractor in advance of installation to prevent space conflicts.
7. Position all supply dampers in combination air handling troffers fully open.
8. Connect recessed luminaires to branch circuitry by means of single flexible metal conduit 6'-0" in length.

B. Barriers

1. Required where recessed luminaires are installed in insulated ceilings.
2. Suitable material to satisfy NRTL requirements.
3. Provided by Division 26 when not indicated otherwise.
4. Coordinate installation.

C. Luminaire Supports

1. Provide adequate supports to any structures, ceilings and grid systems to safely suspend or attach luminaires.
2. General Contractor to provide ceiling support systems as required by that portion of the Specifications. Electrical Contractor to provide any additional supports on an "as needed" basis to prevent ceiling from sagging or developing other irregularities.
3. Contractor responsible for providing proper suspension and mounting devices and to safely support all luminaires shown on Drawings, regardless of ceiling systems.
4. Rigidly support surface suspended ceiling system with anchors, hangers or clips designed for the purpose.
5. Support surface-mounted fluorescent luminaires at four-foot intervals.
6. Install recessed luminaires in accordance with manufacturer's recommendations.
7. Rigidly support recessed luminaires to structural members or properly supported ceiling system with hangers, clips or fasteners designed for the purpose.
8. Support pendant and stem-hung luminaires at four-foot intervals.

3.3 TESTS

A. Upon completion of this portion of the Work and prior to its acceptance by Owner, check for proper alignment and operation of all lighting equipment.

3.4 CLEAN UP

A. Clean all luminaires immediately prior to final inspection.

END OF SECTION 26 51 00

SPECIAL PROVISIONS

These Special Provisions amend, supplement, or revise those specific sections of the Construction Specifications of the Contract Documents; and other provisions of the Contract Documents, as indicated below. All provisions of the Construction Specifications which are not so amended, supplemented, or revised remain in full force and effect.

SP-1 – STANDARD SPECIFICATIONS

Any section or portion of sections of the Construction Specifications which describe separate measurement and payment for any individual item or unit of work is hereby deleted and is of not force or effect, unless said item is listed on the Bid Form as an additive alternate, Unit Price, and then only for that portion of the Contract. All other work will be paid for under the total Lump Sum Bid for the Project. Note that the work associated with providing the required items and services remain unchanged, as this clarification only applies to the method of payment being Lump Sum versus Unit Price. The CONTRACTOR is requested to provide a Schedule of Values at the time of Bidding.

Any reference in the Standard Specifications which reference a 'standard drawing' shall be of no force or affect if a similar detail or drawing is provided within the Project plans. The Project plans shall have precedence over any standard drawing.

If there are any discrepancies or differences regarding soil compaction criteria between any of the contract documents, the following is the order of precedence:

1. Engineer's issued clarifications
2. Geotechnical Engineering Report, prepared by Strata, dated January 29, 2019
3. Standard Specifications

SP-2 – CONFLICT BETWEEN DOCUMENTS

Where a conflict occurs between or within the Standards, Specifications and Design Drawings, the more stringent or higher quality requirements shall apply. In the event of a disagreement as to which is more stringent or produces the higher quality, the OWNER shall decide.

SP-3 – CONSTRUCTION WATER & DEWATERING

Reference Section 02290 of the City of Gillette Standard Specifications. Water required for compaction, dust control or other purposes shall be the responsibility of the CONTRACTOR to obtain. Construction water obtained from private wells, load out facilities or others shall require payment of the appropriate fees required by the source owner.

Any dewatering shall be considered incidental to the appropriate bid items. The CONTRACTOR shall devise a plan to allow the work to be completed without damage from potential water sources such as groundwater, storm water runoff and water supply systems.

SP-4 – CONTRACTOR'S LICENSE AND PERMITS

Before commencing work with the **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**, the CONTRACTOR shall have a current Contractor's License with the City of Gillette, who will determine the minimum required Class per the Work. The application for the license may be obtained from the City of Gillette Building Division located at 201 East 5th Street, Gillette, Wyoming 82716.

The CONTRACTOR shall also obtain all appropriate permits associated with work to be completed on the **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS** at the same location.

SP-5 – COORDINATION WITH UTILITIES

It is the responsibility of the CONTRACTOR to complete the following in regard to coordination of utilities:

1. The CONTRACTOR shall coordinate with the utility owner for any required permitting, the sequencing of utility removal, relocation, or lowering of utilities in conflict with the construction of this project.
2. The CONTRACTOR shall utilize ONE CALL. It shall be the CONTRACTOR'S responsibility to allow the utility companies sufficient time to locate respective utilities. Damage to utility lines, property damages or any liability resulting from construction or damages shall be the responsibility of the CONTRACTOR.
3. It is the responsibility of the CONTRACTOR to contact the CCSD Maintenance Department and coordinate the location of the OWNER'S utilities. If the contractor fails to have CCSD locate the OWNER's utilities and damages said utilities; the CONTRACTOR is responsible for all replacements and repairs.

SP-6 – LIMITS OF CONSTRUCTION

The Contractor shall organize and schedule his operations and that of his Subcontractors to complete the work on the project to be limited to the area to be improved, unless specifically shown otherwise on the Drawings, for staging, storage of equipment and materials, construction and clean-up operations. Further, the work on the project shall be completed in accordance with the following limitations:

1. The extents of the construction need to be limited to avoid excess disturbance of the various parking lots, public streets, access roads, concrete sidewalks and driveways, and existing landscaped areas.
2. No waste areas are indicated as a part of this plan set as it will be the responsibility of the CONTRACTOR to obtain an acceptable location for any waste materials.
3. The Contractor shall take special precautions to ensure the safety of the public, including outside of the hours of work, given the nature of the existing school, parking, playground, field facilities, and proximity to residential areas. Also reference the Special Provision concerning Construction Site Safety.

SP-7 – ACCESS TO PROPERTY/TRAFFIC CONTROL

Refer to the Form of Agreement, Article 2. Contract Time, 2.1: Access to the site will not be granted for the primary project effort until May 1, 2019 due to OWNER use of the practice fields. Due to the scope of the irrigation work on the project it is requested that the CONTRACTOR begin limited irrigation preparation as soon as possible specifically for the work on the irrigation main to allow the remainder of the Campbell County High School irrigation system to function during the project. The existing irrigation system outside of the project extents **must remain functional** throughout the course of the project, except for limited shut down for typical connections i.e. 4 hours maximum. Refer to the Special Provision concerning Site Safety, however the current school session will not conclude until May 23, 2019 so additional coordination and consideration will be required. CONTRACTOR coordination and confirmation with the OWNER will be required.

Access to the site shall be at the existing access roads, gates, etc. as referenced on the Design Drawings. If additional removal of existing fence, surfacing, landscaping, etc., is required due to the restricted movement of the equipment or the lack of access to the Project site, any additional removal and replacement shall be returned to existing conditions and shall be considered incidental to the work. Minimizing disturbance to the landscaped areas of the facility shall be required.

The CONTRACTOR shall prepare and submit for approval of a detailed traffic control plan and procedures associated with construction. A plan shall be developed to provide temporary and/or continued access/egress to all accessible properties as requested by the OWNER. Adjacent access roads and parking areas may be used during the demolition, staging, temporary storage, and erection operations, but will need to be approved ahead of time due to faculty and students who may be utilizing facilities during school, during summer break, and during any scheduled activities by CCSD or the Public. The OWNER and the CONTRACTOR will need to coordinate with any school or non-school sponsored events.

SP-8 – PROTECTION OF EXISTING PROPERTY AND FACILITIES

The CONTRACTOR shall take all necessary precautions and protect all adjoining private and public property and facilities including underground and overhead utilities, curb and gutter, sidewalk, driveway, structures and fences. Any disturbed or damaged facilities will be suitably restored or replaced at no cost to the OWNER.

The CONTRACTOR shall use equipment sized and equipped to protect existing facilities outside the pay limit. The CONTRACTOR shall make his own assessment of the situation and adjust his bid accordingly.

The CONTRACTOR shall be solely responsible to coordinate with the OWNER of existing facilities for protection or adjustment and shall have said owner's representative present when necessary to assist with protection or adjustment. The CONTRACTOR shall pay all costs associated with having said OWNER'S representatives on the site and shall include these costs in the price bid for related items of work.

If temporary removal of an existing facility is required for the CONTRACTOR's successful completion of the work, the CONTRACTOR shall replace the facility in equal or better condition than originally found, subject to approval by the OWNER.

SP-9 – GENERAL SAFETY

The OWNER is committed to completing all maintenance and construction activities in a safe manner. During construction ample attention shall be given to prevent or separate unsafe conditions from all public accesses. The project is on and around an active school site where additional consideration for protection of the work from access by the public will need to be considered. This includes when work is not being completed.

In accordance with generally accepted construction practices, the CONTRACTOR will be solely and completely responsible for safety conditions at and adjacent to the job site, including the safety of all persons and property during the performance of the work. All work shall comply with applicable local, state and federal regulations, including the current osha excavation and trench safety standards. This requirement shall apply continuously and shall not be limited to normal working operations. Construction site safety is the sole responsibility of the CONTRACTOR, who shall also be solely responsible for the means, methods and sequencing of construction operations. Under no circumstances should the information provided be interpreted to mean that the ENGINEER or OWNER is assuming responsibility for construction site safety or the CONTRACTOR'S activities. Such responsibility is not being implied and shall not be inferred. The ENGINEER'S construction review of the CONTRACTOR'S performance is not intended to include review of the adequacy of the CONTRACTOR'S safety measures, in, on, or near the construction site. This paragraph shall be applicable to the CONTRACTOR and all of the CONTRACTOR'S SUBCONTRACTORS.

SP-10 – SUBSTITUTION

The OWNER has identified numerous specific specialty items to be provided for the project. Substitution of "Approved Equal" items will not be allowed unless written authorization has been

given to the CONTRACTOR by the ENGINEER and approved by the OWNER.

SP-11 – CONSTRUCTION MATERIALS TESTING

CONTRACTOR shall coordinate ENGINEER for all materials testing required within the specifications. Written requests with minimum 48-hour notice is required prior to any materials testing.

SP-12 – CONSTRUCTION STAKING AND SURVEY

The OWNER will provide construction staking as prescribed in the construction plans to facilitate improvements as necessary for the CONTRACTOR'S operations. This will adhere to the City of Gillette Construction Specification 01050 Field Engineering. Per the specification these items will be staked a single time only, and any re-staking will be invoiced but the costs will be separated as CONTRACTOR Re-staking so that the OWNER may decide to pursue payment reimbursement from the CONTRACTOR. Staking will generally include, but will not be limited to, setting control, staking temporary and permanent fencing items, staking overlot grading, utilities, sub-base, base course, curb and gutter, pavement, surfacing, ramps and landings, light pole locations, and verification requirements throughout.

SP-13 – CONTROLLED SUBSTANCES

Use of tobacco products and other controlled substances on Project site are not permitted.

SP-14 – FUEL PRICE ADJUSTMENT

Fuel price adjustment is not eligible under this Contract and will not be approved by the Owner under any circumstance, including adverse weather shutdowns.

SP-15 – SALVAGED EXISTING MATERIALS

Demolition and deconstruction of any equipment and related materials and elements that are not to be reused and relocated that are deemed salvageable are to be returned to the OWNER after confirmation of desired items and desired location. The project will include items such as, but not limited to, existing irrigation components, fencing components, signage, etc. All other items considered to be waste shall be removed from Project site and disposed of by CONTRACTOR.

SP-16 – OWNER SUPPLIED EQUIPMENT

Reference the Design Drawings for items such as, but not limited to, existing signage, benches, trash receptacles, bike racks, athletic field equipment, storage building, irrigation components, electrical components, and fencing components that are detailed to be removed, stored, relocated, reinstalled, connected and tied to, or modified. The Work includes removing, receiving, unloading, handling, storing, protecting, and installing Owner-furnished products and making various required service connections. Note that this will also extend to City of Gillette electrical components. The CONTRACTOR shall take care as to cause no damage to the items and components during execution of the Work. The CONTRACTOR shall be responsible for all costs due to damage of the existing items, including full replacement if required. The CONTRACTOR shall coordinate with the OWNER on final reinstallation locations.

The irrigation work comprises of both new installation and modification/relocation of existing irrigation system throughout the Project site. Irrigation modification/relocation assumes to reuse existing components with adjustment and relocation of main and lateral lines as needed for proposed element installation. Exact layout and location to be reviewed in the field.

The existing power source for the adjacent portion of the site is maintained by the City of Gillette, generally located at the 3-phase transformer in the faculty parking lot. Extension and preparation

of the existing primary conduit and wiring per the Design Drawings will be required with coordination with the City of Gillette for the work they are performing to supplement the work required by the Contractor. Protection of the existing electrical components will be required.

The existing storage building is anticipated to be relocated to a new adjacent thickened edge spread footing foundation. The CONTRACTOR will be required to stabilize the building by bracing the building components, removing current anchorage, relocating the building on the new thickened edge spread footing foundation, and installing required anchorage. Demolish and dispose of existing thickened edge slab, regrade and prepare the exposed subgrade, backfill to match adjacent dirt grade to prepare for the remainder of the site overlot grading. There are no known utilities present to the current building.

SP-17 – STORM SEWER DRAIN AND UNDERDRAIN CONSTRUCTION

Per City of Gillette Standard Construction Specifications Section 02725 Storm Drains, CONTRACTOR shall clean and remove all sand, gravel, concrete, cement grout, etc. that has entered the storm sewer drain and underdrain lines during construction. In addition to the required "light test" the CONTRACTOR will provide video inspection of the storm drain and underdrain utilities per section 02700 Sanitary Sewer systems for video inspection at the CONTRACTOR'S expense, and remedy any defects at the CONTRACTOR'S expense.

SP-18 – CITY OF GILLETTE PRIMARY POWER SERVICE EXTENSION

Electrical installation for the City of Gillette primary extension shall be performed in accordance with the current version of the City of Gillette Design Standards and Construction Specifications, including the provided details. This work generally includes primary extension from the existing 3-phase transformer in the faculty parking lot, to the new 3-phase transformer on site. The CONTRACTOR shall coordinate all electrical service requirements, inspections, testing, etc., with the City of Gillette Electrical Utility Department. Contact Lori King. Ph# (307) 687-2522. CONTRACTOR shall purchase transformer pad base from the City of Gillette and install the base in accordance with the City of Gillette's requirements. The City of Gillette will perform portions of the installation to supplement work required by the CONTRACTOR. Proposed service size is 400-amp, 277/480 volt 3 phase.

Due to ArcFlash safety concerns the City of Gillette requests that the primary service be de-energized back to the vault near Twelfth Street when connecting to the existing primary service. This effort will shut down the power to the main school facility and the outage needs to be scheduled with the CCSD.

The electrical contractor shall install secondary from utility transformer to the control panels, exterior athletic lighting controller, step down transformer, etc., per Electrical Plan Design Drawings and Specifications provided by ACE.

SP-19 – EXISTING SITE IRRIGATION SYSTEM

The CONTRACTOR must verify existing irrigation components prior to starting work. Refer to the Special Provision referring to Site Access for specific dates. Due to the scope of the irrigation work on the project it is requested that the CONTRACTOR begin limited irrigation preparation as soon as possible specifically for the work on the irrigation main to allow the remainder of the Campbell County High School irrigation system to function during the project. The existing irrigation system outside of the project extents **must remain functional** throughout the course of the project, except for limited shut down for typical connections i.e. 4 hours maximum.

SP-20 – SUPERVISION AND SUPERINTENDENCE

The CONTRACTOR is required to adhere to the provisions within the General Conditions – Execution of the Agreement pertaining to superintendent presence on the work site. Notably Part 4.1.4 requiring a competent resident superintendent on the work site **at all times** during the Project, who shall not be replaced without written notice and approval by the OWNER and their representative. The use of a subcontractor can be discussed with **prior** written authorization however the CONTRACTOR must be aware that this designated superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR, and all communications given to the superintendent shall be as binding as if given to CONTRACTOR.

INSTRUCTION TO BIDDERS

1. BIDDER REPRESENTATION:

Each bidder by making his bid represents that:

1.1 He has read and understands the Bidding Documents and the Contract Documents, and his Bid is made in accordance therewith. By submitting a Bid, the Bidder acknowledges that he has read this solicitation, understands it, and agrees to be bound by its terms and conditions.

1.2 He has visited and examined the site, has compared it with the plans and specifications, and has familiarized and satisfied himself with the local conditions under which the work is to be performed, and therefore assumes responsibility for estimating properly the difficulties and cost of successfully performing the Work.

1.3 His Bid is based upon the materials, systems, and equipment described in the Bidding documents without exceptions.

1.4 That he is financially solvent and that he is experienced in and competent to perform the type of work as specified.

1.5 That he is familiar with all Federal, State, and Municipal laws, ordinances and regulations, which may in any way affect the work.

1.6 That failure of omission of any bidder to do any of the foregoing shall in no way relieve the Bidder from any obligation in respect to his Bid Proposal.

2. PREPARATION AND SUBMISSION OF BID PROPOSAL

2.1. Bidders are required to use the Bid form enclosed in the Bidding Documents.

2.2 The proposal shall not be modified or conditioned in any manner.

2.3 All blank spaces must be filled in, in ink or typewritten, and the Bid Proposal must be fully completed and executed when submitted. No alterations in the Bid Proposal or in the printed forms by erasures or deletions will be acceptable unless each alteration is initialed by the Bidder.

2.4 All names must be typed or printed below the signature.

2.5 The Bid shall contain an acknowledgment of receipt of all Addenda.

2.6 All copies of the Bid, the Bid Bond, and any other documents required to be submitted with Bid shall be enclosed in a sealed opaque envelope, marked “Bid”.

2.7 **The envelope containing the Bid Proposal should bear on the outside the name of the Bidder, Bidder’s address, project name, date and time of Bid opening. If a Bid is submitted by mail or express mail, this aforementioned sealed envelope should be enclosed in an outer envelope and sent to the following address: The outer envelope shall be marked “Bid Enclosed”.**

Campbell County School District
1000 West 8th Street
P.O. Box 3033
Gillette, WY 82717-3033

2.8 Each copy shall include the legal name of Bidder, and shall be signed by the person or persons legally authorized to bind the Bidder to the Contract. A Bid by a corporation shall have the corporate seal affixed. A Bid submitted by agent shall have a current Power of Attorney attached certifying the agent’s authority to bind the Bidder.

2.9 Bid shall include a list of all proposed subcontractors and suppliers of major items of material and equipment.

2.10 Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures and in case of discrepancy between the two, the written amount shall govern.

2.11 In case of an error in the extension of a price in the Bid, the unit price will govern.

2.12 All requested alternates shall be bid.

2.13 Bidders shall make no additional stipulation or voluntary alternates on the Bid Form or in separate envelopes, nor qualify his Bid in any other manner.

2.14 Bidder shall assume full responsibility for timely delivery at location designated for receipt of Bids. A bid is invalid if it has not been deposited at the designated location prior to the time and date for receipt of Bids stated herein or in the Invitation to Bid, or any extension thereof issued to the Bidders.

3. RECEIPT AND OPENING OF BIDS:

3.1 Bids will be received by Campbell County School District, Gillette, Wyoming (herein called CCSD or Owner) at the time and place stated in the Advertisement and Invitation for Bids and the publicly opened and read aloud.

3.2 All Bids will remain subject to acceptance for forty-five (45) days after the day of the Bid opening, but CCSD may, in its sole discretion, release any Bid and return the Bid security prior to that date.

4. CONSIDERATION AND AWARDING OF BIDS:

4.1 Qualifications of Contractors:

4.1.1 Submission of Qualification Statement: If the Owner desires the bidders to whom award of a contract is under consideration shall submit to the Owner, Architect or Engineer, upon his request, a properly executed Contractor's Qualification Statement, AIA Document A305 unless such statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

4.2 Qualifications of Subcontractors:

4.2.1 The Bidder may be required to establish to the satisfaction of the Owner the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the Sections of the Specifications pertaining to such proposed Subcontractors' respective trades.

4.2.2 If the Owner or Architect has objection to any person or organization on such list, and refused in writing to accept such person or organization, The Bidder may, at his option, (a) withdraw his Bid, or (b) submit an acceptable Subcontractor

4.3 Awarding of the Bid

4.3.1 Campbell County School District shall have the right to reject any or all Bids, for any reason. Specifically, but without limitation, Campbell County School District shall have the right to reject a Bid not accompanied by Bid security in the proper form and amount, or a Bid not accompanied by data required by the Bidding Documents, or a Bid which is in any way incomplete, irregular, or unresponsive.

4.3.2 The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid, if

the evidence submitted by, or the investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

4.3.3 In awarding the contract, the Owner reserves the right to consider, in addition to the amount of the Bid, the competency, responsibility, and suitability of the Bidder. Contracts, therefore, will not necessarily be awarded to the low bidder(s). The Owner further reserves the right to accept or reject any bid on any section or all sections of the Specifications; to waive any irregularities or informalities in any bid received; and to award contracts in the best interest of the Owner.

5. MODIFICATION AND WITHDRAWAL OF BID PROPOSAL:

5.1 Any Bid Proposal may be withdrawn prior to the scheduled time for the opening of the Bids.

5.2 Any Bid Proposal can be modified by telegraphic communication, providing such communication is received by the CCSD prior to the actual time of the Bid opening. The changes to the Bid must be in writing and submitted in a sealed envelope.

5.3 A Bid may not be modified, withdrawn or canceled by the Bidder for a period of 45 days following the time and date designated for the receipt of Bids, and Bidder so agrees in submitting the Bid.

6. ADDENDA, INTERPRETATION, OR CORRECTION OF BIDDING DOCUMENTS:

6.1 Each Bidder shall examine the bidding Document carefully and no later than three (3) days prior to the date of receipt of Bids shall make a written or verbal request to Campbell County School District for interpretation or correction of ambiguity, inconsistency or error therein which he may discover. Any interpretation or correction by Addendum will be binding. No Bidder shall rely upon interpretation or correction given by any other methods.

6.2 Prior to receipt of Bids, any Addenda will be mailed or delivered to each person or firm recorded by the Purchasing Department as having received the Bidding Documents and will be available for inspection at the aforementioned office.

6.3 Bidders shall acknowledge receipt of all Addenda which have been issued during the period of Bidding and agree that said Addenda shall become a part of this contract. Bidder shall list the numbers and issuing dates of Addenda received.

6.4 No Addenda will be issued later than three days prior to the date for receipt of bids except an Addendum withdrawing the request for Bids or one which includes postponement for the date for receipt of Bids. Addenda are considered issued when posted.

6.5 Campbell County School District's representative for this project is stated below, please direct any questions to:

Tim Volk
Campbell County School District
Phone 307-682-2750

7. BID SECURITY:

7.1 Each Bid must be accompanied by a Bid Bond payable to Campbell County School District for ten percent (10%) of the total amount of the Base Bid, (a certified check may be used in lieu of a Bid Bond) pledging that the Bidder will enter into a contract with Campbell Count School District on the terms stated in his Bid.

7.2 Campbell County School District will have the right to retain the bid security of the Bidders until a) the Contract has been executed and bonds, as required, have been furnished, or b) the specified time has elapsed so the Bids may be withdrawn, or c) all Bids have been rejected.

7.3 Should the Bidder refuse to enter into such a Contract or fail to furnish the required bonds, the amount of the bid security shall be forfeited to Campbell County School District as liquidated damages, and not as a penalty.

7.4 The Bid Security of other Bidders will be retained for a period of thirty (30) days after the Bid opening.

7.5 The Bid Security must clearly make reference to the Bid.

8. CONTRACT SECURITY

8.1 If the contract price is in excess of $7,500, a Performance Payment Bond is required. The Bond shall be in the amount of 100 percent (100%) of the contract price, with a corporate surety approved by Campbell County School District, will be required for the faithful performance of the contract, prior to contract execution.

8.2 A “Letter of Credit”, acceptable to the Owner, may be submitted in-lieu of the required Performance and Payment bonds. The Letter of Credit shall indicate the credit amount, what is covered and the conditions under which the Owner may require payment. The Letter of Credit shall also reference the statutory requirements of Wyoming State Statutes 16-6.112 and 16-6.113.

8.3 Performance and Payment Bond shall be furnished within ten (10) calendar days from the date of the Notice of Award.

8.4 If, at any time, Campbell County School District shall be or become dissatisfied with any surety or sureties then upon the Performance Bond, or if for any other reason, each Bond shall cease to be adequate security to Campbell County School District, the Contractor shall within five (5) days after notice from Campbell County School District, substitute an acceptable Bond.

9. POWER OF ATTORNEY:

9.1 Attorneys-in-fact who executed the bond on behalf of the surety shall affix a certified and current copy of his Power of Attorney.

10. CONTRACT DOCUMENTS:

10.1 The Contract Documents consisting of the Bid Documents, which include the Advertisement for Bids, Information for Bidders, Special Conditions, General Conditions, Addendum, Bid Bond, Bid Proposal, Bid Schedule, and Project Drawings.

11. NOTICE OF AWARD AND FAILURE TO ENTER CONTRACT:

11.1 A Notice of Award will be issued to the successful contractor.

11.2 The party to whom the contract is to be awarded will be required to execute the Contract Agreement in triplicate, obtain Certificates of Insurance and a Performance and Payment Bond, as contract security, within ten (10) calendar

days from the date the Notice of Award is delivered to the Bidder.

11.3 In case of failure of the Bidder to execute the Contract of Agreement and provide satisfactory Insurance and Contract Security, CCSD may at their option consider the Bidder in default, in which the Bid Bond accompanying the Proposal shall become property of the CCSD.

11.4 If the Bidder to whom the Contract shall have been awarded fails, refuses or neglects to return the Contract, bonds and insurance certificate, Campbell County School District reserves the right to retain the Bid Bond as liquidated damages or take such action as it deems appropriate including legal action for damages or specific performance.

12. NOTICE TO PROCEED:

12.1 CCSD will issue a Notice to Proceed when all paperwork is completed and approved. The Contractor shall not begin work until the Notice to Proceed is issued.

13. QUALIFICATIONS OF BIDDERS:

13.1 CCSD may make such investigation as it deems necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to CCSD all such information and data for this purpose as CCSD may request.

13.2 CCSD reserves the right to accept or reject any Bid or all Bids; and reserves the right to let the Bid in any manner it sees fit. CCSD will not be bound to accepting the low Bid, but rather the Bid they feel will be in their best interest.

14. PREFERENCE FOR STATE LABOR AND MATERIALS

14.1 According to Wyoming Statutes, five percent (5%) preference will be given to responsible Wyoming Contractors. The contract shall be let to the responsible resident making the lowest Bid if such resident is not more than five percent (5%) higher than that of the lowest responsible non-resident Bidder.

14.2 All contractors wishing to be eligible for the preference on this project must submit with their Bid or have on file with Campbell County School District their “Residency Certification”.

14.3 A successful resident Bidder shall not subcontract more than thirty percent (30%) of the work covered by his contract to non-resident contractors.

15. SUBSTITUTIONS:

15.1 The materials, products, and equipment described in the Bidding Documents establish a standard or required function, dimension, appearance, and quality which must be met by any proposed substitution.

15.2 No substitution will be considered unless written request for approval has been submitted by the Bidder to Campbell County School District no later than three (3) days prior to the date of receipt of Bids. Each request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data, and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment, or work that incorporation of the substitute is the responsibility of the proposer. Campbell County School District’s decision of approval or disapproval of a proposed substitution shall be final.

15.3 If Campbell County School District approves any proposed substitution, such approval will be set forth in Addendum. Bidder shall not rely upon approvals made in any other manner.

16. INSURANCE:

16.1 The successful Bidder will be required to purchase at his own expense and maintain during the life of the contract, Comprehensive General Liability, Comprehensive Automobile and Worker's Compensation with limits of not less than those set forth below.

16.2 The Bidder shall deliver the required Certificate of Insurance prior to the date of execution of the Contract.

16.3 Contractor shall procure and maintain at his cost and expense, during the entire period of the contract (including any applicable warranty and/or renewal periods) the types of insurance specified below. All insurance shall be procured from reputable insurers authorized to do business in the State of Wyoming.

General Liability - Commercial	
Bodily Injury	$1,000,000 each occurrence
	$1,000,000 aggregate
Property Damage	$1,000,000 each occurrence
	$1,000,000 aggregate
Automobile Liability	
(Hired & Non-Owned Auto)	
Combined Single Limits (CSL)	$1,000,000
Workmen's Compensation	As required by law

16.4 The policy shall name Campbell County School District as a named insured and shall contain a provision that the policy may not be canceled, terminated, or modified without a 30 day written notice.

16.5 The Contractor shall not commence work on the site until he has obtained all insurance required under the contract nor shall he allow any subcontractor to commence work until all similar insurance required of the subcontractor has been obtained.

16.6 The providing of any insurance required herein does not relieve the Bidder of any of the responsibilities or obligations assumed by the Bidder in the Contract awarded, or for which the Bidder may be liable by law or otherwise.

17. RETAINAGE:

17.1 Ten percent (10%) of the total invoice will be held for retainage.

17.2 As according to Wyoming State Statutes, the required retainage on contracts of more than $25,000 may be placed in an interest bearing deposit for the contractor. The retainage will be assigned to the Owner until final acceptance.

GENERAL CONDITIONS

GENERAL CONDITIONS

SECTION 1 - EXECUTION OF AGREEMENT

The agreement and such other Contract Documents as practicable will be executed and delivered by CONTRACTOR to OWNER within ten (10) days of the Notice of Award.

1.1 Execution of the Contract:

1.1.1 By executing the Contract, the CONTRACTOR represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with, the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that may in any manner affect performance of the Work, and represents that he has correlated his study and observations with the requirements of the Contract Documents.

1.2 Delivery of Bonds

1.2.1 When he delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such bonds as he may be required to furnish.

1.3 Commencement of Contract Time; Notice to Proceed

1.3.1 A “Notice to Proceed” will be issued to the CONTRACTOR after all required documents are completed and approved by Campbell County School District

1.4 Starting the Project

1.4.1 CONTRACTOR shall start to perform his obligation under the Contract Document on the date when the Contract time commences to run. No work shall be done at the site prior to the date on which the Contract Time commences to run.

1.5 Before Starting Construction

1.5.1 Before starting the Work at the site, CONTRACTOR shall furnish OWNER (Finance Department) of insurance, bonds, and insurance as required.

SECTION 2 - OWNER’S REPRESENTATIVE

2.1 Administration of Contract:

2.1.1 The Owner’s Representative as stated in the Instruction to Bidder will administrate the contract.

2.1.2 The Owner’s Representative will advise and consult with the Owner. The Owner’s instruction to the Contractor shall be coordinated with the Owner’s Representative.

2.1.3 The Application for Payments or invoices shall be submitted to the Owner’s Representative and based on the Representative, observation and evaluation the Representative will determine the amounts owing the Contractor.

2.1.4 The Owner’s Representative will have the authority, through the Owner, to reject Work which does not conform to the Contract Documents.

2.1.5 The Owner’s Representative will prepare Change Orders for Owners review and approval.

2.1.6 The Owner’s Representatives will conduct inspections to determine final completion.

SECTION 3 - BONDS AND INSURANCE

3.1 Performance, Payment, and Other Bonds

3.1.1 Each Bid must be accompanied by a Bid Bond payable to Campbell County School District for ten percent (10%) of the total amount of the bid, (a certified check may be used in lieu of a Bid Bond) pledging that the Bidder will enter into a contract with Campbell County School District.

3.1.2 CONTRACTOR shall furnish performance and payment bonds as security for the faithful performance and payment of all his obligations under the Contract Documents. These bonds shall be in amounts equal to the Contract Price in such form and with such sureties as are licensed to conduct business in the State of Wyoming.

3.1.3 If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in the State of Wyoming, CONTRACTOR shall within five (5) days thereafter substitute another Bond and Surety, both of which shall be acceptable to OWNER.

3.2 Contractor's Liability Insurance

3.2.1 CONTRACTOR shall purchase and maintain such insurance as will protect him from claims under workmen's compensation laws, disability benefit or other similar employee benefit laws; from claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual personal injury liability coverage; from claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees including claims insured by usual personal injury liability coverage; and from claims for injury to or destruction of tangible, including loss of use resulting there from -- any or all of which may arise out of or result from CONTRACTOR'S operations under the Contract Documents, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be legally liable. This insurance shall include the specific coverage and be written for not less than any limits of liability and maximum deductibles specified in the bid documents or required by law, whichever is greater, shall include contractual liability insurance and shall include OWNER as additional insurance parties. Before starting the Work, CONTRACTOR shall file with OWNER certificates of such insurance, acceptable to OWNER; these certificates shall contain a provision that the coverage afforded under the policies will not be canceled or materially changed until at least thirty (30) days prior written notice has been given to OWNER.

3.2.2 Call attention to the Instruction to Bidder under Insurance for specific coverage and amounts.

3.2.3 Unemployment and Workman's Compensation Insurance proof that the Contractor and all subcontractors are still registered with the Employment Security Commission and the Workers Compensation Division at the time of completion of construction shall be submitted prior to the Acceptance of the Project.

SECTION 4 - CONTRACTOR'S RESPONSIBILITIES

4.1 Supervision and Superintendence

4.1.1 CONTRACTOR shall supervise and direct the work efficiently and with his best skill and attention. He shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

4.1.2 CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

4.1.3 CONTRACTOR shall be responsible to the OWNER for the acts and omissions of

his employees, and subcontractors and their agents and employees and other persons performing any of the work under a contract with the CONTRACTOR

4.1.4 CONTRACTOR shall keep on the work site at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to the OWNER and OWNER'S REPRESENTATIVE. The superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

4.1.5 CONTRACTOR shall be responsible for security and protection provisions throughout the contract period. The types of temporary security and protection provisions required include, but not by way of limitation, fire protection, barricades, warning signs/lights, enclosure/lockup, environmental protection, weather protection and similar provisions intended to minimize property losses, personal injuries and damages or loss to OWNER'S property at project site. CONTRACTOR will provide security/protection services and systems in coordination with activities and in a manner to achieve 24-hour, 7-day-per-week effectiveness.

4.2 Labor, Materials, and Equipment

4.2.1 CONTRACTOR shall provide competent, suitably qualified personnel to lay out the Work and perform construction as required by the Contract Documents. He shall at all times maintain good discipline and order at the site.

4.2.2 CONTRACTOR shall furnish and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuels, power, light, heat, telephone, water and sanitary facilities, and all other facilities and incidentals necessary for the execution, testing, initial operation, and completion of the work.

4.2.3 All materials and equipment shall be new, except as otherwise provided in the Contract Documents. If required by OWNER, CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

4.2.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processors, except as otherwise provided in the Contract Documents.

4.2.5 The Owner has prepared the Bidding Documents with every effort to avoid any material which contains asbestos.

The Contractor and every Subcontractor shall be responsible for verification that all materials supplied under the work of this project shall be asbestos-free. If the Contractor or Subcontractor discovers that any specified product contains asbestos, he shall notify the Owner under the conditions of the paragraphs entitled "Addenda, Interpretation, or Correction of Bid Documents" found in the Instructions to Bidders.

Asbestos-free certifications, signed by the appropriate Subcontractor and the Contractor are required for the following specification sections as they apply to this project.

- Insulations
- Adhesives
- Sealants
- Gypsum Board Products (including drywall mud)
- Acoustical Panels
- Resilient Base & Accessories
- Carpeting
- Impact Resistant Wall Protection

- Paints/Coatings

Certifications may be required for other sections upon the Owner's request.

4.3 Substitute Materials or Equipment

4.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard or required function, dimension, appearance, and quality which must be met by a proposed substitution.

4.3.2 No substitution will be considered unless written request for approval has been submitted by the Bidder to Owner or Owner's representative. Each request shall include the name of the material or equipment for which it is to be substitute and a complete description of the proposed substitute including drawings, cut, performance and test data, and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment, or work that incorporation of the substitute would require, shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Owner decision of approval or disapproval of a proposed substitution shall be final.

4.4 Concerning Subcontractors

4.4.1 CONTRACTOR shall not employ any subcontractor or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection.

4.4.2 CONTRACTOR shall submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution, an appropriate Change Order shall be issued.

4.4.3 CONTRACTOR shall be fully responsible for all acts and omissions of his subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between OWNER and any subcontractor or other person or organization having a direct contract with CONTRACTOR, nor shall it create any obligation on the part of OWNER to pay or to see to the payment of any monies due any subcontractor or other person or organization, except as may otherwise be required by law. OWNER may furnish to any subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR on account of specific work done in accordance with the schedule of values.

4.4.4 CONTRACTOR agrees to bind specifically every subcontractor to the applicable terms and conditions of the Contract Document for the benefit of OWNER.

4.5 Patent Fees and Royalties

4.5.1 CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER its use is subject to patent right or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed to the OWNER in the Contract Documents. CONTRACTOR shall indemnify and hold harmless OWNER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the work of any invention, design, process, product or

device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

4.6 Permits

4.6.1 CONTRACTOR shall obtain and pay for all construction permits and licenses and shall pay all charges and inspection fees necessary for the prosecution of the work, which are applicable at the time of his bid.

4.7 Laws and Regulations

4.7.1 CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If CONTRACTOR observes that the Specifications or Drawings are at variance therewith, he shall give OWNER prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Modification. If CONTRACTOR performs any work knowing it to contrary to such laws, ordinances, rules and regulations, and without such notice to OWNER, he shall bear all costs arising.

4.8 Taxes

4.8.1 CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the law of the place where the work is to be performed.

4.9 Use of Premises

4.9.1 CONTRACTOR shall confine his equipment, the storage of materials and equipment, and the operations of his workmen to areas permitted by law, ordinances, permits, or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with materials or equipment.

4.9.2 CONTRACTOR shall not load nor permit any part of any structure to be loaded with weights that will endanger the structure, nor shall he subject any part of the work to stresses or pressures that will endanger it.

4.9.3 CONTRACTOR shall follow all OWNER policies and procedures.

4.10 Record Drawings

4.10.1 CONTRACTOR shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. Three (3) copies in paper and one (1) digital format shall be delivered to OWNER upon completion of the Project.

4.11 Safety and Protection

4.11.1 CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall follow all OWNER safety policies and procedures, including the **CONFINED SPACE ENTRY PROGRAM** and the **LOCKOUT/TAGOUT PROGRAM**. If any **HOT WORK** is to be performed, Contractor must follow all current **NFPA (51B) safety regulations on *fire prevention during welding, cutting, and other hot work. Contractor will submit a CCSD approved Hot Work Permit prior to beginning work.*** He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a) all employees on the work and other persons who may be affected thereby,

b) all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

c) other property at the site or adjacent thereto, including trees, shrubs, lawns,

walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

4.11.2 CONTRACTOR shall comply with all applicable laws, ordinances, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for its safety and protection. He shall notify owners of adjacent utilities when prosecution of the work may affect them. All damage, injury or loss to any property referred to in paragraphs b) or c) above, caused directly or indirectly, in whole or in part, by CONTRACTOR, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR: except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or OWNER'S REPRESENTATIVE or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR. CONTRACTOR'S duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.

4.11.3 CONTRACTOR shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR'S superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

4.11.4 CONTRACTOR shall be responsible for having an employee or employees on the work site to translate and communicate safety requirements and signage to non English speaking employees of the CONTRACTOR.

4.12 Shop Drawings and Samples

4.12.1 After checking and verifying all field measurements, CONTRACTOR shall submit to OWNER'S REPRESENTATIVE for approval, in accordance with the accepted schedule of Shop Drawing submissions of all Shop Drawings, which shall have been checked by and stamped with the approval of CONTRACTOR and identified as OWNER may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable OWNER to review information as required.

4.12.2 At the time of each submission, CONTRACTOR shall in writing call OWNER'S attention to any deviations that the Shop Drawings or sample may have from the requirements of the Contract Documents.

4.13 Cleaning

4.13.1 CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, and at the completion of the Work he shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to their original condition those portions of the site not designated for alteration by Contract Documents.

4.14 Indemnification

4.14.1 CONTRACTOR shall indemnify and hold harmless OWNER and their agents and employees from and against all claims, damages, losses, and expenses including attorney's fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense is (a) attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than work itself) including the loss of used resulting there from and (b) caused in whole or part by any negligent act or omission of CONTRACTOR, any

subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

4.14.2 In any and all claims against OWNER or OWNER'S REPRESENTATIVE or any of their agents or employees by any employee or CONTRACTOR, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this section, paragraph one above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

4.14.3 The obligations of CONTRACTOR under this section, paragraph one above, shall not extend to the liability of OWNER, his agents or employees arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs, or specifications, or (b) the giving of or the failure to give directions or instructions by OWNER, his agents or employees provided such giving or failure to give is the primary cause of injury or damage.

SECTION 5 - REJECTING DEFECTIVE WORK

5.1 Rejecting Defective Work

5.1.1 OWNER will have authority to disapprove or reject work which is "defective" (which term is hereinafter used to describe work that is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, test approval.

SECTION 6 - CHANGES IN THE WORK

6.1 Changes in the Work

6.1.1 Without invalidating the Agreement, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, CONTRACTOR shall proceed with the work involved. All such work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes and increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made.

6.1.2 Additional work performed by Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension in Contract Time.

6.1.3 It is the CONTRACTOR'S responsibility to notify his surety of any changes affecting the general scope of the work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. CONTRACTOR shall furnish proof of such adjustment to OWNER.

SECTION 7 - CHANGE OF CONTRACT PRICE

7.1 Change of Contract Price

7.1.1 The Contract Price constitutes the total compensation payable to CONTRACTOR for performing the work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

7.1.2 The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered to OWNER'S REPRESENTATIVE. All claims for adjustments must be approved by the OWNER.

SECTION 8 - CHANGE OF THE CONTRACT TIME

8.1 Change of the Contract Time

8.1.1 The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to OWNER'S REPRESENTATIVE.

SECTION 9 - WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

9.1 Warranty and Guarantee

9.1.1 CONTRACTOR warrants and guarantees to OWNER that all materials and equipment will be new unless otherwise specified and that all work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents. All unsatisfactory work, all faulty or defective work, and all work not conforming to the requirements of the Contract Documents at the time of acceptance thereof or of such inspections, tests or approvals, shall be considered defective. Prompt notice of all defects shall be given to CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected or accepted.

9.2 Tests and Inspections

9.2.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested, or approved by some public body, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish OWNER'S REPRESENTATIVE the required certificates of inspection, testing, or approval.

9.2.2 CONTRACTOR shall give OWNER timely notice of readiness of the work for all inspections, tests, or approvals. If any such work required so to be inspected, tested, or approved is covered without written approval of OWNER, it must, if requested by OWNER, be uncovered for observation, and such uncovering shall be at CONTRACTOR'S expense unless CONTRACTOR has give OWNER timely notice of his intention to cover such work and OWNER has not acted with reasonable promptness in response to such notice.

9.2.3 Neither observations by OWNER nor inspections, tests, or approvals by persons other than CONTRACTOR shall relieve CONTRACTOR from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

9.3 Uncovering Work

9.3.1 If any Work is covered contrary to the written request of OWNER, it must, if requested by OWNER, be uncovered for his observation and replaced at CONTRACTOR'S expense.

9.3.2 If any work has been covered which OWNER has not specifically requested to observe prior to its being covered, or if OWNER considers it necessary or advisable that covered work be inspected or tested by others, CONTRACTOR, at OWNER'S request, shall uncover, expose or otherwise make available for observation, inspection or testing as OWNER may require, that portion of the work in question, furnishing all necessary labor, material and equipment. If it is found that such work is defective, CONTRACTOR shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such work is

not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefore.

9.4 Owner May Stop the Work

9.4.1 If the work is defective, or CONTRACTOR persistently fails to carry out the Work in accordance with the Contract Documents, or fails to supply sufficient skilled workmen or suitable materials or equipment, or if CONTRACTOR fails to make prompt payments to subcontractors for labor, materials, or equipment, OWNER may order CONTRACTOR to stop the work, or any portion of thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the work shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

9.5 Correction or Removal of Defective Work

9.5.1 If required by OWNER prior to approval of final payment, CONTRACTOR shall promptly, without cost to OWNER either corrects any defective work, whether or not fabricated, installed or competed, or, if the work has been rejected by OWNER, remove it from the site and replace it with non-defective work. If CONTRACTOR does not correct such defective work or remove and replace such rejected work within a reasonable time, all as specified in a written notice from OWNER, OWNER may have the deficiency corrected or the rejected work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services, shall be paid by CONTRACTOR, and an appropriate deductive Change Order shall be issued. CONTRACTOR shall also bear the expense of making good all work of others destroyed or damaged by his correction, removal or replacement of his defective work.

9.6 One (1) Year Correction Period

9.6.1 If, after the approval of final payment and prior to the expiration of one year after the date of substantial completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with the OWNER'S written instructions, either correct such defective work, or, if it has been rejected by OWNER, remove it from the site and replace it with non-defective work. If CONTRACTOR does not promptly comply with the terms of such instruction, OWNER may have the defective work corrected or the rejected work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by CONTRACTOR.

9.7 Acceptance of Defective Work

9.7.1 If, instead of requiring correction or removal and replacement of defective work, OWNER (and, prior to approval of final payment) prefers to accept it, he may do so. In such case, acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by CONTRACTOR to OWNER.

9.8 Neglected Work By Contractor

9.8.1 If CONTRACTOR should fail to prosecute the work in accordance with the Contract Documents, including any requirements of the progress schedule,

OWNER, after seven days' written notice to CONTRACTOR may, without prejudice to any other remedy he may have, make good such deficiencies and the cost thereof (including compensation for additional professional services) shall be charged against CONTRACTOR if OWNER approves such action, in which case a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due CONTRACTOR are not sufficient to cover such amount, CONTRACTOR shall pay the difference to OWNER.

SECTION 10 - PAYMENTS AND COMPLETION

10.1 Payment

10.1.1 Invoices for payment can be submitted once a month for payment for work completed as of the date of the invoice to the Owner's Representative, state herein.

10.2 Contractor's Warranty of Title

10.2.1 CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by any Application for Payment or invoice, whether incorporated in the Project or not, will pass to OWNER at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter in the General Conditions referred to as "Liens").

10.3 Approval of Payments

10.3.1 OWNER will, within ten (10) days after receipt of each invoice either indicate in writing his approval of payment or return the invoice to CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the invoice.

10.3.2 OWNER may refuse to approve the whole or any part of any payment if, in his opinion:

a) the work is defective, or completed work has been damaged requiring correction or replacement,

b) claims or liens have been filed or there is reasonable cause to believe such may be filed,

c) the Contract Price has been reduced because of Modifications,

d) CONTRACTOR has been required to correct defective work or complete the work, or

e) unsatisfactory prosecution of the work, including failure to furnish acceptable submittal or to clean up.

10.4 Final Inspection

10.4.1 Upon written notice from CONTRACTOR that the Project is complete, OWNER will make a final inspection with CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

10.5 Final Application for Payment

10.5.1 After CONTRACTOR has completed all such corrections to the satisfaction of OWNER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection and other documents -- all as required by the Contract Documents, he may make application for final payment following the procedure for progress payments. The final Application for Payment

shall be accompanied by such data and schedules as OWNER may reasonably require, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of the Contract Documents and the labor and services performed and the material and equipment furnished there under. In Lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that releases and receipts include all labor, services, material and equipment bills, and other indebtedness connected with the work for which OWNER or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any subcontractor material man, fabricator or supplier fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER in indemnify him against any Lien.

10.6 Waiver of Claims

10.6.1 The making and acceptance of final payment shall constitute:

a) a waiver of all claims by OWNER against CONTRACTOR other than those arising from unsettled Liens, from defective work appearing after final inspection or from failure to comply with the requirements of the Contract Documents or the terms of any special guarantees specified therein, and

b) a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

c) the OWNER has advertised in the local newspaper three (3) times over a period of forty-one (41) days that Final Payment is being requested by the CONTRACTOR for said project.

SECTION 11 - SUSPENSION OF WORK AND TERMINATION

11.1 Owner May Terminate

11.1.1 If CONTRACTOR is adjudged bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under bankruptcy or similar laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if he disregards the authority of OWNER, or if he otherwise violates any provision of the Contract Documents, then OWNER may, without prejudice to any other right or remedy and after giving CONTRACTOR and his Surety seven (7) days' written notice, terminate the services of CONTRACTOR and take possession of Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by CONTRACTOR, and finish the work by whatever method he may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER shall be determined by OWNER and incorporated in a Change Order.

11.1.2 Where CONTRACTOR'S services have been so terminated by OWNER, said terminations shall not affect any right of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by OWNER due CONTRACTOR will not release CONTRACTOR from liability.

11.1.3 Upon seven (7) days' written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the

Project and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained.

CONTRACT DOCUMENTS

NOTICE OF AWARD

To: Company
P.O. Box
City, State ZIP

Campbell County School District Board of Trustees, at its regular meeting on _April 9, 2019, awarded the bid for **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS** to you,_____, in the amount of $__,____.___.

Please forward the required Contractor's Performance and Payment Bond, Form of Agreement and Certificates of Insurance within ten (10) calendar days from the date of this Notice of Award to: Campbell County School District, Attn: Alyssa Ballou, Finance Department, P.O. Box 3033, Gillette, WY 82717-3033.

If you fail to execute said AGREEMENT and to furnish said BONDS within ten (10) days from the date of this Notice, said CAMPBELL COUNTY SCHOOL DISTRICT will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND or CASHIERS CHECK. CAMPBELL COUNTY SCHOOL DISTRICT will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to CAMPBELL COUNTY SCHOOL DISTRICT.

Dated this ___ day of _____, 2019.

CAMPBELL COUNTY SCHOOL DISTRICT

By: _____

Title: _____

Acceptance of Notice

Receipt of the above notice of award is hereby acknowledged.

By: _____, this _____ day of _____, 2019.
(Contractor)

By: _____

Title: _____

FORM OF AGREEMENT

THIS AGREEMENT is made and effective as of the ___ day of _____, 2019 between **CAMPBELL COUNTY SCHOOL DISTRICT** ("Owner") and _____ ("Contractor") for contract work described generally as the **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS Project** and described in detail as stated below.

OWNER AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK

1.1 **CONTRACTOR** shall complete all work as specified or indicated in the Contract Documents. The **CONTRACTOR** shall furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the **WORK** as described in the bid documents.

1.2 In connection with the work to be performed, CONTRACTOR, at his expense, shall procure all necessary permits and licenses and agrees to comply with all laws, ordinances, codes, and regulations applicable to the performance of the work hereunder.

ARTICLE 2. CONTRACT TIME

2.1 CONTRACTOR agrees to begin work on or after **April 22, 2019 for limited irrigation preparation, and primary project effort May 1, 2019**, and complete the contract on or before **August 2, 2019**, time being of the essence.

ARTICLE 3. CONTRACT PRICE

3.1 For full and complete performance, OWNER agrees to pay CONTRACTOR the sum of $ _____ payable in accordance with the terms hereof and to the satisfaction of the OWNER.

ARTICLE 4. PAYMENT PROCEDURES

4.1 CONTRACTOR shall submit Draw Requests to Campbell County School District, Attn: Alyssa Ballou, P.O. Box 3033, Gillette, Wyoming, 82717-3033.

4.2 PROGRESS PAYMENTS. OWNER can make progress payments on account of the Contract Price. All progress payments will be on the basis of the progress of the work as approved by the OWNER'S Consultant and OWNER'S representative.

4.3 RETAINAGE. OWNER shall have the right to withhold from each payment of the contract price a sum ("retainage") equal to ten (10) percent of the invoice.

4.4 FINAL PAYMENT. Upon final completion and acceptance of the work by the OWNER a final payment to contractor notice will be advertised in The News-Record for a period of forty (40) days. Final payment will be processed after such period.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

5.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, Site, Locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

5.2 CONTRACTOR agrees to perform all the Work described in the Contract

Documents.

5.3 CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the Work as described in the Contract Documents.

ARTICLE 6. CHANGES IN WORK

6.1 The OWNER may order changes in the work, the Contract sum being adjusted accordingly. All such orders and adjustments shall be in writing and subject to the terms and conditions of this Contract. Claims by the CONTRACTOR for extra cost must be made in writing to the OWNER'S representative and approved by OWNER before executing the work involved.

ARTICLE 7. CONTRACT DOCUMENTS

7.1 The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following.

1. Invitation for Bids
2. Instructions to Bidders
3. General Conditions
4. Technical Specifications
5. Addenda, and Bid Form
6. Form of Agreement
7. Notice of Award
8. Performance and Payment Bond
9. Certificate of Insurance
10. Wyoming Unemployment Certificate of Good Standing
11. Wyoming Workers Compensation Certificate of Good Standing
12. Change Orders
13. Blueprints
14. Notice to Proceed
15. Form of Bid

ARTICLE 8. CLEANING

8.1 CONTRACTOR shall, at his own expenses, at all times keep the premises free from accumulation of debris, waste materials, and rubbish, and at the completion of the work, he shall remove his tools and equipment and all surplus materials, debris, waste material, and rubbish and shall leave the premises in a neat and clean condition. If CONTRACTOR does not attend to such cleaning immediately upon request, OWNER shall have the right to have this work done by others and deduct the cost therefore from the payment due CONTRACTOR hereunder.

ARTICLE 9. CONTRACTOR'S FAILURE TO PROSECUTE WORK.

9.1 Should CONTRACTOR neglect to prosecute the work properly, or fail to perform any provision of the Contract, the OWNER after seven days written notice to the CONTRACTOR, may, without prejudice to any other remedy it may have, make good the deficiencies and may deduct the cost thereof from the payment then or thereafter due CONTRACTOR or, at its option, may terminate the Contract. If the unpaid balance of the contract price exceeds the expense of finishing the work, such excess shall be to CONTRACTOR, but if such expense exceeds such unpaid balance, CONTRACTOR shall pay the difference to the OWNER.

ARTICLE 10. DEFECTIVE WORK

10.1 No payment, in whole or in part, shall be deemed a waiver of any defect in materials or workmanship, and the OWNER reserves the right to withhold payment pending inspection of the work performed by CONTRACTOR. Notwithstanding payment by OWNER of the sums due hereunder or failure of the OWNER to discover or reject

defective material and workmanship, the CONTRACTOR shall re-execute any work that fails to conform to the requirements of the contract and that appears during the progress of the work and shall remedy any defects due to faulty materials or workmanship which appear within a period of one year from the date of completion of the contract. The provisions of this article apply to work done by subcontractors as well as work done by direct employees of the CONTRACTOR.

ARTICLE 11. INDEPENDENT CONTRACTOR

11.1 CONTRACTOR shall at all times be an INDEPENDENT CONTRACTOR in performing the work under this Contract including any additions thereon and shall furnish all supervision and direction required to complete the work.

11.2 The CONTRACTOR is responsible for all state and federal taxes on payments earned under the agreement and on the earnings paid to any workers hired by the CONTRACTOR.

ARTICLE 12. ASSIGNMENT AND SUBCONTRACTS

12.1 The CONTRACTOR shall not assign his interest in this contract nor sublet nor subcontract any portion of the work. The CONTRACTOR agrees to bind every subcontractor approved by the OWNER to all of the terms and conditions of this agreement. The CONTRACTOR agrees that he is fully responsible to the OWNER for the acts and omissions of his subcontractor, as CONTRACTOR is for the acts and omissions of himself and of persons directly employed by him.

ARTICLE 13. INDEMNIFICATION

13.1 CONTRACTOR agrees to indemnify and save harmless OWNER, and any of its affiliated companies from and against all claims, demands, liabilities, suits, judgments and decrees, losses and costs and/or expenses of any kind or nature whatsoever on account of injuries to or death of any person or persons or damage to any property occurring directly or indirectly from the performance of work hereunder by CONTRACTOR or his employees, agents, servants, associates or subcontractors however such injuries or death or damage to property may be caused.

ARTICLE 14. WAIVER OF CLAIMS, LIENS, ETC.

14.1 CONTRACTOR, individually and on behalf of his subcontractors, materialmen and workers hereby waives and agrees to indemnify and save harmless the OWNER from all attachments, claims, and liens against OWNER and OWNER's property by reason of labor or materials or both, furnished under this CONTRACT.

ARTICLE 15. MISCELLANEOUS

15.1 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

15.2 OWNER and CONTRACTOR acknowledge that this Agreement is subject to the "Preference for State Laborers" as provided in Wyoming Statute per Wyoming Statute § 16-6-203 et.seq. Said Statute requires, in part, that "Wyoming labor be used except other laborers may be used when Wyoming laborers are not available for the employment from within the state or are not qualified to perform the work involved." CONTRACTOR, by signing this Agreement, specifically acknowledges the requirements of Wyoming Statute § 16-6-203 and pursuant to said statute, CONTRACTOR agrees that it shall use Wyoming laborers as required.

ARTICLE 16. LIQUIDATED DAMAGES

16.1 The OWNER and CONTRACTOR recognize that time is of the essence in this

AGREEMENT. OWNER and CONTRACTOR agree that, as liquidated damages for delay, the CONTRACTOR shall pay the OWNER one thousand ($1,000) for each day that expires after the time specified for final completion.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this **AGREEMENT** in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR.

This **AGREEMENT** will be effective on _____, 2019.

CONTRACTOR _____

By _____

Title _____

Attest _____

OWNER Campbell County School District No. 1

By _____
Title District Representative

Attest _____

NOTICE TO PROCEED

TO:

FROM: Campbell County School District

PROJECT: **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**

DATE:

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2019 and you are to complete WORK by August 2, 2019.

CAMPBELL COUNTY SCHOOL DISTRICT

Timothy Volk,
Supervisor of Buildings & Grounds

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

_____, this ___ day of _____, 2019,

by _____, title _____ .

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

PROJECT: **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**

TO:
(Owner)

CONTRACTOR:

CONTRACT DATE:

****

In accordance with the provisions of the Contract between Campbell County School District and _____ (Contractor), as indicated above the _____ Surety Company on the bond of _____ (Contractor), _____(Address), _____ (City, State, Zip), CONTRACTOR, hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to Campbell County School District, OWNER, as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF, _____, the Surety Company has hereunto set its hand this _____ day of _____, 2019.

_____
Surety Company

_____
Signature of Authorized Representative Attest

_____
Title (Seal)

CONTRACTOR'S AFFIDAVIT

STATE: WYOMING CITY: GILLETTE

COUNTY: CAMPBELL DATE:

PROJECT TITLE: **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**

This statement is submitted by _____ (Contractor) to satisfy Wyoming Statute § 16-6-1001.

I, _____, the authorized representative of the Contractor, hereby certify that all claims for materials and labor performed under the contract for the above-referenced project have been paid through Progress Payment No. _____, less any contracted amounts held for retainage.

If any claim for material and labor is disputed this sworn statement shall so state, and the amount claimed to be due shall be deducted from the progress payment due the Contractor and retained by the State of Wyoming until the determination of the dispute, either by judicial action or consent of the parties, and then paid by the agent or agency to persons found entitled thereto.

Claims for material and labor being disputed are stated as follows (list laborer name and amount due below):

_____

_____

_____
Signature

_____
Title

_____
Date

STATE OF WYOMING)
)
COUNTY OF _____)

The foregoing instrument was subscribed and sworn to before me by _____ who is the _____ of _____ this _____ day of _____, 20____.

Witness my hand and official seal.

_____
Notary Public

My Commission Expires:

WARRANTY

_____, here-in-after the CONTRACTOR, does expressly affirm, promise and guarantee the Work, **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**, as described in the Bid Documents, including materials, equipment and workmanship for a period of one year from the date the Work was accepted by the Certificate of Final Completion.

CONTRACTOR further agrees in the event that any or all of the Work fails to conform to the Bid Documents or require any maintenance, rebuilding, construction or reconstruction to keep the Work in conformity with the bid Documents or to bring the Work up to the Bid Document Specifications the CONTRACTOR will be responsible for all necessary costs whatsoever.

Campbell County School District shall give written notice to the CONTRACTOR state the cause or kind of non-conformity.

Dated this _____ day of _____, 2019.

CONTRACTOR

BY _____

STATE OF WYOMING
COUNTY OF CAMPBELL

The foregoing instrument was acknowledged before me by _____ this _____ day of _____, 2019.

_____
Notary Public

My Commission Expires: _____

---SEAL---

CERTIFICATE OF FINAL COMPLETION

PROJECT: **CAMPBELL COUNTY HIGH SCHOOL - ATHLETIC FIELD IMPROVEMENTS**

CONTRACTOR:

CONTRACT DATE:

This Certificate of Final Completion applies to all Work under the Contract Documents, or to the following specified parts thereof:

To: Campbell County School District

And to (Contractor):

The Work to which this Certificate applies has been inspected by authorized representatives of the OWNER and the CONTRACTOR, and that Work is hereby declared to be complete in accordance with the Contract Documents on _____, 2019.

The project has been advertised according to Wyoming Statutes 16-6-116, and the Affidavit on Behalf of the Contractor document is attached to and made a part of this Certificate.

Executed by Owner or Engineer on _____, 2019.

_____
(Owner or Owner's Representative)

CONTRACTOR accepts this Certificate of Final Completion on _____, 2019.

CONTRACTOR

By _____

OWNER accepts this Certificate of Final Completion on _____, 2019.

CAMPBELL COUNTY SCHOOL DISTRICT

By _____

CONSTRUCTION PLANS FOR
CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS

GOVERNING SPECIFICATIONS
City of Gillette Standard Construction Specifications
2017 and Applicable Supplements thereto.

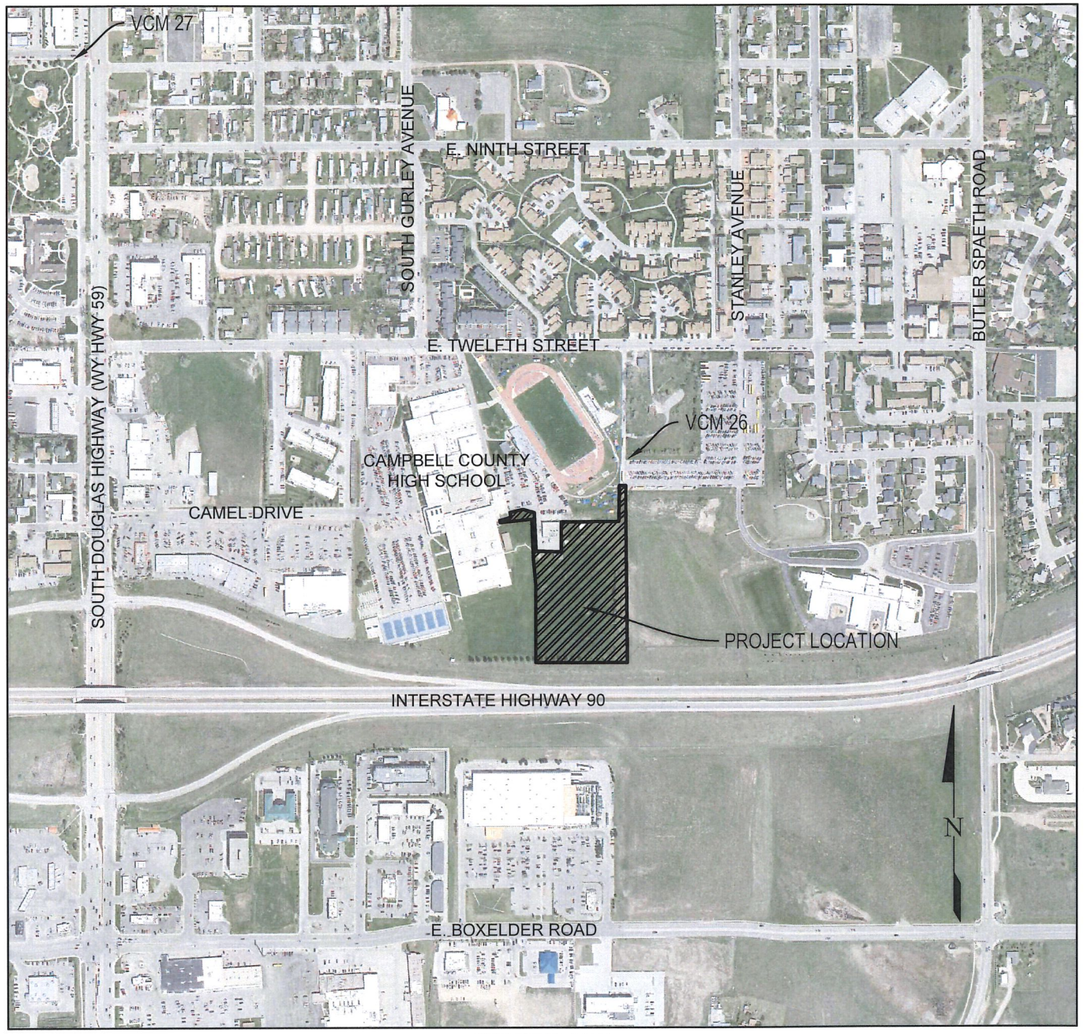
OWNER:

CAMPBELL COUNTY SCHOOL
DISTRICT NO.1
109 NORTH GURLEY AVENUE
GILLETTE, WY 82716
PHONE #307.682.2750

ENGINEER:

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
PHONE #307.682.9500
FAX #855.288.8055

ACE
19 SOUTH MAIN STREET
SHERIDAN, WY 82801
PHONE #307.673.5300



VICINITY MAP
N.T.S.

SHEET NO. SHEET TITLE

CS-1	COVER SHEET
NL-1.0	LEGEND
NL-1.1	LOCAL UTILITY AND EMERGENCY CONTACTS
NL-1.2	GENERAL NOTES
NL-1.3	SUMMARY OF QUANTITIES
NL-1.4	SURVEY CONTROL
OP-1.0	OVERALL PROJECT LOCATION MAP
EC-1.0	EROSION & SEDIMENT CONTROL PLAN
TC-1.0	TEMPORARY TRAFFIC CONTROL PLAN
DM-1.0	OVERALL SITE DEMOLITION PLAN
DM-1.1 TO 1.3	SITE DEMOLITION PLAN 1-3
AF-1.0	OVERALL ATHLETIC FIELD PLAN
AF-1.1	ATHLETIC FIELD PLAN 1
SP-1.0	OVERALL SITE PLAN
SP-1.1 TO 1.4	SITE PLAN 1-4
SP-2.0	OVERALL SURFACING AND JOINTING PLAN
SP-2.1 TO 1.3	SURFACING AND JOINTING PLAN 1-3
DG-1.0	OVERALL DETAILED GRADING PLAN
DG-1.1 TO 1.6	DETAILED GRADING PLAN 1-6
DG-2.0 TO 2.1	ATHLETIC FIELD GRADING CROSS SECTIONS 1-2
SW-1.0	OVERALL STORM SEWER PLAN
SW-1.1 TO 1.2	STORM SEWER PLAN 1-2
SW-2.0 TO 2.2	STORM SEWER PROFILE 1-3
IR-1.0 & LS-1.0	OVERALL IRRIGATION AND LANDSCAPE PLAN
IR-1.1	IRRIGATION SCHEDULE & NOTES
IR-1.2 TO 1.4	IRRIGATION PLAN 1-3
LS-1.1	LANDSCAPE SCHEDULE & NOTES
LS-1.2 TO 1.4	LANDSCAPE PLAN 1-3
E-0.0	OVERALL ELECTRICAL PLAN
E-0.1	ACE ELECTRICAL SCHEDULE AND NOTES
E-1.0	ACE ELECTRICAL SITE PLAN 1
E-2.0	PRIMARY ELECTRICAL SITE PLAN 1

STANDARD CONSTRUCTION DETAILS

DT-1.0 TO 1.1	EROSION CONTROL DETAILS 1-2
DT-2.0 TO 2.6	STREET DETAILS 1-7
DT-3.0 TO 3.2	SIGNING/STRIPING DETAILS 1-3
DT-6.0 TO 6.3	STORM SEWER DETAILS 1-4
DT-7.0 TO 7.3	IRRIGATION DETAILS 1-4
DT-10.0 TO 10.11	SITE DETAILS 1-12
G1 TO G8	GEOTECHNICAL INVESTIGATION 1-8

TOTAL # OF SHEETS = 93

CALL BEFORE YOU DIG
ONE-CALL OF WYOMING
1-800-849-2476
OR
811
UTILITY NOTIFICATION CENTER OF WYOMING

BENCHMARK (CCHS ACCESS ROAD):
CITY OF GILLETTE VCM #: 26
NORTHING: 1378573.0000
EASTING: 572794.1000
ELEVATION: 4534.940'

BENCHMARK (E. EIGHTH STREET):
CITY OF GILLETTE VCM #: 27
NORTHING: 1380365.4100
EASTING: 570288.9800
ELEVATION: 4532.823'

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ENGINEER IN THE STATE OF WYOMING.

Professional Engineer (Civil)
ANTHONY P. MACDONALD
13597
WYOMING
Date 3/20/19

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
COVER SHEET

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
www.KLJENG.COM

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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

COVER SHEET
CS-1

EXISTING LINETYPES, SYMBOLS, AND HATCH PATTERNS

- SANITARY SEWER (PLAN VIEW)
- SANITARY SEWER (PROFILE VIEW)
- SANITARY SEWER SERVICE
- WATER LINE (PLAN VIEW)
- WATER LINE (PROFILE VIEW)
- WATER SERVICE
- STORM SEWER (PLAN VIEW)
- STORM SEWER (PROFILE VIEW)
- SUBDRAIN
- CULVERT
- OVERHEAD POWER (3ø)
- OVERHEAD POWER (1ø)
- UNDERGROUND POWER (3ø)
- UNDERGROUND POWER (1ø)
- GAS LINE
- PHONE LINE
- FIBER OPTIC
- CABLE TV
- PROPERTY/R-O-W LINE
- SUBDIVISION BOUNDARY
- BUILDING SETBACK LINE
- EASEMENT LINE
- GUARDRAIL
- CHAINLINK FENCE LINE
- BARBED WIRE FENCE LINE
- PRIVACY FENCE
- METAL FENCE LINE
- MAJOR (10') CONTOUR LINE
- MINOR (2') CONTOUR LINE
- TOWNSHIP LINE
- SECTION LINE
- QUARTER SECTION LINE
- SIXTEENTH SECTION LINE
- STRUCTURE
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING GRAVEL SURFACE

- HIGHWAY R-O-W MONUMENT
- FOUND BRASS CAP
- FOUND REBAR
- FOUND REBAR WITH CAP
- FOUND IRON PIPE
- SET REBAR WITH CAP
- CONTROL POINT
- FOUND SECTION CORNER
- FOUND 1/4 CORNER
- FOUND 1/16 CORNER
- BENCHMARK
- REFERENCE MONUMENT
- CABLE TV RISER
- TELEPHONE RISER
- WATER METER PIT
- FIRE HYDRANT
- GATE VALVE
- CURB STOP
- 11 1/4° BEND
- 22 1/2° BEND
- 45° BEND
- CAP (END OF LINE PLUG)
- COUPLER
- CROSS
- DEFLECTION COUPLER
- TEE
- REDUCER
- HEDGE/TREE LINE
- MAILBOX
- TREE STUMP

- STORM SEWER MANHOLE
- GRATED STORM INLET
- TYPE "B" INLET
- SANITARY SEWER MANHOLE
- CLEAN OUT
- GAS VALVE
- GAS METER
- STREET LIGHT
- GUY WIRE ANCHOR
- POWER POLE
- POWER POLE W/LIGHT
- POWER POLE W/GUY
- POWER POLE W/TRANSFORMER
- CAPACITOR BANK
- GANG SWITCH
- COMMON SWITCH
- FUSED SWITCH
- TRANSFORMER SINGLE PHASE
- TRANSFORMER 3 PHASE
- VARIABLE FREQUENCY INTERRUPT
- ELECTRICAL VAULT
- ELECTRICAL METER CABINET
- ELECTRICAL METER
- OVERCURRENT BAY
- SWITCH CABINET
- STREET LIGHT PEDESTAL
- SECONDARY PEDESTAL
- JUNCTION BOX SINGLE PHASE
- JUNCTION BOX THREE PHASE
- FIBER OPTIC PEDESTAL
- FIBER OPTIC VAULT
- SPRINKLER HEAD
- IRRIGATION CONTROL
- CONIFEROUS TREE
- DECIDUOUS TREE
- BUSH
- 1 POLE SIGN
- BOREHOLE
- MONITORING WELL
- TRAFFIC SIGNAL

DIMENSIONS

X.XX'

MATCH LINE
STA 129+50

A SHEET

A DETAIL A SECTION

PROPOSED LINETYPES, SYMBOLS, AND HATCH PATTERNS

- SANITARY SEWER (PLAN VIEW)
- SANITARY SEWER (PROFILE VIEW)
- SANITARY SEWER SERVICE
- WATER LINE (PLAN VIEW)
- WATER LINE (PROFILE VIEW)
- WATER SERVICE
- STORM SEWER (PLAN VIEW)
- STORM UNDER DRAIN
- STORM SEWER (PROFILE VIEW)
- SWALE/FLOWLINE
- CULVERT
- OVERHEAD POWER (3ø)
- OVERHEAD POWER (1ø)
- UNDERGROUND POWER (3ø)
- UNDERGROUND POWER (1ø)
- GAS LINE
- PHONE LINE
- FIBER OPTIC
- CABLE TV
- PROPERTY/R-O-W LINE
- SUBDIVISION BOUNDARY
- BUILDING SETBACK LINE
- EASEMENT LINE
- GUARDRAIL
- CHAINLINK FENCE LINE
- BARBED WIRE FENCE LINE
- PRIVACY FENCE
- METAL FENCE LINE
- MAJOR (10') CONTOUR LINE
- MINOR (2') CONTOUR LINE
- LIMITS OF CONSTRUCTION
- SILT FENCE

- CABLE TV RISER
- TELEPHONE RISER
- WATER METER PIT
- FIRE HYDRANT
- GATE VALVE
- CURB STOP
- 11 1/4° BEND
- 22 1/2° BEND
- 45° BEND
- CAP (END OF LINE PLUG)
- COUPLER
- CROSS
- DEFLECTION COUPLER
- TEE
- REDUCER
- STORM SEWER MANHOLE

- OUTLET STRUCTURE PROTECTION (OSP)
- ROUGH CUT STREET CONTROL (RCSC)
- RIPRAP FOR CULVERT PROTECTION (RRC)
- SEEDING AND MULCHING (SM)
- STABILIZED STAGING AREA (SSA)
- VEHICLE TRACKING CONTROL (VTC)
- EROSION BALE
- EROSION CONTROL BLANKET (ECB)
- EROSION CONTROL BARRIER INLET (EBI)

- STORM SEWER MANHOLE
- GRATED STORM INLET
- TYPE "B" INLET
- SANITARY SEWER MANHOLE
- CLEAN OUT
- GAS VALVE
- GAS METER
- STREET LIGHT
- GUY WIRE ANCHOR
- POWER POLE
- POWER POLE W/LIGHT
- POWER POLE W/GUY
- POWER POLE W/TRANSFORMER
- CAPACITOR BANK
- GANG SWITCH
- COMMON SWITCH
- FUSED SWITCH
- TRANSFORMER SINGLE PHASE
- TRANSFORMER 3 PHASE
- VARIABLE FREQUENCY INTERRUPT
- ELECTRICAL VAULT
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- ELECTRICAL METER
- OVERCURRENT BAY
- SWITCH CABINET
- STREET LIGHT PEDESTAL
- SECONDARY PEDESTAL
- JUNCTION BOX SINGLE PHASE
- JUNCTION BOX THREE PHASE
- FIBER OPTIC PEDESTAL
- FIBER OPTIC VAULT
- SPRINKLER HEAD
- IRRIGATION CONTROL
- CONIFEROUS TREE
- DECIDUOUS TREE
- BUSH
- 1 POLE SIGN
- BOREHOLE
- MONITORING WELL
- TRAFFIC SIGNAL

- PROPOSED ASPHALT
- PROPOSED GRAVEL SURFACE
- PROPOSED STRUCTURE
- PROPOSED CONCRETE

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

LEGEND

640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
WWW.KLJENG.COM

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DATE:	03/20/2019
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

LEGEND
NL-1.0

LOCAL UTILITY AND EMERGENCY CONTACTS

Campbell County School District
Tim Volk, Project Manager
109 North Gurley Avenue
Gillette, WY 82716
307-682-2750

Gillette Engineering Department
Steve Peterson, Engineering Review
2nd Floor City Hall
201 East 5th Street
Gillette, WY 82716
307-686-5265

Gillette Utilities Dept. (Water)
Diane Monahan
611 North Exchange Avenue
Gillette, WY 82716
307-686-5262

Gillette Utilities Dept. (Electrical)
Mick Wolf
611 North Exchange Avenue
Gillette, WY 82716
307-686-5277

Gillette Utilities Dept. (Sewer)
Bob Molder
3101 S. Garner Lake Road
Gillette, WY 82716
307-686-5274

KLJ
Anthony MacDonald
640 North Hwy 14-16, Unit K
Gillette, WY 82716
307-682-9500

Email:
anthony.macdonald@kljeng.com

Black Hills Energy Inc. (Natural Gas)
Scott Wilson
921 South Burma Avenue
Gillette, WY 82718
307-682-5881

Spectrum (Cable TV)
Matt Morris
1800 Wagonhammer Lane
Gillette, WY 82718
888-438-2427
LOCAL 307-689-8811

Century Link (Telephone)
Shelby Allen
3401 South Douglas Highway
Gillette, WY 82718
800-247-7285
LOCAL 307-682-7241

One Call of Wyoming
1740H Dell Range Blvd. #511
Cheyenne, WY 82009
1-800-849-2476
811

Campbell County Fire Dept.
106 Rohan Avenue
Gillette, WY 82716
307-682-5319

Gillette Police Dept.
East Side of City Hall
201 East 5th Street
Gillette, WY 82716
307-682-5155

Campbell County Emergency Medical Services
Campbell County Health
501 South Burma Avenue
Gillette, WY 82716
911

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
LOCAL UTILITY AND EMERGENCY CONTACTS

640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
WWW.KLJENG.COM

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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

CONTACTS
NL-1.1

GENERAL CONSTRUCTION NOTES:

1. ALL QUANTITIES, LOCATIONS, AND LIMITS OF EXISTING AND PROPOSED CONSTRUCTION SHOWN ON THE PLANS SHALL BE CONSIDERED APPROXIMATE FOR BIDDING PURPOSES. FINAL LOCATIONS AND LIMITS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER. OWNER RESERVES THE RIGHT TO MAKE CHANGES IN ALIGNMENT, CONNECTIONS, ETC., AS IS FELT TO BE IN THE BEST INTEREST OF THE PROJECT AT NO CHANGE IN THE CONTRACT PRICE.
2. ALL CONSTRUCTION SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS, CITY OF GILLETTE DESIGN STANDARDS, AND THE WYDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHERE APPLICABLE.
3. THE CONTRACTOR SHALL INCLUDE ALL MATERIALS, TOOLS, EQUIPMENT, LABOR AND APPURTENANT ITEMS TO COMPLETE THE WORK WITHIN THE BID PRICE.
4. CONTRACTOR SHALL PROTECT ALL LANDSCAPING, EXISTING UTILITIES, PAVEMENT, ETC., EXCEPT WHERE REMOVAL OF SUCH ITEMS IS SPECIFICALLY CALLED FOR IN DRAWINGS. ANY DAMAGES BY CONTRACTOR SHALL BE REPAIRED AT HIS EXPENSE.
5. CONTRACTOR AND ALL SUB-CONTRACTORS ARE REQUIRED TO HAVE A CITY OF GILLETTE CONTRACTORS PERMIT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE CONSTRUCTION OF THE PROJECT.
6. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE PRIOR TO CONSTRUCTION. THE PROJECT IS LOCATED WITHIN AN ACTIVE SCHOOL FACILITY, AND ADDITIONAL COORDINATION BETWEEN THE OWNER WILL BE REQUIRED.
7. IT IS THE CONTRACTORS RESPONSIBILITY TO REVIEW THE GEOTECHNICAL REPORT PREPARED BY STRATA, INC., DATED JANUARY 29, 2019. THE CONTRACTOR SHALL REVIEW THE REQUIREMENTS FOR TREATMENT AND PREPARATION OF ALL NATIVE AND/OR BORROW MATERIAL WHICH SHALL ADHERE TO THE RECOMMENDATIONS SET FORTH SET FORTH BY THE GEOTECHNICAL INVESTIGATION FOR THE PROJECT, BUT WHERE CONFLICT OCCURS THE CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS AND CITY OF GILLETTE DESIGN STANDARDS SUPERCEDE.
8. CONTRACTOR SHALL COORDINATE WITH ENGINEER FOR ALL MATERIALS TESTING REQUIRED WITHIN THE SPECIFICATIONS. WRITTEN REQUESTS WITH MINIMUM 48-HOUR NOTICE IS REQUIRED PRIOR TO ANY MATERIALS TESTING.
9. THE CONTRACTOR SHALL NOTIFY THE CITY OF GILLETTE, WYDOT, EMERGENCY MEDICAL SERVICES, THE FIRE DEPARTMENT, LAW ENFORCEMENT, LOCAL MEDIA, SCHOOLS, RESIDENTS, POSTMASTER, SOLID WASTE COLLECTION AGENCIES TO ALL ROAD CLOSURES AND ALTERNATE ROUTES. IN ADDITION, THE CONTRACTOR SHALL ADVERTISE ROAD CLOSURES AT LEAST 48 HOURS IN THE LOCAL NEWSPAPER PRIOR TO ANY STREET CLOSURE.
10. LEGAL LOAD LIMIT REQUIREMENTS SHALL BE ENFORCED ON ALL STATE HIGHWAYS, CITY STREETS AND COUNTY ROADS.
11. CONTRACTOR SHALL PROVIDE THEIR OWN WATER FOR DUST CONTROL AND COMPACTING. COORDINATE WITH THE OWNER AND/OR CITY OF GILLETTE. THE CONTRACTOR SHALL NOT USE WATER FROM FIRE HYDRANTS FOR ANY PURPOSES UNLESS PRIOR APPROVAL IS OBTAINED FROM THE CITY OF GILLETTE AND THE CONTRACTOR PROVIDES BACKFLOW PREVENTION DEVICE WITH WATER METER.

RIGHT-OF-WAY AND SURVEY

1. CONTRACTOR SHALL COORDINATE WITH KLJ FOR ALL SURVEY NECESSARY FOR LAYOUT AND CONTROL NEEDED TO CONSTRUCT THE PROJECT. WRITTEN REQUESTS WITH MINIMUM 48-HOUR NOTICE IS REQUIRED PRIOR TO ANY SURVEY STAKING.
2. PROPERTY LINES ARE SHOWN BASED ON INFORMATION PROVIDED BY SURVEY. THEIR TRUE LOCATION MAY NOT BE EXACTLY AS SHOWN ON THE PLANS. MINOR ALIGNMENT ADJUSTMENTS MAY BE NEEDED IN THE FIELD.
3. A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF WYOMING SHALL RESET ANY DISTURBED PROPERTY OR SECTION CORNERS AT THE CONTRACTOR'S EXPENSE.
4. PERMITS TO WORK IN PUBLIC RIGHT-OF-WAY AND STREAMS SHALL BE OBTAINED BY THE CONTRACTOR. CONTRACTOR IS TO COMPLY WITH ALL PERMIT CONDITIONS AND RESTRICTIONS.

TRAFFIC CONTROL

1. CONSTRUCTION SHALL NOT COMMENCE ON THE PROJECT UNTIL NECESSARY CONSTRUCTION WARNING SIGNS AND TRAFFIC CONTROL ARE IN PLACE AND APPROVED BY THE ENGINEER/CITY OF GILLETTE, AND WYDOT AS NECESSARY. TEMPORARY ACCESS THROUGH THE CONSTRUCTION AREA SHALL BE PROVIDED AS REQUIRED.
2. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR EACH ROAD CLOSURE TO BE APPROVED BY THE ENGINEER/CITY OF GILLETTE, AND WYDOT AS NECESSARY. ALL TRAFFIC CONTROL SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND WYDOT REQUIREMENTS.

EXISTING UTILITIES

1. CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES WITH A 48 HOUR ADVANCE NOTICE AND DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES BEFORE COMMENCING WORK. CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND PROPERLY REPAIRING ANY DAMAGED UTILITIES DURING CONSTRUCTION. CONTRACTOR SHALL CONTACT UTILITY COMPANIES 48 HOURS PRIOR TO TRENCHING WITHIN 10 FEET OF ALL OVERHEAD POLES TO ALLOW FOR THE UTILITY COMPANY TO SECURE POLES.
2. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE BASED ON RECORDS OF UTILITY COMPANIES AND FIELD VERIFICATION BY THE UTILITY COMPANIES. FIELD VERIFICATION OF BURIED GAS, ELECTRIC, WATER, TELEPHONE, SEWER AND CABLE TV LINES ARE BY ELECTRONIC OR MAGNETIC DETECTION METHODS. ALL UTILITY LOCATIONS ARE SUBJECT TO ACCURACY OF THE LOCATION METHOD AND SUBJECT TO RELOCATIONS FROM THE TIME THAT THE PLANS WERE PREPARED. NO EXCAVATION WAS PERFORMED.
3. NOT ALL UTILITIES ARE SHOWN ON THE PROPERTY, IN THE STREET OR UTILITY PROFILE PLANS.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION AND SHALL NOT BACKFILL UNTIL THE CONTRACTOR HAS MADE A RECORD OF ITS TYPE, SIZE AND LOCATION.

PROPOSED UTILITIES

1. STORM SEWER DRAIN AND UNDERDRAIN CONSTRUCTION – PER CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS SECTION 02725 STORM DRAINS, CONTRACTOR SHALL CLEAN AND REMOVE ALL SAND, GRAVEL, CONCRETE, CEMENT GROUT, ETC. THAT HAS ENTERED THE LINES DURING CONSTRUCTION. IN ADDITION TO THE REQUIRED "LIGHT TEST" THE CONTRACTOR WILL PROVIDE VIDEO INSPECTION OF THE STORM DRAIN AND UNDERDRAIN UTILITIES PER SECTION 02700 SANITARY SEWER SYSTEMS FOR VIDEO INSPECTION AT THE CONTRACTOR'S EXPENSE, AND REMEDY ANY DEFECTS AT THE CONTRACTORS EXPENSE.
2. CONTRACTOR SHALL RESPECT ALL RIGHT-OF-WAY AND EASEMENT BOUNDARIES SHOWN. ALL WORK SHALL BE DONE WITHIN THESE BOUNDARIES. ANY WORK OUTSIDE OF THE RIGHT-OF-WAY OR EASEMENT SHALL ONLY BE DONE AFTER RECEIVING WRITTEN PERMISSION OF THE LAND OWNER. THIS PERMISSION SHALL BE OBTAINED BY THE CONTRACTOR.
3. DEFLECTIONS OF PIPE OF THE JOINT ARE NOT TO EXCEED MANUFACTURER'S REQUIREMENTS.
4. ADDITIONAL HORIZONTAL DEFLECTIONS AT PIPE JOINTS AND FITTINGS BEYOND THOSE SHOWN ON THE PLANS MAY BE NEEDED DURING CONSTRUCTION. THESE DEFLECTIONS SHALL NOT EXCEED MANUFACTURER'S REQUIREMENTS. THE PIPE CANNOT BE ALLOWED TO SHIFT IN LOCATION SIGNIFICANTLY SO ITS LOCATION IN THE EASEMENT WILL BE AFFECTED. SUCH DEFLECTIONS ARE TO BE APPROVED BY THE ENGINEER PRIOR TO BACKFILLING.
5. A MINIMUM COVER OF BETWEEN 5.5 AND 6.0 FEET IS TO BE MAINTAINED OVER ALL WATER AND SEWER LINES UNLESS SHOWN OTHERWISE ON THE PLANS. WHERE THE ENGINEER AUTHORIZES A REDUCTION IN THE COVER, INSULATION OF THE PIPE IS TO BE PROVIDED.
6. ADDITIONAL EXCAVATION IS TO BE USED TO KEEP THE PIPE ON GRADE PREVENTING HIGH POINTS IN THE LINE THAT ARE NOT SHOWN ON THE PLANS AND TO AVOID JOINT DEFLECTION DUE TO LOCALIZED CHANGES OF LESS THAN 4 FEET IN THE GROUND SURFACES. JOINT DEFLECTIONS USED TO ACCOMMODATE SIGNIFICANT CHANGES IN TERRAIN OR TO AVOID BURIED OBSTACLES ARE TO BE MADE GRADUALLY OVER SEVERAL JOINTS, OR THROUGH MECHANICAL MEANS AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER.
7. WHENEVER BURIED OBSTACLES ARE EXPECTED TO BE ENCOUNTERED NEAR A NEW WATER LINE INSTALLATION, THE CONTRACTOR SHALL EXCAVATE AHEAD TO DETERMINE THE DEPTH AND LOCATION OF SAID OBSTACLE.
8. LOCATIONS OF VALVES, HYDRANTS, MANHOLES, FITTINGS AND OTHER APPURTENANCES SHOWN ON THE PLANS SHALL BE CONSIDERED APPROXIMATE FOR PRELIMINARY DESIGN, AND BIDDING PURPOSES. FINAL LOCATIONS ARE TO BE DETERMINED DURING FINAL DESIGN, AND IN THE FIELD BY THE ENGINEER.

EROSION CONTROL

1. THE CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AS NECESSARY TO COMPLY WITH FEDERAL, STATE AND COUNTY REGULATIONS THAT PROHIBIT UN-PERMITTED DISCHARGE OF POLLUTANTS, INCLUDING SEDIMENTS THAT ARE A RESULT OF EROSION OR OTHER CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND SUBMITTING AND EROSION CONTROL PLAN (STORM WATER POLLUTION PREVENTION PLAN) PER CITY OF GILLETTE, CAMPBELL COUNTY AND WDEQ LARGE (OR SMALL) CONSTRUCTION GENERAL PERMIT REQUIREMENTS INCLUDING THE NOTICE OF INTENT (NOI), NOTICE OF TRANSFER AND ACCEPTANCE (NOTA) AND NOTICE OF TERMINATION (NOT) AS REQUIRED.
2. METHODS AND ITEMS UTILIZED SHOULD BE APPLIED TO THE SPECIFIC CONDITIONS ENCOUNTERED THROUGHOUT CONSTRUCTION DISTURBANCE EXTENTS AND FOLLOW BEST MANAGEMENT PRACTICES (BMP'S) PER THE CURRENT CITY OF GILLETTE DESIGN STANDARDS, CITY OF GILLETTE STORM DRAINAGE DESIGN MANUAL AND THE CITY OF GILLETTE STORM WATER MASTER PLAN.
3. THE CONTRACTOR SHALL CONDUCT WORK SO THAT SEDIMENT IS NOT TRANSPORTED ONTO THE ROADWAY OR ADJACENT PROPERTY. THE CONTRACTOR SHALL SWEEP UP ANY SEDIMENT TRACKED OR OTHERWISE DEPOSITED ONTO PAVED SURFACES WHEN TRACKING OCCURS TO MINIMIZE THE WASH OFF OF SEDIMENT INTO THE STORM DRAINS OR WATER WAYS.

SAFETY

1. THE PROJECT IS ON AND AROUND AN ACTIVE SCHOOL SITE WHERE ADDITIONAL CONSIDERATION FOR PROTECTION OF THE WORK FROM ACCESS BY THE PUBLIC WILL NEED TO BE CONSIDERED. THIS INCLUDES WHEN WORK IS NOT BEING COMPLETED.
2. ALL WORK SHALL COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS, INCLUDING THE CURRENT OSHA EXCAVATION AND TRENCH SAFETY STANDARDS. CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, WHO SHALL ALSO BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SEQUENCING OF CONSTRUCTION OPERATIONS. UNDER NO CIRCUMSTANCES SHOULD THE INFORMATION PROVIDED BE INTERPRETED TO MEAN THAT THE ENGINEER IS ASSUMING RESPONSIBILITY FOR CONSTRUCTION SITE SAFETY OR THE CONTRACTOR'S ACTIVITIES. SUCH RESPONSIBILITY IS NOT BEING IMPLIED AND SHALL NOT BE INFERRED.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND CONSTRUCTING STABLE, TEMPORARY EXCAVATIONS AND SHOULD SHORE, SLOPE OR BENCH THE SIDES OF THE EXCAVATIONS AS REQUIRED TO MAINTAIN STABILITY OF BOTH THE EXCAVATION SIDES AND BOTTOM.
4. IN NO CASE SHOULD MINIMUM PROXIMITY DISTANCES TO OVERHEAD POWER LINES BE BREACHED BY ANY EQUIPMENT, PERSONNEL, OR TOOLS; NOR SHOULD SLOPE HEIGHT, SLOPE INCLINATION OR EXCAVATION DEPTH, INCLUDING UTILITY TRENCH EXCAVATION DEPTH, EXCEED THOSE SPECIFIED IN LOCAL, STATE AND FEDERAL SAFETY REGULATIONS. SPECIFICALLY, THE CURRENT OSHA HEALTH AND SAFETY STANDARDS FOR EXCAVATIONS SHOULD BE FOLLOWED. IT IS THE ENGINEER'S UNDERSTANDING THAT THESE REGULATIONS ARE BEING STRICTLY ENFORCED AND IF THEY ARE NOT CLOSELY FOLLOWED, THE CONTRACTOR COULD BE LIABLE FOR SUBSTANTIAL PENALTIES.

SURFACING/STREETS

1. SAWCUTTING AND REMOVAL OF EXISTING SURFACING IS CONSIDERED INCIDENTAL TO THE PROJECT PAY ITEM FOR DEMOLITION OF SURFACING.
2. CONTRACTOR SHALL NOT DISTURB EXISTING PAVEMENT UNLESS DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS. ANY DAMAGE TO THE EXISTING PAVEMENT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3. REFER TO THE SPECIFICATIONS FOR THE VARYING AGGREGATE BASE BID ITEMS. THE GRADATION REQUIREMENT FOR THE BID ITEM 4" DEPTH BASE COURSE SHALL BE GRADING "W" FOR CRUSHED CONCRETE OR RECYCLED ASPHALTIC CONCRETE. FOR LIMESTONE BASE MATERIAL, THE GRADATION SHALL BE GRADING "W" OR GRADING "L".
4. CONCRETE SHALL MEET CITY OF GILLETTE CLASS "B" CLASSIFICATION FROM SECTION 03304 OF THE 2017 CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS.
5. CURB & GUTTER TO BE "TYPE A" AT DIMENSIONS SHOWN UNLESS OTHERWISE NOTED ON THE PLANS.
6. GEOSYNTHETICS TO BE USED SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS. GEOSYNTHETICS TO BE USED PER THE APPROVED GEOTECHNICAL INVESTIGATION, AND THE MOST RECENT VERSION OF THE CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS, OR AN APPROVED EQUAL. GEOGRID TO BE USED SHALL BE BX-1200 OR AN APPROVED EQUAL.
7. ALL CONCRETE CURB AND GUTTER SHALL BE THOROUGHLY CLEANED OF EXISTING ASPHALT AND SEDIMENT PRIOR TO PAVING.
8. THE CONTRACTOR SHALL SUBMIT JOINT LAYOUT PLANS TO THE ENGINEER FOR APPROVAL AT LEAST 7 DAYS PRIOR TO CONCRETE PAVING IF AN ALTERNATE JOINTING PLAN IS DESIRED.

RESTORATION

1. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RECLAIMED TO A CONDITION THAT IS EQUAL OR BETTER THAN THE ORIGINAL, EXCEPT IN AREAS SPECIFICALLY NOTED ON CIVIL AND LANDSCAPING PLANS. ANY DISTURBANCE OUTSIDE OF THE PLAN EXTENTS WILL BE RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
2. THE ENGINEER RESERVES THE RIGHT TO DIRECT THE CONTRACTOR ON A CASE BY CASE BASIS OF RESTORATION IN MARGINAL AREAS.

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

GENERAL NOTES

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GENERAL NOTES

NL-1.2

TOTAL ESTIMATED QUANTITIES

Bid Item	Item Description	Quantity	Unit
1	Mobilization	1	LS
2	Contract and Payment Performance Bond	1	LS
3	Construction Stormwater Management	1	LS
4	Construction Signing and Traffic Control	1	LS
5	Remove Sod	157,100	SF
6	Remove Tree	3	EA
7	Topsoil Stockpile	2,920	CY
8	Topsoil Placement	879	CY
9	Removal of Concrete Pavement	190	SY
10	Removal of Asphalt Pavement	25	SY
11	Removal of Concrete Sidewalk	1,260	SF
12	Removal of Curb and Gutter	120	LF
13	Remove Existing Storm Drain	10	LF
14	Removal of Chain Link Fence	1,330	LF
15	Relocate, Adjust and Repair Irrigation System	1	LS
16	Remove and Store Football Goal Post	4	EA
17	Relocate Existing Storage Building	1	LS
18	Unclassified Excavation/Grading	1,466	CY
19	Surplus Material Disposal	2,062	CY
20	Perform 12" Subgrade Preparation	13,247	SY
21	Install PCC Thickened Edge Spread Footing Foundation	1	LS
22	Install 6" PCC Surfacing W/ Thickened Edge	370	SY
23	Install 6" Asphaltic Concrete Patch	27	SY
24	Install Replacement 30" Spill Curb and Gutter	120	LF
25	Install Miscellaneous Curb (6"x12" Nailer Curb)	1,350	LF
26	Install 6" PCC Surfacing/Sidewalk	6,285	SF
27	Install 6" Reinforced PCC Sidewalk W/ Handrail	2,400	SF
28	Install 6" PCC Valley Pan	900	SF
29	Install 6" Aggregate Base Course (Grading B Drain Rock)	11,670	SY
30	Install 4" Aggregate Base Course (Grading "W")	1,542	SY
31	Install 2" Aggregate Base Course (Top Stone Finishing)	11,670	SY
32	Install Material Separation Fabric	13,212	SY
33	Install Synthetic Turf, Striping, and Components	104,750	SF
34	Synthetic Turf Additional Equipment	1	LS
35	Install 18" N-12 HDPE Storm Pipe	445	LF
36	Install 12" N-12 HDPE Storm Pipe	650	LF
37	Install 10" N-12 HDPE Storm Pipe	110	LF
38	Install 10" PERF. N-12 HDPE Storm Pipe	770	LF
39	Install 1.5"x12" Flat Panel ADS Under Drain	3,220	LF
40	Install 2" Solid N-12 HDPE Sleeve Drain	20	LF
41	Install 24" Nyloplast Storm Inlet w/ Pedestrian Grate	8	EA
42	Install 48" Dia. Storm Drain Manhole	1	EA
43	Install 18" Flared End Section, Rip Rap Protection	1	EA
44	Install Irrigation System and Components	1	LS
45	Install Sod	32,850	SF
46	Install Hydroseed/Landscaping	5,000	SF
47	Install 144" Galv. Chain Link Fencing	500	LF
48	Install 120" Galv. Chain Link Fencing	400	LF
49	Install 72" Galv. Chain Link Fencing	870	LF
50	Install Temporary Fencing	870	LF
51	Connect to Primary Electrical Service (Contractor)	1	LS
52	Install 4" SCH 40 Elec. Conduit (Bored)	170	LF
53	Install 4" SCH 40 Elec. Conduit (Trenched)	230	LF
54	Install 3" SCH 40 Elec. Conduit (Trenched)	220	LF
55	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	225	LF
56	Install 1-1/2" SCH 40 Elec. Conduit (Trenched)	2,195	LF
57	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	720	LF
58	Install 3" SCH 40 Elec. Conduit (Trenched, Pull String Only)	610	LF
59	Install Pull (Junction) Box	12	EA
60	Install 3 Phase Transformer Pad	1	EA
61	Install Single Phase Transformer and Pad	1	EA
62	Install 3 Phase Control Panel and Service	1	EA
63	Install Single Phase Control Panel and Service	1	EA
64	Install Exterior Athletic Lighting	1	LS
65	Install Pedestrain Overhead Light Fixture	7	EA
66	Install Exterior Power Pedestal	1	EA
67	Install Scoreboard	1	LS
68	Install Emergency Access Area Striping	1	LS
69	Install Backstop System	2	EA
70	Install Soccer Goal	2	EA
71	Install Football Goal Post	2	EA
72	Install Team and Coaching Benches	4	EA
73	Install Corner Flags	4	EA
74	Install Aluminum Bleachers	6	EA
75	Install Trash Receptacles	8	EA
76	Install Stored Football Goal Post	2	EA
77	Install Flag Pole	1	EA
78	**Alternate 1:** Crow's Nest Building	1	EA

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS

TOTAL ESTIMATED QUANTITIES

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QUANTITIES
NL-1.3

CCHS Soccer Field Control Points				
Point Number	Northing (ft)	Easting (ft)	Elevation (ft)	Description
26	1378573.000	572794.100	4534.940	City of Gillette VCM
27	1380365.400	570289.000	4532.823	City of Gillette VCM
270	1378157.083	572390.234	4553.187	CP*MAG NAIL

SURVEY CONTROL NOTES:

1. HORIZONTAL DATUM: CITY OF GILLETTE CONTROL NETWORK
2. VERTICAL DATUM: CITY OF GILLETTE CONTROL NETWORK
3. HORIZONTAL AND VERTICAL UNITS: US SURVEY FEET, GRID DISTANCES
4. REFERENCE COVER SHEET FOR RECOVERED MONUMENT LOCATIONS IN REFERENCE TO PROJECT SITE.

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SURVEY CONTROL

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SURVEY CONTROL
NL-1.4

TWELFTH STREET

ACCESS ROAD

ACCESS ROAD

ACCESS ROAD

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

EAST PARKING LOT

FACULTY PARKING LOT

CAMPBELL COUNTY HIGH SCHOOL

CAMEL DRIVE

WEST PARKING LOT

BOILER ROOM BUILDING

STORAGE BUILDING

PROPOSED SYNTHETIC TURF COMPETITION FIELD

TENNIS COURTS

PRACTICE FIELD
(LAYOUT SHOWN FOR REFERENCE ONLY)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

N

75 0 75 150
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL PROJECT LOCATION PLAN

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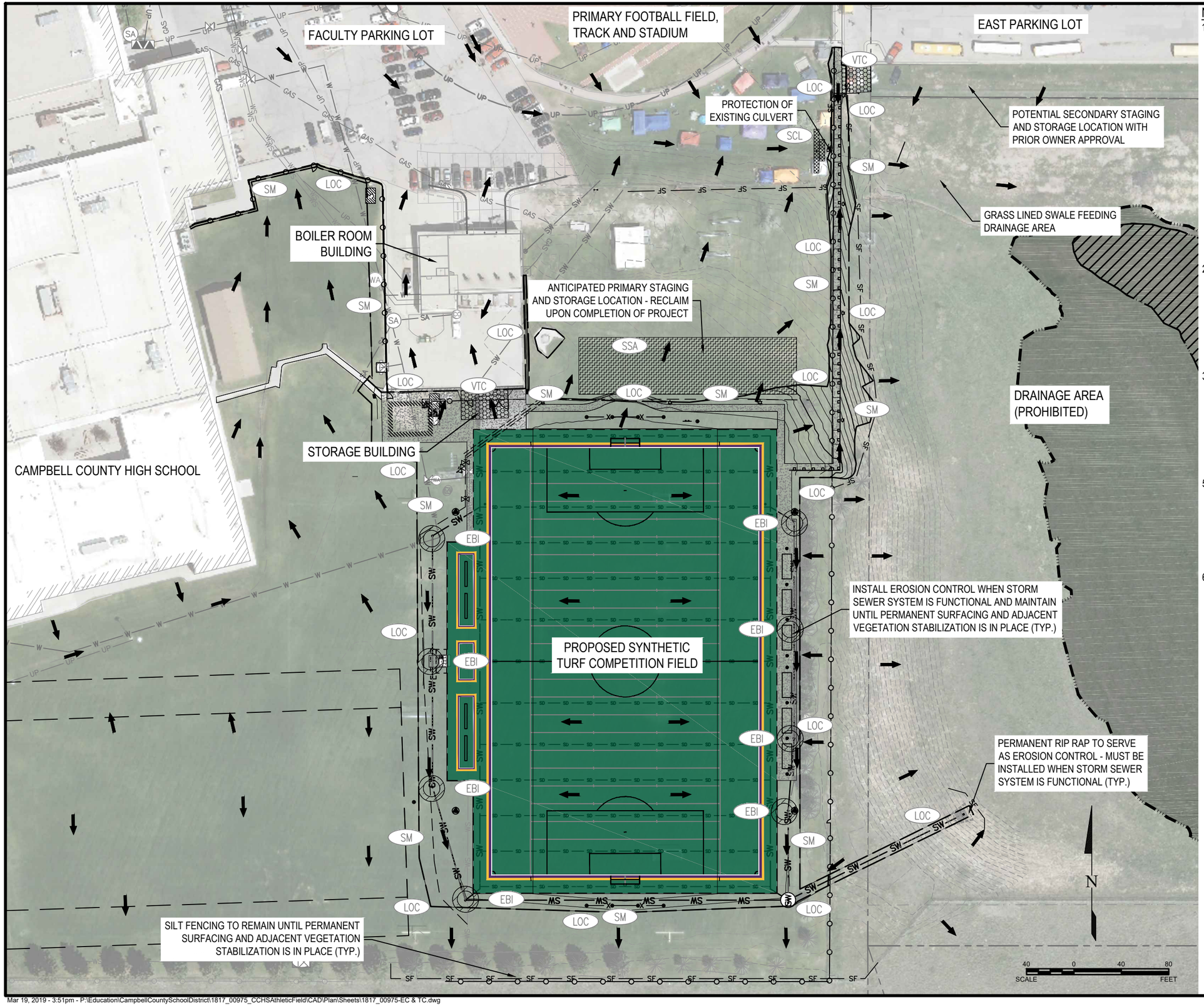
OVERALL PROJ. LOC. PLAN
OP-1.0



NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AS NECESSARY TO COMPLY WITH FEDERAL, STATE AND COUNTY REGULATIONS THAT PROHIBIT UN-PERMITTED DISCHARGE OF POLLUTANTS, INCLUDING SEDIMENTS THAT ARE A RESULT OF EROSION OR OTHER CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND SUBMITTING AN EROSION CONTROL PLAN (STORM WATER POLLUTION PREVENTION PLAN) PER CITY OF GILLETTE, CAMPBELL COUNTY AND WDEQ LARGE (OR SMALL) CONSTRUCTION GENERAL PERMIT REQUIREMENTS INCLUDING THE NOTICE OF INTENT (NOI), NOTICE OF TRANSFER AND ACCEPTANCE (NOTA) AND NOTICE OF TERMINATION (NOT) AS REQUIRED. THE CONTRACTOR SHALL HAVE AN APPROVED PLAN AND SUBSEQUENT PERMITS PRIOR TO START OF CONSTRUCTION.
2. METHODS AND ITEMS UTILIZED SHOULD BE APPLIED TO THE SPECIFIC CONDITIONS ENCOUNTERED THROUGHOUT CONSTRUCTION DISTURBANCE EXTENTS AND FOLLOW BEST MANAGEMENT PRACTICES (BMP'S) PER THE CURRENT CITY OF GILLETTE DESIGN STANDARDS, CITY OF GILLETTE STORM DRAINAGE DESIGN MANUAL AND THE CITY OF GILLETTE STORM WATER MASTER PLAN.
3. THE CONTRACTOR SHALL CONDUCT WORK SO THAT SEDIMENT IS NOT TRANSPORTED ONTO THE ROADWAY OR ADJACENT PROPERTY. THE CONTRACTOR SHALL SWEEP UP ANY SEDIMENT TRACKED OR OTHERWISE DEPOSITED ONTO PAVED SURFACES WHEN TRACKING OCCURS TO MINIMIZE THE WASH OFF OF SEDIMENT INTO THE STORM DRAINS OR WATER WAYS.
5. PRIMARY CONSTRUCTION ACCESS VIA TWELFTH STREET THROUGH FACULTY PARKING LOT ACCESS ROAD AND FACULTY PARKING LOT. **TRAFFIC ON OR NEAR THE TRACK AND FIELD AREA IS PROHIBITED.** SECONDARY CONSTRUCTION ACCESS VIA TWELFTH STREET THROUGH EAST PARKING LOT ACCESS ROAD AND EAST PARKING LOT.
6. STAGING IS ANTICIPATED TO BE CONTAINED PRIMARILY WITHIN CONSTRUCTION DISTURBANCE AREAS AND THE PARKING LOT. THE BOILER ROOM, FACULTY, AND EAST PARKING LOTS MAY BE USED TEMPORARILY DURING DEMOLITION, STAGING, TEMPORARY STORAGE, ETC. TO BE APPROVED BY OWNER. ALL OTHER CONSTRUCTION ACTIVITY TO BE CONTAINED PRIMARILY WITHIN CONSTRUCTION DISTURBANCE AREAS.

EBI		EROSION CONTROL BARRIER INLET
SCL		SEDIMENT CONTROL LOG (WATTLE)
SM		SEEDING AND MULCHING
VTC		VEHICLE TRACKING CONTROL
SSA		STABILIZED STAGING AREA
LOC		LIMITS OF CONSTRUCTION
SF		SILT FENCE
		DIRECTION OF FLOW

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

EROSION CONTROL PLAN

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EROSION CONTROL PLAN
EC-1.0

TWELFTH STREET

PRIMARY CONSTRUCTION ACCESS FROM TWELFTH STREET THROUGH ACCESS ROAD TO FACULTY PARKING LOT

SECONDARY CONSTRUCTION ACCESS FROM TWELFTH STREET THROUGH ACCESS ROAD TO EAST PARKING LOT

ACCESS ROAD

ACCESS ROAD

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

FACULTY PARKING LOT

EAST PARKING LOT

CAMPBELL COUNTY HIGH SCHOOL

PROVIDE CONTINUED ACCESS/EGRESS TO NORTH AND WEST SIDES OF BOILER ROOM BUILDING, AND ENTIRETY OF FACULTY PARKIN GLOT AND ACCESS ROAD (TYP.)

SECONDARY CONSTRUCTION ACCESS POINT ALONG FENCE LINE TO BE REPLACED RUNNING FROM EAST PARKING LOT TO SITE - NO CLOSURE OF EAST PARKING LOT OR ACCESS ROAD IS ANTICIPATED (TYP.)

BOILER ROOM BUILDING

DRAINAGE AREA (PROHIBITED)

PRIMARY CONSTRUCTION ACCESS POINT

STORAGE BUILDING

PROPOSED SYNTHETIC TURF COMPETITION FIELD

N

50 0 50 100
SCALE FEET

NOTES:

1. THE CONTRACTOR SHALL HAVE AN APPROVED PLAN AND SUBSEQUENT PERMITS PRIOR TO START OF CONSTRUCTION.
2. CONSTRUCTION SHALL NOT COMMENCE ON THE PROJECT UNTIL NECESSARY CONSTRUCTION WARNING SIGNS, TEMPORARY FENCING, AND TRAFFIC CONTROL ARE IN PLACE AND APPROVED BY THE ENGINEER, OWNER, CITY OF GILLETTE, AND WYDOT, AS NECESSARY.
3. ALL TRAFFIC CONTROL SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND WYDOT REQUIREMENTS.
4. A PLAN SHALL BE DEVELOPED TO PROVIDE TEMPORARY AND/OR CONTINUED ACCESS/EGRESS TO ALL ACCESSIBLE PROPERTIES AS REQUESTED BY THE OWNER.
5. PRIMARY CONSTRUCTION ACCESS VIA TWELFTH STREET THROUGH FACULTY PARKING LOT ACCESS ROAD AND FACULTY PARKING LOT. **TRAFFIC ON OR NEAR THE TRACK AND FIELD AREA IS PROHIBITED**. SECONDARY CONSTRUCTION ACCESS VIA TWELFTH STREET THROUGH EAST PARKING LOT ACCESS ROAD AND EAST PARKING LOT.
6. THE BOILER ROOM, FACULTY, AND EAST PARKING LOTS MAY BE USED TEMPORARILY DURING DEMOLITION, STAGING, TEMPORARY STORAGE, ETC. TO BE APPROVED BY OWNER. ALL OTHER CONSTRUCTION ACTIVITY TO BE CONTAINED PRIMARILY WITHIN CONSTRUCTION DISTURBANCE AREAS.

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

TEMPORARY TRAFFIC CONTROL PLAN

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TEMP. TRAFFIC CONTROL
TC-1.0

CAMPBELL COUNTY HIGH SCHOOL

ACCESS ROAD

PRACTICE FIELD

DM-1.2

DM-1.1

DM-1.3

FACULTY PARKING LOT

BOILER ROOM BUILDING

PROPOSED SYNTHETIC TURF COMPETITION FIELD

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

ACCESS ROAD

EAST PARKING LOT

INTERSTATE HIGHWAY 90 RIGHT OF WAY

N

40 0 40 80
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL DEMOLITION PLAN

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OVERALL DEMOLITION PLAN
DM-1.0

PRACTICE FIELD

REMOVE AND STORE FOOTBALL GOAL POST

TEMPORARY FENCING (TYP.)

REMOVE AND STORE FOOTBALL GOAL POST

PORTION OF ZONE LATERAL TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE

BACKFLOW PREVENTOR, METER, AND IRRIGATION CONTROLLER CAGE TO REMAIN

NORTH BANK OF CONTROL VALVE MANIFOLD AND SUBSEQUENT LATERAL ZONES TO REMAIN (SEE IRRIGATION PLAN)

REMOVE CHAIN LINK FENCING TO EXISTING FENCE POST CLOSEST TO END OF DEMOLITION EXTENTS, ENGINEER TO APPROVE LOCATION

IRRIGATION MAIN TO BE ABANDONED IN PLACE AFTER BEING RESET THROUGH FIELD AREA (SEE IRRIGATION PLAN)

SALVAGE IRRIGATION COMPONENTS FOR EAST BANK OF CONTROL VALVE MANIFOLD AND SUBSEQUENT LATERAL ZONES AND ABANDON SUBSEQUENT LATERAL ZONES. EXISTING SERVICE TO IRRIGATION MAIN WILL BE RESET WITH RELOCATION OF MAIN (SEE IRRIGATION PLAN)

DISTURBANCE EXTENTS (TYP.)

SALVAGE IRRIGATION COMPONENTS AND ABANDON MAJORITY OF IRRIGATION WITHIN DISTURBANCE EXTENTS - SEE NOTES THIS PAGE (TYP.)

REMOVE 72" CHAIN LINK PERIMETER FENCE AND POSTS (TYP. ALONG INTERSTATE HIGHWAY 90 ROW)

ABANDON REMAINING EXISTING IRRIGATION LATERAL IN PLACE (TYP.)

PORTION OF ZONE LATERALS HEADING NORTH TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE

TYPICAL FENCING INSTALLATION WILL REQUIRE REMOVAL AND STORAGE OF TOPSOIL PER GRADING EXTENTS, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

REMOVE SOD, REMOVE AND STORE TOPSOIL WITHIN DISTURBANCE EXTENTS (6" DEPTH) - REPRESENTED BY HATCHING (TYP.)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

REMOVE AND STORE FOOTBALL GOAL POST

REMOVE AND STORE FOOTBALL GOAL POST

ABANDON REMAINING EXISTING IRRIGATION LATERAL IN PLACE (TYP.)

TREES TO REMAIN (TYP.)

PORTION OF ZONE LATERAL ALONG FENCELINE TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE - ADJUST AND REPAIR AS NEEDED (TYP.)

ABANDON REMAINING EXISTING IRRIGATION LATERAL IN PLACE (TYP.)

PORTION OF ZONE LATERALS HEADING NORTH TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE

TYPICAL FENCING INSTALLATION WILL REQUIRE REMOVAL AND STORAGE OF TOPSOIL PER GRADING EXTENTS, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

TREES TO REMAIN (TYP.)

REMOVE CHAIN LINK FENCING TO EXISTING FENCE POST CLOSEST TO END OF DEMOLITION EXTENTS, ENGINEER TO APPROVE LOCATION

ADDITIONAL AREA FOR STORM SEWER TRENCHING EFFORT - REMOVE SOD, REMOVE AND STORE TOPSOIL WITHIN DISTURBANCE EXTENTS (6" DEPTH) - REPRESENTED BY HATCHING (TYP.)

REMOVE 72" CHAIN LINK PERIMETER FENCE AND POSTS (TYP. ALONG EAST PROPERTY LINE)

PORTION OF ZONE LATERAL ALONG FENCELINE TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE - ADJUST AND REPAIR AS NEEDED (TYP.)

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. IRRIGATION COMPONENTS NEED TO BE VERIFIED BY THE CONTRACTOR PRIOR TO STARTING WORK.
3. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
4. COORDINATE PRACTICE FIELD FOOTBALL GOAL POST RELOCATION WITH CCSD. TAKE CARE AS TO CAUSE NO DAMAGE TO ITEMS WHEN REMOVING AND STORING THEM FOR RELOCATION.
5. ANY MATERIALS THAT ARE SALVAGEABLE (SUCH AS IRRIGATION COMPONENTS) SHALL BE RETURNED TO OWNER AFTER CONFIRMATION OF DESIRED ITEMS AND DESIRED FINAL LOCATIONS. COORDINATE WITH CCSD.
6. TEMPORARY FENCING LOCATION TO BE CONFIRMED BY ENGINEER AND CCSD PRIOR TO INSTALLATION AND BE MAINTAINED AT ALL TIMES. RECLAMATION UPON COMPLETION OF PROJECT IS REQUIRED.

ESTIMATED QUANTITIES:

• REMOVE SOD	138,000 S.F.
• REMOVE AND STORE TOPSOIL (6" DEPTH)	2,560 C.Y.
• REMOVE CHAIN LINK FENCE	750 L.F.
• REMOVE AND STORE FOOTBALL GOAL POST	4 EA.
• REMOVE AND STORE TRASH RECEPTACLE	1 L.S.
• TEMPORARY FENCING	450 L.F.
• RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS ARE TO BE ABANDONED IN PLACE)	1 L.S.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DEMOLITION AND DETAILED GRADING PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DEMOLITION PLAN 1

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DEMOLITION PLAN 1

DM-1.1

CAMPBELL COUNTY HIGH SCHOOL

PRACTICE FIELD

FACULTY PARKING LOT

BOILER ROOM BUILDING

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

SAWCUT AND REMOVE CONCRETE SIDEWALK (TYP.)

REMOVE STORM DRAIN AND EMBANKMENT TO REESTABLISH GRASS LINED SWALE

TYPICAL FENCING INSTALLATION WILL REQUIRE REMOVAL AND STORAGE OF TOPSOIL PER GRADING EXTENTS, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

REMOVE CONCRETE SIDEWALK

DISTURBANCE EXTENTS (TYP.)

TEMPORARY FENCING REQUIRED DURING PROJECT (TYP.)

ADDITIONAL AREA FOR ELECTRICAL CONDUIT TRENCHING EFFORT - REMOVE SOD, REMOVE AND STORE TOPSOIL WITHIN DISTURBANCE EXTENTS (6" DEPTH) - REPRESENTED BY HATCHING (TYP.)

NORTH AND EAST BANKS OF CONTROL VALVE MANIFOLDS, BACKFLOW PREVENTOR, METER, IRRIGATION CONTROLLER CAGE (SEE IRRIGATION PLAN)

SAWCUT AND REMOVE ASPHALT SURFACING TO SUPPORT BORE PIT

REMOVE CONCRETE SIDEWALK/ APPROACH SURFACING

REMOVE 72" CHAIN LINK PERIMETER FENCE AND POSTS (TYP. ALONG ACCESS ROAD CURB AND GUTTER)

REMOVE CONCRETE SURFACING

TEMPORARY FENCING REQUIRED UNTIL PERMANENT PERIMETER FENCING IN PLACE (TYP.)

REMOVE CURB AND GUTTER AS NEEDED FOR REMOVAL OF APPROACH AND INSTALLATION OF HANDICAPPED RAMP

REMOVE CONCRETE SIDEWALK/ APPROACH SURFACING

STABILIZE AND RELOCATE 30' x 38' STORAGE BUILDING - INCLUDES BRACING BUILDING COMPONENTS, CUTTING ANCHORAGE, AND RELOCATING TO NEW THICKENED EDGE SPREAD FOOTING FOUNDATION

REMOVE CONCRETE SURFACING - DEMOLISH AND REMOVE 30' x 38' INTERIOR THICKENED EDGE SLAB AFTER RELOCATION OF STORAGE BUILDING - INCLUDES COMPLETE REMOVAL OF FOUNDATION ELEMENTS, REGRADING AND SUBGRADE PREPARATION, AND BACKFILL IN PROPER LIFTS TO MATCH ADJACENT DIRT GRADE (NO UTILITIES ARE PRESENT IN BUILDING)

SALVAGE IRRIGATION COMPONENTS AND ABANDON MAJORITY OF IRRIGATION WITHIN DISTURBANCE EXTENTS - SEE NOTES THIS PAGE (TYP.)

REMOVE SOD, REMOVE AND STORE TOPSOIL WITHIN DISTURBANCE EXTENTS (6" DEPTH) - REPRESENTED BY HATCHING (TYP.)

DEMOLISH AND REMOVE CONCRETE DISCUS PAD SURFACING AND FENCING

REMOVE 72" CHAIN LINK PERIMETER FENCE AND POSTS (TYP. ALONG ACCESS ROAD CURB AND GUTTER)

TYPICAL FENCING INSTALLATION WILL REQUIRE REMOVAL AND STORAGE OF TOPSOIL PER GRADING EXTENTS, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

STAGING AND STORAGE LOCATION - RECLAIM UPON COMPLETION OF PROJECT IF USED (TYP.)

NOTES:

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4. ANY MATERIALS THAT ARE SALVAGEABLE (SUCH AS IRRIGATION COMPONENTS) SHALL BE RETURNED TO OWNER AFTER CONFIRMATION OF DESIRED ITEMS AND DESIRED FINAL LOCATIONS. COORDINATE WITH CCSD.
5. TEMPORARY FENCING LOCATION TO BE CONFIRMED BY ENGINEER AND CCSD PRIOR TO INSTALLATION AND BE MAINTAINED AT ALL TIMES. RECLAMATION UPON COMPLETION OF PROJECT IS REQUIRED.

ESTIMATED QUANTITIES:

• REMOVE SOD	10,600 S.F.
• REMOVE AND STORE TOPSOIL (6" DEPTH)	200 C.Y.
• REMOVE CONCRETE SURFACING	190 S.Y.
• REMOVE ASPHALT SURFACING	25 S.Y.
• REMOVE CURB AND GUTTER	120 L.F.
• REMOVE CONCRETE SIDEWALK	1,260 S.F.
• REMOVE CHAIN LINK FENCE	210 L.F.
• REMOVE EXISTING STORM DRAIN	10 L.F.
• RELOCATE EXISTING STORAGE BUILDING	1 L.S.
• TEMPORARY FENCING	300 L.F.
• RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS ARE TO BE ABANDONED IN PLACE)	1 L.S.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DEMOLITION AND DETAILED GRADING PLANS FOR ADDITIONAL QUANTITIES*

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DEMOLITION PLAN 2

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DEMOLITION PLAN 2
DM-1.2

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ABANDON REMAINING EXISTING IRRIGATION LATERAL IN PLACE (TYP.)

PORTION OF ZONE LATERALS HEADING NORTH TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE

SALVAGE IRRIGATION COMPONENTS AND ABANDON MAJORITY OF IRRIGATION WITHIN DISTURBANCE EXTENTS - SEE NOTES THIS PAGE (TYP.)

REMOVE SOD, REMOVE AND STORE TOPSOIL WITHIN DISTURBANCE EXTENTS (6" DEPTH) - REPRESENTED BY HATCHING (TYP.)

PORTION OF ZONE LATERALS TO REMAIN FOR RECONNECTION TO PROPOSED IRRIGATION ZONE

TREES TO REMAIN (TYP.)

REMOVE TREE X2 (TYP.)

STAGING AND STORAGE LOCATION - RECLAIM UPON COMPLETION OF PROJECT (TYP.)

REMOVE TREE (TYP.)

SALVAGE IRRIGATION COMPONENTS AND ABANDON ZONE LATERAL TO BE REPLACED DUE TO CONSTRUCTION EFFORT

REMOVE 72" CHAIN LINK PERIMETER FENCE AND POSTS (TYP. ALONG EAST PROPERTY LINE)

DISTURBANCE EXTENTS (TYP.)

WEATHER STATION AND FENCING TO REMAIN

TYPICAL FENCING AND SIDEWALK INSTALLATION WILL REQUIRE REMOVAL OF SOD AND REMOVAL AND STORAGE OF TOPSOIL PER GRADING EXTENTS, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

REMOVE CHAIN LINK FENCING TO EXISTING FENCE POST CLOSEST TO END OF DEMOLITION EXTENTS, ENGINEER TO APPROVE LOCATION

TEMPORARY FENCING REQUIRED UNTIL PERMANENT PERIMETER FENCING IN PLACE (TYP.)

REMOVE CHAIN LINK FENCING TO EXISTING FENCE AND GATE POST, ENGINEER TO APPROVE LOCATION

EXISTING STRUCTURES TO REMAIN

EXISTING HANDICAPPED RAMP AND GATE TO REMAIN

REMOVE CHAIN LINK FENCING TO EXISTING FENCE AND GATE POST, ENGINEER TO APPROVE LOCATION

EXISTING 12' GATE TO REMAIN

EAST PARKING LOT

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ESTIMATED QUANTITIES:

• REMOVE TREE	3 EA.
• REMOVE SOD	8,500 S.F.
• REMOVE AND STORE TOPSOIL (6" DEPTH)	160 C.Y.
• REMOVE CHAIN LINK FENCE	370 L.F.
• TEMPORARY FENCING	120 L.F.
• RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS ARE TO BE ABANDONED IN PLACE)	1 L.S.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DEMOLITION AND DETAILED GRADING PLANS FOR ADDITIONAL QUANTITIES*

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DEMOLITION PLAN 3

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DEMOLITION PLAN 3

DM-1.3

20 0 20 40
SCALE FEET

PRACTICE FIELD
(LAYOUT SHOWN FOR
REFERENCE ONLY)

INSTALL ELECTRICAL CONDUIT AND
PEDESTAL AND COMPONENTS
(SEE ELECTRICAL PLAN)

INSTALL PCC SURFACING
(SEE SITE PLAN)

ADJUST AND INSTALL
IRRIGATION COMPONENTS
(SEE IRRIGATION PLAN)

BOILER
ROOM
BUILDING

INSTALL LANDSCAPING TO TRANSITION
FROM PROPOSED FIELD TO EXISTING SITE
(SEE LANDSCAPING PLAN)

INSTALL 225' x 360' SYNTHETIC TURF
ATHLETIC FIELD AND COMPONENTS
(SEE ATHLETIC FIELD PLAN 1)

INSTALL BACKSTOP SYSTEM
(SEE ATHLETIC FIELD PLAN 1)

INSTALL SCOREBOARD
(SEE ATHLETIC FIELD PLAN 1)

INSTALL STORM SEWER UNDERDRAIN
(SEE STORM SEWER PLAN)

INSTALL BLEACHERS
(SEE ATHLETIC FIELD PLAN 1)

INSTALL PCC SURFACING
(SEE SITE PLAN)

INSTALL PCC SURFACING
(SEE SITE PLAN)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

CAMPBELL COUNTY HIGH SCHOOL

CAMEL SOCCER

25 0 25 50
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
OVERALL ATHLETIC FIELD PLAN

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OVERALL ATH. FIELD PLAN
AF-1.0

PRACTICE FIELD
(LAYOUT SHOWN FOR REFERENCE ONLY)

INSTALL (4) PORTABLE BISON TEAM AND COACHING ALUMINUM BENCHES WITH BACK BNP2101BAA (TYP.)

INSTALL PANTONE WHITE 4" OFFICIALS AREA BORDER LINE, WITH PANTONE 269C PURPLE 24" LINE, WITH PANTONE 136C CANARY YELLOW 24" LINE (TYP.)

INSTALL PANTONE WHITE 4" TEAM AND COACHING AREA BORDER LINE, WITH PANTONE 269C PURPLE 24" LINE, WITH PANTONE 136C CANARY YELLOW 24" LINE (TYP.)

INSTALL 6"x12" CONCRETE CURB NAILER (SEE SITE PLAN, TYP.)

INSTALL KWIK GOAL CORNER FLAGS 6B-701 (TYP.)

INSTALL 1 YARD LENGTH HASH MARK (TYP.)

1 YARD RAD. (TYP.)

INSTALL PANTONE WHITE 4" SOCCER LINES AS PRIMARY STRIPING (TYP.)

INSTALL PANTONE "FIELD GREEN" REVOLUTION 360 SYNTHETIC TURF (TYP.)

INSTALL PANTONE WHITE 4" SOCCER BORDER LINE, WITH PANTONE 269C PURPLE 24" LINE, WITH PANTONE 136C CANARY YELLOW 24" LINE (TYP.)

INSTALL 20'x65' KWIK GOAL BACKSTOP SYSTEM 7B-101 IN CONTRACTOR PROVIDED SLEEVE (TYP.)

INSTALL MID-FIELD LOGO, APPROX. 40' x 40', VARYING PANTONE 269C PURPLE, PANTONE 136C CANARY YELLOW, PANTONE WHITE AND PANTONE BLACK (TYP.)

INSTALL 9" DIA. SPOT CENTER POINT - AVOID CONTRASTING COLOR

INSTALL GOAL BOX (TYP.)

INSTALL SPORTSFIELD SPECIALTIES SOCCER GOAL SG824R (TYP.)

INSTALL 2' LENGTH PENALTY MARK (TYP.)

INSTALL PANTONE BLACK, 4" WIDE, 2' LONG, FOOTBALL HASH LINES (TYP.)

10 YARD RAD. (TYP.)

INSTALL PENALTY AREA (TYP.)

10 YARD RAD. CENTER CIRCLE (TYP.)

INSTALL SPORTSFIELD SPECIALITIES FOOTBALL GOAL POST GP820HS IN CONTRACTOR PROVIDED SLEEVE/FOUNDATION WITH SPORTSFIELD SPECIALTIES ACCESS FRAME KIT AND RETRACTABLE GOAL CLAMP SG2SGP (TYP., CONTRACTOR TO VERIFY)

INSTALL DAKTRONICS OUTDOOR SO-2019-R-PV-F SOCCER SCOREBOARD WITH SS500HD-D SOUND SYSTEM IN CONTRACTOR PROVIDED SLEEVE/FOUNDATION (TYP.)

INSTALL PANTONE BLACK 4" WIDE FOOTBALL LINES AND BORDER AS SECONDARY STRIPING (TYP.)

INSTALL APPROX. 5' HEIGHT LETTERING, PANTONE 269C PURPLE LETTERING WITH PANTONE 136C CANARY YELLOW 4" LETTERING BORDER

INSTALL FLAGPOLE IN CONTRACTOR PROVIDED SLEEVE/FOUNDATION (TYP.)

INSTALL (6) 21' LONG 4-TIER BISON ALUMINUM BLEACHERS BLO2104AA ANCHORED INTO PCC SURFACING (TYP.)

INSTALL (8) EXTERIOR TRASH RECEPTACLES ANCHORED INTO PCC SURFACING (TYP.,)

CAMPBELL COUNTY HIGH SCHOOL

75.0' | 15.5' | 360.0' | 15.5' | 33.0' | 54.0' | 54.0' | 18.0' | 60.0' | 132.0' | 30.0' | 36.0' | 30.0' | 15.0' TYP. | 53.3' | 26.0' TYP. | 160.0' FOOTBALL | 225.0' SOCCER | 32.5' | 46.6' | 10.0' | 12.0' | 201.0' | 60.0' TYP. | 15.0' TYP. | 30.0' | 10.5' TYP. | 95.0' TYP.

NOTES:

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3. COORDINATE SPECTATOR BLEACHERS, TRASH RECEPTACLE AND VARIOUS FIELD COMPONENT LOCATIONS WITH CCSD.

ESTIMATED QUANTITIES:

• INSTALL SYNTHETIC TURF SURFACING, STRIPING, AND COMPONENTS	104,750 S.F.
• INSTALL ALUMINUM BLEACHERS	6 EA.
• INSTALL BACKSTOP SYSTEM	2 EA.
• INSTALL FOOTBALL GOAL POST WITH ACCESS FRAME KIT AND RETRACTABLE GOAL CLAMP	2 EA.
• INSTALL SOCCER GOAL	2 EA.
• INSTALL TEAM AND COACHING BENCHES	4 EA.
• INSTALL CORNER FLAGS	4 EA.
• INSTALL TRASH RECEPTACLES	8 EA.
• INSTALL SCOREBOARD	1 L.S.
• INSTALL FLAGPOLE	1 EA.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET*

**SEE ADDT'L ATHLETIC FIELD, ELECTRICAL, SITE, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

ATHLETIC FIELD PLAN 1

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ATHLETIC FIELD PLAN 1
AF-1.1

CAMPBELL COUNTY HIGH SCHOOL

SP-1.4

SP-1.2

SP-1.1

SP-1.3

PRACTICE FIELD
(LAYOUT SHOWN FOR REFERENCE ONLY)

INSTALL EXTERIOR ATHLETIC LIGHTING SYSTEM (SEE SITE PLAN 1 AND ELECTRICAL PLAN)

INSTALL STORM SEWER (SEE STORM SEWER PLAN)

INSTALL STORM SEWER UNDERDRAIN (SEE STORM SEWER PLAN)

INSTALL 225' x 360' SYNTHETIC TURF ATHLETIC FIELD (SEE ATHLETIC FIELD PLAN AND ADDT'L SITE PLAN SHEETS)

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED FIELD TO EXISTING SITE (SEE LANDSCAPING PLAN)

INSTALL SURFACING AND COMPONENTS (SEE SITE PLAN 1)

INSTALL VARYING GALVANIZED CHAIN LINK PERIMETER FENCING (SEE SITE PLAN 1)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

ACCESS ROAD

INSTALL VARYING GALVANIZED CHAIN LINK PERIMETER FENCING (SEE SITE PLAN 2)

ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN)

RELOCATED STORAGE BUILDING (SEE SITE PLAN 2)

INSTALL ELECTRICAL COMPONENTS (SEE ELECTRICAL PLAN)

FACULTY PARKING LOT

INSTALL PRIMARY ELECTRICAL EXTENSION (SEE SITE PLAN 2 AND ELECTRICAL PLAN)

BOILER ROOM BUILDING

INSTALL SURFACING AND COMPONENTS TO BOILER ROOM PARKING LOT (SEE SITE PLAN 2)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

INSTALL VARYING GALVANIZED CHAIN LINK PERIMETER FENCING (SEE SITE PLAN 3)

INSTALL SURFACING TO AND COMPONENTS TO EAST PARKING LOT (SEE SITE PLAN 3)

ACCESS ROAD

EAST PARKING LOT

N

SCALE 40 0 40 80 FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
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OVERALL SITE PLAN
SP-1.0

PRACTICE FIELD

TRANSITION 120" GALVANIZED CHAIN LINK PERIMETER FENCING AND TO TIE EXISTING 72" CHAIN LINK PERIMETER FENCING, ADDITIONAL POST MAY BE REQUIRED

INSTALL CONTRACTOR PROVIDED SLEEVE/ FOUNDATION FOR FOOTBALL GOAL POST, INSTALL **EXISTING** FOOTBALL GOAL POST (TYP., CONTRACTOR TO VERIFY, SEE SHEET SP-1.4 - SITE PLAN 4)

INSTALL DATA CONDUIT TO PULL (JUNCTION) BOX AND PEDESTAL (SEE ELECTRICAL PLAN)

INSTALL ELECTRICAL COMPONENTS (SEE ELECTRICAL PLAN)

INSTALL AUDIO SIGNAL CONDUIT TO PULL (JUNCTION) BOX AND PEDESTAL (SEE ELECTRICAL PLAN)

INSTALL EXTERIOR ATHLETIC LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL ELECTRICAL CONDUIT FOR LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL ELECTRICAL CONDUIT TO PULL (JUNCTION) BOX AND PEDESTAL (SEE ELECTRICAL PLAN)

INSTALL CURB NAILER (SEE SURFACING AND JOINTING PLAN)

INSTALL STORM SEWER (SEE STORM SEWER PLAN)

INSTALL SURFACING FOR ELECTRICAL PEDESTAL AND STORM SEWER INLET COLLAR (SEE SURFACING AND JOINTING PLAN)

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN)

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED FIELD TO EXISTING SITE (SEE LANDSCAPING PLAN)

INSTALL ELECTRICAL CONDUIT FOR SCOREBOARD (SEE ELECTRICAL PLAN)

INSTALL ELECTRICAL CONDUIT FOR LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL SYNTHETIC TURF FIELD, 2" TOP STONE FINISHING AGGREGATE BASE COURSE, 6" GRADING B DRAIN ROCK AGGREGATE BASE COURSE, GEOSYNTHETIC MATERIAL SEPARATION FABRIC, AND 12" SUB-GRADE PREPARATION (TYP., ALSO SEE GRADING PLAN AND ATHLETIC FIELD PLAN)

INSTALL PEDESTRIAN LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL CONTRACTOR PROVIDED SLEEVE/ FOUNDATION WITH ACCESS FRAME KIT AND RETRACTABLE GOAL CLAMP FOR FOOTBALL GOAL POST (TYP., CONTRACTOR TO VERIFY)

INSTALL STORM SEWER UNDERDRAIN (SEE STORM SEWER PLAN)

INSTALL SLEEVE/FOUNDATION FOR BACKSTOP SYSTEM (TYP.)

INSTALL SLEEVE/FOUNDATION FOR SCOREBOARD (TYP.)

INSTALL SLEEVE/FOUNDATION FOR FLAGPOLE (TYP.)

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

PERFORM MINOR GRADING TO ESTABLISH MINIMUM 1% CROWN (TYP., SEE DETAILED GRADING PLAN)

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

INSTALL 120" GALVANIZED CHAIN LINK PERIMETER FENCING (TYP.)

INSTALL STORM SEWER (SEE STORM SEWER PLAN)

TRANSITION 144" GALVANIZED CHAIN LINK PERIMETER FENCING TO TIE 120" GALVANIZED CHAIN LINK PERIMETER FENCING - MAINTAIN 144" HEIGHT MIN. 24' SOUTH OF FIELD EXTENTS

INSTALL 4' WIDTH SINGLE SWING ACCESS GATE IN CHAIN LINK FENCING

INSTALL 144" GALVANIZED CHAIN LINK PERIMETER FENCING (TYP.)

INSTALL 4' WIDTH SINGLE SWING ACCESS GATE IN CHAIN LINK FENCING

24.0'

INTERSTATE HIGHWAY 90 RIGHT OF WAY

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3. COORDINATE SPECTATOR BLEACHERS, TRASH RECEPTACLE AND VARIOUS FIELD COMPONENT LOCATIONS WITH CCSD.

ESTIMATED QUANTITIES:

• INSTALL 2" TOP STONE FINISHING AGGREGATE BASE COURSE	11,670 S.Y.
• INSTALL 6" GRADING B DRAIN ROCK AGGREGATE BASE COURSE	11,670 S.Y.
• PERFORM 12" SUBGRADE PROCESSING	11,670 S.Y.
• INSTALL MATERIAL SEPARATION FABRIC	11,670 S.Y.
• INSTALL 120" GALV. CHAIN LINK FENCE	400 L.F.
• INSTALL 144" GALV. CHAIN LINK FENCE	440 L.F.
• INSTALL PEDESTRIAN ACCESS GATE	2 EA.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN 1

ATHLETIC FIELD AREA

640 N HWY 14-16 UNIT K
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APPROVED BY:	AJH

SITE PLAN 1
SP-1.1

N

20 0 20 40
SCALE FEET

CAMPBELL COUNTY HIGH SCHOOL

INSTALL 72" GALVANIZED CHAIN LINK PERIMETER FENCING TO TIE TO BUILDING

INSTALL LANDSCAPING FOR REMOVED SIDEWALK (SEE LANDSCAPING PLAN)

INSTALL DATA CONDUIT TO SCHOOL BUILDING FOR FUTURE CONNECTION (SEE ELECTRICAL PLAN)

INSTALL 4' WIDTH SINGLE SWING ACCESS GATE

INSTALL POWER EXTENSION FOR EXTERIOR ATHLETIC LIGHTING SYSTEM, SCOREBOARD, AND OTHER COMPONENTS (SEE ELECTRICAL AND LANDSCAPING PLAN)

INSTALL 72" GALVANIZED CHAIN LINK PERIMETER FENCING (TYP.)

FACULTY PARKING LOT

INSTALL 5' WIDTH SINGLE SWING ACCESS GATE

INSTALL RELOCATED STORAGE BUILDING ON FOUNDATION (TYP., SEE SURFACING AND JOINTING PLAN)

CONNECT AND EXTEND PRIMARY POWER SERVICE (SEE ELECTRICAL PLAN)

INSTALL SURFACING (SEE SURFACING AND JOINT PLAN)

INSTALL REPLACEMENT CURB AND GUTTER AND TIE TO EXISTING (SEE SURFACING AND JOINTING PLAN)

INSTALL POWER EXTENSION FOR EXTERIOR ATHLETIC LIGHTING SYSTEM, SCOREBOARD, AND OTHER COMPONENTS (SEE ELECTRICAL PLAN)

ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN)

INSTALL ELECTRICAL COMPONENTS (SEE ELECTRICAL PLAN)

BOILER ROOM BUILDING

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

INSTALL EXTERIOR ATHLETIC LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL 26' x 26' NO ACCESS STRIPING, 4" WIDE SOLID YELLOW @ 24" SPACING WITH OUTSIDE BORDER (TYP.)

INSTALL 5' WIDTH SINGLE SWING ACCESS GATE

INSTALL 72" GALVANIZED CHAIN LINK PERIMETER FENCING (TYP.)

INSTALL 16' WIDTH DOUBLE SWING ACCESS GATE

INSTALL 72" GALVANIZED CHAIN LINK PERIMETER FENCING AND TIE TO EXISTING BOILER ROOM BUILDING

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN)

INSTALL DATA CONDUIT TO BOILER BUILDING FOR FUTURE CONNECTION (SEE ELECTRICAL PLAN)

INSTALL AUDIO SIGNAL CONDUIT TO SCOREBOARD (SEE ELECTRICAL PLAN)

INSTALL PEDESTRIAN LIGHTING SYSTEM (SEE ELECTRICAL PLAN)

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED FIELD TO EXISTING SITE (SEE LANDSCAPING PLAN)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

NOTES:

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2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.

ESTIMATED QUANTITIES:

• INSTALL 72" GALV. CHAIN LINK FENCE	550 L.F.
• INSTALL PEDESTRIAN ACCESS GATE	4 EA.
• RELOCATE EXISTING STORAGE BUILDING	1 L.S.
• INSTALL EMERGENCY ACCESS AREA STRIPING	1 L.S.

SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.

*SEE ADDT'L SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES

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SCALE 20 0 20 40 FEET

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN 2

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SITE PLAN 2
SP-1.2

PROPOSED SYNTHETIC
TURF COMPETITION FIELD

PRIMARY FOOTBALL FIELD,
TRACK AND STADIUM

6.0' TYP.

INSTALL SURFACING
(SEE SURFACING
AND JOINTING PLAN)

INSTALL HANDRAIL TO TIE TO
TYPICAL SURFACING THAT
MAINTAINS MAX. 1:48 TO SERVE
AS UPPER LANDING (TYP.)

INSTALL PEDESTRIAN LIGHTING SYSTEM
(SEE ELECTRICAL PLAN)

24.0'

TIE TO EXISTING CHAIN LINK FENCING,
ADDITIONAL POST MAY BE REQUIRED

INSTALL EXTERIOR ATHLETIC
LIGHTING SYSTEM
(SEE ELECTRICAL PLAN)

INSTALL 72" GALVANIZED CHAIN
LINK PERIMETER FENCING (TYP.)

INSTALL SURFACING
(SEE SURFACING
AND JOINTING PLAN)

INSTALL 72" CHAIN LINK PERIMETER
FENCING TO TIE TO EXISTING FENCE,
ADDITIONAL POST MAY BE REQUIRED

INSTALL 8' WIDTH DOUBLE SWING
ACCESS GATE IN CHAIN LINK FENCING

MAX 1:48 LANDING,
MIN. 5' LENGTH (TYP.)

INSTALL HANDRAIL (TYP.)

INSTALL HANDRAIL TO
TIE AT FENCING (TYP.)

INSTALL SURFACING
AND TIE TO EXISTING
(SEE SURFACING AND
JOINTING PLAN)

INSTALL 144" GALVANIZED CHAIN
LINK PERIMETER FENCING (TYP.)

INSTALL PEDESTRIAN
LIGHTING SYSTEM
(SEE ELECTRICAL PLAN)

INSTALL LANDSCAPING TO
TRANSITION FROM PROPOSED
ELEMENT TO TIE TO EXISTING
(SEE LANDSCAPING PLAN)

INSTALL 5' WIDTH SINGLE SWING ACCESS
GATE AND COMPLETE THE REMAINING 72"
GALVANIZED CHAIN LINK PERIMETER
FENCING TO TIE TO EXISTING FENCE

TRANSITION 144" GALVANIZED CHAIN LINK PERIMETER FENCING
TO TIE 72" GALVANIZED CHAIN LINK PERIMETER FENCING -
MAINTAIN 144" HEIGHT MIN. 24' NORTH OF FIELD EXTENTS

INSTALL ELECTRICAL CONDUIT FOR
PEDESTRIAN LIGHTING SYSTEM
(SEE ELECTRICAL PLAN)

EAST PARKING LOT

NOTES:

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ESTIMATED QUANTITIES:

• INSTALL 72" GALV. CHAIN LINK FENCE	320 L.F.
• INSTALL 144" GALV. CHAIN LINK FENCE	60 L.F.
• INSTALL PEDESTRIAN ACCESS GATE	2 EA.

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REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN 3

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SITE PLAN 3
SP-1.3

20 0 20 40
SCALE FEET

CAMPBELL COUNTY HIGH SCHOOL

PROPOSED SYNTHETIC TURF COMPETITION FIELD

48.0'

225' x 360' SOCCER FIELD LAYOUT SHOWN FOR REFERENCE ONLY

360.0'

160' x 360' FOOTBALL FIELD LAYOUT SHOWN FOR REFERENCE ONLY

INSTALL CONTRACTOR PROVIDED SLEEVE/ FOUNDATION FOR FOOTBALL GOAL POST, INSTALL **EXISTING** FOOTBALL GOAL POST (TYP., CONTRACTOR TO VERIFY)

36.5'

PRACTICE FIELD

(SOCCER FIELD AND FOOTBALL FIELD LAYOUT SHOWN FOR REFERENCE ONLY, NO IMPROVEMENTS OTHER THAN FOOTBALL GOAL POST INSTALLATION)

160.0' FOOTBALL

225.0' SOCCER

31.7'

INSTALL CONTRACTOR PROVIDED SLEEVE/ FOUNDATION FOR FOOTBALL GOAL POST, INSTALL **EXISTING** FOOTBALL GOAL POST (TYP., CONTRACTOR TO VERIFY)

160' x 360' FOOTBALL FIELD LAYOUT SHOWN FOR REFERENCE ONLY

225' x 360' SOCCER FIELD LAYOUT SHOWN FOR REFERENCE ONLY

25.6'

38.7'

INTERSTATE HIGHWAY 90 RIGHT OF WAY

N

20 0 20 40
SCALE FEET

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ESTIMATED QUANTITIES:

- INSTALL **EXISTING** FOOTBALL GOAL POST 2 EA.

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN 4
PRACTICE FIELD AREA

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SITE PLAN 4
SP-1.4

CAMPBELL COUNTY HIGH SCHOOL

PRACTICE FIELD
(LAYOUT SHOWN FOR REFERENCE ONLY)

SP-2.2

SP-2.1

SP-2.3

ACCESS ROAD

FACULTY PARKING LOT

INSTALL SURFACING FOR RELOCATED STORAGE BUILDING (SEE SURFACING AND JOINTING PLAN 2)

BOILER ROOM BUILDING

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN 2)

INSTALL CURB (SEE SURFACING AND JOINTING PLAN 1)

INSTALL SURFACING TO BOILER ROOM PARKING LOT (SEE SURFACING AND JOINTING PLAN 2)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

INSTALL SURFACING (SEE SURFACING AND JOINTING PLAN 1)

ACCESS ROAD

INSTALL SURFACING TO EAST PARKING LOT (SEE SURFACING AND JOINTING PLAN 3)

EAST PARKING LOT

N

40 0 40 80
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN

OVERALL SURFACING AND JOINTING PLAN

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OVER. SURF. & JOINT PLAN
SP-2.0

PRACTICE FIELD

INTERSTATE HIGHWAY 90 RIGHT OF WAY

INSTALL 6"X12" EXTERIOR CONCRETE CURB NAILER (TYP.)

INSTALL 10.0' x 15.0' 6" PCC SURFACING PAD FOR ELECTRICAL PEDESTAL AND STORM SEWER INLET COLLAR (TYP.)

10.0'

15.0'

6.0' TYP.

83.9'

INSTALL 6" PCC SIDEWALK (TYP.)

PROPOSED SYNTHETIC TURF COMPETITION FIELD

6.0' TYP.

212.1'

6.0' TYP.

INSTALL 6" PCC SIDEWALK (TYP.)

APPROXIMATE JOINT LOCATION PER MAXIMUM SPACING AND TYPICAL SECTION DETAIL (TYP.)

INSTALL 6" PCC SURFACING (TYP.)

COORDINATE JOINT LOCATION WITH VARIOUS SURFACE STRUCTURES AND BUILDING ELEMENTS (TYP.)

12.0' TYP.

6.0' TYP.

220.4'

46.9'

44.0'

6.0' TYP.

4.0' TYP.

6.0' TYP.

INSTALL 6" PCC VALLEY PAN (TYP.)

CONSTRUCTION JOINT BETWEEN SURFACING SECTIONS (TYP.)

AVOID SURFACING JOINT AT APPROXIMATE FLOW LINE LOCATION (TYP.)

INSTALL REINFORCED 6" PCC SIDEWALK W/ HANDRAIL (TYP.)

47.1'

6.0' TYP.

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2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. THE CONTRACTOR SHALL SUBMIT JOINT LAYOUT PLANS TO ENGINEER FOR APPROVAL AT LEAST 7 DAYS PRIOR TO CONCRETE PAVING IF AN ALTERNATE JOINTING PLAN IS DESIRED.

ESTIMATED QUANTITIES:

• INSTALL 6"X12" EXTERIOR CURB NAILER	1,350 L.F.
• INSTALL 6" PCC SIDEWALK	5,345 S.F.
• INSTALL 6" PCC VALLEY PAN	900 S.F.
• INSTALL 4" GRADING "W" BASE COURSE	770 S.Y.
• PERFORM 12" SUBGRADE PROCESSING	770 S.Y.
• INSTALL MATERIAL SEPARATION FABRIC	770 S.Y.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

- 6" PCC SIDEWALK/SURFACING
- 6" PCC SURFACING W/ THICKENED EDGE
- 6" REINFORCED PCC SIDEWALK W/ HANDRAIL
- 6" PCC VALLEY PAN
- PCC THICKENED EDGE SPREAD FOOTING FOUNDATION

N

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SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN SURFACING AND JOINTING PLAN 1

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SURFACE & JOINT PLAN 1
SP-2.1

CAMPBELL COUNTY HIGH SCHOOL

FACULTY PARKING LOT

INSTALL 30' x 38' PCC THICKENED EDGE SPREAD FOOTING FOUNDATION, AND INSTALL RELOCATED STORAGE BUILDING (TYP.)

INSTALL 6" PCC SIDEWALK

CONSTRUCTION JOINT BETWEEN SURFACING SECTIONS (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM FULL HEIGHT TO ZERO HEIGHT FOR EXPANDED APPROACH (TYP.)

COORDINATE JOINT LOCATION WITH VARIOUS SURFACE STRUCTURES AND BUILDING ELEMENTS (TYP.)

BOILER ROOM BUILDING

DETECTABLE WARNING PANEL - CCSD PREFERS CAST IRON IN BRICK RED OR NATURAL RUST PATINA (TYP.)

INSTALL 6" PCC SIDEWALK (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM FULL HEIGHT TO ZERO HEIGHT FOR EXPANDED APPROACH (TYP.)

APPROXIMATE JOINT LOCATION PER MAXIMUM SPACING AND TYPICAL SECTION DETAIL (TYP.)

INSTALL 6" PCC SURFACING W/ THICKENED EDGE FOR ACCESSES, EQUIPMENT AREA, AND APPROACHES (TYP.)

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INSTALL 6" PCC SIDEWALK (TYP.)

INSTALL ASPHALTIC CONCRETE PATCH (TYP.)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

5.0' TYP. 30.0' 8.0' 4.5' 16.3' 16.6' 12.0' 12.2' 39.8' 15.0' 38.0' 6.0' TYP. 5.0' TYP. 6.0' TYP. 83.9' 11.1' 34.0' 6.0' TYP. 6.0' TYP. 45.9' R40.0'

NOTES:

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3. THE CONTRACTOR SHALL SUBMIT JOINT LAYOUT PLANS TO ENGINEER FOR APPROVAL AT LEAST 7 DAYS PRIOR TO CONCRETE PAVING IF AN ALTERNATE JOINTING PLAN IS DESIRED.

ESTIMATED QUANTITIES:

• INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER VARYING FULL AND ZERO HEIGHT	120 L.F.
• INSTALL 6" PCC SURFACING WITH THICKENED EDGE	370 S.Y.
• INSTALL 6" PCC SIDEWALK	940 S.F.
• INSTALL 6" ASPHALTIC CONCRETE PATCH	27 S.Y.
• INSTALL 4" GRADING "W" BASE COURSE	505 S.Y.
• PERFORM 12" SUBGRADE PROCESSING	540 S.Y.
• INSTALL MATERIAL SEPARATION FABRIC	505 S.Y.
• INSTALL PCC THICKENED EDGE SPREAD FOOTING FOUNDATION	1 L.S.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

- 6" PCC SIDEWALK/SURFACING
- 6" PCC SURFACING W/ THICKENED EDGE
- 6" REINFORCED PCC SIDEWALK W/ HANDRAIL
- 6" PCC VALLEY PAN
- PCC THICKENED EDGE SPREAD FOOTING FOUNDATION

N

SCALE 20 0 20 40 FEET

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SITE PLAN SURFACING AND JOINTING PLAN 2

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SURFACE & JOINT PLAN 2
SP-2.2

PROPOSED SYNTHETIC
TURF COMPETITION FIELD

PRIMARY FOOTBALL FIELD,
TRACK AND STADIUM

INSTALL 6" PCC
SIDEWALK (TYP.)

INSTALL HANDRAIL TO TIE TO
TYPICAL SURFACING THAT
MAINTAINS MAX. 1:48 TO SERVE
AS UPPER LANDING (TYP.)

INSTALL 6" PCC
SURFACING (TYP.)

CONSTRUCTION JOINT
BETWEEN SURFACING
SECTIONS (TYP.)

MAX 1:48 LANDING,
MIN. 5' LENGTH (TYP.)

INSTALL 6" REINFORCED PCC SIDEWALK W/
HANDRAIL (TYP., SEE DETAILED GRADING
AND TYPICAL DETAILS FOR MORE
INFORMATION ON LANDINGS AND RAMPS)

AVOID SURFACING JOINT
AT APPROXIMATE FLOW
LINE LOCATION (TYP.)

INSTALL HANDRAIL (TYP.)

INSTALL HANDRAIL TO
TIE AT FENCING (TYP.)

APPROXIMATE JOINT LOCATION
PER MAXIMUM SPACING AND
TYPICAL SECTION DETAIL (TYP.)

TIE TO EXISTING SIDEWALK
AND EXTEND EXISTING
HANDICAPPED RAMP WITH MAX.
1:12 SLOPE AS NECESSARY

EAST PARKING LOT

6" PCC SIDEWALK/SURFACING

6" PCC SURFACING W/ THICKENED EDGE

6" REINFORCED PCC SIDEWALK
W/ HANDRAIL

6" PCC VALLEY PAN

PCC THICKENED EDGE SPREAD
FOOTING FOUNDATION

N

20 0 20 40
SCALE FEET

NOTES:

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3. THE CONTRACTOR SHALL SUBMIT JOINT LAYOUT PLANS TO ENGINEER FOR APPROVAL AT LEAST 7 DAYS PRIOR TO CONCRETE PAVING IF AN ALTERNATE JOINTING PLAN IS DESIRED.

ESTIMATED QUANTITIES:

• INSTALL 6" REINFORCED PCC SIDEWALK W/ HANDRAIL	2,400 S.F.
• INSTALL 4" GRADING "W" BASE COURSE	267 S.Y.
• PERFORM 12" SUBGRADE PROCESSING	267 S.Y.
• INSTALL MATERIAL SEPARATION FABRIC	267 S.Y.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
SITE PLAN
SURFACING AND JOINTING PLAN 3

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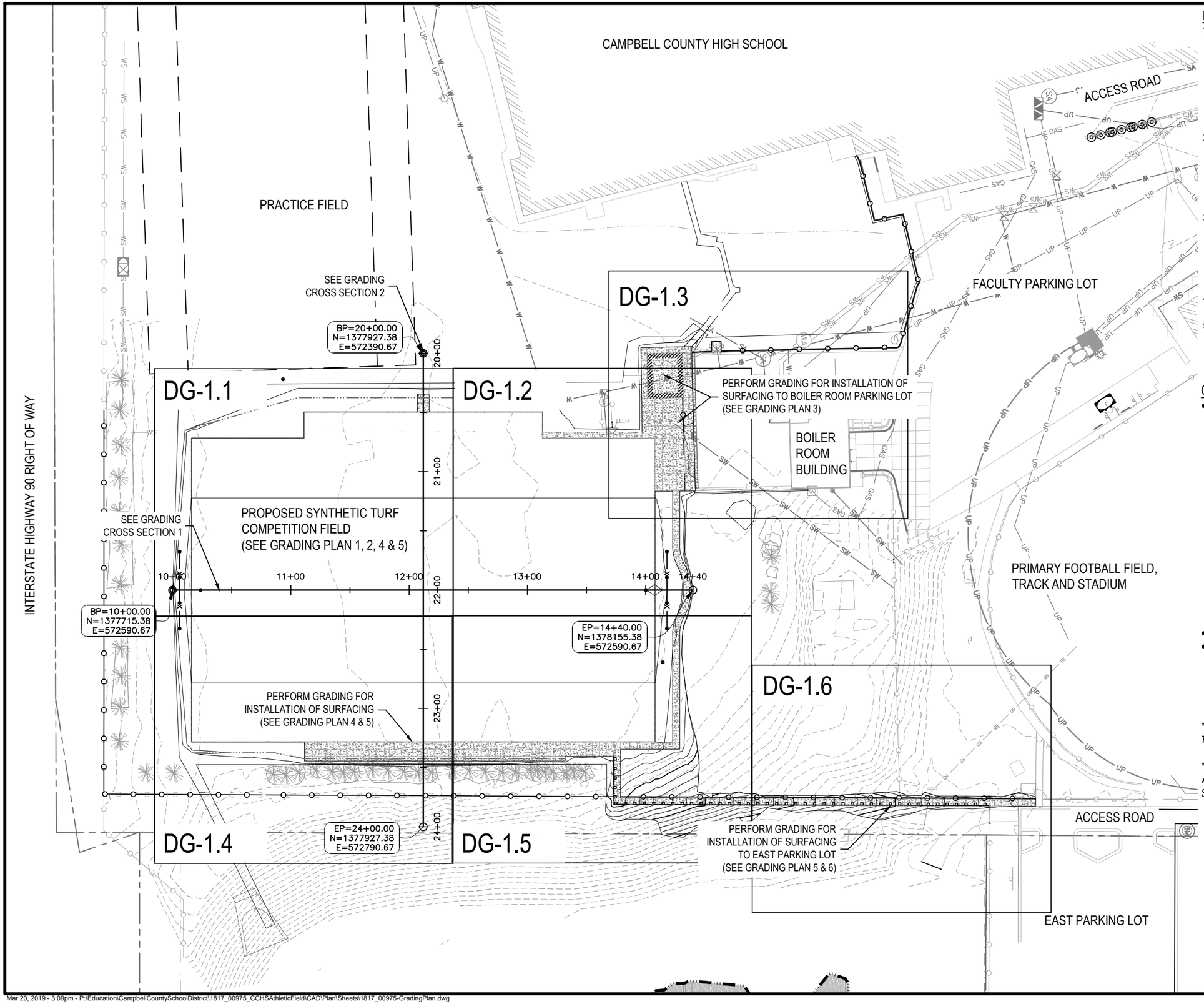
SURFACE & JOINT PLAN 3
SP-2.3



NOTES:

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2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

CUMULATIVE ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - •• GRADING EXTENTS (ADDT'L TOPSOIL)
    - ••• 79 C.Y. CUT
    - ••• 246 C.Y. FILL
    - ••• 167 CY NET FILL
  - •• SURFACING EXTENTS (SAND)
    - ••• 1,071 C.Y. CUT
    - ••• 1,050 C.Y. FILL
    - ••• 21 CY NET CUT
- SURPLUS MATERIAL DISPOSAL 21 C.Y.
- INSTALL STORED TOPSOIL 169 C.Y. VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**QUANTITIES FOR THIS SHEET OR CUMULATIVE FOR THE SUBSEQUENT DETAILED GRADING PLANS.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

N

40 0 40 80
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL DETAILED GRADING PLAN

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
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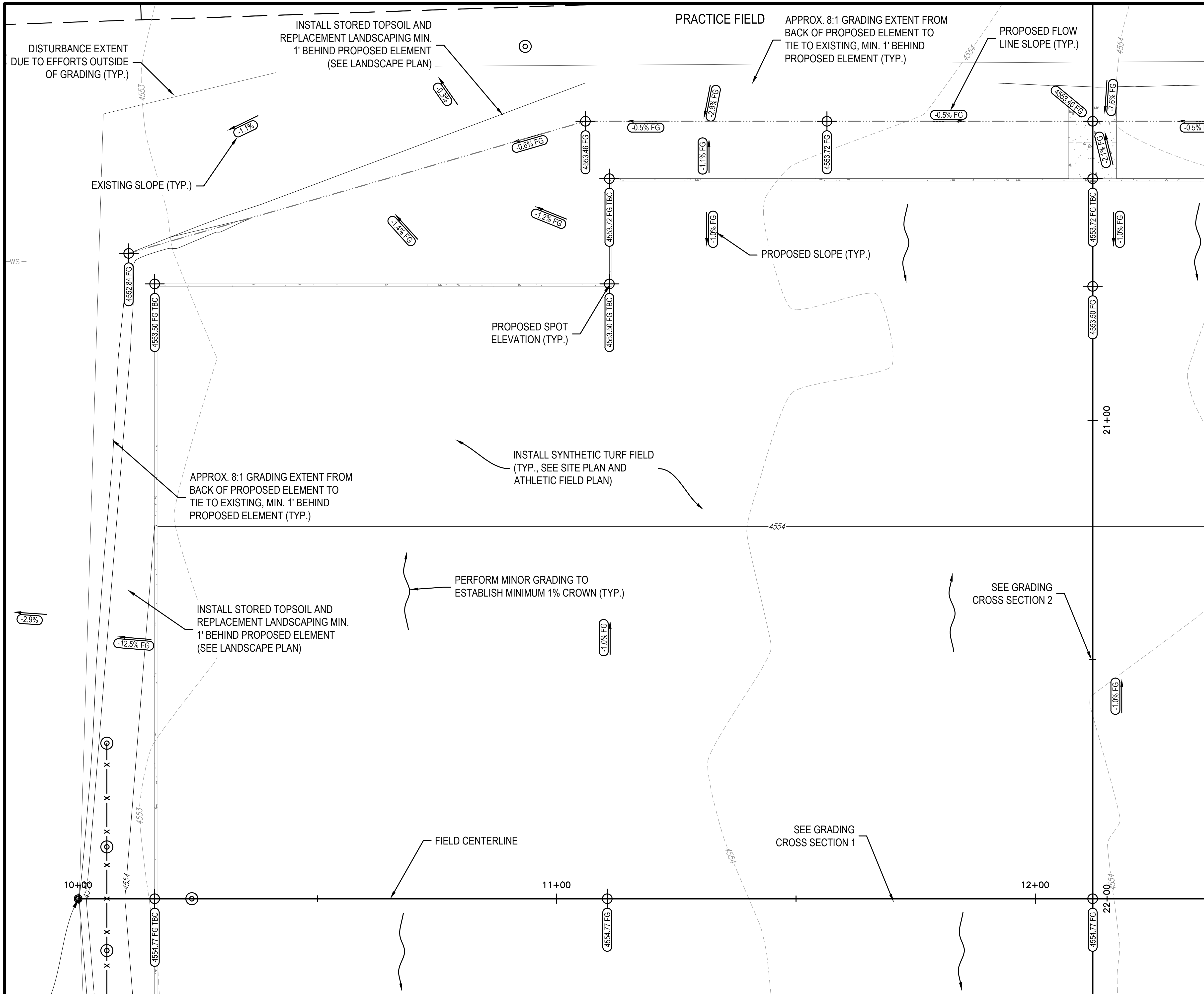
DATE:	03/20/2019
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

OVERALL DET. GRADING
DG-1.0



NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 44 C.Y. CUT
    - 53 C.Y. FILL
    - 9 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 331 C.Y. CUT
    - 374 C.Y. FILL
    - 43 CY NET FILL
- INSTALL STORED TOPSOIL 9 C.Y. VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING 1 ATHLETIC FIELD

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640 N HWY 14-16 UNIT K
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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

DETAILED GRADING 1
DG-1.1

DISTURBANCE EXTENT DUE TO EFFORTS OUTSIDE OF GRADING (TYP.)

EXISTING SLOPE (TYP.)

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

PROPOSED FLOW LINE SLOPE (TYP.)

PROPOSED SPOT ELEVATION (TYP.)

PERFORM MINOR GRADING TO ESTABLISH MINIMUM 1% CROWN (TYP.)

PROPOSED SLOPE (TYP.)

INSTALL SYNTHETIC TURF FIELD (TYP., SEE SITE PLAN AND ATHLETIC FIELD PLAN)

SEE GRADING CROSS SECTION 1

FIELD CENTERLINE

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

13+00

14+00

14+40

NOTES:

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3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 17 C.Y. CUT
    - 38 C.Y. FILL
    - 21 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 226 C.Y. CUT
    - 305 C.Y. FILL
    - 79 CY NET FILL
- INSTALL STORED TOPSOIL 21 C.Y.
  VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING 2

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SCALE: 10 0 10 20 FEET

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APPROVED BY:	AJH

DETAILED GRADING 2

DG-1.2

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

EXISTING SLOPE (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING FOR REMOVED SIDEWALK EXTENTS (SEE LANDSCAPE PLAN)

DISTURBANCE EXTENT DUE TO EFFORTS OUTSIDE OF GRADING (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM FULL HEIGHT TO ZERO HEIGHT FOR APPROACH (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM ZERO HEIGHT TO FULL HEIGHT FOR APPROACH (TYP.)

EXISTING SPOT ELEVATION (TYP.)

PROPOSED SPOT ELEVATION (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM FULL HEIGHT TO ZERO HEIGHT FOR EXPANDED APPROACH (TYP.)

TIE TO EXISTING SURFACING (TYP.)

PROPOSED SLOPE (TYP.)

INSTALL REPLACEMENT 2.5' SPILL CURB AND GUTTER TAPERING FROM EXISTING FULL HEIGHT TO ZERO HEIGHT FOR EXPANDED APPROACH (TYP.)

PROPOSED SYNTHETIC TURF COMPETITION FIELD

FACULTY PARKING LOT

BOILER ROOM BUILDING

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
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3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 0 C.Y. CUT
    - 2 C.Y. FILL
    - 2 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 37 C.Y. CUT
    - 7 C.Y. FILL
    - 26 CY NET CUT
- INSTALL STORED TOPSOIL 2 C.Y.
  VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

N

10 0 10 20
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING 3
BOILER ROOM PARKING LOT SURFACING

640 N HWY 14-16 UNIT K
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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

DETAILED GRADING 3
DG-1.3

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

-1.0% FG

PERFORM MINOR GRADING TO ESTABLISH MINIMUM 1% CROWN (TYP.)

INSTALL SYNTHETIC TURF FIELD (TYP., SEE SITE PLAN AND ATHLETIC FIELD PLAN)

-12.5% FG

-4.2%

4554

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

23+00

4553.50 FG TBC

PROPOSED SLOPE (TYP.)

PROPOSED FLOW LINE SLOPE (TYP.)

HIGH POINT OF VALLEY PAN (TYP.)

-6.5% FG

-5.1% FG

-0.6% FG

4552.83 FG

-1.7% FG

4553.38 FG

-0.7% FG

-0.5% FG

-3.1%

-4.7%

4553.23 FG

4554

-6.9%

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

PROPOSED SPOT ELEVATION (TYP.)

-17.4%

APPROX. 4:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

DISTURBANCE EXTENT DUE TO EFFORTS OUTSIDE OF GRADING (TYP.)

-10.8%

-4.5%

-24.2%

EXISTING SLOPE (TYP.)

24+00

EP=24+00.00
N=1377927.38
E=572790.67

10 0 10 20
SCALE FEET

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
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3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 14 C.Y. CUT
    - 31 C.Y. FILL
    - 17 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 274 C.Y. CUT
    - 174 C.Y. FILL
    - 100 CY NET CUT
- INSTALL STORED TOPSOIL 17 C.Y.
  VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING 4

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DATE:	03/20/2019
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

DETAILED GRADING 4

DG-1.4

EP=14+40.00
N=1378155.38
E=572590.67

PERFORM MINOR GRADING TO ESTABLISH MINIMUM 1% CROWN (TYP.)

INSTALL SYNTHETIC TURF FIELD (TYP., SEE SITE PLAN AND ATHLETIC FIELD PLAN)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

HIGH POINT OF VALLEY PAN (TYP.)

PROPOSED SLOPE (TYP.)

PROPOSED FLOW LINE SLOPE (TYP.)

DISTURBANCE EXTENT DUE TO EFFORTS OUTSIDE OF GRADING (TYP.)

APPROX. 4:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

EXISTING SLOPE (TYP.)

5' LENGTH LANDING - MAX 1:48 (TYP.)

30' LENGTH RAMP - MAX 1:12 (TYP.)

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

PROPOSED SPOT ELEVATION - **NOTE** THE SIDEWALK FROM UPPER LANDING TO TIE AT EXISTING PARKING LOT HAS ZERO CROSS SLOPE EXCEPT TO MATCH EXISTING SIDEWALK AT PARKING LOT (TYP.)

APPROX. 4:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

SCALE 10 0 10 20 FEET

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 2 C.Y. CUT
    - 47 C.Y. FILL
    - 45 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 194 C.Y. CUT
    - 152 C.Y. FILL
    - 42 CY NET CUT
- INSTALL STORED TOPSOIL 45 C.Y.
  VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING 5

ATHLETIC FIELD AND EAST PARKING LOT

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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

DETAILED GRADING 5
DG-1.5

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

PROPOSED SPOT ELEVATION - **NOTE** THE SIDEWALK FROM UPPER LANDING TO TIE AT EXISTING PARKING LOT HAS ZERO CROSS SLOPE EXCEPT TO MATCH EXISTING SIDEWALK AT PARKING LOT (TYP.)

EXISTING SLOPE (TYP.)

PROPOSED SLOPE (TYP.)

5' LENGTH LANDING - MAX 1:48 (TYP.)

40' LENGTH RAMP - MAX 1:16 (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT LANDSCAPING MIN. 1' BEHIND PROPOSED ELEMENT (SEE LANDSCAPE PLAN)

APPROX. 4:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

DISTURBANCE EXTENT DUE TO EFFORTS OUTSIDE OF GRADING (TYP.)

INSTALL HANDICAPPED RAMP FROM ZERO HEIGHT CURB @ 1:12 MAX. TO UPPER LANDING (TYP.)

TIE TO EXISTING WITH 4" PCC SIDEWALK AND EXTEND EXISTING HANDICAPPED RAMP WITH MAX. 1:12 SLOPE AS NECESSARY

EXISTING SPOT ELEVATION (TYP.)

EAST PARKING LOT

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
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3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS NATIVE MATERIAL WILL BE REQUIRED FOR FILL WITHIN VARIOUS SURFACING AREAS.
5. SURPLUS TOPSOIL WILL BE REQUIRED FOR FILL WITHIN VARIOUS LANDSCAPED AREAS. SEE LANDSCAPING PLANS FOR THE MAJORITY OF THE STORED TOPSOIL PLACEMENT QUANTITIES.

ESTIMATED QUANTITIES:

- UNCLASSIFIED EXCAVATION AND EMBANKMENT (1.15 FILL FACTOR, ASSUMED VARIOUS REMOVAL DEPTHS, 6" TOPSOIL PLACEMENT DEPTH WHERE APPLICABLE, ADDITIONAL REMOVALS FOR INSTALLATION OF TYPICAL SURFACING SECTION, AND DOES INCLUDE CONSIDERATION FOR UNDERGROUND UTILITY COMPONENT INSTALLATION)
  - GRADING EXTENTS (ADDT'L STORED TOPSOIL)
    - 2 C.Y. CUT
    - 77 C.Y. FILL
    - 75 CY NET FILL
  - SURFACING EXTENTS (SAND)
    - 9 C.Y. CUT
    - 36 C.Y. FILL
    - 27 CY NET FILL
- INSTALL STORED TOPSOIL 75 C.Y.
  VARYING DEPTH - QUANTITY IS ANTICIPATED FOR BACKFILL EFFORT WITHIN TYPICAL GRADING EXTENTS OUTSIDE OF PROPOSED SURFACING

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L DETAILED GRADING, SITE, ELECTRICAL, ATHLETIC FIELD, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

SCALE: 10 0 10 20 FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

DETAILED GRADING PLAN 6 EAST PARKING LOT SIDEWALK

640 N HWY 14-16 UNIT K
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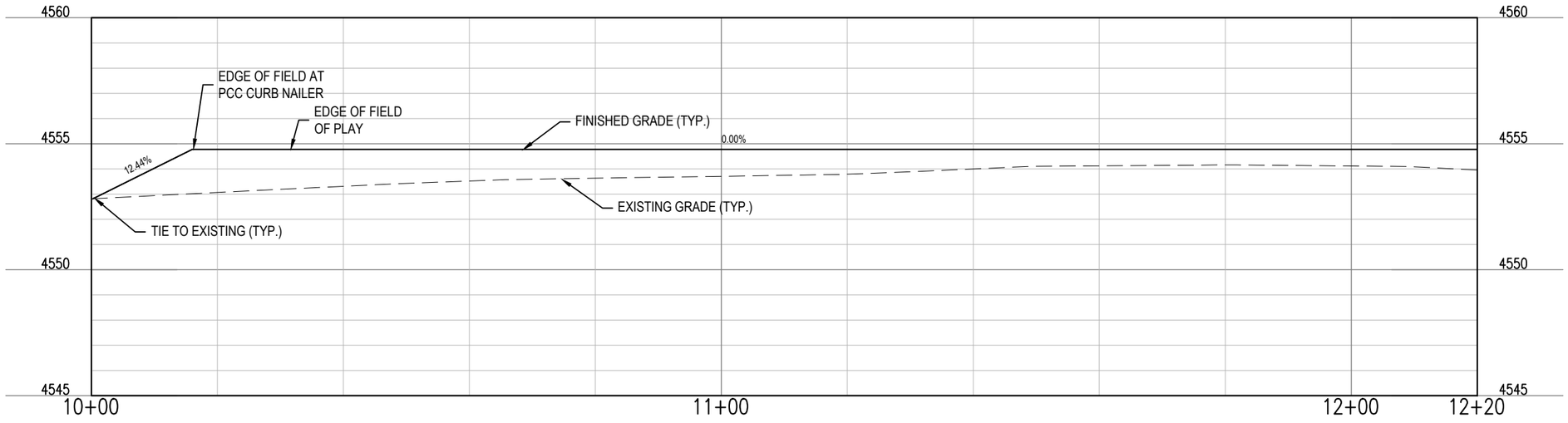
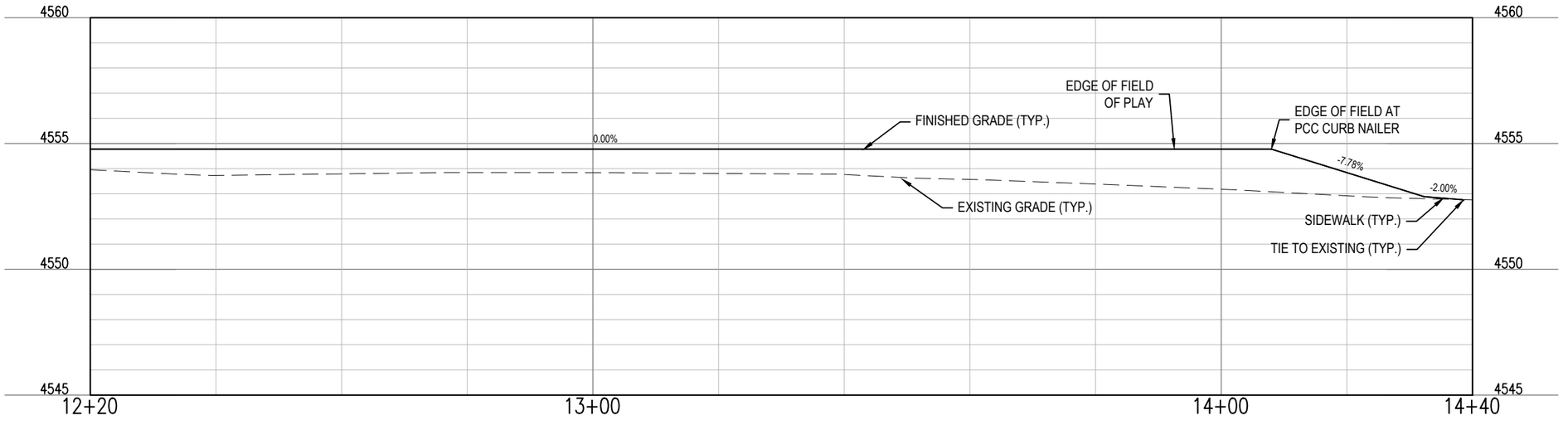
DETAILED GRADING 6

DG-1.6



NORTH/SOUTH CROSS SECTION 1: CENTER FIELD
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



NORTH/SOUTH CROSS SECTION 2: CENTER FIELD
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON UNDERGROUND UTILITIES, GRADING, AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.
4. SURPLUS MATERIAL MAY BE REQUIRED TO REPLACED REJECTED EXISTING MATERIAL WITHIN LANDSCAPED AND SURFACING AREAS.

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
GRADING CROSS SECTION 1
NORTH/SOUTH @ CENTER FIELD

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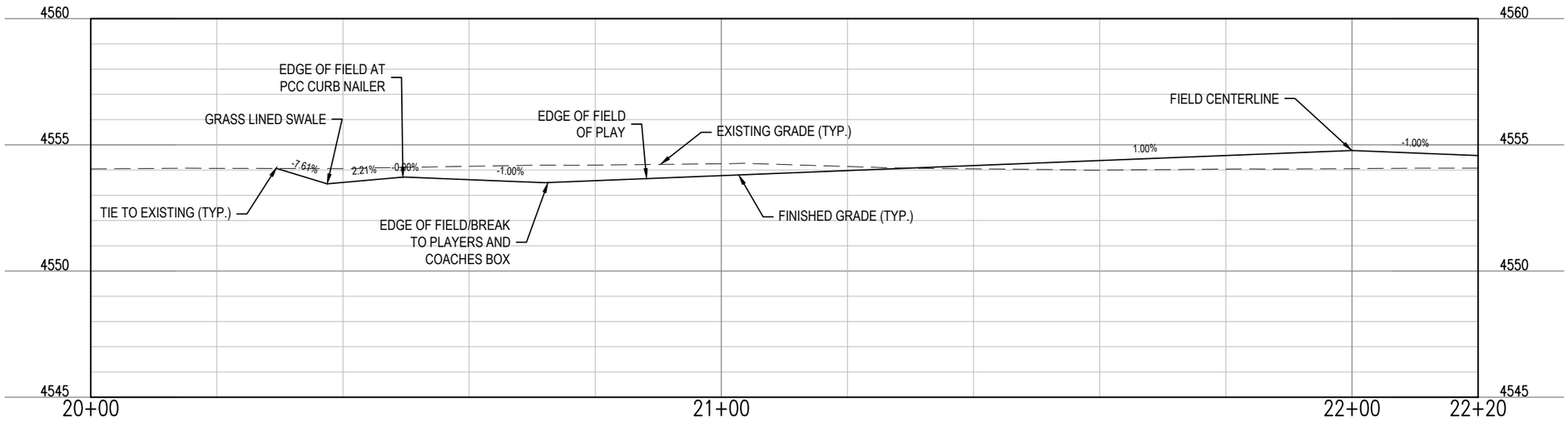
GRADING CROSS SECTION 1
DG-2.0

10 0 10 20
SCALE FEET



WEST/EAST CROSS SECTION 1: CENTER FIELD
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

NOTES:

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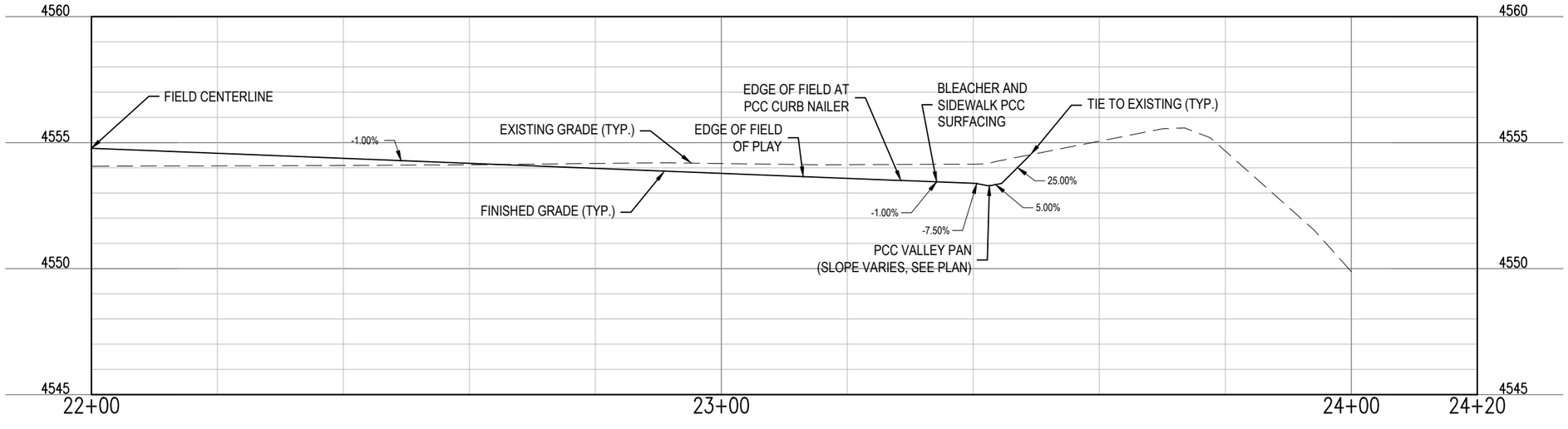

WEST/EAST CROSS SECTION 2: CENTER FIELD
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

10 0 10 20
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

GRADING CROSS SECTION 2 WEST/EAST @ CENTER FIELD

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GRADING CROSS SECTION 2
DG-2.1

CAMPBELL COUNTY HIGH SCHOOL

PRACTICE FIELD

FACULTY PARKING LOT

BOILER ROOM BUILDING

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

ACCESS ROAD

EAST PARKING LOT

INTERSTATE HIGHWAY 90 RIGHT OF WAY

SW-1.1

INSTALL STORM SEWER
(SEE STORM SEWER PLAN 1)

SW-1.2

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INSTALL STORM SEWER UNDERDRAIN
(SEE STORM SEWER PLAN 1)

INSTALL STORM SEWER
(SEE STORM SEWER PLAN 2)

BEGIN ALIGNMENT 1
BP=30+00.00
N=1378059.97
E=572472.45

BEGIN ALIGNMENT 2
BP=40+00.00
N=1378059.96
E=572708.89

END ALIGNMENT 2
EP=43+50.00
N=1377723.87
E=572728.17

END ALIGNMENT 1
EP=38+00.00
N=1377798.40
E=572876.13

25 0 25 50
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL STORM SEWER PLAN

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OVERALL STORM SEWER
SW-1.0

PRACTICE FIELD

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 33+62.90
T.E. = 4552.84'
I.E. (IN) = 4546.50' (N)
I.E. (IN) = 4550.16' (NE)
I.E. (OUT) = 4546.00' (E)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 32+63.60
T.E. = 4553.46'
I.E. (IN) = 4547.50' (N)
I.E. (OUT) = 4547.50' (S)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 31+57.60
T.E. = 4553.46'
I.E. (IN) = 4548.50' (N)
I.E. (OUT) = 4548.50' (S)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 30+51.70
T.E. = 4553.46'
I.E. (IN) = 4549.67' (NE)
I.E. (OUT) = 4549.50' (S)

32+00 | 31+00 | 33+00 | 34+00 | 35+00 | 36+00 | 37+00 | 43+00 | 42+00 | 41+00

INSTALL 12" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

INSTALL 10" SOLID N-12 HDPE STORM DRAIN @ 3.67% (TYP.)

INSTALL 12" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

INSTALL 12" N-12 HDPE STORM DRAIN @ 4.00% TO INLET

INSTALL 10" DIA. TEE
I.E. (IN) = 4550.78' (W)
I.E. (IN) = 4550.78' (N)
I.E. (OUT) = 4550.78' (S)

INSTALL 10" DIA. TEE
I.E. (IN) = 4552.69' (W)
I.E. (OUT) = 4552.69' (N)
I.E. (OUT) = 4552.69' (S)

INSTALL 10" PERFORATED N-12 HDPE STORM DRAIN @ 1.0% (TYP.)

INSTALL 10" DIA. CROSS
STA 30+05.00
I.E. (IN) = 4551.38' (N)
I.E. (IN) = 4551.38' (S)
I.E. (IN) = 4551.38' (E)
I.E. (OUT) = 4551.38' (W)

BEGIN ALIGNMENT 1
BP=30+00.00
N=1378059.97
E=572472.45

INSTALL 225' x 360' SYNTHETIC TURF ATHLETIC FIELD (SEE ATHLETIC FIELD PLAN AND SITE PLAN SHEETS)

INSTALL 18" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

HIGH POINT OF UNDERDRAIN LATERALS TO MATCH FIELD CROWN, SEE DETAIL FOR PLACEMENT DEPTH (TYP.)

INSTALL 2" SOLID N-12 HDPE CONNECTED TO JUNCTION BOX AND GOAL POST SLEEVE DRAIN (TYP.)

INSTALL 2" SOLID N-12 HDPE CONNECTED TO JUNCTION BOX AND GOAL POST SLEEVE DRAIN (TYP.)

INSTALL 1.5"x12" FLAT PANEL PIPE ADS ADVANEDGE UNDERDRAIN LATERALS @ 1% TO MATCH TYPICAL FIELD CROSS SLOPE (TYP.)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

INSTALL 10" SOLID N-12 HDPE STORM DRAIN @ 4.00% TO MANHOLE

INSTALL 48" DIA. STORM DRAIN MANHOLE
STA. 36+35.30 / 43+47.80
T.E. = 4552.60'
I.E. (IN) = 4543.27' (W)
I.E. (IN) = 4550.08' (NW)
I.E. (IN) = 4543.78' (N)
I.E. (OUT) = 4543.27' (E)

INSTALL 10" DIA. TEE
I.E. (IN) = 4550.78' (W)
I.E. (IN) = 4550.78' (N)
I.E. (OUT) = 4550.78' (S)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 42+72.50
T.E. = 4553.23'
I.E. (IN) = 4547.74' (N)
I.E. (OUT) = 4547.74' (S)

INSTALL 10" PERFORATED N-12 HDPE STORM DRAIN @ 1.0% (TYP.)

INSTALL 10" DIA. TEE
I.E. (IN) = 4552.69' (W)
I.E. (OUT) = 4552.69' (N)
I.E. (OUT) = 4552.69' (S)

INSTALL 10" DIA. CROSS
STA. 40+05.00
I.E. (IN) = 4551.38' (N)
I.E. (IN) = 4551.38' (S)
I.E. (IN) = 4551.38' (W)
I.E. (OUT) = 4551.38' (E)

BEGIN ALIGNMENT 2
BP=40+00.00
N=1378059.96
E=572708.89

INSTALL 10" SOLID N-12 HDPE STORM DRAIN @ 4.57% TO INLET

INSTALL 12" N-12 HDPE STORM DRAIN @ 5.26% (TYP.)

INSTALL 12" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

INSTALL 12" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

INSTALL 12" N-12 HDPE STORM DRAIN @ 1.00% (TYP.)

END ALIGNMENT 2
EP=43+50.00
N=1377723.87
E=572728.17

INSTALL STORM SEWER (SEE STORM SEWER PLAN 2)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 42+11.20
T.E. = 4553.13'
I.E. (IN) = 4548.32' (N)
I.E. (OUT) = 4548.32' (S)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 41+19.30
T.E. = 4553.13'
I.E. (IN) = 4549.23' (N)
I.E. (OUT) = 4549.23' (S)

INSTALL 24" DIA. NYLOPLAST INLET WITH PEDESTRIAN GRATE
STA. 40+28.40
T.E. = 4553.13'
I.E. (IN) = 4550.31' (W)
I.E. (OUT) = 4550.14' (S)

N

SCALE 20 0 20 40 FEET

NOTES:

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3. VARIOUS APPURTENANCES AND FITTINGS NOT DETAILED IN THE ESTIMATED QUANTITIES BELOW ARE INCIDENTAL TO THE INSTALLATION OF THE MAIN LINE OF EACH UNDERGROUND UTILITY.
4. REFERENCE GENERAL NOTE CONCERNING REQUIRED CLEANING AND VIDEO INSPECTION OF ALL STORM DRAIN AND UNDERDRAIN STORM SEWER CONSTRUCTION.

ESTIMATED QUANTITIES:

- INSTALL 2" SOLID N-12 HDPE SLEEVE DRAIN 20 L.F.
- INSTALL 1.5"x12" FLAT PANEL ADS UNDERDRAIN STORM DRAIN 3,220 L.F.
- INSTALL 10" PERF. N-12 HDPE STORM DRAIN 770 L.F.
- INSTALL 10" N-12 HDPE STORM DRAIN 110 L.F.
- INSTALL 12" N-12 HDPE STORM DRAIN 650 L.F.
- INSTALL 18" N-12 HDPE STORM DRAIN 280 L.F.
- INSTALL 24" NYLOPLAST INLET W/ PEDESTRIAN GRATE 8 EA.
- INSTALL 48" DIA. STORM DRAIN MANHOLE 1 EA.

SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.

SEE ADDT'L STORM SEWER, SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, AND IRRIGATION PLANS FOR ADDITIONAL QUANTITIES

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER PLAN 1

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STORM SEWER PLAN 1
SW-1.1

INTERSTATE HIGHWAY 90 RIGHT OF WAY

PROPOSED SYNTHETIC
TURF COMPETITION FIELD

BEGIN ALIGNMENT 2
BP=40+00.00
N=1378059.96
E=572708.89

35+00

36+00

43+00

42+00

41+00

INSTALL 48" DIA. STORM
DRAIN MANHOLE
STA. 36+35.30 / 43+47.80
T.E. = 4552.60'
I.E. (IN) = 4543.27' (W)
I.E. (IN) = 4550.08' (NW)
I.E. (IN) = 4543.78' (N)
I.E. (OUT) = 4543.27' (E)

END ALIGNMENT 2
EP=43+50.00
N=1377723.87
E=572728.17

INSTALL 18" N-12 HDPE STORM
DRAIN @ 1.72% (TYP.)

37+00

INSTALL 18" FLARED END SECTION AND RIP
RAP PROTECTION
(TYP., INSTALL CLASS 2 RIPRAP PER COG
DETAIL 01500.03 (D=18", D50=6", L1= 3.5', L=7.5',
W=4.5'. d=16", 12" DEPRESSION=24" x 48" x 12")

FLARED END SECTION
STA. 37+96.00
I.E. = 4540.50'

END ALIGNMENT 1
EP=38+00.00
N=1377798.40
E=572876.13

NOTES:

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4. REFERENCE GENERAL NOTE CONCERNING REQUIRED CLEANING AND VIDEO INSPECTION OF ALL STORM DRAIN AND UNDERDRAIN STORM SEWER CONSTRUCTION.

ESTIMATED QUANTITIES:

• INSTALL 18" FLARED END SECTION AND RIP RAP PROTECTION	1 EA.
• INSTALL 18" N-12 HDPE STORM DRAIN	165 L.F.

**SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET.*

**SEE ADDT'L STORM SEWER, SITE, ELECTRICAL, ATHLETIC FIELD, DETAILED GRADING, LANDSCAPING, AND IRRIGATION PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER PLAN 2

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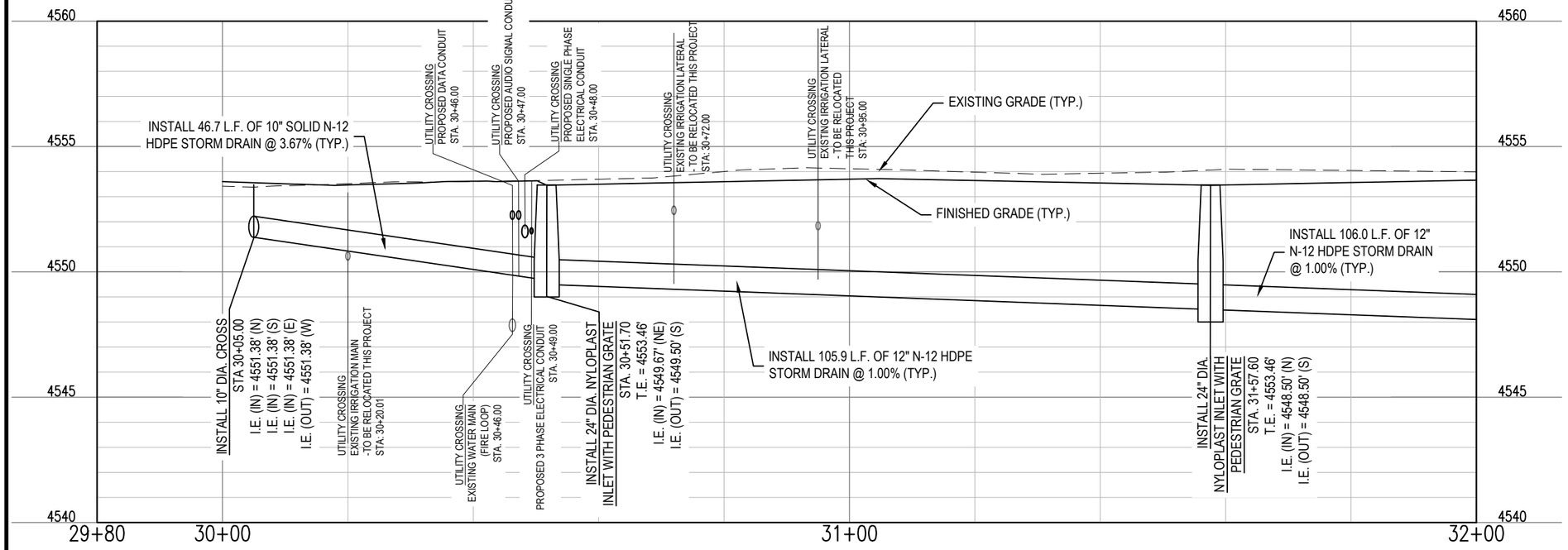
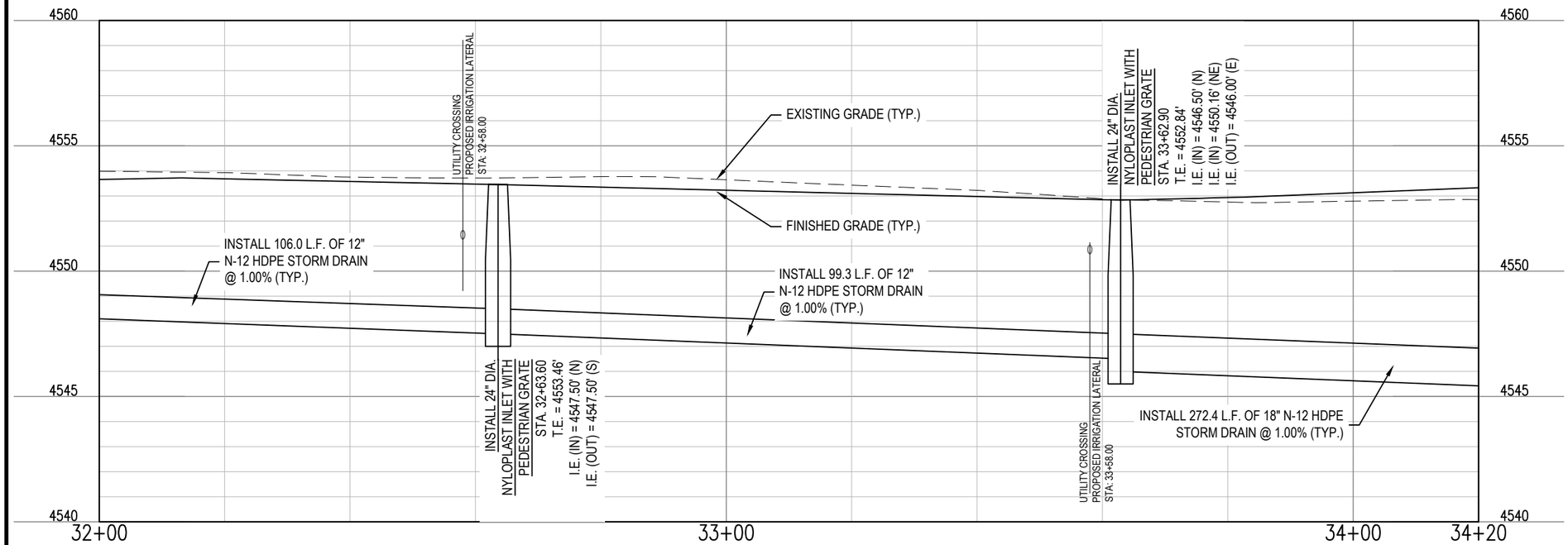
STORM SEWER PLAN 2
SW-1.2

N

20 0 20 40
SCALE FEET



STORM SEWER ALIGNMENT 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



STORM SEWER ALIGNMENT 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

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4. REFERENCE GENERAL NOTE CONCERNING REQUIRED CLEANING AND VIDEO INSPECTION OF ALL STORM DRAIN AND UNDERDRAIN STORM SEWER CONSTRUCTION.

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER PROFILE 1
STA. 30+00.00 – STA. 34+20.00

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SCALE: 20 0 20 40 FEET

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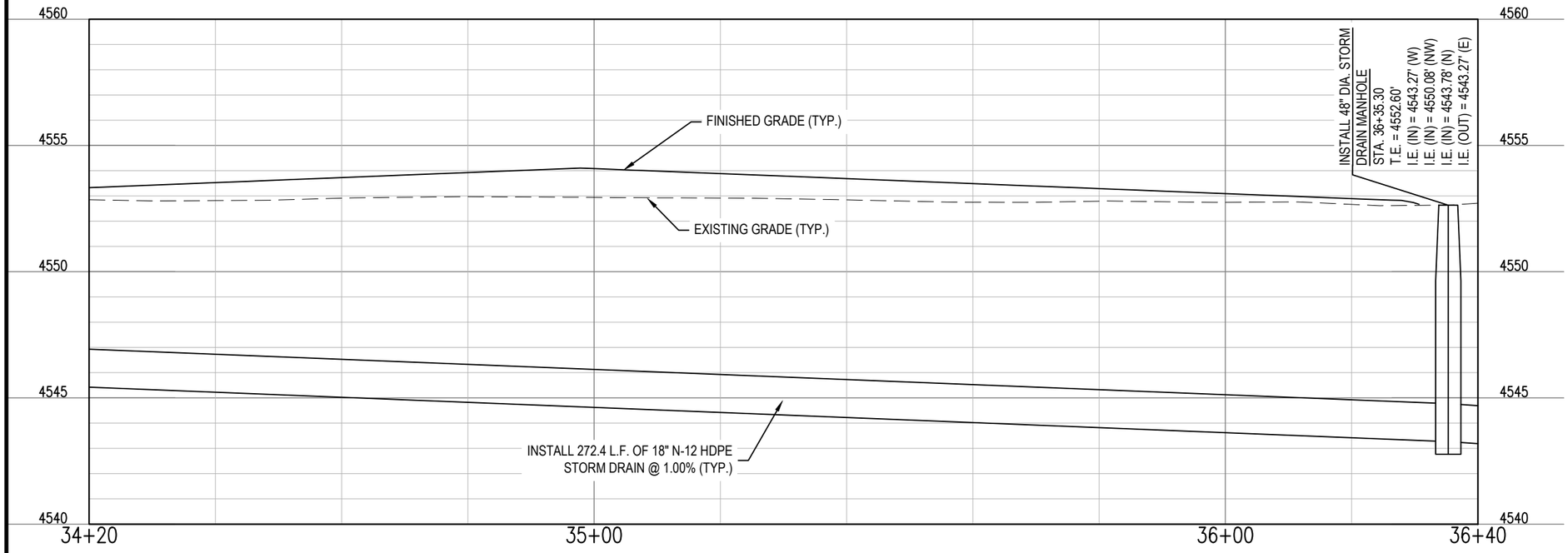
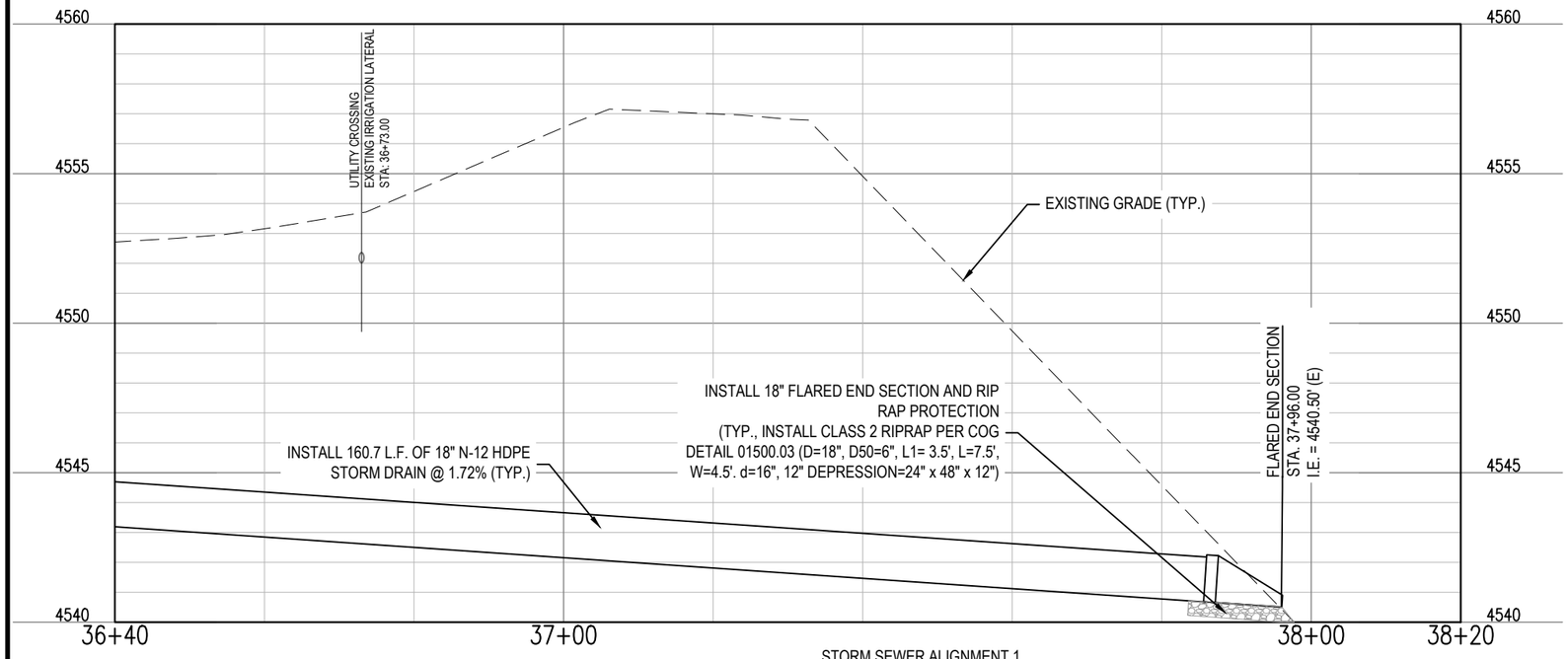
STORM SEWER PROFILE 1
SW-2.0



STORM SEWER ALIGNMENT 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



STORM SEWER ALIGNMENT 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

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REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER PROFILE 2

STA. 34+20.00 – STA. 38+00.00

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SCALE: 20 0 20 40 FEET

DATE:	03/20/2019
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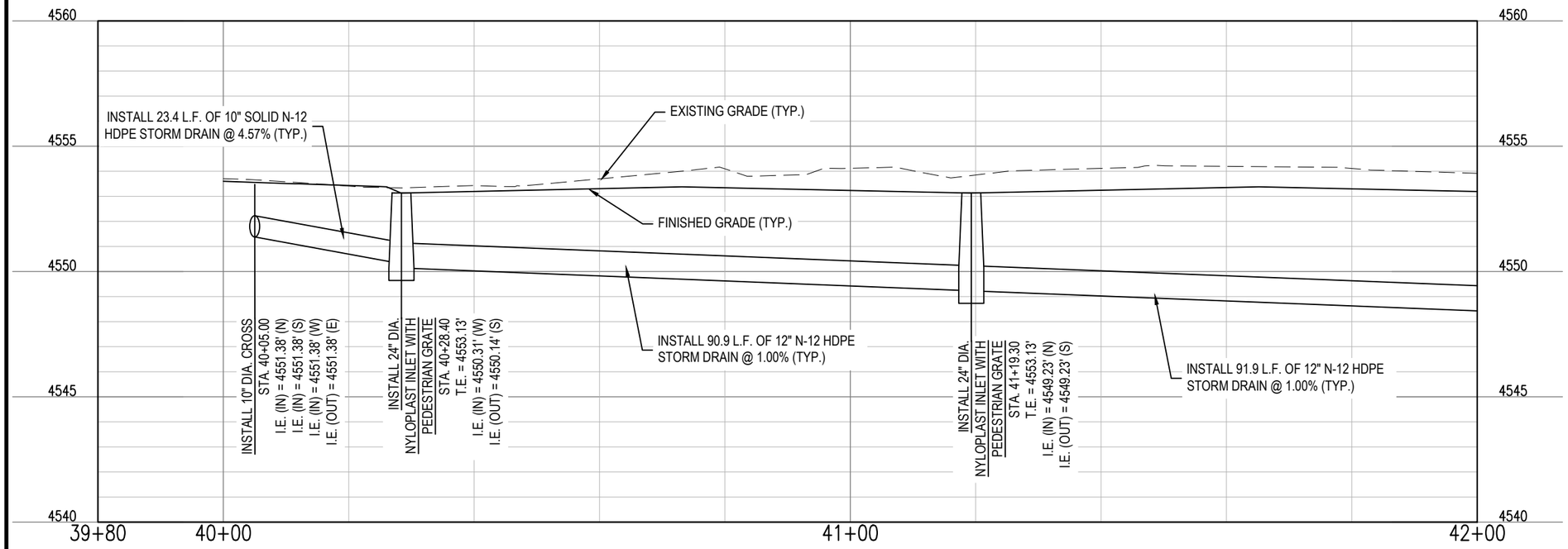
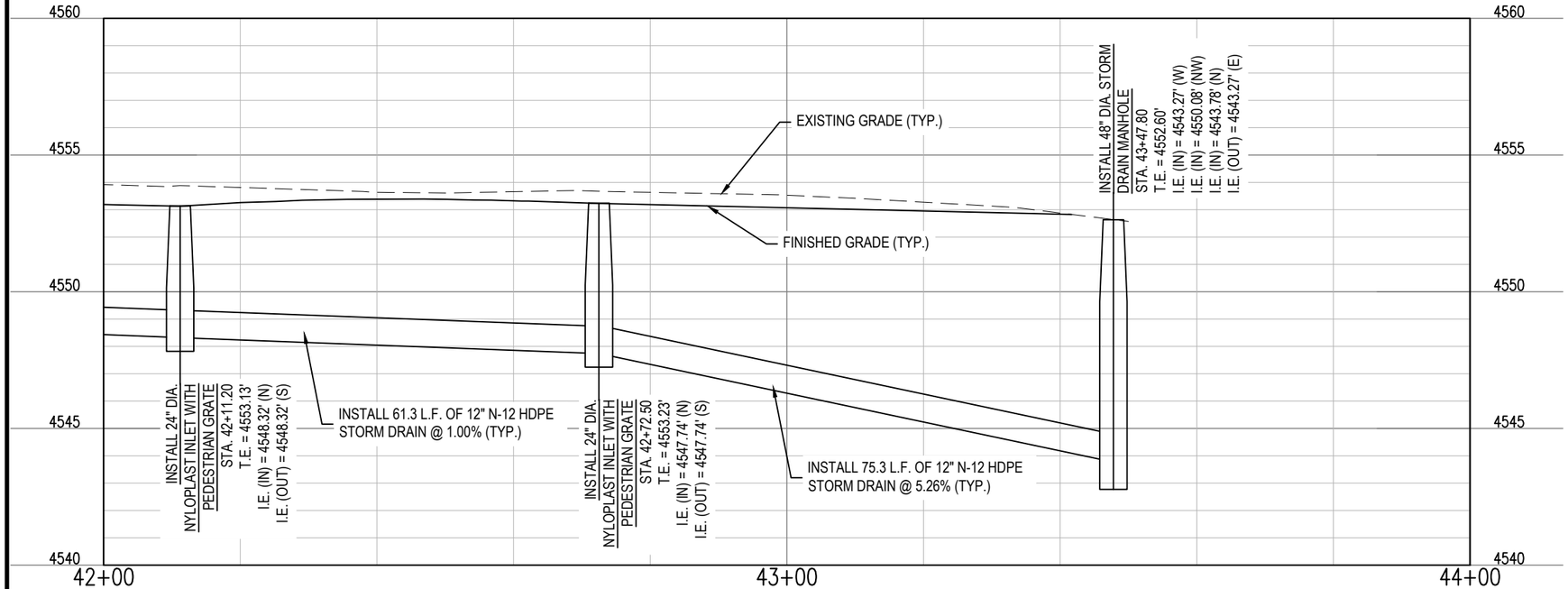
STORM SEWER PROFILE 2
SW-2.1



STORM SEWER ALIGNMENT 2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



STORM SEWER ALIGNMENT 2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. VARIOUS APPURTENANCES AND FITTINGS NOT DETAILED IN THE ESTIMATED QUANTITIES ON PREVIOUS SHEETS ARE INCIDENTAL TO THE INSTALLATION OF THE MAIN LINE OF EACH UNDERGROUND UTILITY.
4. REFERENCE GENERAL NOTE CONCERNING REQUIRED CLEANING AND VIDEO INSPECTION OF ALL STORM DRAIN AND UNDERDRAIN STORM SEWER CONSTRUCTION.

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER PROFILE 3

STA. 40+00.00 – STA. 43+50.00

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STORM SEWER PROFILE 3

SW-2.2

N

20 0 20 40
SCALE FEET

CAMPBELL COUNTY HIGH SCHOOL

ACCESS ROAD

IR-1.3
LS-1.3

PRACTICE FIELD

RELOCATE, ADJUST AND REPAIR IRRIGATION COMPONENTS (SEE IRRIGATION PLAN 2)

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED ELEMENTS TO TIE TO EXISTING (SEE LANDSCAPING PLAN 2)

RELOCATE, ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN 2)

FACULTY PARKING LOT

IR-1.2
LS-1.2

ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN 1)

BOILER ROOM BUILDING

IR-1.4
LS-1.4

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INTERSTATE HIGHWAY 90 RIGHT OF WAY

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED FIELD TO EXISTING SITE (SEE LANDSCAPING PLAN 1)

ADJUST AND INSTALL IRRIGATION COMPONENTS (SEE IRRIGATION PLAN 3)

ACCESS ROAD

INSTALL LANDSCAPING TO TRANSITION FROM PROPOSED ELEMENT TO TIE TO EXISTING (SEE LANDSCAPING PLAN 3)

EAST PARKING LOT

N

SCALE 40 0 40 80 FEET

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL IRRIGATION AND LANDSCAPE PLAN

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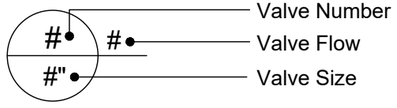
OVER. IRRIG. AND LAND.
IR & LS-1.0

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	GPM	RADIUS
1.5	Rain Bird 5004-PL-PC, FC-R Turf Rotor, 4.0" Pop-Up with Plastic Riser. Adjustable and Full Circle. Standard Angle Nozzle, In-Stem Pressure Regulator, and Flow Shut-Off Device.	2	65	1.59	35'
2.0	Rain Bird 5004-PL-PC, FC-R Turf Rotor, 4.0" Pop-Up with Plastic Riser. Adjustable and Full Circle. Standard Angle Nozzle, In-Stem Pressure Regulator, and Flow Shut-Off Device.	5	65	2.14	37'
3.0	Rain Bird 5004-PL-PC, FC-R Turf Rotor, 4.0" Pop-Up with Plastic Riser. Adjustable and Full Circle. Standard Angle Nozzle, In-Stem Pressure Regulator, and Flow Shut-Off Device.	4	65	3.20	40'
1.0	Rain Bird 5004-PL-PC, FC-R-LA Turf Rotor, 4.0" Pop-Up. Plastic Riser, Adjustable and Full Circle. With Low Angle Nozzle, In-Stem Pressure Regulator, and Flow Shut-Off Device.	36	65	1.09	29'
04	Rain Bird F4-PC, FC Turf Rotor, 4.0" Pop-Up, Plastic Riser, Adjustable and Full Circle. With Removable Seal-A-Matic Check Valve, 1" Female Threaded Inlet.	6	70	4.40	41'
06	Rain Bird F4-PC, FC Turf Rotor, 4.0" Pop-Up, Plastic Riser, Adjustable and Full Circle. With Removable Seal-A-Matic Check Valve, 1" Female Threaded Inlet.	2	70	6.30	49'
08	Rain Bird F4-PC, FC Turf Rotor, 4.0" Pop-Up, Plastic Riser, Adjustable and Full Circle. With Removable Seal-A-Matic Check Valve, 1" Female Threaded Inlet.	5	70	8.90	51'
10	Rain Bird F4-PC, FC Turf Rotor, 4.0" Pop-Up, Plastic Riser, Adjustable and Full Circle. With Removable Seal-A-Matic Check Valve, 1" Female Threaded Inlet.	21	70	10.8	57'
12	Rain Bird F4-PC, FC Turf Rotor, 4.0" Pop-Up, Plastic Riser, Adjustable and Full Circle. With Removable Seal-A-Matic Check Valve, 1" Female Threaded Inlet.	10	70	13.2	59'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Rain Bird PESB 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Scrubber Technology for Reliable Performance in Dirty Water Irrigation Applications.	15
	Isolation Valve Isolation Valve: PVC Gate Valve, line sized to irigation main	3
	Irrigation Lateral Line: PVC Class 200 SDR 21	3,574 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21	1,473 l.f.
	Pipe Sleeve: PVC Schedule 40	159.2 l.f.

Valve Callout



NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. THESE NOTES ARE FOR GENERAL REFERENCE IN COORDINATION WITH, AND AS A SUPPLEMENT TO THE CITY OF GILLETTE STANDARD SPECIFICATIONS, DETAILS, ADDENDA AND CHANGE ORDERS ASSOCIATED WITH THE CONTRACT DOCUMENTS.
4. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL TIE NEW IRRIGATION ZONES INTO EXISTING IRRIGATION CONTROLLER. VERIFY LOCATION OF EXISTING CONTROLLER AND PROVIDE ADDITIONAL COMPONENTS AND WIRING AS NECESSARY TO ACCOMMODATE NEW PROPOSED IRRIGATION ZONES SHOWN IN THIS PROJECT.
6. PRIOR TO PAVING OPERATIONS, CONTRACTOR SHALL VERIFY SLEEVES FOR IRRIGATION SYSTEM HAVE BEEN PLACE UNDER PAVEMENTS IN LOCATIONS AS SHOWN ON THE DRAWINGS.
7. CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATION OF ALL EXISTING AND FUTURE UNDERGROUND SERVICES AND IMPROVEMENTS WHICH MAY CONFLICT WITH WORK TO BE COMPLETED UNDER THIS PROJECT.
8. LAYOUT IS CONCEPTUAL IN NATURE. CONTRACTOR SHALL PROVIDE SHOP DRAWING OF IRRIGATION LAYOUT FOR REVIEW BY ENGINEER PRIOR TO BEGINNING WORK.
9. CONTRACTOR SHALL PROVIDE ALL FITTINGS, WIRING, VALVE BOXES, PIPING, JOINTS, AND OTHER MATERIALS NECESSARY FOR A COMPLETE IRRIGATION SYSTEM.
10. CONTRACTOR SHALL REFER TO CITY OF GILLETTE STANDARD SPECIFICATIONS SECTION 02920 - IRRIGATION FOR FURTHER COORDINATION AND REQUIREMENTS.
11. CONTRACTOR SHALL PROVIDE AND INSTALL IRRIGATION TO DELIVER 100% IRRIGATION COVERAGE OF NATURAL TURF AREAS.
12. CONTRACTOR SHALL SIZE LATERAL LINES AND SCHEDULE IRRIGATION PROGRAMS TO ENSURE NO IRRIGATION LINES EXCEED 5 FPS IN WATER VELOCITY.
13. BASIS OF DESIGN: THE IRRIGATION SYSTEM DESIGN IS BASED ON THE BRAND AND PRODUCT LISTED IN THE IRRIGATION SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALTERNATE PRODUCTS PERFORM IN THE SAME MANNER AS THOSE SPECIFIED. ANY CHANGES TO SYSTEM DESIGN DUE TO USE OF ALTERNATE PRODUCTS IS THE RESPONSIBILITY OF THE CONTRACTOR.
14. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES NEEDED TO PROVIDE A COMPLETE IRRIGATION SYSTEM.
15. IRRIGATION SYSTEM DESIGN IS SCHEMATIC IN NATURE. CONTRACTOR SHALL ADJUST LOCATIONS OF PIPES, VALVES, HEADS AND OTHER APPURTENANCES TO AVOID EXISTING OR PROPOSED STRUCTURES, FOUNDATIONS, UTILITIES, TREES AND OTHER ITEMS AS NECESSARY.
16. OWNER HAS REQUESTED ALL EXTERIOR IRRIGATION CONTROL WIRE BE INSTALLED IN SEPARATE 2" SCH 40 PVC CONDUIT. DEPTH AND LOCATION PER TYPICAL CONSTRUCTION DETAILS AND SPECIFICATIONS.
17. SEE SPECIAL PROVISION CONCERNING EXISTING IRRIGATION SYSTEM - THE EXISTING IRRIGATION SYSTEM OUTSIDE OF THE PROJECT EXTENTS MUST REMAIN FUNCTIONAL THROUGHOUT THE COURSE OF THE PROJECT, EXCEPT FOR LIMITED SHUT DOWN FOR TYPICAL CONNECTIONS.

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
IRRIGATION PLAN
IRRIGATION SCHEDULE AND NOTES

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APPROVED BY: AJH

IRRIGATION SCH. & NOTES
IR-1.1

PRACTICE FIELD

CONNECT TO EXISTING IRRIGATION LATERAL (TO BE VERIFIED BY CONTRACTOR)

RELOCATED IRRIGATION MAIN (TYP.)

INSTALL 2" C200 PVC IRRIGATION LATERAL (TYP.)

CONNECT TO EXISTING IRRIGATION MAIN AT THIS LOCATION

CONNECT TO EXISTING IRRIGATION LATERAL (TO BE VERIFIED BY CONTRACTOR)

EXTERIOR CONTROL WIRE IN 2" SCH 40 PVC CONDUIT OMITTED FOR DRAFTING CLARITY WHERE PROPOSED IRRIGATION MAIN IS PRESENT (TYP.)

CONNECT RELOCATED IRRIGATION MAIN TO EXISTING IRRIGATION MAIN (TO BE VERIFIED BY CONTRACTOR)

REMAINING EXISTING IRRIGATION MAIN TO REMAIN (TYP.)

INSTALL ISOLATION VALVES, (TYP.)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

NOTES:

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2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
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4. OWNER HAS REQUESTED ALL EXTERIOR IRRIGATION CONTROL WIRE BE INSTALLED IN SEPARATE 2" SCH 40 PVC CONDUIT. DEPTH AND LOCATION PER TYPICAL CONSTRUCTION DETAILS AND SPECIFICATIONS.
5. SEE SPECIAL PROVISION CONCERNING EXISTING IRRIGATION SYSTEM - THE EXISTING IRRIGATION SYSTEM OUTSIDE OF THE PROJECT EXTENTS MUST REMAIN FUNCTIONAL THROUGHOUT THE COURSE OF THE PROJECT, EXCEPT FOR LIMITED SHUT DOWN FOR TYPICAL CONNECTIONS.

ESTIMATED QUANTITIES:

- INSTALL IRRIGATION SYSTEM AND COMPONENTS — 1 L.S.
- RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS TO BE ABANDONED IN PLACE) — 1 L.S.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, LANDSCAPING, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

IRRIGATION PLAN 1

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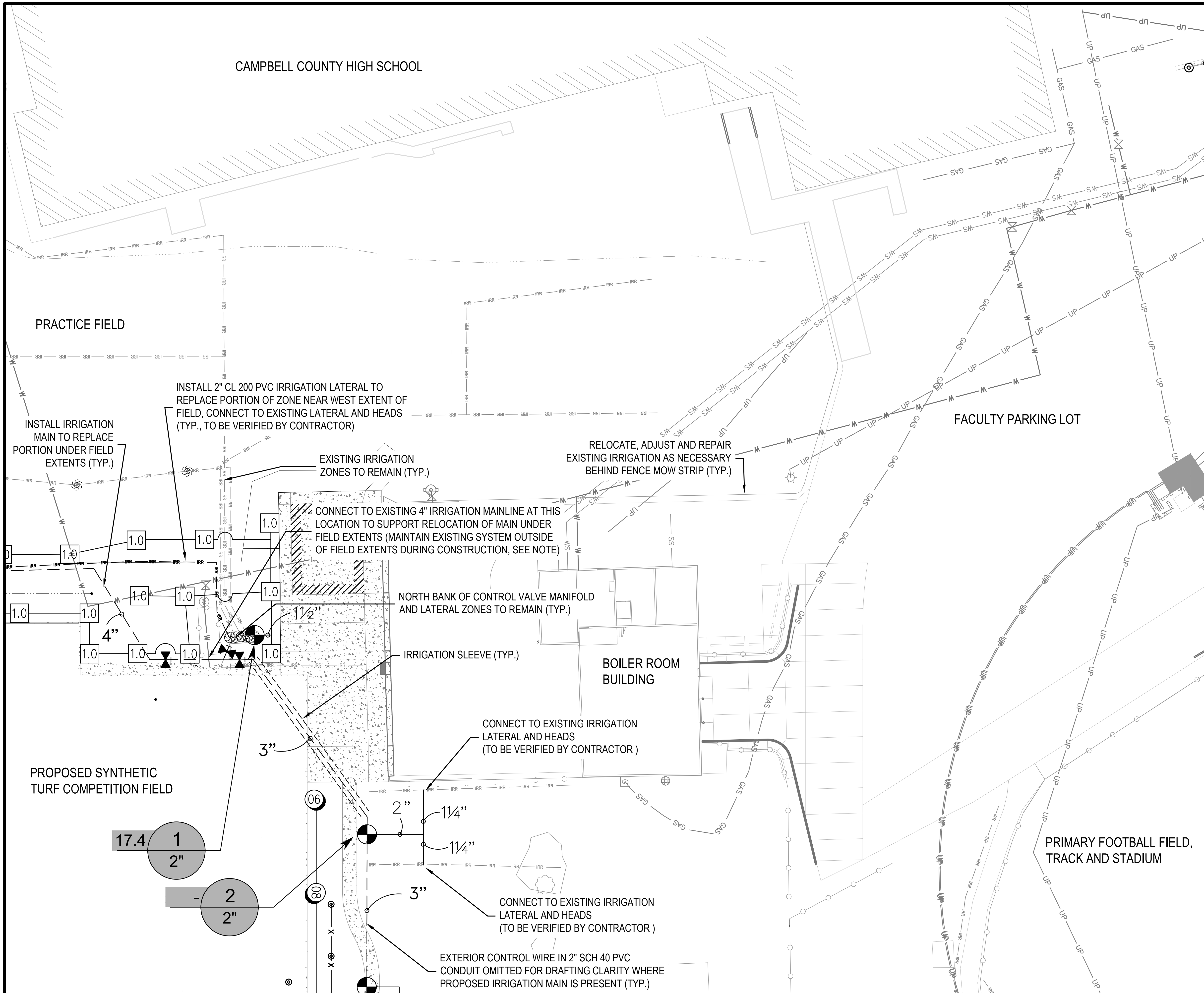
IRRIGATION PLAN 1

IR-1.2

SCALE 20 0 20 40 FEET



NOTES:

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4. OWNER HAS REQUESTED ALL EXTERIOR IRRIGATION CONTROL WIRE BE INSTALLED IN SEPARATE 2" SCH 40 PVC CONDUIT. DEPTH AND LOCATION PER TYPICAL CONSTRUCTION DETAILS AND SPECIFICATIONS.
5. SEE SPECIAL PROVISION CONCERNING EXISTING IRRIGATION SYSTEM - THE EXISTING IRRIGATION SYSTEM OUTSIDE OF THE PROJECT EXTENTS MUST REMAIN FUNCTIONAL THROUGHOUT THE COURSE OF THE PROJECT, EXCEPT FOR LIMITED SHUT DOWN FOR TYPICAL CONNECTIONS.

ESTIMATED QUANTITIES:

• INSTALL IRRIGATION SYSTEM AND COMPONENTS	1 L.S.
• RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS TO BE ABANDONED IN PLACE)	1 L.S.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, LANDSCAPING, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

20 0 20 40
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

IRRIGATION PLAN 2

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IRRIGATION PLAN 2
IR-1.3

Mar 20, 2019 - 3:13pm - P:\Education\CampbellCountySchoolDistrict\1817_00975_CCHSAthleticField\CAD\Plan\Sheets\1817_00975-Irrigation&Landscaping.dwg

PROPOSED SYNTHETIC
TURF COMPETITION FIELD

17.4 1 2"

- 2 2"

47.6 3 2"

43.2 4 2"

39.4 5 2"

6 - 2"

7 45.6 2"

2"
1¼"
1¼"
3"

CONNECT TO EXISTING
IRRIGATION LATERAL AND HEADS
(TO BE VERIFIED BY CONTRACTOR)

CONNECT TO EXISTING
IRRIGATION LATERAL AND HEADS
(TO BE VERIFIED BY CONTRACTOR)

EXTERIOR CONTROL WIRE IN 2" SCH 40 PVC
CONDUIT OMITTED FOR DRAFTING CLARITY WHERE
PROPOSED IRRIGATION MAIN IS PRESENT (TYP.)

CONNECT TO EXISTING
IRRIGATION LATERALS AND HEADS
(TO BE VERIFIED BY CONTRACTOR)

1"
1½"
1¼"
1"

CONNECT TO EXISTING IRRIGATION
LATERAL AND HEADS
(TO BE VERIFIED BY CONTRACTOR)

PRIMARY FOOTBALL FIELD,
TRACK AND STADIUM

EAST PARKING LOT

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. ANY QUANTITIES SHOWN ON SHEETS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES NEEDED TO PROVIDE A COMPLETE JOB.
4. OWNER HAS REQUESTED ALL EXTERIOR IRRIGATION CONTROL WIRE BE INSTALLED IN SEPARATE 2" SCH 40 PVC CONDUIT. DEPTH AND LOCATION PER TYPICAL CONSTRUCTION DETAILS AND SPECIFICATIONS.
5. SEE SPECIAL PROVISION CONCERNING EXISTING IRRIGATION SYSTEM - THE EXISTING IRRIGATION SYSTEM OUTSIDE OF THE PROJECT EXTENTS MUST REMAIN FUNCTIONAL THROUGHOUT THE COURSE OF THE PROJECT, EXCEPT FOR LIMITED SHUT DOWN FOR TYPICAL CONNECTIONS.

ESTIMATED QUANTITIES:

- INSTALL IRRIGATION SYSTEM AND COMPONENTS — 1 L.S.
- RELOCATE, ADJUST AND REPAIR IRRIGATION SYSTEM COMPONENTS (PORTIONS TO BE ABANDONED IN PLACE) — 1 L.S.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, LANDSCAPING, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

N

SCALE 20 0 20 40 FEET

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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS

IRRIGATION PLAN 3

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IRRIGATION PLAN 3
IR-1.4

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.

2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.

3. ANY DISCREPANCY DISCOVERED BY THE CONTRACTOR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER WHEN DISCOVERED. THE CONTRACTOR SHALL ALLOW ADEQUATE TIME FOR CLARIFICATION BY ENGINEER.

4. SUBSTITUTION OR CHANGE IN WORK REQUESTS BY THE CONTRACTOR OR OWNER SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION.

5. ALL LANDSCAPING SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SECTION 2900 LANDSCAPING OF THE 2017 CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS.

6. ALL DISTURBED IRRIGATED LAWN AREAS SHALL BE SODDED, FERTILIZED AND REESTABLISHED IN ACCORDANCE WITH SECTION 2900 LANDSCAPING OF THE CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS, CURRENT EDITION.

6. ALL DISTURBED NON-IRRIGATED LAWN AREAS SHALL BE SEEDED, FERTILIZED AND REESTABLISHED IN ACCORDANCE WITH SECTION 2900 LANDSCAPING OF THE CITY OF GILLETTE STANDARD CONSTRUCTION SPECIFICATIONS, CURRENT EDITION.

7. WHEN PLACING SOD, CONTRACTOR SHALL PLACE TOP OF NEW SOD TO ALIGN WITH TOP OF EXISTING TURF TO CREATE SMOOTH TRANSITION BETWEEN NEW AND EXISTING LAWN AREAS.

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
LANDSCAPE PLAN
LANDSCAPE SCHEDULE AND NOTES

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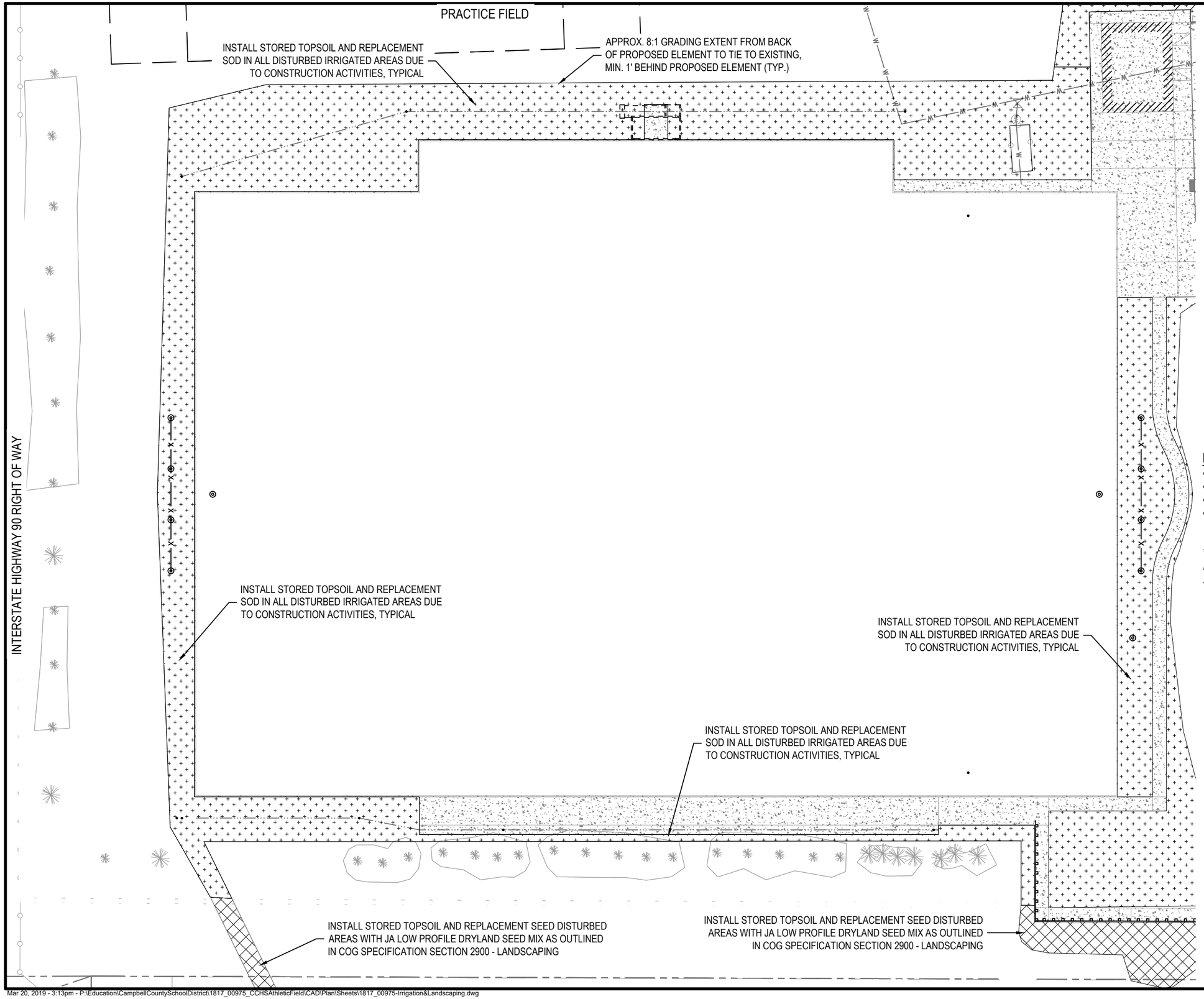
LANDSCAPE SCH. & NOTES

LS-1.1



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3. ANY QUANTITIES SHOWN ON SHEETS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES NEEDED TO PROVIDE A COMPLETE JOB.

ESTIMATED QUANTITIES:

• INSTALL SOD	32,850 S.F.
• INSTALL DRYLAND SEEDING	5,000 S.F.
• INSTALL STORED TOPSOIL (6" DEPTH)	710 C.Y.
• SURPLUS MATERIAL DISPOSAL (TOPSOIL)	2,041 C.Y.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

N

20 0 20 40
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

LANDSCAPE PLAN 1

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LANDSCAPE PLAN 1
LS-1.2

CAMPBELL COUNTY HIGH SCHOOL

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN DISTURBED AREAS DUE TO CONSTRUCTION ACTIVITIES (TYP.)

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS DUE TO CONSTRUCTION ACTIVITIES (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS DUE TO CONSTRUCTION ACTIVITIES, TYPICAL

FACULTY PARKING LOT

BOILER ROOM BUILDING

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS DUE TO CONSTRUCTION ACTIVITIES, TYPICAL

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

N

SCALE 20 0 20 40 FEET

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
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3. ANY QUANTITIES SHOWN ON SHEETS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES NEEDED TO PROVIDE A COMPLETE JOB.

ESTIMATED QUANTITIES:

• INSTALL SOD	32,850 S.F.
• INSTALL DRYLAND SEEDING	5,000 S.F.
• INSTALL STORED TOPSOIL (6" DEPTH)	710 C.Y.
• SURPLUS MATERIAL DISPOSAL (TOPSOIL)	2,041 C.Y.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

LANDSCAPE PLAN 2

640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

LANDSCAPE PLAN 2
LS-1.3

PROPOSED SYNTHETIC
TURF COMPETITION FIELD

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS DUE TO CONSTRUCTION ACTIVITIES, TYPICAL

APPROX. 8:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

INSTALL STORED TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS DUE TO CONSTRUCTION ACTIVITIES, TYPICAL

INSTALL STORED TOPSOIL AND REPLACEMENT SEED DISTURBED AREAS WITH JA LOW PROFILE DRYLAND SEED MIX AS OUTLINED IN COG SPECIFICATION SECTION 2900 - LANDSCAPING

APPROX. 4:1 GRADING EXTENT FROM BACK OF PROPOSED ELEMENT TO TIE TO EXISTING, MIN. 1' BEHIND PROPOSED ELEMENT (TYP.)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

EAST PARKING LOT

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. ANY QUANTITIES SHOWN ON SHEETS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES NEEDED TO PROVIDE A COMPLETE JOB.

ESTIMATED QUANTITIES:

• INSTALL SOD	32,850 S.F.
• INSTALL DRYLAND SEEDING	5,000 S.F.
• INSTALL STORED TOPSOIL (6" DEPTH)	710 C.Y.
• SURPLUS MATERIAL DISPOSAL (TOPSOIL)	2,041 C.Y.

**SEE ATHLETIC FIELD, SITE, DETAILED GRADING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES*

N

20 0 20 40
SCALE FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

LANDSCAPE PLAN 3

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LANDSCAPE PLAN 3
LS-1.4

CAMPBELL COUNTY HIGH SCHOOL

ACCESS ROAD

E-2.0

E-1.0

PRACTICE FIELD

INSTALL DATA CONDUIT TO SCOREBOARD, BOILER ROOM, AND PEDESTAL (SEE ELECTRICAL SITE PLAN SHEET E-1.0 AND PRIMARY ELECTRICAL SITE PLAN SHEET E-2.0)

INSTALL POWER EXTENSION FOR EXTERIOR ATHLETIC LIGHTING SYSTEM, SCOREBOARD, AND OTHER COMPONENTS (SEE PRIMARY ELECTRICAL SITE PLAN SHEET E-2.0)

FACULTY PARKING LOT

INSTALL EXTERIOR ATHLETIC LIGHTING SYSTEM (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

INSTALL ELECTRICAL, SIGNAL, AND DATA CONDUIT TO PEDESTAL (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

INSTALL ELECTRICAL COMPONENTS (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

BOILER ROOM BUILDING

INSTALL DATA CONDUIT TO SCOREBOARD, BOILER ROOM, AND PEDESTAL (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

INTERSTATE HIGHWAY 90 RIGHT OF WAY

PROPOSED SYNTHETIC TURF COMPETITION FIELD

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

INSTALL PEDESTRIAN LIGHTING SYSTEM (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

INSTALL PEDESTRIAN LIGHTING SYSTEM (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

ACCESS ROAD

EAST PARKING LOT

N

SCALE 40 0 40 80 FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

OVERALL ELECTRICAL PLAN

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OVERALL ELECTRICAL PLAN
E-0.0

SFH1

ROOM SITE/ EXTERIOR | VOLTS 480Y/277V 3P 4W | AIC 35,000
MOUNTING SURFACE | BUS AMPS 400 | MAIN BKR 400
FED FROM CT CABINET | NEUTRAL 100% | LUGS STANDARD
NOTE NEMA 3R ENCLOSURE

CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	B	C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	B	C
1	60/3	S1	5.88			2	60/3	S2	5.88		
3	|			5.88		4	|			5.88	
5	|				5.88	6	|				5.88
7	60/3	S3	5.88			8	60/3	S4	5.88		
9	|			5.88		10	|			5.88	
11	|				5.88	12	|				5.88
13	20/2	PL	1.2			14	20/2	PL	1.2		
15	|			1.2		16	|			1.2	
17	20/1	LIGHTING			0.525	18	20/1	SPARE			0
19	20/1	SPARE	0			20	20/1	SPARE	0		
21	20/1	SPARE		0		22	20/1	SPARE		0	
23	-/1	SPACE			0	24	-/1	SPACE			0
25	-/1	SPACE	0			26	-/1	SPACE	0		
27	-/1	SPACE		0		28	-/1	SPACE		0	
29	-/1	SPACE			0	30	-/1	SPACE			0
31	-/1	SPACE	0			32	-/1	SPACE	0		
33	-/1	SPACE		0		34	-/1	SPACE		0	
35	-/1	SPACE			0	36	-/1	SPACE			0
37	70/3	XFMR T1	4.45			38	-/1	SPACE	0		
39	|			5.95		40	-/1	SPACE		0	
41	|				3.8	42	-/1	SPACE			0
								TOTAL CONNECTED KVA BY PHASE	30.4	31.9	27.9
								TOTAL CONNECTED AMPS BY PHASE	110	115	101

	CONN. KVA	CALC. KVA			CONN. KVA	CALC. KVA	
LIGHTING	75.9	94.9	(125%)	CONTINUOUS	7.7	9.63	(125%)
LARGEST MOTOR	1	1.25	(125%)	HEATING	0	0	(100%)
OTHER MOTORS	0	0	(100%)	NONCONTINUOUS	0	0	(100%)
RECEPTACLES	5.5	5.5	(50%>10)	KITCHEN EQUIP	0	0	(N/A)
				NONCOIN/DIVERSE	0	0	(N/A)
				TOTAL KVA	90.1	111	

BALANCED THREE PHASE AMPS 134

SFL1

ROOM SITE/ EXTERIOR | VOLTS 208Y/120V 3P 4W | AIC 10,000
MOUNTING SURFACE | BUS AMPS 125 | MAIN BKR 125
FED FROM T1 | NEUTRAL 100% | LUGS STANDARD
NOTE NEMA 3R ENCLOSURE

CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	B	C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	KVA LOAD A	B	C
1	20/1	MUSCO CONTROL	1			2	20/1	SPARE	0		
3	60/2	POWER PEDESTAL		2.5		4	20/1	SPARE		0	
5	|				2.5	6	20/1	SPARE			0
7	20/2	SCOREBOARD SOUND SYSTEM	1.2			8	20/1	SPARE	0		
9	|			1.2		10	20/1	SPARE		0	
11	20/1	SCOREBOARD TIME & DISPLAY			0.8	12	20/1	SPARE			0
13	30/2	SCOREBOARD LED DISPLAY	2.25			14	20/1	SPARE	0		
15	|			2.25		16	20/1	SPARE		0	
17	20/1	RECEPTACLE			0.5	18	20/1	SPARE			0
19	20/1	SPARE	0			20	-/1	SPACE	0		
21	20/1	SPARE		0		22	-/1	SPACE		0	
23	20/1	SPARE			0	24	-/1	SPACE			0
25	-/1	SPACE	0			26	-/1	SPACE	0		
27	-/1	SPACE		0		28	-/1	SPACE		0	
29	-/1	SPACE			0	30	-/1	SPACE			0
31	-/1	SPACE	0			32	-/1	SPACE	0		
33	-/1	SPACE		0		34	-/1	SPACE		0	
35	-/1	SPACE			0	36	-/1	SPACE			0
37	-/1	SPACE	0			38	-/1	SPACE	0		
39	-/1	SPACE		0		40	-/1	SPACE		0	
41	-/1	SPACE			0	42	-/1	SPACE			0
								TOTAL CONNECTED KVA BY PHASE	4.45	5.95	3.8
								TOTAL CONNECTED AMPS BY PHASE	40.6	49.8	33.9

	CONN. KVA	CALC. KVA			CONN. KVA	CALC. KVA	
LIGHTING	0	0	(125%)	CONTINUOUS	7.7	9.63	(125%)
LARGEST MOTOR	1	1.25	(125%)	HEATING	0	0	(100%)
OTHER MOTORS	0	0	(100%)	NONCONTINUOUS	0	0	(100%)
RECEPTACLES	5.5	5.5	(50%>10)	KITCHEN EQUIP	0	0	(N/A)
				NONCOIN/DIVERSE	0	0	(N/A)
				TOTAL KVA	14.2	16.4	

BALANCED THREE PHASE AMPS 45.5

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	MANUFACTURER	MODEL	MOUNTING	LAMP	BALLAST	INPUT WATTS	VOLTS	DESCRIPTION
B1	⏚	LITHONIA	WSQ LED P2 40K SR3 MVOLT PE *	WALL	(1) LED	DRIVER	24	277V 1P 2W	QUARTER SPHERE LED WALL PACK WITH BUILT-IN PHOTOCELL. COLOR BY OWNER
P1	⏚□	LITHONIA	AS1 LED 42C 530 40K SR2 MVOLT RPA PER * DLL127F 1.5 JL POLE: RSS 20 DM19AS VD *	POLE	(1) LED	DRIVER	75	277V 1P 2W	LED SITE POLE W/ PHOTOCELL, COLOR BY OWNER.

FEEDER SCHEDULE

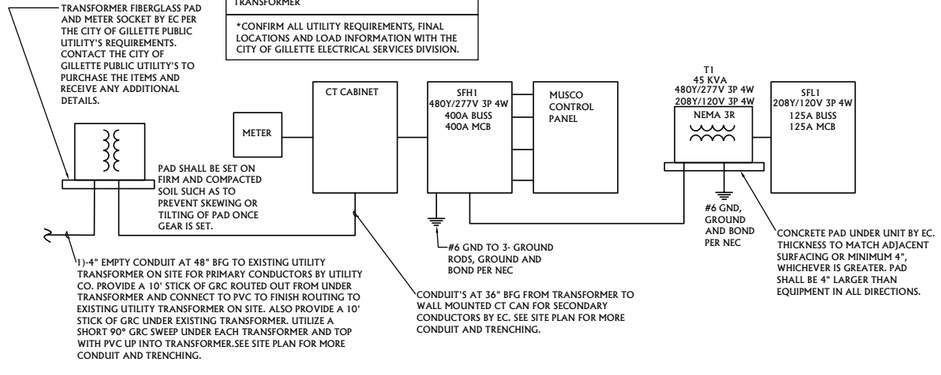
FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
70	1-1/4"C,3#4,#4N,#6G	T1
125	1-1/2"C,3#1/0,#1/0N,#6G	SFL1
400	(2)2"C,3#3/0,#3/0N,#2G	CT CABINET, SFH1

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE

*ELECTRICAL CONTRACTOR IS TO PROVIDE, CT ENCLOSURE, WATT-HOUR-METER SOCKET, TRANSFORMER PAD, PRIMARY SERVICE CONDUIT AND SECONDARY SERVICE CONDUIT/CONDUCTORS TO BUILDING.

*CITY OF GILLETTE WILL PROVIDE CT'S (EC TO INSTALL), PRIMARY SERVICE CONDUCTORS & TRANSFORMER

*CONFIRM ALL UTILITY REQUIREMENTS, FINAL LOCATIONS AND LOAD INFORMATION WITH THE CITY OF GILLETTE ELECTRICAL SERVICES DIVISION.



1 ELECTRICAL RISER DIAGRAM
SCALE: N.T.S.

FIELD/SPORTS LIGHTING SCHEDULE

POLE / FIXTURE SUMMARY

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S2	80'	80'	11	TLC-LED-1500	16.50 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
		80'	2	TLC-LED-600	1.16 kW	C
S3-S4	80'	80'	11	TLC-LED-1500	16.50 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
		80'	2	TLC-LED-600	1.16 kW	B
4			60		75.24 kW	

CIRCUIT SUMMARY

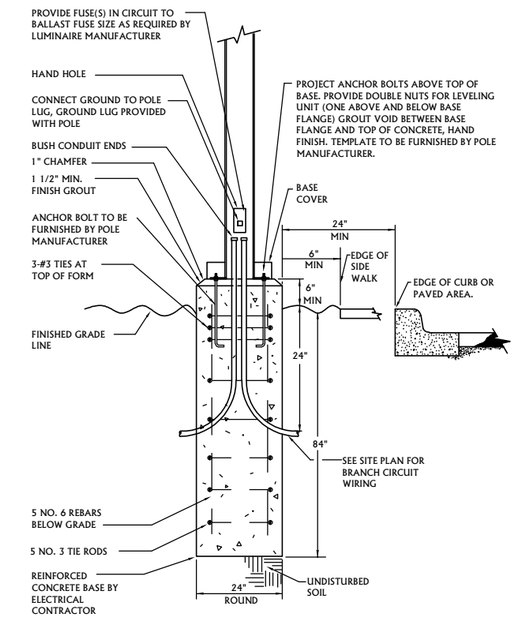
Circuit	Description	Load	Fixture Qty
A	Soccer	70.6 kW	52
B	West Pedestrian Lighting	2.32 kW	4
C	East Pedestrian Lighting	2.32 kW	4

FIXTURE TYPE SUMMARY

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>81,000	>81,000	>81,000	8
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>81,000	>81,000	>81,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1500W	156,100	>81,000	>81,000	>81,000	44

SCHEDULE AND NOTES/ VALUES LISTED ABOVE ARE BASED ON MUSCO SPORTS LIGHTING CONFIGURATION AND IS MANUFACTURERS INFORMATION DIRECTLY FROM CUT SHEETS/ DESIGN PARAMETERS. SYSTEM SHALL BE "AS DESIGNED" MUSCO SYSTEM OR OWNER APPROVED EQUAL SYSTEM WITH MATCHING CHARACTERISTICS.

DRAWING LIST



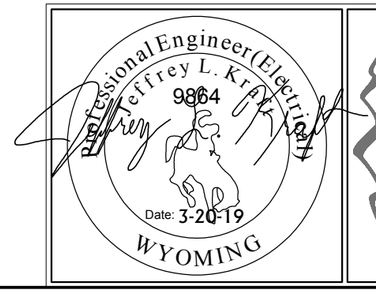
DETAIL IS FOR USE ONLY WITH P1 LIGHT FIXTURE'S. SPORTS LIGHTING POLES WILL HAVE FACTORY PROVIDED BASE DETAILS DESIGNED AND PROVIDED WITH POLES FOR CONSTRUCTION OF BASE ACCORDING TO SITE CONDITIONS.

2 SITE LIGHT POLE BASE DETAIL FOR FIXTURE P1
SCALE: N.T.S.

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

ELECTRICAL COVER SHEET



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DATE: 03/20/2019
JOB NO: 19SH4932
DRAWN BY: JK
APPROVED BY: JK

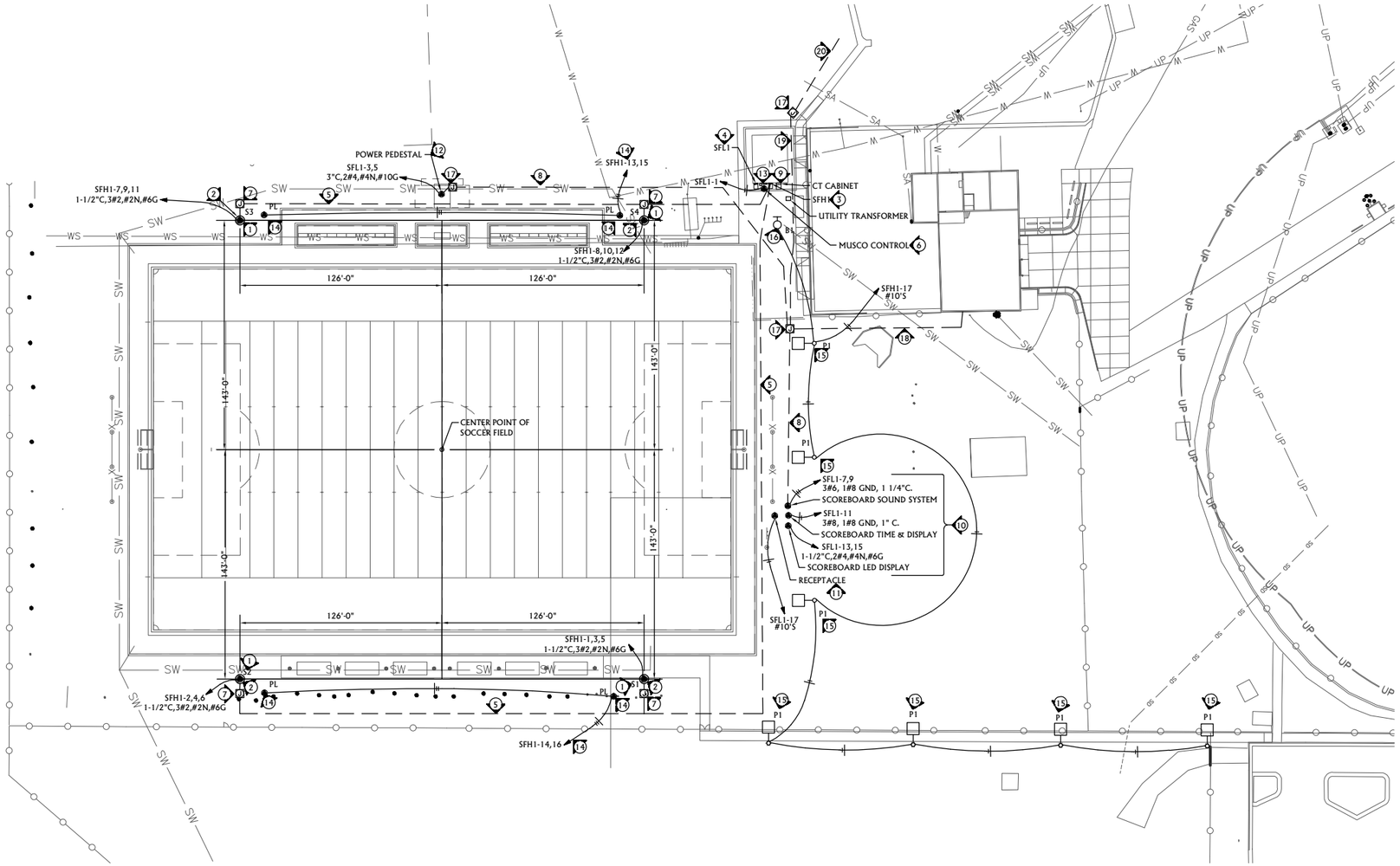
ELECTRICAL COVER SHEET
E-0.1

GENERAL ELECTRICAL NOTES:

1. ALL FIELD LIGHTING BY MUSCO PER SPECIFICATIONS AND COMPLETELY UNDER THE ELECTRICAL CONTRACTOR BID AND RESPONSIBLY FOR A COMPLETE MUSCO FIELD LIGHTING INSTALLATION. COORDINATE W/ MUSCO FOR ALL PRICING, CONNECTIONS, INSTALLATION AND RESPONSIBILITIES.
2. NEW CONDUIT ALLOWED TO BE BORE OR TRENCHED. WHEN TRENCHED REPAIR OF SURFACE CONDITIONS TO "LIKE EXISTING" WILL BE REQUIRED.
3. COORDINATE WITH CIVIL PLANS FOR EXACT LOCATION OF FIELD, SCOREBOARD, POLE LIGHTS, PEDESTRAIN LIGHTS AND PRIMARY ELECTRICAL SERVICE ROUTING.
4. ANY WORK THAT REQUIRES POWER DISRUPTIONS SHALL BE SCHEDULED AND APPROVED BY THE OWNER. ALL WORK SHALL BE PERFORMED WITH NO DISRUPTION OF THE OWNER'S BUSINESS.
5. ALL EMPTY CONDUIT TO HAVE PULL STRINGS INSTALLED THE FULL LENGTH OF ALL CONDUITS.

KEY ELECTRICAL NOTES:

1. MUSCO SPORTS LIGHT POLE WITH HEADS FOR FIELD. EC SHALL ROUTE CIRCUIT AS SHOWN TO POLE AND TERMINATE UPON LUGS IN JUNCTION BOX ON POLE. TERMINATION POINT IS APPROXIMATELY 12' AFG, EC TO ROUTE CONDUIT UP IN CENTER OF POLE BASE TO CONTINUE CONDUCTORS UP POLE CENTER TO TERMINATION POINT. COORDINATE WITH MUSCO LIGHTING SHOP DRAWINGS/ PLANS FOR ADDITIONAL DETAILS. BOND LIGHT POLE TO CONCRETE CAGE IN THE FOUNDATION W/ A #4 AWG CU BARE CONDUCTOR.
2. INSTALL CONCRETE POLE BASE FOR SPORTS LIGHTING PER MANUFACTURERS WRITTEN INSTRUCTIONS. BASIS OF DESIGN MATERIALS REQUIRED FOR BIDDING PURPOSE ONLY SHALL BE: 36" DIA, 20' DEEP BORE HOLE WITH ALL BUT TOP 2' OF HOLE FILLED WITH 3000 PSI MINIMUM CONCRETE. THE TOP 2' OF HOLE SHALL BE BACK FILLED WITH CLASS 5 SOIL AND COMPACTED TO 95% DENSITY. REVIEW FINAL STAMPED ENGINEERED STRUCTURAL DRAWINGS FOR FINAL HOLE DESIGN PRIOR TO CONSTRUCTING BASE.
3. NEW PANELBOARD BY EC, 480/277 VOLT, 3-PHASE 400 AMP WITH 400 AMP MAIN BREAKER IN A NEMA 3R ENCLOSURE, SEE PANEL SCHEDULE FOR ADDITIONAL DETAILS. STUB (2) SPARE 3" CONDUIT FROM PANEL TO 10 FEET BEYOND CONCRETE BELOW GRADE, CAP AND MARK LOCATION.
4. NEW PANELBOARD BY EC, 208/120 VOLT, 3-PHASE 125 AMP WITH 125 AMP MAIN BREAKER IN A NEMA 3R ENCLOSURE, SEE PANEL SCHEDULE FOR ADDITIONAL DETAILS. STUB (2) SPARE 3" CONDUIT FROM PANEL TO 10 FEET BEYOND CONCRETE BELOW GRADE, CAP AND MARK LOCATION.
5. CONDUIT FOR NEW POLES SHALL BE ROUTED ALONG THIS PATH, OUTSIDE OF FIELD. ALL SURFACE CONDITIONS SHALL BE REPAIRED BACK TO EXISTING CONDITIONS.
6. MOUNT NEW MUSCO LIGHTING CONTROL PANEL NEAR ELECTRICAL EQUIPMENT IN THIS LOCATION. REFER TO MANUFACTURERS INSTRUCTIONS FOR DIMENSIONS OF NEW CEMENT PAD. ALL HOME RUNS FROM EACH SPORTS LIGHT POLE SHALL BE ROUTED TO THIS CONTROLLER FOR CONNECTION TO CONTACTORS. SEE MUSCO WIRING DIAGRAMS.
7. PROVIDE A QUAZITE PULLBOX FLUSH TO FINISHED GRADE FOR PULLING CONDUCTORS FOR FIELD LIGHTING. BOX TO BE 13" X 24" X 24" DEEP. PROVIDE WITH TRAFFIC RATED COVER THAT HAS ENGRAVED LETTERING THAT READS "LIGHTING".
8. PROVIDE (2) 2" CONDUIT FROM SCOREBOARD TO POWER PEDESTAL FOR SOUND SYSTEM. CONDUIT SHALL BE ROUTED UP SCORE BOARD LEG THAT IS COMMON TO POWER CONDUIT ROUTING STOPPING AT THE AMPLIFIER LOCATION ON THE BOARD. PROVIDE PULL LINES IN RACEWAY THEIR ENTIRE DISTANCE. CONDUITS SHALL BE ROUTED THROUGH PULLBOXES AS SHOWN.
9. LOCATION OF ELECTRICAL SERVICE ENTRANCE GEAR MOUNTED ON THE SIDE OF SHED THAT WILL BE RELOCATED TO AREA. SEE RISER DIAGRAM ON E-0.1 FOR ADDITIONAL DETAILS.
10. LOCATION OF FIELD SCORE BOARD AS PROVIDED BY DAKTRONICS. EC TO PROVIDE (3) SEPARATE DEDICATED POWER CONNECTIONS TO BOARD. 1 CONNECTION WILL BE FOR MAIN DISPLAY (30A 208V 1 PH), 1 FOR UPPER AND LOWER SCORE FUNCTIONS (20A 120V) AND THE THIRD IS FOR POWERING SOUND SYSTEM AMPLIFIER LOCATED IN SPEAKER ASSEMBLY (20A 208V). ROUTE ALL CIRCUITS FROM GRADE UP ONE LEG OF SCOREBOARD IN A COMMON 2" C AND TO FINAL CONNECTION POINT @ RESPECTIVE ITEM ON BOARD. ALL CIRCUITS SHALL BE ROUTED TO PANEL SFL1. UPPER AND LOWER SCOREBOARD FUNCTIONS REQUIRE A 2" CONDUIT ROUTED BETWEEN SECTIONS AS WELL FOR POWER INTERLOCK KIT THAT IS PROVIDED WITH SIGN. COORDINATE ALL REQUIREMENTS, EXACT ROUTING AND CONNECTIONS W/ DAKTRONICS PRIOR TO ROUTING AND INSTALLATION.
11. MOUNT RECEPTACLE TO THE UNDERSIDE OF SCORE BOARD, CENTER JUSTIFIED FOR FUTURE GAME CLOCK ADDITION.
12. NEW POWER PEDESTAL BY EC. PROVIDE SIEMENS #TL8G8G8GU2PBG8G8G-LP OR EQUAL IN MILBANK. PEDESTAL TO HAVE SIX 20 AMP GFI PROTECTED BREAKERS WITH SIX WEATHER RESISTANT RECEPTACLES ALL CONNECTED TO DEDICATED BREAKERS.
13. NEW PAD MOUNTED 480V: 208Y/120V 3-PHASE TRANSFORMER. SEE RISER DIAGRAM FOR ADDITIONAL DETAILS.
14. PEDESTRIAN LIGHTING "PL" MOUNTED ON AND SOURCED FROM MUSCO POLES BY MUSCO, INSTALLED COMPLETE BY EC. POWER CONNECTION IS SHOWN MOVED WAY FROM "S" SERIES POLES FOR DRAWING CLARITY. PEDESTRIAN LIGHTING TO BE CONNECTED AS SHOWN AND ROUTED THROUGH MUSCO'S CONTROL PANEL, PROVIDE SEPARATE CIRCUIT AND CONTROL FOR PEDESTRAIN LIGHTING FROM THE FIELD LIGHTING. FEEDER SHALL BE 4 # 8, 1 # 10 GND IN 1" CONDUIT THROUGH-OUT. COORDINATE WITH MUSCO CONTROL DIAGRAM AND SHOP DRAWINGS.
15. NEW POLE LIGHT BY EC. SEE LUMINAIRE SCHEDULE. PROVIDE ON FOUNDATION PER POLE BASE DETAIL 2/E0.1 AND PROVIDE 3/4" CONDUIT WITH #10 CONDUCTORS.
16. NEW WALL MOUNTED LIGHT FIXTURE BY EC. MOUNT LIGHT FIXTURE TO RELOCATED STORAGE BUILDING, FIXTURE MOVED FOR DRAWING CLARITY. MOUNT HIGH ON PEAK IN THE CENTER.
17. PROVIDE A QUAZITE PULLBOX FLUSH TO FINISHED GRADE, BOX TO 13" X 24" X 24" DEEP. PROVIDE WITH TRAFFIC RATED COVER THAT HAS ENGRAVED LETTERING THAT READS "COMMUNICATIONS".
18. PROVIDE (1) 3" UNDERGROUND CONDUIT FROM BOILER BUILDING TO PULLBOX. STUB INTO BOILER BUILDING FOR FUTURE USE.
19. PROVIDE (3) 3" UNDERGROUND CONDUITS FROM PULL BOX TO PULLBOX
20. PROVIDE (1) 3" UNDERGROUND CONDUITS FROM PULLBOX TO 120 FEET PAST PULLBOX FOR ROUTING TO SCHOOL IN THE FUTURE. SEE CIVIL PLANS FOR CONTINUATION.



1 E-1.0 ELECTRICAL SITE PLAN
SCALE: 1" = 80'-0"

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

ELECTRICAL SITE PLAN

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Jeffrey L. Krafft
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FAX: 406-245-2084

DATE:	03/20/2019
JOB NO:	19SH4932
DRAWN BY:	JK
APPROVED BY:	JK

ELECTRICAL SITE PLAN
E-1.0

CAMPBELL COUNTY HIGH SCHOOL

EXISTING COG 3 PHASE TRANSFORMER

INSTALL DATA CONDUIT BETWEEN SCHOOL BUILDING AND STORAGE BUILDING (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

EXISTING BOILER ROOM SERVICE CONDUIT

EXISTING LIGHTING SERVICE CONDUIT

EXISTING COG 3 PHASE PRIMARY POWER SERVICE

INSTALL 4" SCH 40 ELECTRICAL CONDUIT AND PULL (JUNCTION) BOXES AS REQUIRED FOR POWER SOURCE EXTENSION FOR ELECTRICAL COMPONENTS (TRENCHED MIN. 48" DEPTH, TYP., COORDINATE WITH CITY OF GILLETTE ELECTRICAL DEPARTMENT)

EXISTING PRIMARY FOOTBALL FIELD LIGHTING SERVICE CONDUIT

CONNECT AND EXTEND PRIMARY POWER SERVICE FROM EXISTING TRANSFORMER (TYP., COORDINATE WITH CITY OF GILLETTE ELECTRICAL DEPARTMENT)

INSTALL VARIOUS SECONDARY WALL MOUNTED CONTROLLERS, CONTROL PANELS, AND STEP DOWN POWER TRANSFORMER FOR 208/120 VOLT SERVICE (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

FACULTY PARKING LOT

INSTALL 4" SCH 40 ELECTRICAL CONDUIT AND PULL (JUNCTION) BOXES FOR POWER SOURCE EXTENSION FOR ELECTRICAL COMPONENTS (BORED MIN 48" DEPTH, TYP., COORDINATE WITH CITY OF GILLETTE ELECTRICAL DEPARTMENT)

EXISTING COG 3 PHASE TRANSFORMER

INSTALL 3 PHASE PULL (JUNCTION) BOX AND TRANSFORMER PAD FOR 400 AMP/480 VOLT SERVICE (TYP., COORDINATE WITH CITY OF GILLETTE ELECTRICAL DEPARTMENT)

BOILER ROOM BUILDING

EXISTING PRIMARY FOOTBALL FIELD LIGHTING SERVICE CONDUIT

EXISTING PRIMARY FOOTBALL FIELD SCOREBOARD SERVICE CONDUIT

PROPOSED SYNTHETIC TURF COMPETITION FIELD

INSTALL VARIOUS DATA, AUDIO SIGNAL, 3 PHASE AND SECONDARY ELECTRICAL CONDUITS TO SCOREBOARD, MID-FIELD PEDESTAL, AND STORAGE BUILDING (SEE ELECTRICAL SITE PLAN SHEET E-1.0)

PRIMARY FOOTBALL FIELD, TRACK AND STADIUM

NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
2. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
3. ELECTRICAL INSTALLATION FOR THE CITY OF GILLETTE PRIMARY EXTENSION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE CITY OF GILLETTE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS, INCLUDING THE PROVIDED DETAILS. THIS WORK GENERALLY INCLUDES PRIMARY EXTENSION FROM THE EXISTING 3 PHASE TRANSFORMER IN THE FACULTY PARKING LOT, TO THE NEW 3 PHASE TRANSFORMER ON SITE.
4. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL SERVICE REQUIREMENTS WITH THE CITY OF GILLETTE ELECTRICAL UTILITY DEPARTMENT. CONTACT LORI KING. PH# (307) 687-2522.
5. PRIMARY TRENCH AND PRIMARY CONDUIT BY ELECTRICAL CONTRACTOR. PRIMARY CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH THE TYPICAL TRENCHING DETAIL. PROVIDE ONE 4" CONDUIT FOR THE PRIMARY CONDUIT BETWEEN THE PROPOSED AND EXISTING TRANSFORMERS.
6. ELECTRICAL CONTRACTOR SHALL PURCHASE TRANSFORMER PAD BASE FROM THE CITY OF GILLETTE AND INSTALL THE BASE IN ACCORDANCE WITH THE CITY OF GILLETTE'S REQUIREMENTS.
7. THE ELECTRICAL CONTRACTOR SHALL INSTALL SECONDARY FROM UTILITY TRANSFORMER TO THE CONTROL PANELS, EXT. LIGHT CONTROLLER,, AND STEP DOWN TRANSFORMER PER ELECTRICAL PLAN SHEETS PROVIDED BY ACE.
8. PROPOSED SERVICE SIZE IS 400 AMP, 277/480 VOLT 3 PHASE.
9. DUE TO ARCFLASH SAFETY CONCERNS THE COG REQUESTS THAT THE PRIMARY SERVICE BE DE-ENERGIZED BACK TO THE VAULT NEAR TWELFTH STREET WHEN CONNECTING TO THE EXISTING PRIMARY SERVICE. THIS EFFORT WILL SHUT DOWN THE POWER TO THE MAIN SCHOOL FACILITY AND THE OUTAGE NEEDS TO BE SCHEDULED WITH THE CCSD.

ESTIMATED QUANTITIES:

• CONNECT TO EXISTING ELECTRICAL SERVICE	1 L.S.
• INSTALL 4" SCH 40 ELEC. CONDUIT (BORED)	170 L.F.
• INSTALL 4" SCH 40 ELEC. CONDUIT (TRENCHED)	230 L.F.
• INSTALL PULL (JUNCTION) BOX	3 EA.
• INSTALL 3 PHASE TRANSFORMER PAD	1 EA.

SOME QUANTITY AREAS OVERLAP, BUT QUANTITIES ARE UNIQUE TO THIS SHEET

SEE ADDT'L ELECTRICAL, ATHLETIC FIELD, SITE, DETAILED GRADING, LANDSCAPING, IRRIGATION, AND STORM SEWER PLANS FOR ADDITIONAL QUANTITIES

N

SCALE 20 0 20 40 FEET

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

PRIMARY ELECTRICAL SITE PLAN 1

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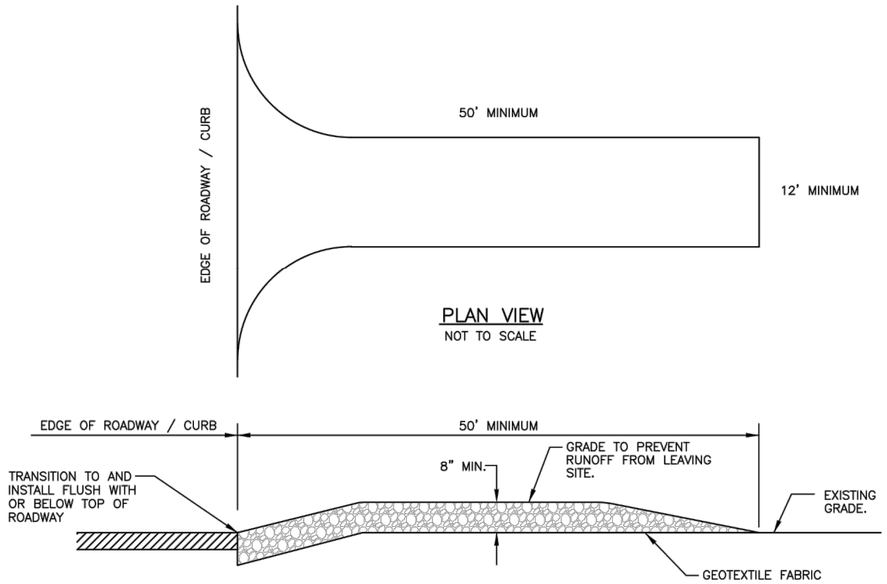
DRAWN BY: APM
APPROVED BY: AJH

PRIMARY EL. SITE PLAN 1
E-2.0



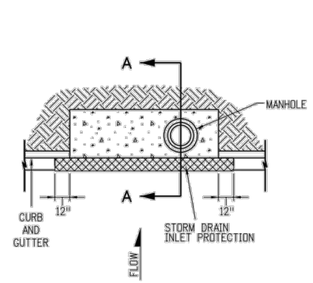
STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

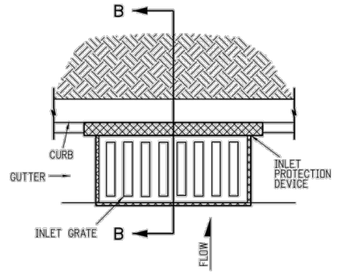
NOTES:

1. TO BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES.
2. STONE SIZE SHALL BE 2" – 4" OPEN GRADED ROCK.
3. THICKNESS OF CRUSHED STONE PAD TO BE NOT LESS THAN 8".
4. LENGTH SHALL BE A MINIMUM OF 50' FROM ACTUAL ROADWAY, AND WIDTH NOT LESS THAN FULL WIDTH OF INGRESS/EGRESS. (12' MINIMUM)
5. ENTRANCE SHALL BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY BY CONTRACTOR. AS NECESSARY, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. ALL ROCK AND FABRIC TO BE REMOVED UPON COMPLETION OF CONSTRUCTION, AND THE AREA BACKFILLED AND RECLAIMED, OR RE–SEEDED, APPROPRIATE TO THE SITE.

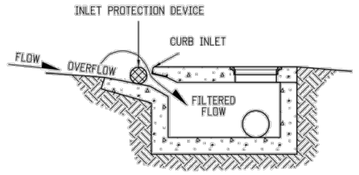
City Of Gillette ENIGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	STABILIZED CONSTRUCTION ENTRANCE	DATE: MARCH 2012 DRAWING NO. 01500-01
DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	



PLAN VIEW



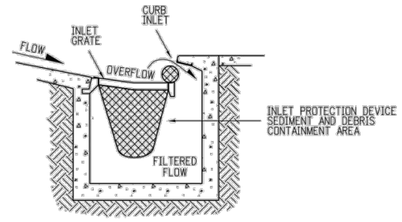
PLAN VIEW



SECTION A-A

STORM DRAIN INLET PROTECTION (CURB OPENING)

INLET PROTECTION SHALL EXTEND 12 IN. PAST EACH END OF THE INLET.



SECTION B-B

STORM DRAIN INLET PROTECTION (COMBINATION)

INLET PROTECTION SHALL EXTEND 12 IN. PAST EACH END OF THE INLET.

NOTES:

1. INLET PROTECTION BMP SHALL BE INSTALLED BEFORE CONSTRUCTION BEGINS.
2. INLET PROTECTION SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
3. INLET PROTECTION SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETED.

City Of Gillette ENIGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	STORM DRAIN INLET PROTECTION	DATE: MARCH 2012 DRAWING NO. 01500-02
DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

EROSION CONTROL DETAILS

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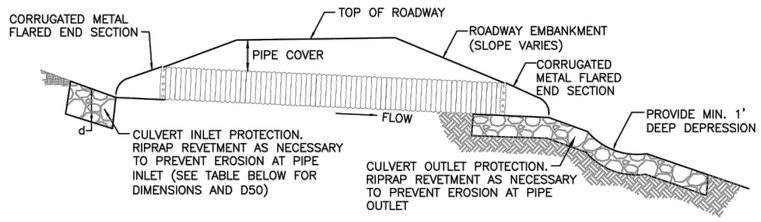
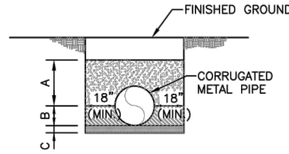
EROSION CONTROL DETAILS

DT-1.0

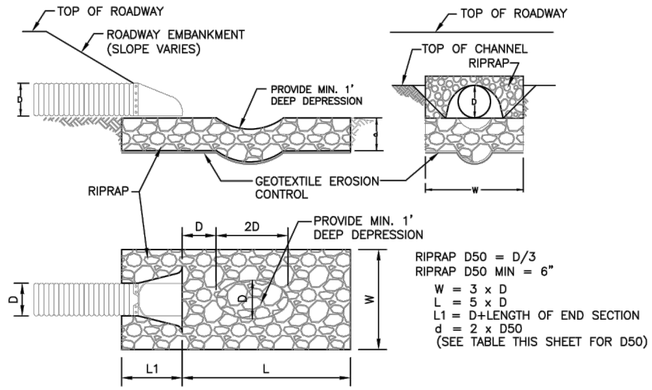


METAL PIPE INSTALLATION PROFILE
NOT TO SCALE



A = ON SITE STRUCTURAL BACKFILL, PLACED TO AT LEAST 12 INCHES ABOVE TOP OF PIPE.
B = COMPACTED STRUCTURAL BACK FILL PLACED TO AT LEAST THE CULVERT SPRING LINE
C = 3 INCHES (IN SOIL) OR 12 INCHES (IN ROCK) BELOW THE BOTTOM OF THE PIPE OF LOOSE STRUCTURAL BACK FILL.

PIPE TRENCHING DETAIL
NOT TO SCALE



CULVERT OUTLET PROTECTION DETAIL
NOT TO SCALE

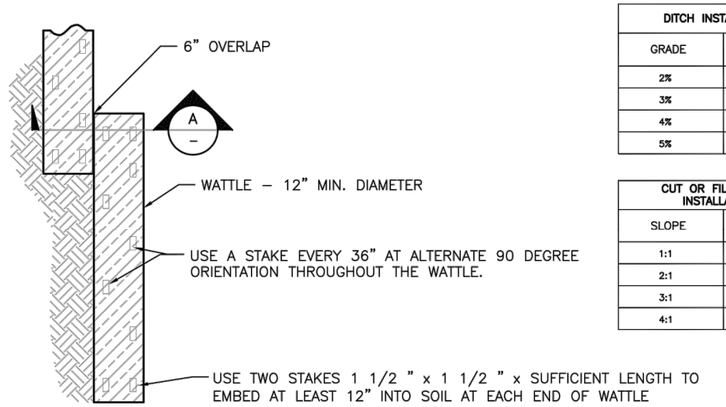
RIP–RAP APRON SIZING DIMENSIONS – INLET AND OUTLET							
PIPE DIA. (D)	RIP–RAP D50 (D/3)	END SECTION LENGTH	L1	LENGTH (L)	WIDTH (W)	d (2 x D50)	DEPRESSION DIM.
24"	8"	78"	102"	120"	72"	16"	24"x48"x12"
30"	10"	96"	126"	150"	90"	20"	30"x60"x12"
36"	12"	96"	132"	180"	108"	24"	36"x72"x12"

CONSTRUCTION SPECIFICATIONS:

1. CORRUGATED METAL PIPE SIZING VARIES, SEE PLANS FOR LENGTH AND DIAMETER.
2. PIPE SLOPE: MINIMUM SLOPE => 0.5%, MAXIMUM SLOPE => 10%.
3. MINIMUM PIPE COVER IS TWO FEET. MAXIMUM PIPE COVER IS FIFTEEN FEET OR MANUFACTURER'S RECOMMENDED VALUES.
4. STRUCTURE BACKFILL SHALL BE COMPOSED OF SUITABLE MATERIALS DEVELOPED ON THE PROJECT. TO BE SUITABLE FOR USE UNDER THIS CLASSIFICATION, BACKFILL SHALL BE FREE OF FROZEN LUMPS, WOOD, OR OTHER ORGANIC MATERIAL. IF THE MATERIAL CONTAINS ROCK FRAGMENTS THAT, IN THE OPINION OF THE ENGINEER, WILL BE INJURIOUS TO THE STRUCTURE, THE NATIVE MATERIAL SHALL NOT BE USED FOR BACKFILLING AND IMPORTED STRUCTURE BACKFILL SHALL BE USED.
5. CONNECT END SECTION TO PIPE AS RECOMMENDED BY THE MANUFACTURER.

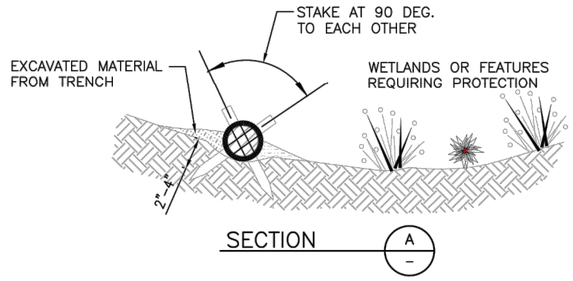
City Of Gillette
ENGINEERING DIVISION
P.O. BOX 3003, 201 E. 5TH STREET
GILLETTE, WYOMING 82717
PHONE: (307) 686-5311

STORMWATER INLET & OUTLET PROTECTION		DATE: MARCH 2012
DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 01500-03



DITCH INSTALLATION	
GRADE	SPACING (FT)
2%	150
3%	100
4%	75
5%	50

CUT OR FILL SLOPE INSTALLATION	
SLOPE	SPACING (FT)
1:1	10
2:1	20
3:1	30
4:1	40



WATTLE INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF WATTLE.
2. WATTLES INDICATED ON INITIAL SWMP PLAN SHALL BE INSTALLED PRIOR TO ANY LAND–DISTURBING ACTIVITIES.
3. WATTLES SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED HIGH FLOW AREAS.
5. THE WATTLE SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 2".
6. EXTEND END OF WATTLE UPSLOPE TO AVOID FLOW AROUND END.

WATTLE MAINTENANCE NOTES

1. SEDIMENT ACCUMULATED UPSTREAM WATTLE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN ½ THE HEIGHT OF THE CREST OF WATTLE.

City Of Gillette
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P.O. BOX 3003, 201 E. 5TH STREET
GILLETTE, WYOMING 82717
PHONE: (307) 686-5311

SEDIMENT CONTROL WATTLE		DATE: MARCH 2012
DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 01500-05

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

EROSION CONTROL DETAILS

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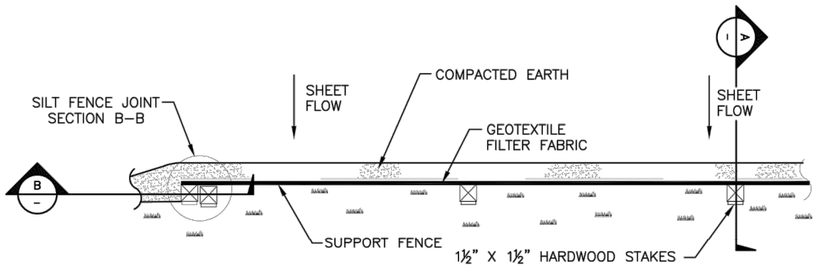
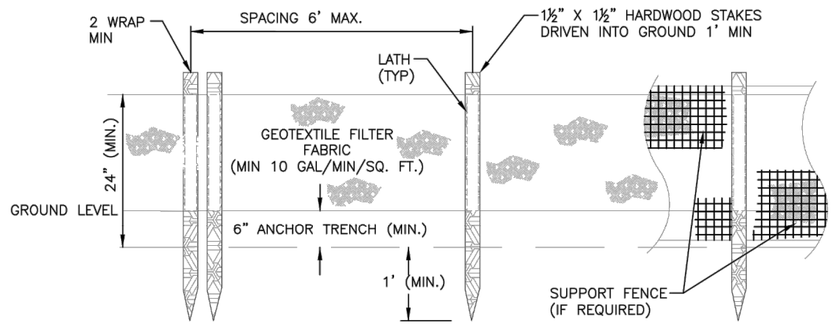
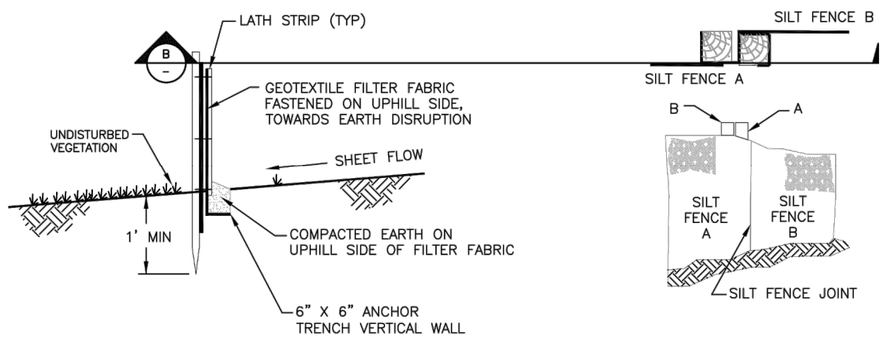


PLAN VIEW



FRONT VIEW



SECTION A

SECTION B

City Of Gillette
ENGINEERING DIVISION
P.O. BOX 3003, 201 E. 5TH STREET
GILLETTE, WYOMING 82717
PHONE: (307) 686-5311

SILT FENCE

DRAWN BY: KEB

APPROVED BY: CITY ENGINEER HV/KDS

DATE: MARCH 2012

DRAWING NO. 01500-06

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS

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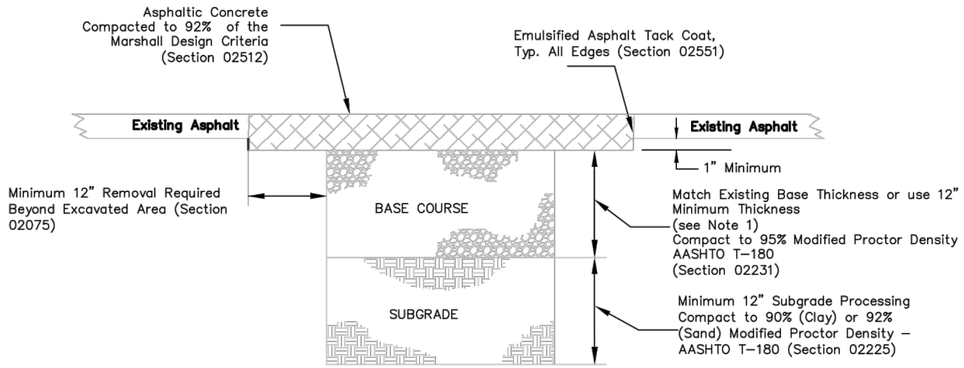
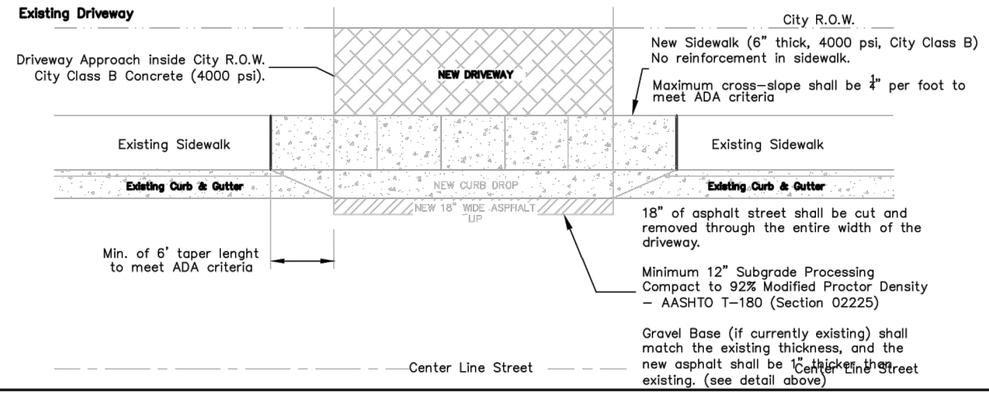
EROSION CONTROL DETAILS
DT-1.2

PAVEMENT REPAIR AND TRENCH BACKFILL DETAIL



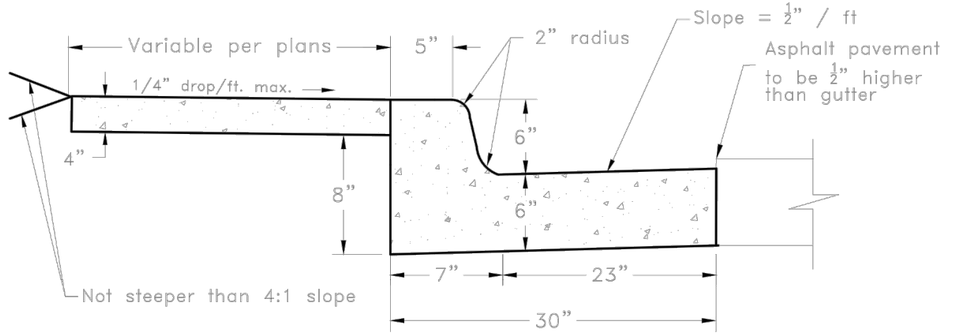
DRIVEWAY/CURB & GUTTER REPLACEMENT DETAIL



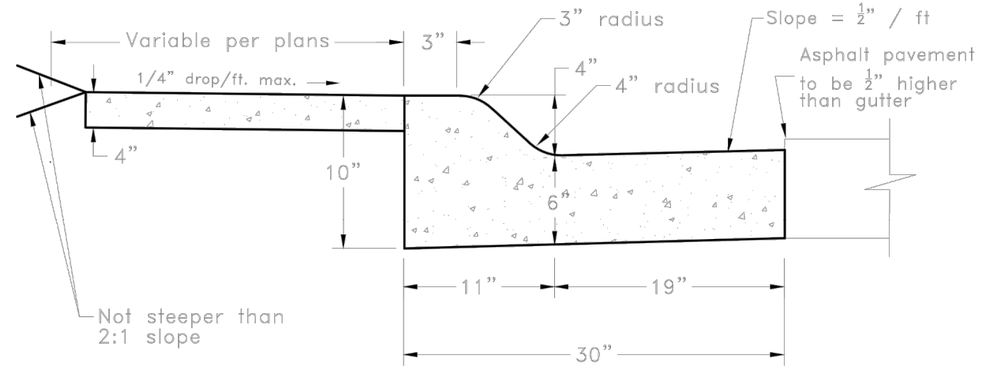
NOTES:

1. For pavement failure areasa minimum of 12" of base course shall be used. Alternatively, in areas where no failures have occurred (i.e. "Cut Permit" patch over new water or sewer service), the same depth of base course as existing can be used.
2. All repair areas shall be cut in a square or rectangular shape. Irregular shapes are not allowed.
3. All Section numbers referenced correspond with the current City of Gillette Standard Construction Specifications.
4. Compaction requirements on concrete street repairs shall be the same as asphalt streets.
5. When the saw cut on a concrete street repair is within 10' of the joint, the concrete shall be removed to the joint.
6. All joints on concrete street repairs shall be resealed.
7. The thickness of a Portland Cement Concrete Pavement (PCCP) patch shall match the existing PCCP pavement thickness.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	TYPICAL STREET REPAIR	DATE: MAY 2017
	DRAWN BY: KEB — APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02511-01



TYPE "A" HIGH BACK CURB & GUTTER WITH SIDEWALK



TYPE "C" ROLLOVER CURB & GUTTER WITH SIDEWALK

NOTES:

1. Subgrade compaction shall conform to SECTION 02528.
2. 3/4" expansion joint material shall be placed at P.C., P.T, curb returns and straight run at 150' maximum.
3. Jointing shall comply with SECTION 02528 and 03251.
4. No curb and gutter shall be placed without a final form or stringline inspection by the ENGINEER.
5. Curb and gutter shall be Class B concrete used unless otherwise specified.
6. Contraction joints shall be constructed by sawing or scoring. When scoring, a tool shall be used which will leave corners rounded and destroy aggregate interlock for specified minimum depth.
7. Detached sidewalk must be installed within 1' of the property boundary.
8. The sidewalk shall be 6" in depth through all driveway areas.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	TYPICAL TYPE "A" AND TYPE "C" CURB & GUTTER WITH ATTACHED SIDEWALK	DATE: OCTOBER 2012
	DRAWN BY: CJS — APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02528-01

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STREET DETAILS

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STREET DETAILS
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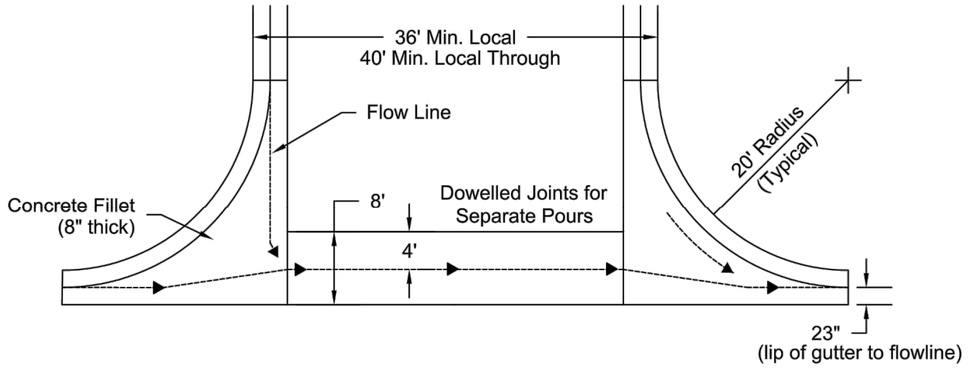
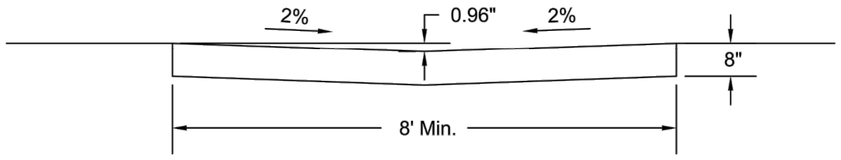
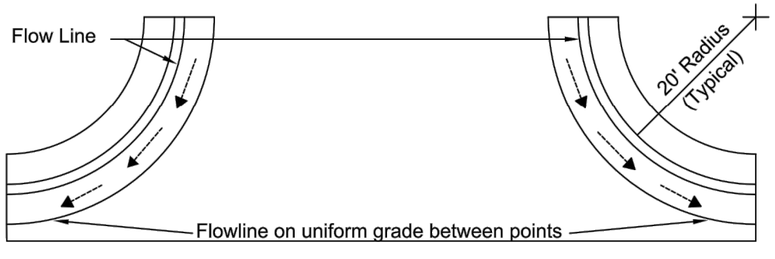


PLAN OF CORNER WITH VALLEY GUTTER

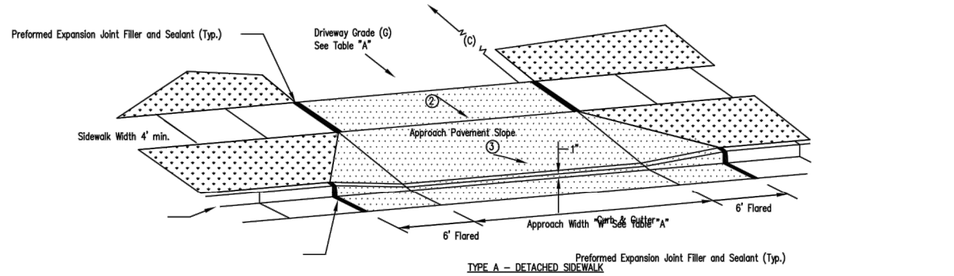


VALLEY GUTTER DETAIL

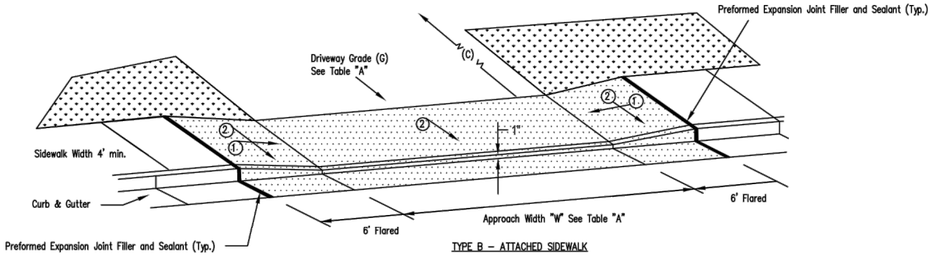


PLAN OF CORNER WITHOUT VALLEY GUTTER

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	STREET CORNER WITH / WITHOUT VALLEY GUTTER	DATE:	MARCH 2012
		DRAWING NO.	02530–01
	DRAWN BY: CJS	APPROVED BY: CITY ENGINEER HV/KDS	

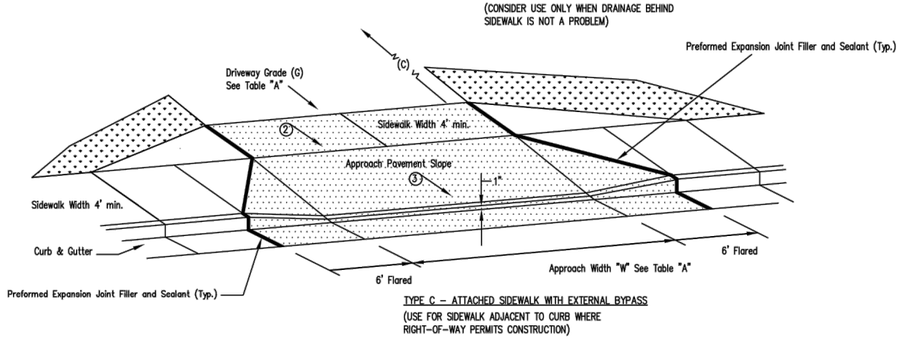


TYPE A – DETACHED SIDEWALK
(MOST DESIRABLE TREATMENT)



TYPE B – ATTACHED SIDEWALK

(CONSIDER USE ONLY WHEN DRAINAGE BEHIND SIDEWALK IS NOT A PROBLEM)



TYPE C – ATTACHED SIDEWALK WITH EXTERNAL BYPASS
(USE FOR SIDEWALK ADJACENT TO CURB WHERE RIGHT-OF-WAY PERMITS CONSTRUCTION)

GENERAL NOTES:

A. All required offstreet parking areas shall be paved. Overflow parkingmaybe gravel, base, crushed asphalt or concrete. All access shall be paved through the ROW, at minimum.
B. Refer to the standard specifications for pavement type and thickness.
C. Where site or other conditions warrant, the City Engineer may require or allow an alternate curb cut design.
D. Residential driveways are generally not allowed on collector or arterial streets.
E. The maximum cross slope for any sidewalk, including through driveways or approach pavement shall be $\frac{1}{4}$ inch/ft.
F. The driveway sidewalk shall be 6" depth through out driveway area.

GENRAL SLOPE REQUIREMENTS:

(1) RAMP SLOPE: Do not exceed a 1V:12H (8.33%) ramp slope
(2) CROSS SLOPE: Slope sidewalk towards street. Do not exceed 1V:48H (2%)
(3) APPROACH PAVEMENT SLOPE: The approach pavement slope may exceed the slope required for a ramp when it is not used as a combined approach and wheelchair ramp. A by-pass must be provided around approach pavement slopes exceeding 1V:48H (2%) so pedestrians don't encounter steeper cross slopes.

TABLE "A"

Street Type	Width of Throat (W)	Maximum Driveway Grade (G)		
		Desirable	Maximum	Control Dist. (C)
Local and Local Through	12' –32'	6 %	13 %	20' min
Collector	Curb cuts by special approval only	3 %	4 %	50'
Arterial		1 %	4 %	50'

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	STANDARD RESIDENTIAL DRIVEWAY DETAIL	DATE:	MAY 2017
		DRAWING NO.	02530–04
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

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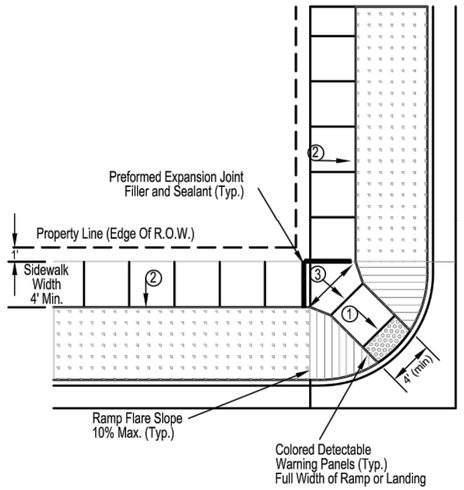
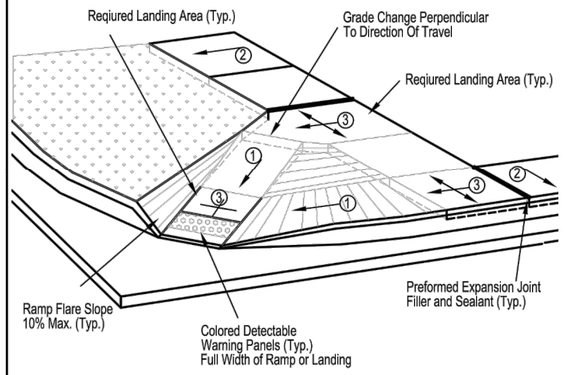
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

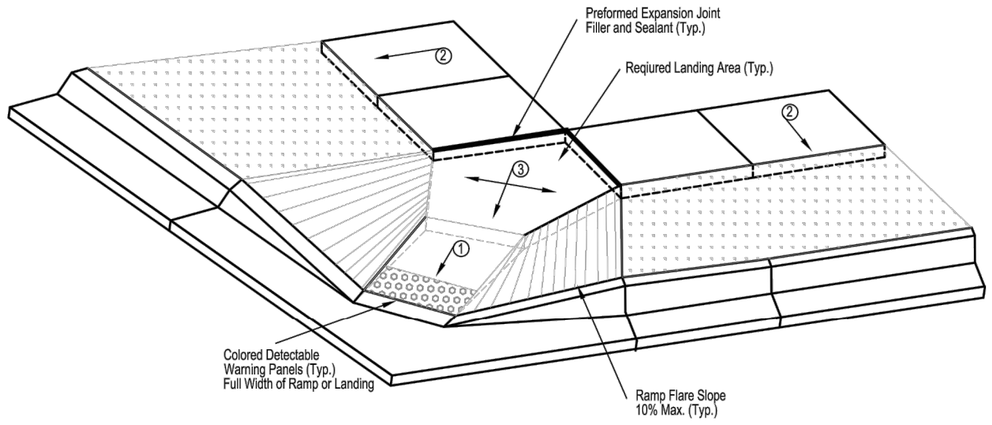
STREET DETAILS
DT–2.1



PLAN VIEW - DIAGONAL CURB RAMP



PERSPECTIVE VIEW - BOULEVARD AND CURBSIDE COMBO SIDEWALK



PERSPECTIVE VIEW - DIAGONAL CURB RAMP

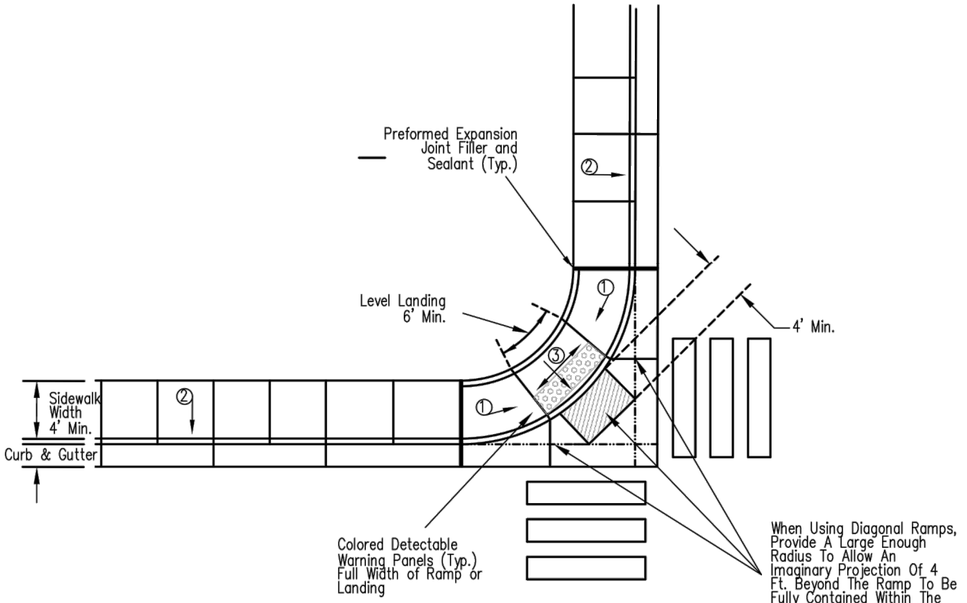
GENERAL SLOPE REQUIREMENTS:

① Ramp Slope: Do Not Exceed1V:12H (8.33 %)

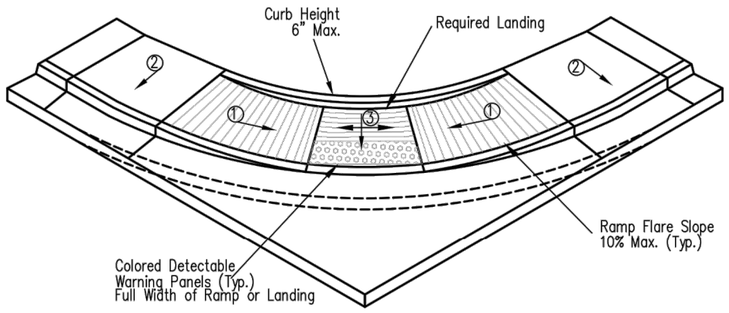
② Cross Slope: Do Not Exceed 1V:48H (2%)

③ Landing Slope: Do Not Exceed 1V:48H (2%) In Any Direction

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	CURB RAMP LOCAL/LOCAL THROUGH STREETS (Detached Sidewalk)		DATE: MAY 2017 DRAWING NO. 02530-07
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	



PLAN VIEW – SINGLE CURBSIDE SIDEWALK RAMP



PERSPECTIVE VIEW – SINGLE CURBSIDE SIDEWALK RAMP

GENERAL SLOPE REQUIREMENTS:

① **RAMP SLOPE: Do not exceed a 1V:12H (8.33%) ramp slope**

② **CROSS SLOPE: Slope sidewalk towards street**
Do not exceed 1V:48H (2%)

③ **LANDING SLOPE: Do not exceed 1V:48H (2%) in any direction**

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	CURB RAMP LOCAL/LOCAL THROUGH STREETS (Attached Sidewalk)		DATE: MAY 2017 DRAWING NO. 02530-08
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS	

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

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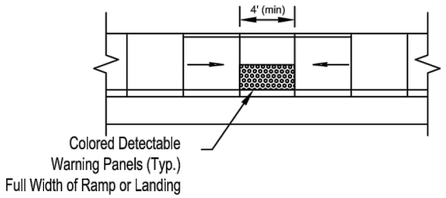
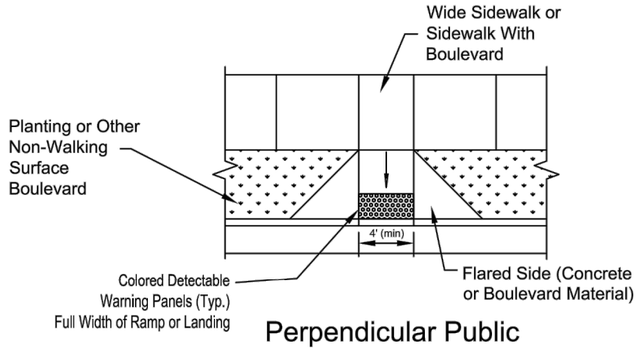
APPROVED BY:	AJH

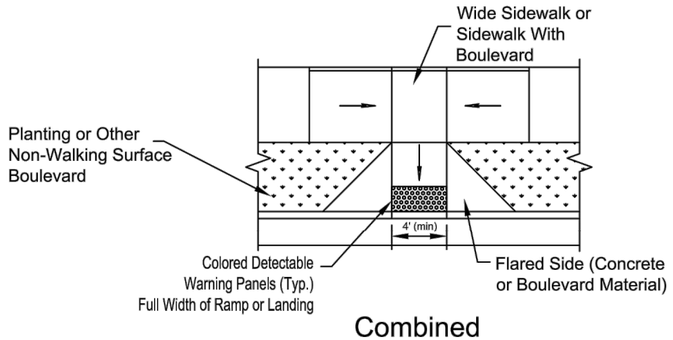
STREET DETAILS
DT-2.2



Parallel Public
Sidewalk Curb Ramp

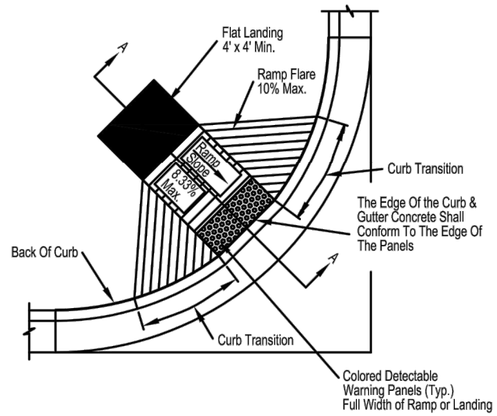


Perpendicular Public
Sidewalk Curb Ramp

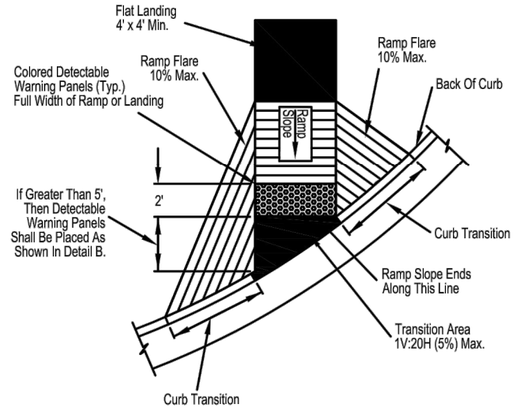


Combined
Parallel/Perpendicular
Public Sidewalk Curb Ramp

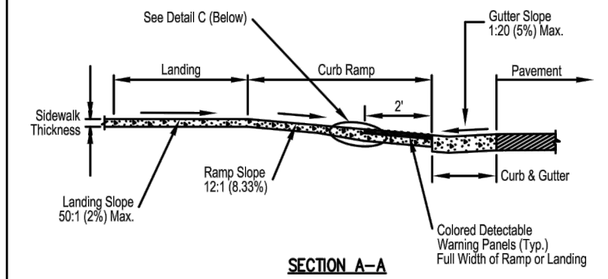
City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	CURB RAMP Parallel Sidewalk	DATE: MAY 2017
	DRAWN BY: KB / APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02530–09



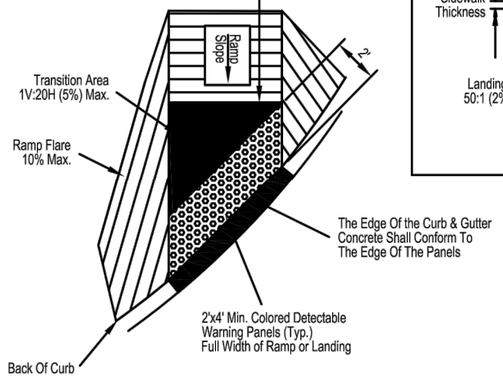
CURB RAMP – PLAN VIEW



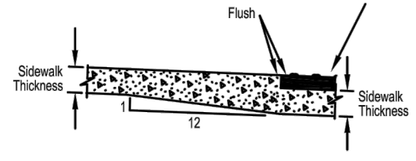
CURB RAMP – PLAN VIEW



SECTION A–A



DETAIL – B



DETAIL – C

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	DETECTABLE WARNING PANELS	DATE: MAY 2017
	DRAWN BY: KEB / APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02530-11

REV. #	REVISION DESCRIPTION	DATE	BY
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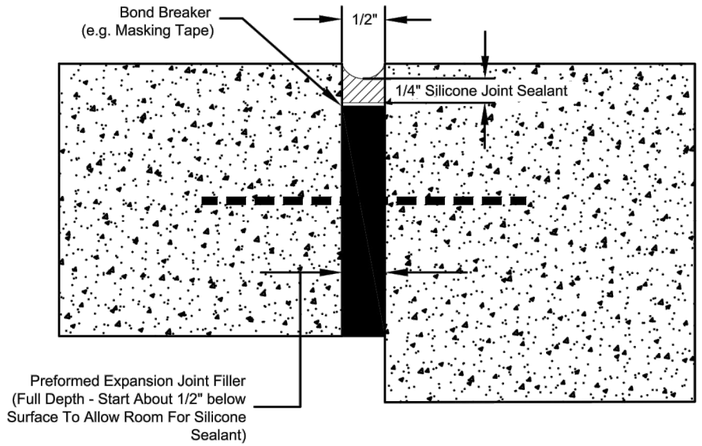
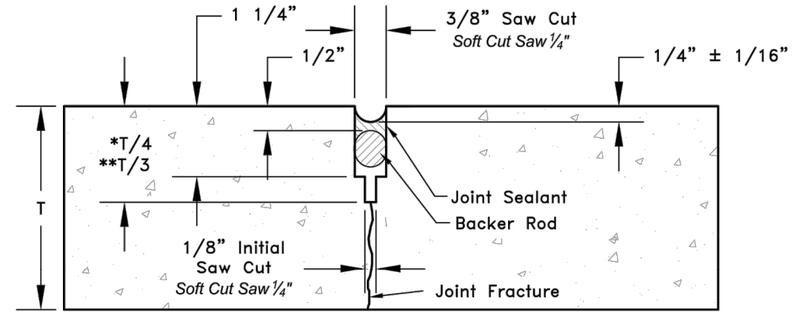
DT–2.3



TYPICAL PREFORMED EXPANSION JOINT DETAIL

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	TYPICAL EXPANSION JOINT DETAIL	DATE: FEBRUARY 2012 DRAWING NO. 02530-12
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS

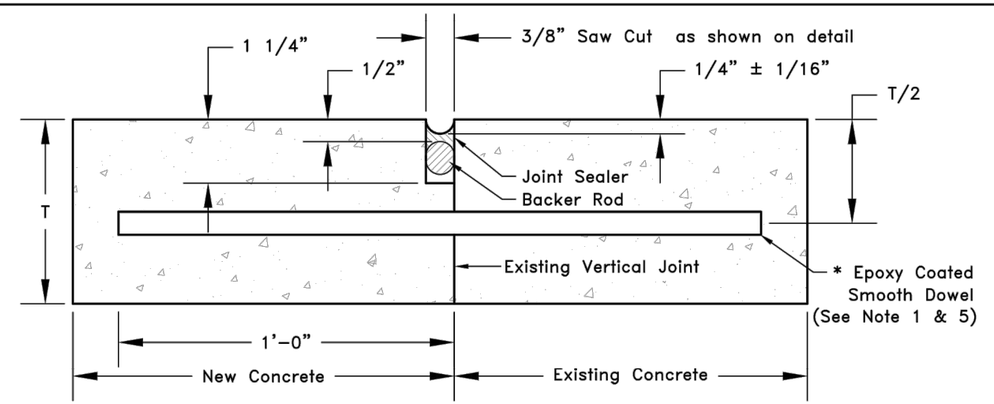


CONSTRUCTION AND NEW CONTRACTION TRANSVERSE WEAKENED PLANE JOINTS
(FOR INSTALLATION OF CONCRETE PAVING SECTIONS LESS THAN 7" IN THICKNESS)

* Slab Thickness Less Than 7": T/4
**Slab Thickness More Than 7": T/3

NOTES:

1. The initial saw cut may be 3/8" wide for the full T/3 and T/4 depth at the contractor's option.
2. See Typical Sections details for values of T.
3. All joint sealant shall be as specified in the specifications or special provisions.
4. If the transverse joints do not fracture at the joint on the outer edges of the slab, the ENGINEER may direct that the saw cut depth be increased for no additional payment.



CONSTRUCTION AND NEW CONTRACTION TRANSVERSE JOINTS
(FOR INSTALLATION OF CONCRETE PAVING SECTIONS 7" THICK & GREATER)
OR ON SECTIONS < 7"WHEN REQUIRED

NOTES:

1. Drill hole for 1 1/4" Dia. x 24" steel *epoxy-coated Smooth Dowel Bars, (lightly greased on one end), @ 24" centers. Use #4 steel *epoxy-coated Smooth Dowel Bars for pavement sections < 7".
2. The first dowel bar shall be 6" from any concrete edge parallel to bar.
3. All joint sealant shall be as specified in the specifications or special provisions.
4. All backer rod shall be 1/2" closed cell polyethylene foam.

*5. Refer to Standard Construction Specs. Sections 2520 and 3200 for epoxy coating requirements.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	TRANSVERSE JOINT DETAILS	DATE: MAY 2017 DRAWING NO. 03251-01
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

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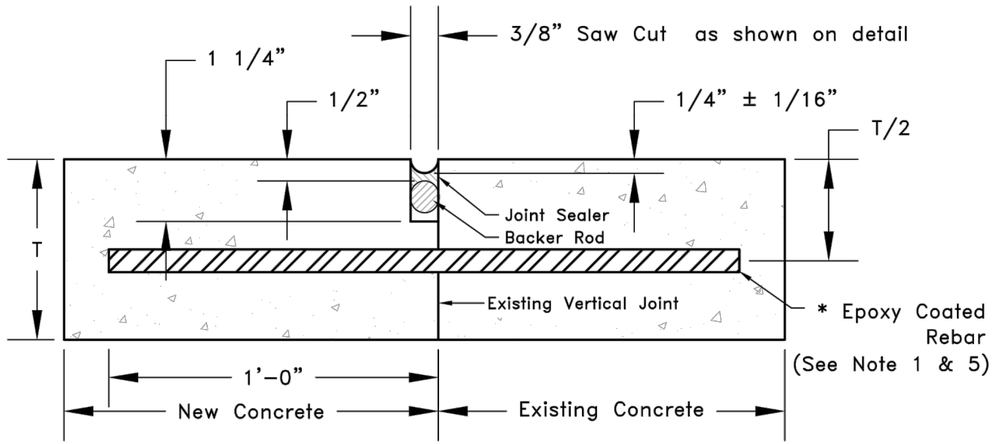
STREET DETAILS
DT-2.4



* To be utilized for Mid-Panel Repair Joints

LONGITUDINAL CONTRACTION (NEW) AND/OR CONSTRUCTION JOINTS

NOTES:

1. Drill hole for #4 x 24" *epoxy-coated Rebar on 24" centers
2. All backer rod shall be 1/2" closed cell polyethylene foam.
3. The first tie bar shall be 6" from any concrete edge parallel to bar.
4. All joint sealant shall be as specified in the specifications or special provisions.

*5. Refer to Standard Construction Specs. Sections 2520 and 3200 for epoxy coating requirements.

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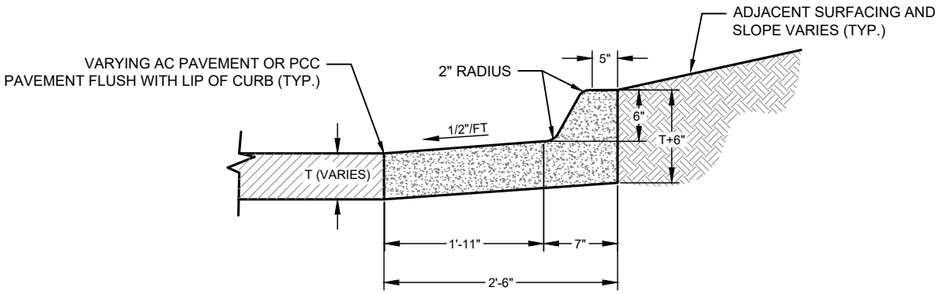
LONGITUDINAL JOINT DETAILS

DRAWN BY: E.G.

APPROVED BY: CITY ENGINEER HV/KDS

DATE: MARCH 2012

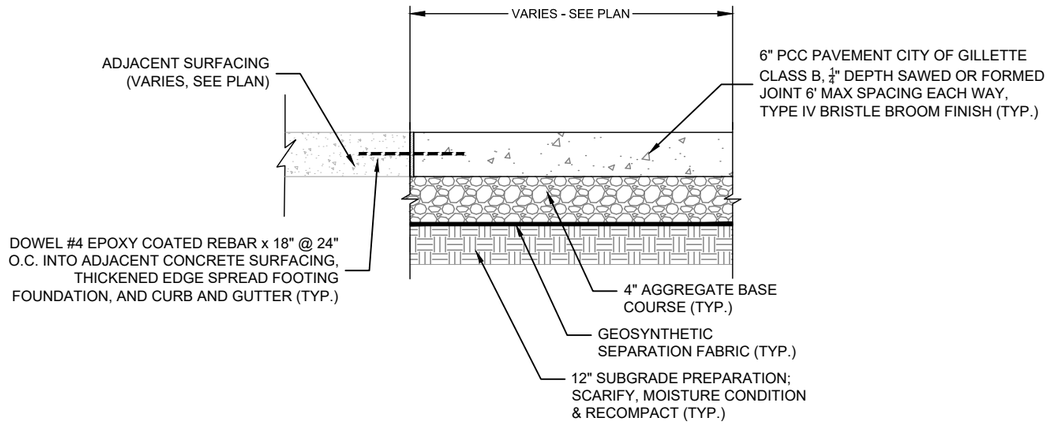
DRAWING NO. 03251-02



NOTES:

1. WHERE T IS EQUAL TO PAVEMENT THICKNESS OR 6", WHICHEVER IS GREATER.
2. MATCH ALL OTHER NOTES PER CITY OF GILLETTE STANDARD DETAIL 02528-01 FOR TYPICAL TYPE "A" AND TYPE "C" CURB & GUTTER WITH ATTACHED SIDEWALK.

1 SPILL CURB SECTION
NOT TO SCALE



2 6" PCC SURFACING/SIDEWALK SECTION
NOT TO SCALE

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0	FOR CONSTRUCTION	03.20.19	APM

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STREET DETAILS
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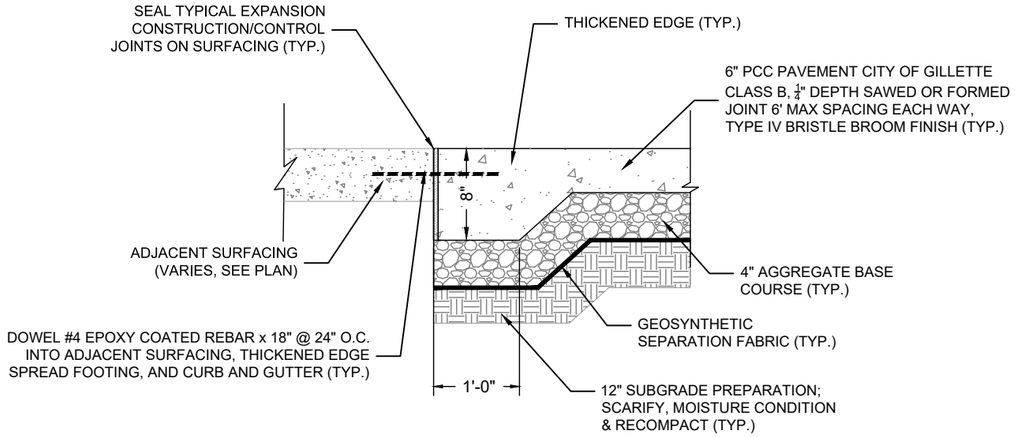
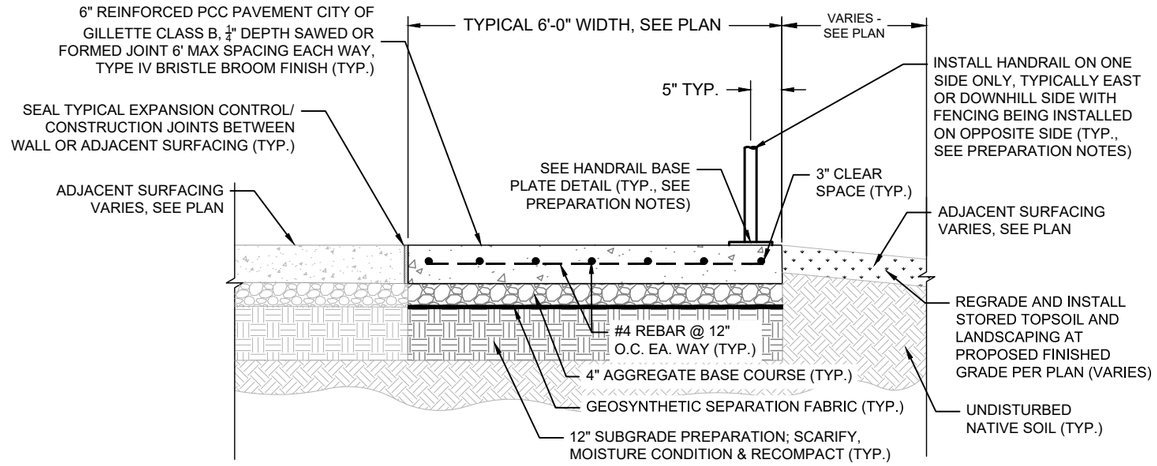
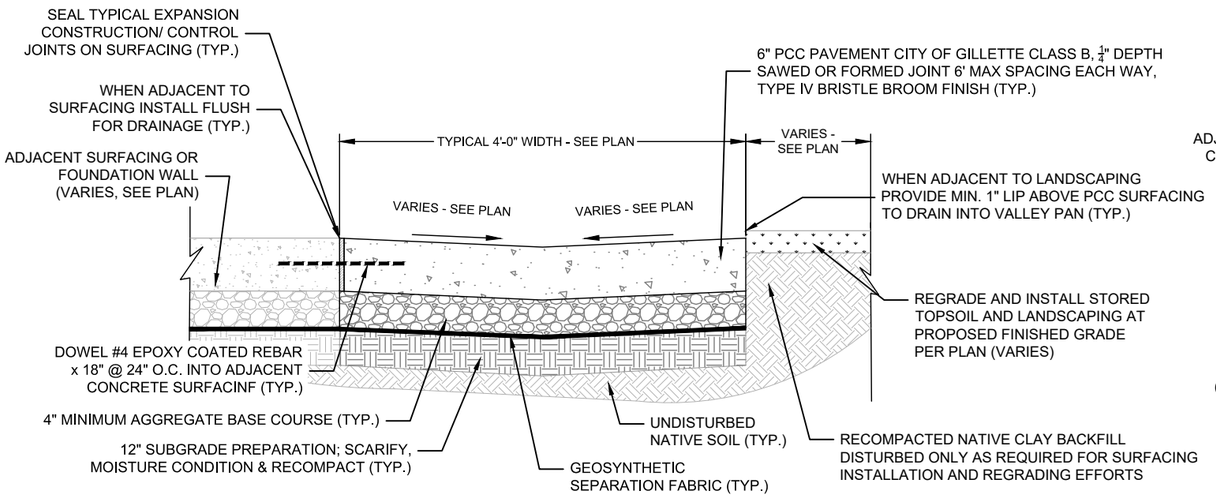


1 **6" PCC SURFACING WITH THICKENED EDGE SECTION**
NOT TO SCALE

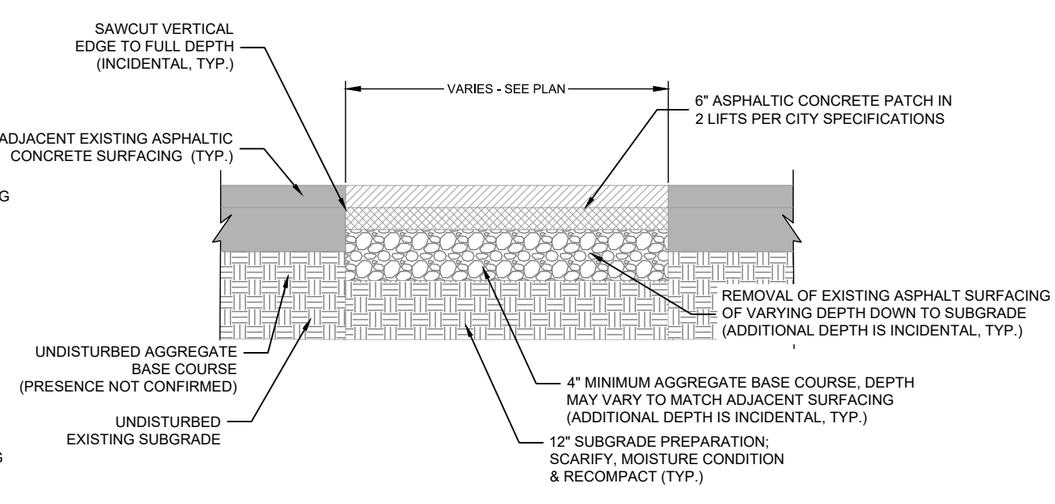


NOTE:
SEE SITE DETAILS FOR MORE INFORMATION ON PCC SIDEWALK RAMP AND HANDRAIL INSTALLATION.

3 **6" REINFORCED PCC SIDEWALK W/ HANDRAIL SECTION**
NOT TO SCALE



2 **6" PCC VALLEY PAN SECTION**
NOT TO SCALE



4 **4" ASPHALTIC CONCRETE PATCH SECTION**
NOT TO SCALE

REV. #	REVISION DESCRIPTION	DATE	BY
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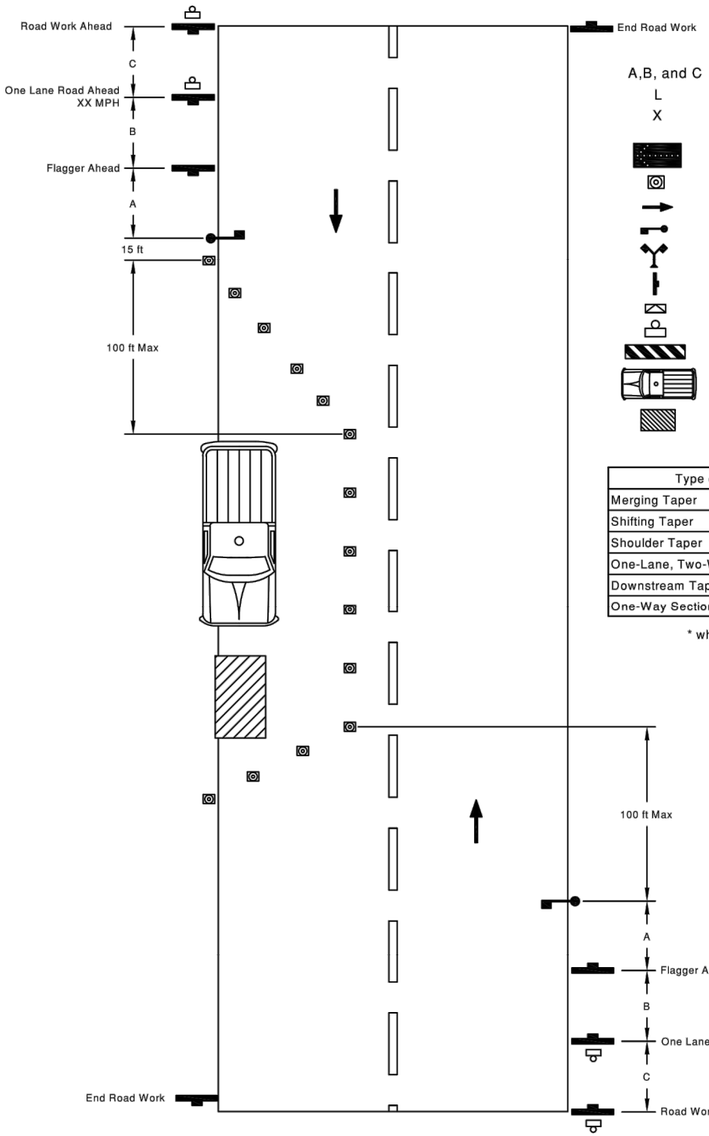
STREET DETAILS
DT-2.6



Legend

A,B, and C	Spacing of advanced Warning Signs
L	Taper Length
X	Width of Travel Way (10' min, 9' if few trucks & low volume)
	Arrow Panel
	Channelizing Device
	Direction of Traffic
	Flagger Station
	High-Level Warning Device (Flag Tree)
	Sign (Shown Facing Left)
	Truck Mounted Attenuator
	Warning Light (or Flags)
	Type III Barricade
	Work Vehical
	Work Area

Type of Taper	Taper Length (L)
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	100 ft Max
Downstream Taper	100 ft per lane
One-Way Section w/ Flagger	100 ft max w/ 20 ft spacings

* where $L = WS^2/60$ for 40 mph or less and
L = WS for 45 mph or greater
L = Taper Length (feet)
W = Width of offset (feet)
S = Posted Speed Limit (mph)

Road Type	Distance Between Signs (feet) (A, B, C)
Urban (Low Speed)	100
Urban (High Speed)	350
Rural	500

NOTES

1. See MUTCD TA-10 for additional guidance.

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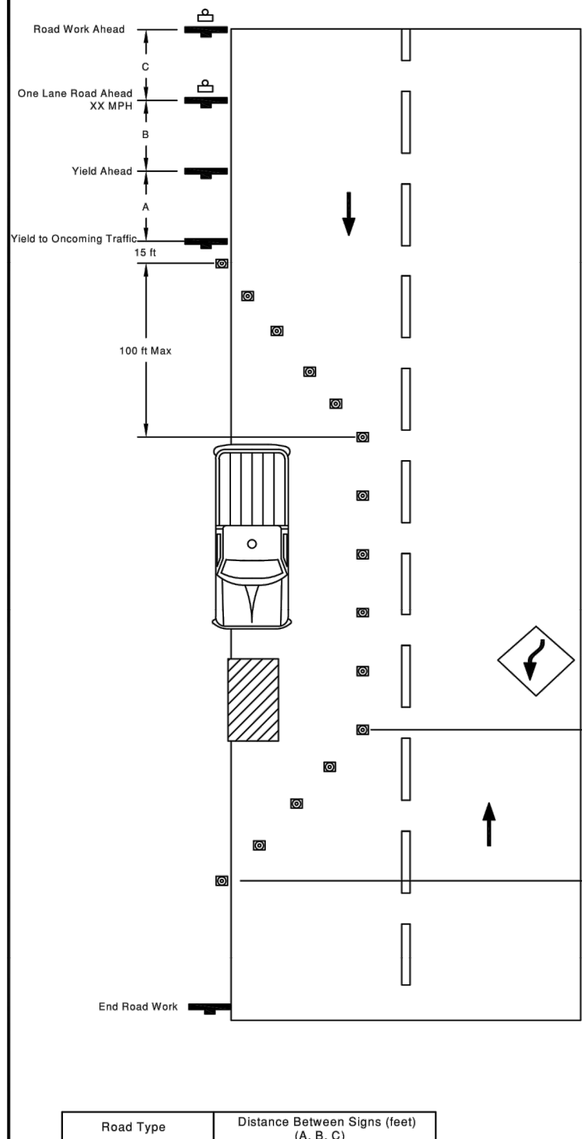
PHONE: (307) 686-5311

LANE CLOSURE USING FLAGGERS (LOW-VOLUME TWO-LANE ROAD)

DRAWN BY: JAC
APPROVED BY: CITY ENGINEER DLH/KDS
DATE: MAY 2009
DRAWING NO. 01510–04



Legend

A,B, and C	Spacing of advanced Warning Signs
L	Taper Length
X	Width of Travel Way (10' min, 9' if few trucks & low volume)
	Arrow Panel
	Channelizing Device
	Direction of Traffic
	Flagger Station
	High-Level Warning Device (Flag Tree)
	Sign (Shown Facing Left)
	Truck Mounted Attenuator
	Warning Light (or Flags)
	Type III Barricade
	Work Vehical
	Work Area

Type of Taper	Taper Length (L)
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	100 ft Max
Downstream Taper	100 ft per lane
One-Way Section w/ Flagger	100 ft max w/ 20 ft spacings

* where $L = WS^2/60$ for 40 mph or less and
L = WS for 45 mph or greater
L = Taper Length (feet)
W = Width of offset (feet)
S = Posted Speed Limit (mph)

Road Type	Distance Between Signs (feet) (A, B, C)
Urban (Low Speed)	100
Urban (High Speed)	350
Rural	500

NOTES

1. See MUTCD TA-11 for additional guidance.
2. This temporary traffic control may be used as an alternate plan to the lane closure with flaggers if:
   a. the volume of traffic is low enough that the yielding traffic has sufficient gaps.
   b. Drivers from both directions are able to see approaching motor vehicles through and beyond the work site.

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PHONE: (307) 686-5311

LANE CLOSURE (LOW-VOLUME TWO-LANE ROAD)

DRAWN BY: JAC
APPROVED BY: CITY ENGINEER DLH/KDS
DATE: MAY 2009
DRAWING NO. 01510–05

REV. #	REVISION DESCRIPTION	DATE	BY
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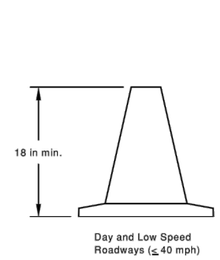
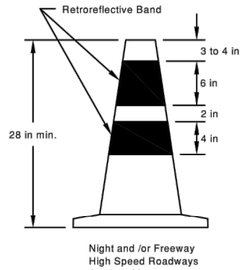
DT–3.0

CONES

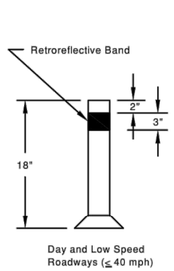


Day and Low Speed Roadways (≤ 40 mph)

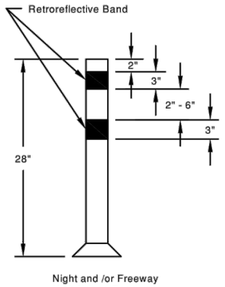


Night and /or Freeway High Speed Roadways (> 45 mph)

TUBULAR MARKERS

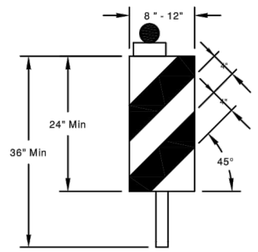


Day and Low Speed Roadways (≤ 40 mph)

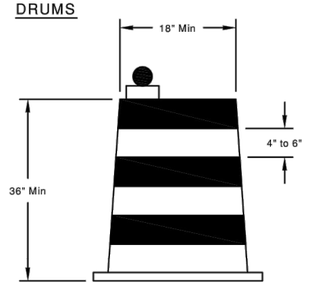


Night and /or Freeway High Speed Roadways (> 45 mph)

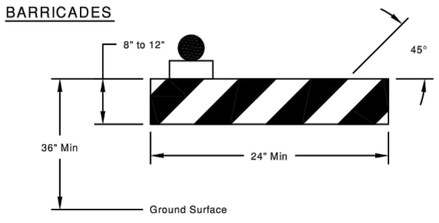
VERTICAL PANELS



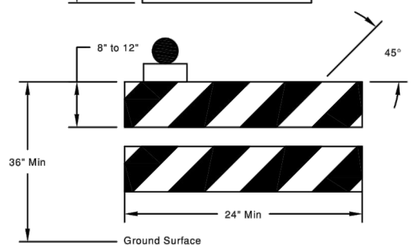
DRUMS



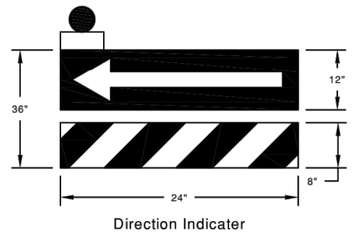
BARRICADES



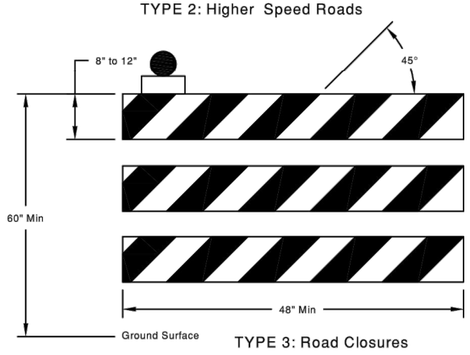
TYPE 1: Low Speed Roads



TYPE 2: Higher Speed Roads



Direction Indicater



TYPE 3: Road Closures

NOTE:

THESE EXHIBITS ARE FOR GENERAL INFORMATION ONLY. ALL TRAFFIC CONTROL COMPONENTS SHALL BE DESIGNED ACCORDING TO THE LATEST EDITION OF THE MUTCD.

City Of Gillette
ENGINEERING DIVISION
P.O. BOX 3003, 201 E. 5TH STREET
GILLETTE, WYOMING 82717
PHONE: (307) 686-5311

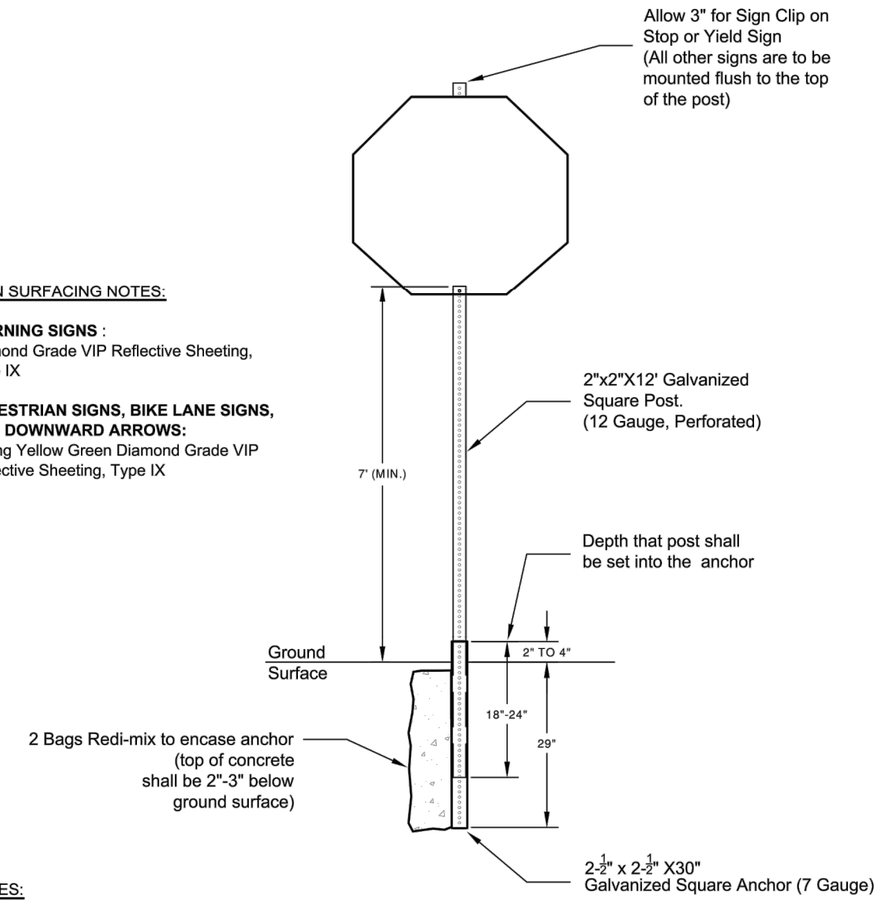
CHANNELIZING DEVICES

DRAWN BY: KEB | APPROVED BY: CITY ENGINEER HV/KDS | DATE: JULY 2012 | DRAWING NO. 01510-15

SIGN SURFACING NOTES:

WARNING SIGNS :
Diamond Grade VIP Reflective Sheeting, Type IX

PEDESTRIAN SIGNS, BIKE LANE SIGNS, AND DOWNWARD ARROWS:
Strong Yellow Green Diamond Grade VIP Reflective Sheeting, Type IX



NOTES:

1. Drill or vactor out a 8" diameter hole.
2. Use only High Intensity Prismatic Sheeting for Regulatory Signs (Types III, IV, and X).
3. All signs to be 100 gauge aluminum.
4. All signs to be mounted with 3/8" x 3" grade 5 bolts using NYLOCK nuts, with flat washers on both sides (one on each side).
5. The contractor shall contact the City of Gillette Engineering Traffic Safety Division @ 686-5265 prior to installing signs. The Traffic Safety Division will mark the location of signs and inspect installation upon completion of the installation.

NEW SUBDIVISION SPECIFICATIONS:

1. When an additional information sign is placed directly under the main sign, the distance from the ground surface to the bottom of the lowest sign may be six feet (6').
2. All signs will be **perpendicular to approaching traffic** to allow the street name sign to be legible from the street. (signs shall not be angled or twisted)
3. The City of Gillette Sign Technician will fabricate, provide, and install the street name signs with all the hardware included. The developer is responsible for bearing the cost of all signs associated with the project.
4. Round posts are 2-3/8" x 12' x 10 gauge and can be used for Parking Restriction signs **only**.
5. When necessary to mount signs on street light poles, permission shall be obtained from the City Engineer. Use 5/8" stainless steel banding with the correct hardware for mounting.

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TYPICAL STREET SIGN INSTALLATION

DRAWN BY: CJS | APPROVED BY: CITY ENGINEER HV/KDS | DATE: AUGUST 2012 | DRAWING NO. 02805-01

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

SIGNAGE AND TC DETAILS

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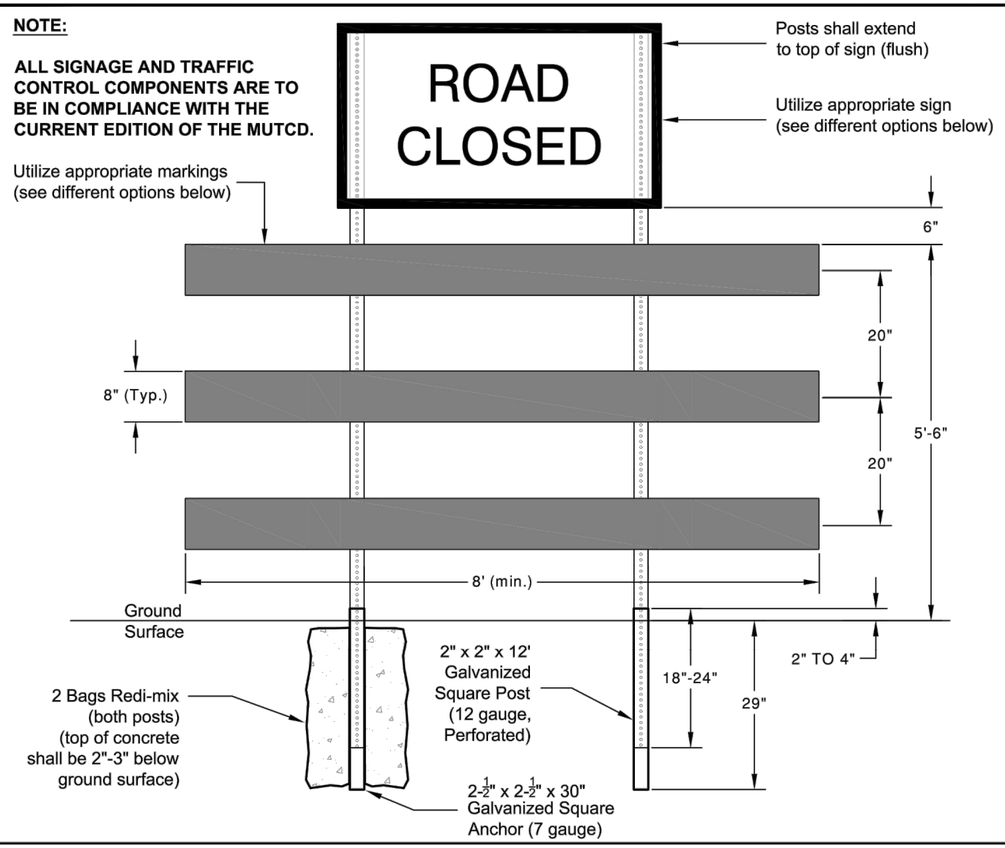
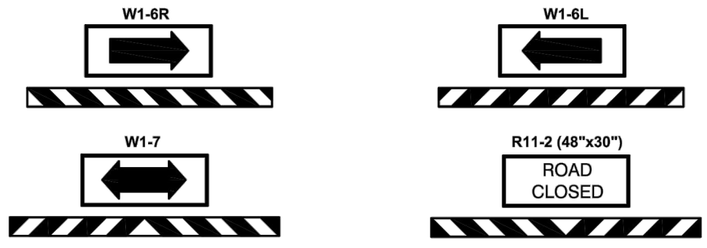
DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

SIGNAGE AND TC DETAILS
DT-3.1

NOTE:

ALL SIGNAGE AND TRAFFIC CONTROL COMPONENTS ARE TO BE IN COMPLIANCE WITH THE CURRENT EDITION OF THE MUTCD.





NOTES:

1. Use steel telespan 2" x 2" - 12 gauge posts with 2 1/2" x 2 1/2" - 7 gauge anchors.
2. All signs and panels are to be mounted with 3/8" x 3" - grade 5 bolts, using NYLOCK nuts, with flat washers on both sides.
3. Marking for barricade rails shall be alternating between red and white for permanent installations, and orange and white for temporary installations. The stripes shall be 6" wide, sloping downward at an angle of 45 degrees in the direction traffic is to pass. The material shall be High Intensity Sheeting.
4. Barricade panels shall be 96" (length) x 8" (height) x 3/4" (width) - Material: Dapco-Plastic, or aluminum.

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BARRICADE INSTALLATION
TYPE III

DATE: AUGUST 2012

DRAWING NO. 02805-02

DRAWN BY: CJS

APPROVED BY: CITY ENGINEER HV/KDS

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
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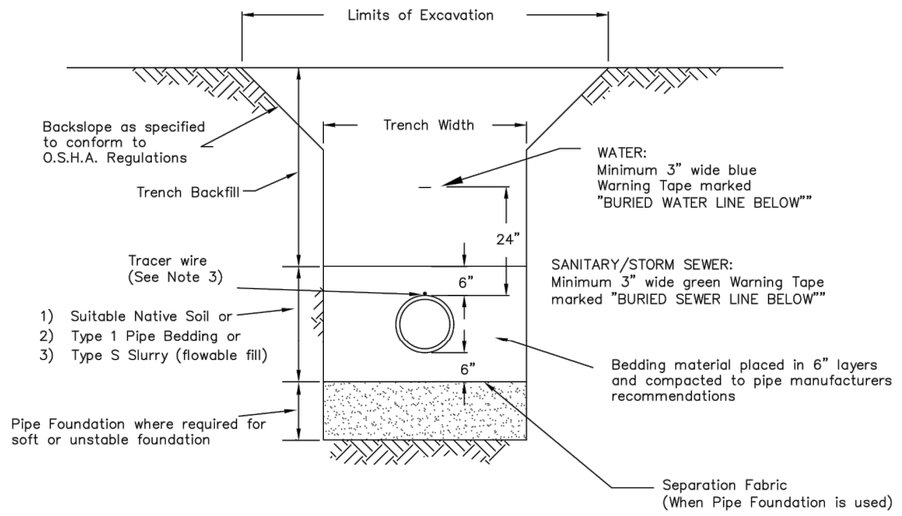
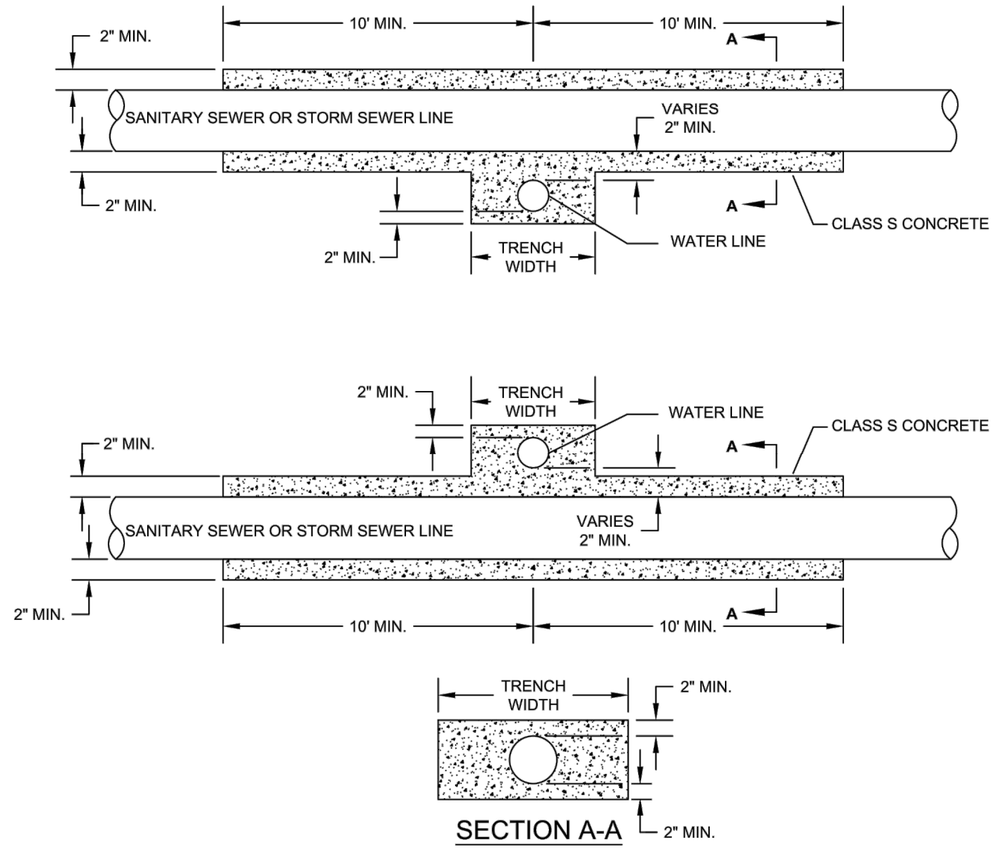
SIGNAGE AND TC DETAILS
DT-3.2



NOTES:

1. Comply with Specification Section 02220 and 02225 for trench excavation & backfill.
2. Tracer wire and/or warning tape will be provided as shown on the plans and/or where applicable.
3. Tracer wire is required on all water lines and may be required on sanitary and storm sewer lines on a case by case basis or as specified on the plans.Wire type shall be as specified in Section 02665.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	WATER/SANITARY SEWER/STORM SEWER TRENCH & BEDDING	DATE: MAY 2017
	DRAWN BY: KEB — APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02220-01



City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	CEMENT TREATED FILL PIPE SADDLE	DATE: JANUARY 2009
	DRAWN BY: SLP — APPROVED BY: CITY ENGINEER DLH/KDS	DRAWING NO. 02225-01

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
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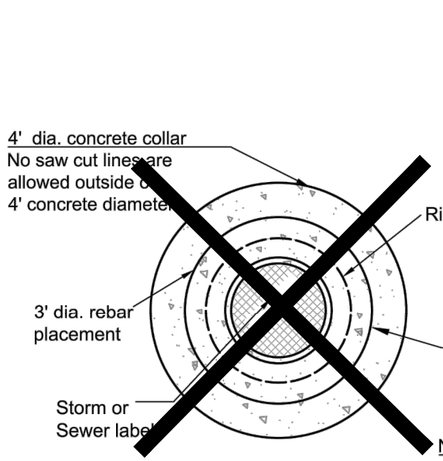
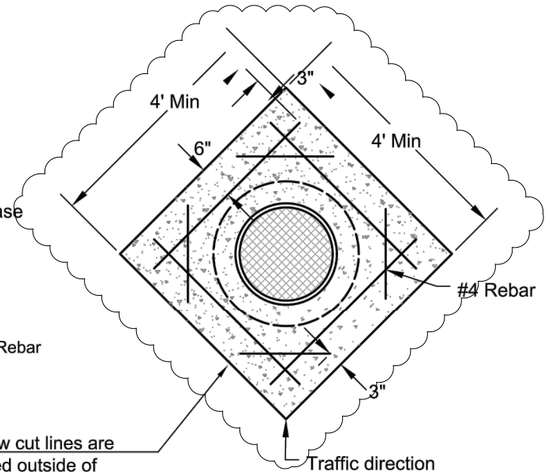
DATE:	03/20/2019
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

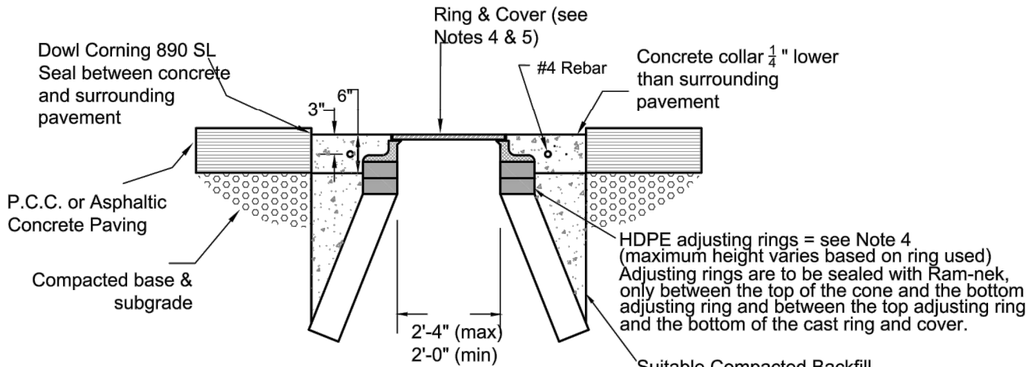
STORM SEWER DETAILS
DT-6.0



ROUND CONCRETE COLLAR



DIAMOND CONCRETE COLLAR



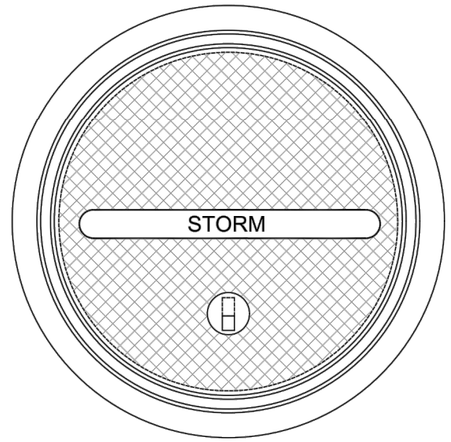
CONCRETE MANHOLE COLLAR

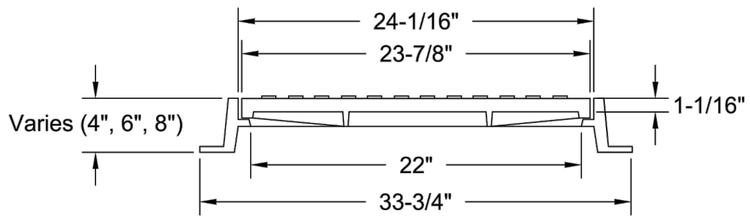
NOTES:

1. Grout shall only be used in and around the invert of the pipe and shall not be used around the adjusting rings.
2. HDPE adjusting rings shall be used in increments of 1/4 inch in order to obtain the optimal final grade adjustments.
3. If any shimming of the adjusting rings is used, the shims shall be inserted from the outside of the manhole.
4. All rings shall be D&L Foundry A-1071 (4"), A-1043 (6"), A-1161 (8"), or Engineer-approved equal. The combined height of manhole ring used and adjusting rings shall not exceed 16" total.
5. The lid (cover) shall be D&L Foundry A-1161 labeled STORM or SEWER (non-ventilated, self-sealing, with closed pick hole).
6. Retrofits, Manhole Adjustments, and other repairs of existing Manhole applications may require diamond collar configuration, and shall only be used as identified on the plans or as approved.
7. Round collars shall be used for all installations in new pavement

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	MANHOLE COLLAR DETAIL	DATE: MAY 2017
	DRAWN BY: KEB	APPROVED BY: CITY ENGINEER HV/KDS
		DRAWING NO. 02570–01

MATERIAL: Cast gray iron (ASTM A-48 Class 35B)	LID #: D&L FOUNDRY #A-1161 = Lid (cover) to be used for all rings
	RING #: D&L FOUNDRY #A-1071 (4") = 12" adjusting rings (max.)
FINISH: No paint	RING #: D&L FOUNDRY #A-1043 (6") = 10" adjusting rings (max.)
LID: SELF SEALING	RING #: D&L FOUNDRY #A-1161 (8") = 8" adjusting rings (max.)





NOTES: (all of the following must be specified when ordering)

1. Furnished with machined horizontal bearing surface.
2. "STORM" lettering on cover.
3. All lids shall have a cross-hatched pattern with a closed pick hole.
4. All lids shall be self-sealing.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	STORM SEWER ACCESS MANHOLE RING & COVER	DATE: MARCH 2012
	DRAWN BY: CJS	APPROVED BY: CITY ENGINEER HV/KDS
		DRAWING NO. 02725–07

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
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STORM SEWER DETAILS

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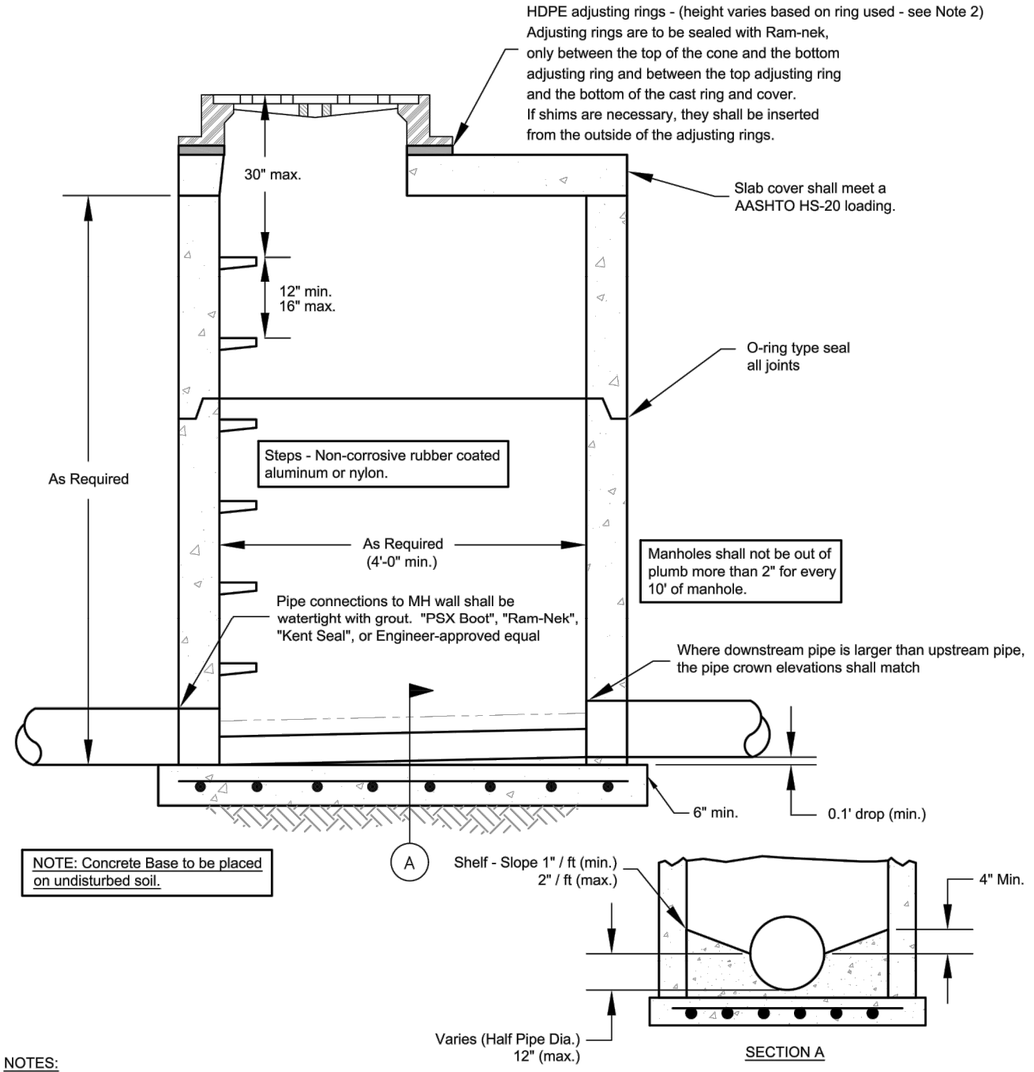
STORM SEWER DETAILS
DT–6.1



NOTES:

1. All Storm Sewer MH covers shall be non-ventilated, self-sealing, D&L Foundry A-1161 with closed pick hole and recessed lug lid design, or Engineer-approved equal.
2. All rings shall be D&L Foundry A-1071 (4"), A-1043 (6"), A-1161 (8"), or Engineer-approved equal. The combined height of manhole ring used and adjusting rings shall not exceed 16" total.
3. No grout shall be used anywhere in the interior of the manhole except for the pipe invert. NO GROUTING AROUND ADJUSTING RINGS.
4. Channelization of flowline between pipe inverts may be formed directly in the concrete of the base or may be a half-pipe laid in concrete.
5. Pipe shall protrude into manhole a sufficient distance to accommodate manufacturer's installation instructions for watertight seal jointing material.

City Of Gillette
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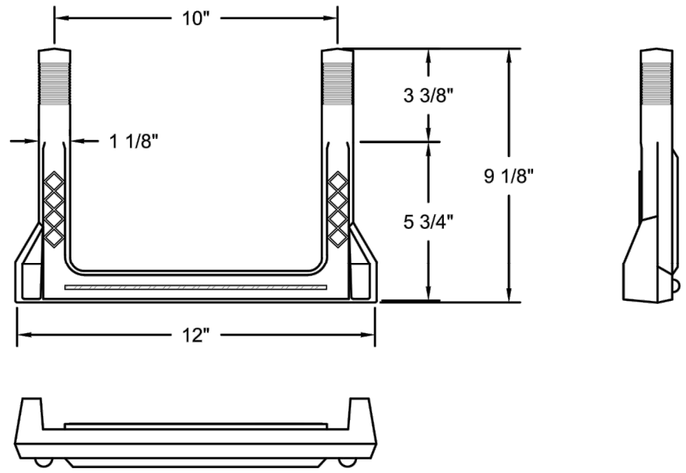
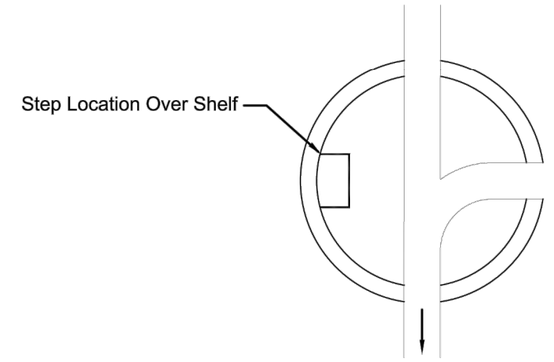
PHONE: (307) 686-5311

STORM SEWER MANHOLE (FLAT TOP MANHOLE)	DATE: AUGUST 2012
	DRAWING NO. 02725-09
DRAWN BY: CJS	APPROVED BY: CITY ENGINEER HV/KDS





NOTES:

1. Manhole Step PSI-PF, as manufactured by M.A. Industries, Inc. Peachtree City Georgia, 404-487-7761.
2. Copolymer Polypropylene coating meets ASTM D-4101-Latest Revision.
3. Steps meet ASTM C478 requirements and are on a 12" min./16" max. vertical spacing.
4. Step legs are driven into 1" diameter holes in the manhole wall.
5. Steps are nonsparking, nonconducting and nonabrasive.

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PHONE: (307) 686-5311

STANDARD STEPS FOR MANHOLES	DATE: MARCH 2012
	DRAWING NO. 02700-03
DRAWN BY: E.G.	APPROVED BY: CITY ENGINEER HV/KDS

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CAMPBELL COUNTY HIGH SCHOOL
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STORM SEWER DETAILS

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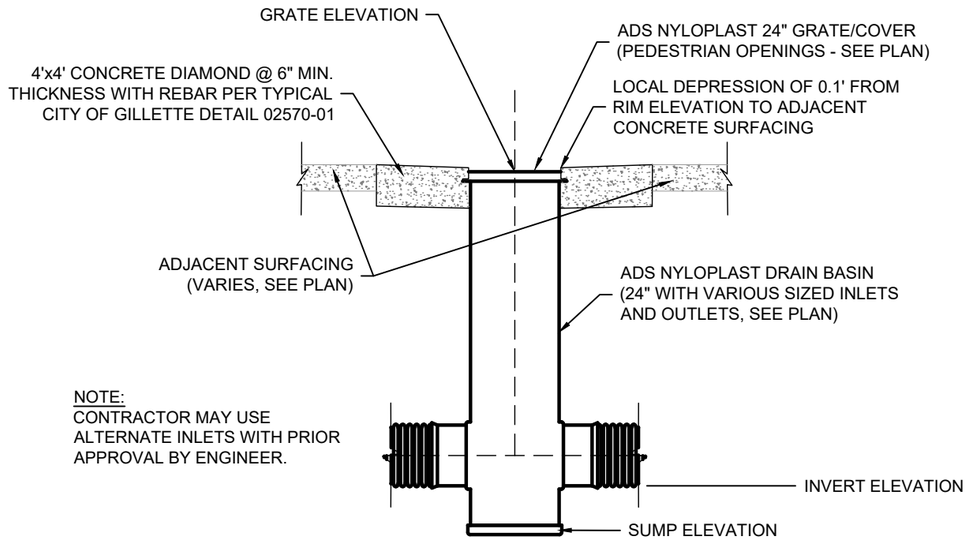
STORM SEWER DETAILS
DT-6.2



NOTE:
CONTRACTOR MAY USE ALTERNATE INLETS WITH PRIOR APPROVAL BY ENGINEER.

1 TYPICAL NYLOPLAST AREA INLET DETAIL
NOT TO SCALE

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

STORM SEWER DETAILS

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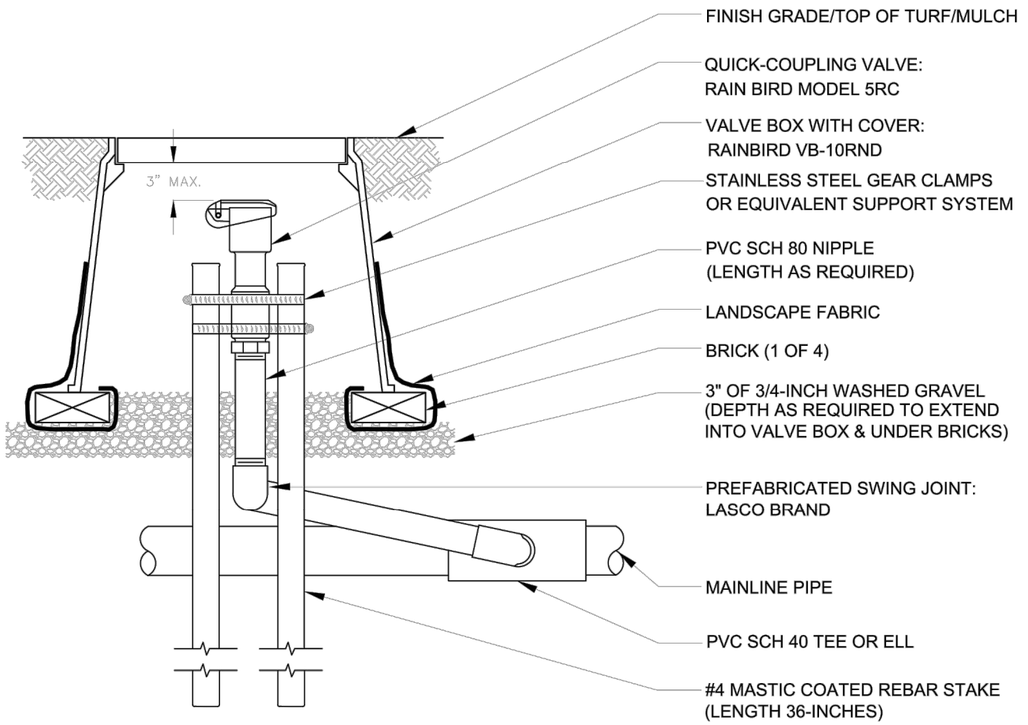
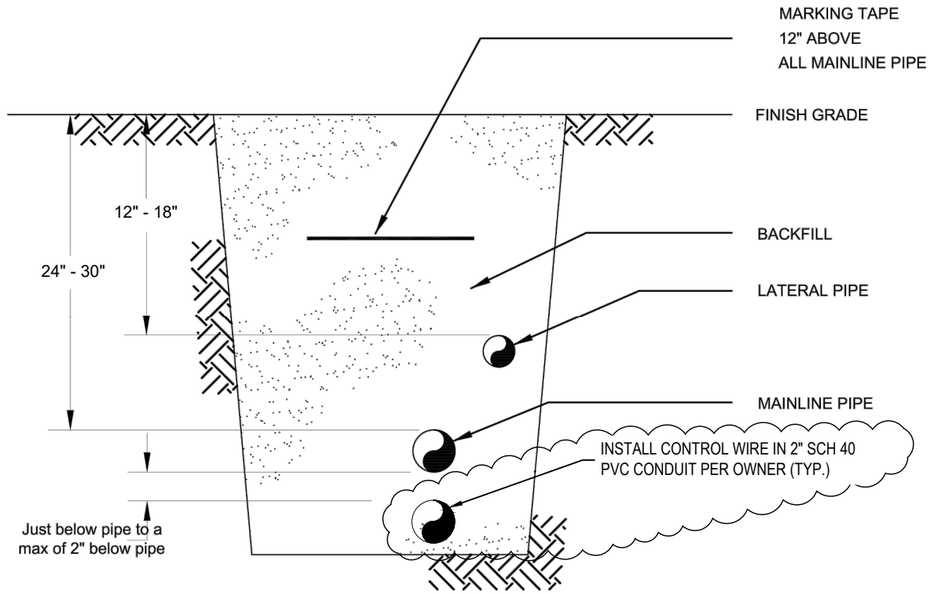
STORM SEWER DETAILS
DT-6.3



NOTES:

1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.
2. INSTALL SWING JOINT LAY ARM BETWEEN 30 AND 45 DEGREES OF LATERAL PIPE IN ORDER TO ABSORB DOWNWARD IMPACT. IF LATERAL PIPE IS NOT INSTALLED AT SPECIFIED DEPTH, CONSULT PROJECT MANAGER PRIOR TO INSTALLATION OF SWING JOINT.
3. MAINLINE SIZES OF 3" AND LARGER REQUIRE THE USE OF GASKETED CONNECTIONS AND DUCTILE IRON FITTINGS.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	QUICK COUPLER VALVE ASSEMBLY	DATE: MAY 2017
	DRAWN BY: JB / APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02920–01



City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	IRRIGATION TRENCHING	DATE: MAY 2017
	DRAWN BY: JB / APPROVED BY: CITY ENGINEER HV/KDS	DRAWING NO. 02920–02

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
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IRRIGATION DETAILS

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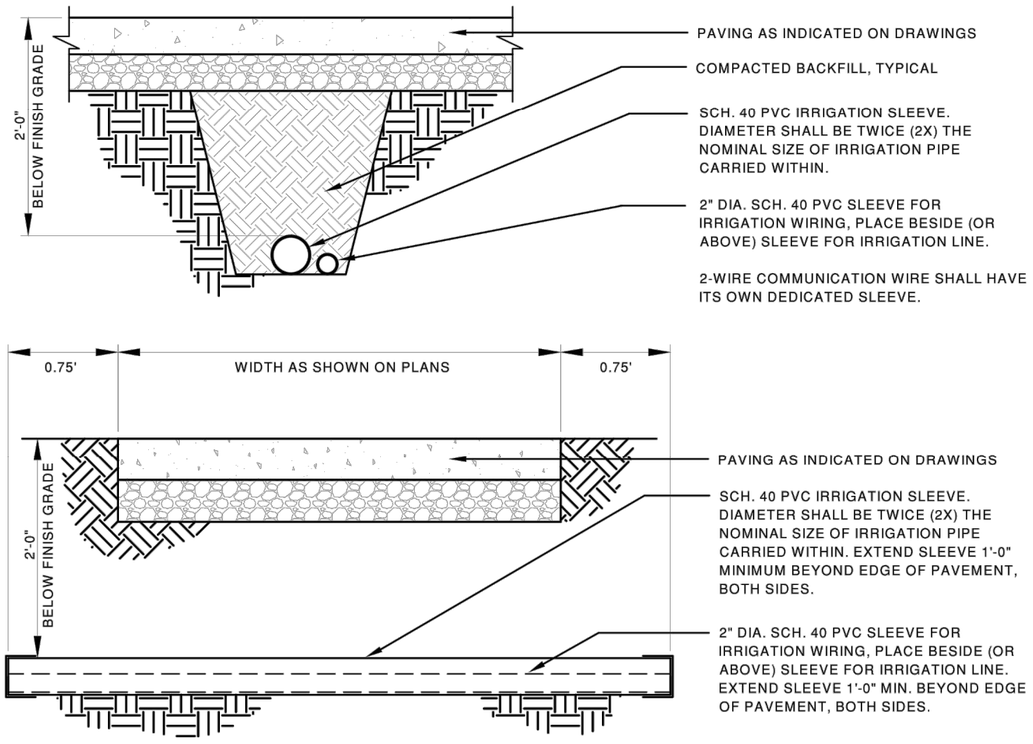
IRRIGATION DETAILS
DT–7.0

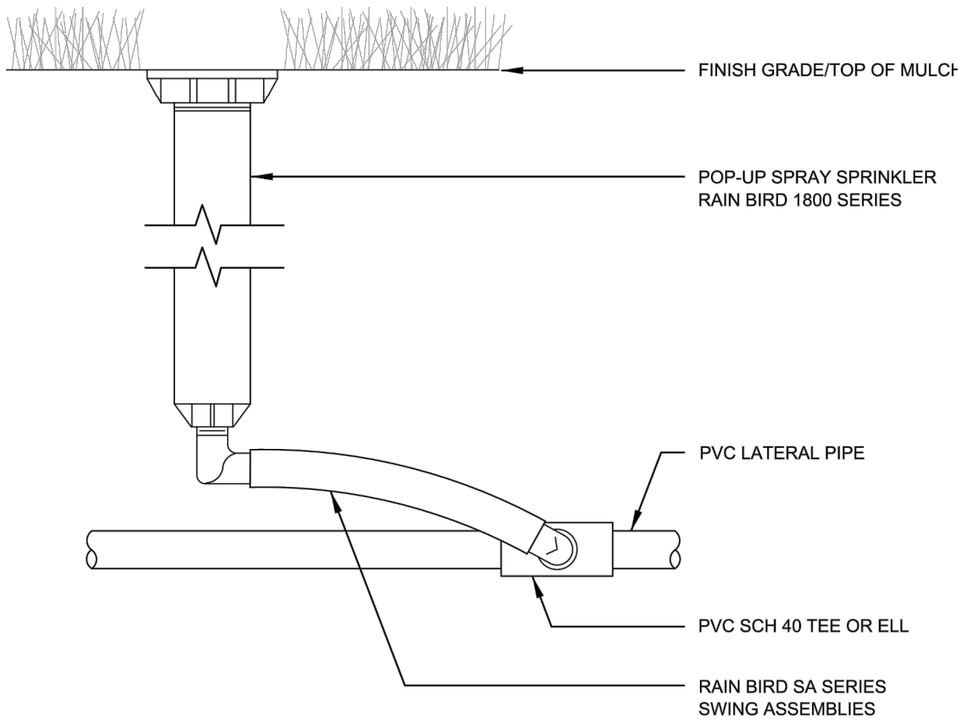


NOTES:

1) TAPE OR CAP ENDS OF SLEEVES AND MARK SLEEVE LOCATIONS WITH ABOVE GRADE STAKES AT WITH APPROPRIATE ANNOTATION, I.E. "IRRIGATION SLEEVES".

2) IF CONCRETE CONTRACTOR IS INSTALLING THE SLEEVE, THE SURFACE OF THE CONCRETE SHALL BE MARKED WITH "SLV" IN 3" LETTERS ON BOTH SIDES OF SLEEVE CROSSINGS.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	PVC IRRIGATION SLEEVE PLACEMENT	DATE: MAY 2017 DRAWING NO. 02920-03
DRAWN BY: JB	APPROVED BY: CITY ENGINEER HV/KDS	



NOTE:

1. IF USING EITHER 1806 OR 1812 HEADS, THE SWING PIPE ASSEMBLY MUST BE INSTALLED IN THE BOTTOM INLET. THE USE OF THE SIDE INLET IS PROHIBITED.

City Of Gillette ENGINEERING DIVISION P.O. BOX 3003, 201 E. 5TH STREET GILLETTE, WYOMING 82717 PHONE: (307) 686-5311	IRRIGATION POP-UP ASSEMBLY	DATE: MAY 2017 DRAWING NO. 02920-05
DRAWN BY: JB	APPROVED BY: CITY ENGINEER HV/KDS	

REV. #	REVISION DESCRIPTION	DATE	BY
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ATHLETIC FIELD IMPROVEMENTS
IRRIGATION DETAILS

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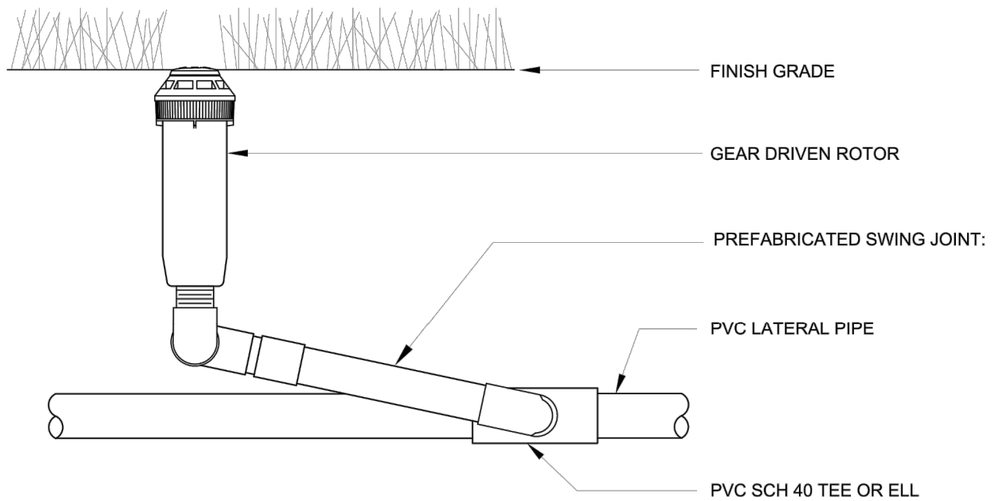
IRRIGATION DETAILS
DT-7.1



NOTE:

1. INSTALL SWING JOINT LAY ARM BETWEEN 30 AND 45 DEGREES OF LATERAL PIPE IN ORDER TO ABSORB DOWNWARD IMPACT. IF LATERAL PIPE IS NOT INSTALLED AT SPECIFIED DEPTH, CONSULT PROJECT MANAGER PRIOR TO INSTALLATION OF SWING JOINT.
2. WHEN INSTALLING NEXT TO CONCRETE OR OTHER HARD SURFACE KEEP TOP OF SPRINKLER $\frac{1}{4}$" –1" LOW.

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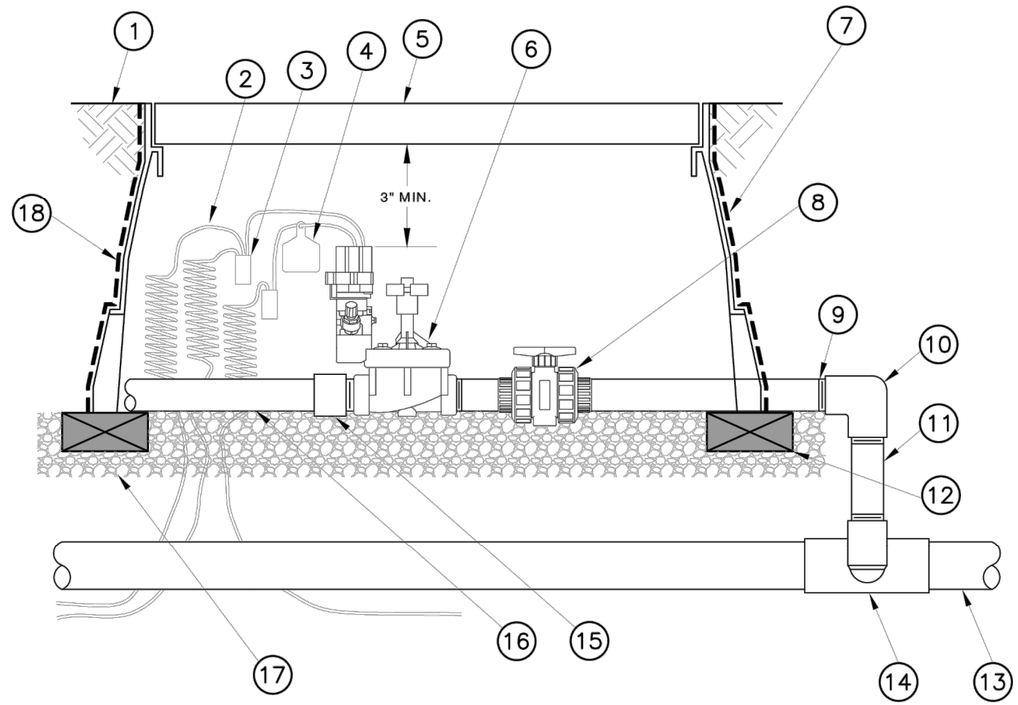
IRRIGATION ROTOR ASSEMBLY

DATE: MAY 2017
DRAWING NO. 02920–07

DRAWN BY: JB
APPROVED BY: CITY ENGINEER HV/KDS



1. FINISH GRADE
2. 30-INCH LINEAR LENGTH OF WIRE, COILED
3. WATERPROOF CONNECTION
4. ID TAG
5. VALVE BOX WITH COVER: RAIN BIRD VB-JMB
6. REMOTE CONTROL VALVE: RAIN BIRD PESB
7. WRAP VALVE BOX IN GEOTEXTILE FABRIC
8. PVC TRU UNION QUARTER-TURN BALL VALVE. SIZE TO MATCH CONTROL VALVE, TYPICAL.
9. PVC SCH 80 NIPPLE (CLOSE)
10. PVC SCH 40 ELL
11. PVC SCH 40 PIPE
12. BRICK (1 OF 4)
13. PVC MAINLINE PIPE (NOT INCLUDED)
14. PVC SCH 80 SOLVENT WELD TEE
15. UNION FITTING
16. PVC LATERAL PIPE (NOT INCLUDED)
17. 3" MINIMUM DEPTH OF $\frac{3}{4}$" WASHED GRAVEL TO EXTEND 3" OUTSIDE OF VALVE BOX
18. INSTALL FABRIC TO SEAL PENETRATIONS AND OTHER VOIDS, SECURE WITH DUCT TAPE.

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ELECTRIC CONTROL VALVE ASSEMBLY

DATE: MAY 2017
DRAWING NO. 02920–08

DRAWN BY: JB
APPROVED BY: CITY ENGINEER HV/KDS

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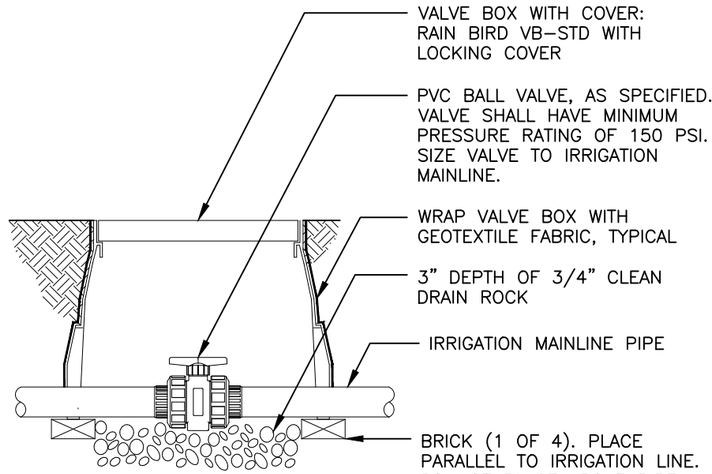

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DT–7.3

IRRIGATION ISOLATION VALVE
PVC QUARTER–TURN BALL VALVE

NO SCALE

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IRRIGATION DETAILS
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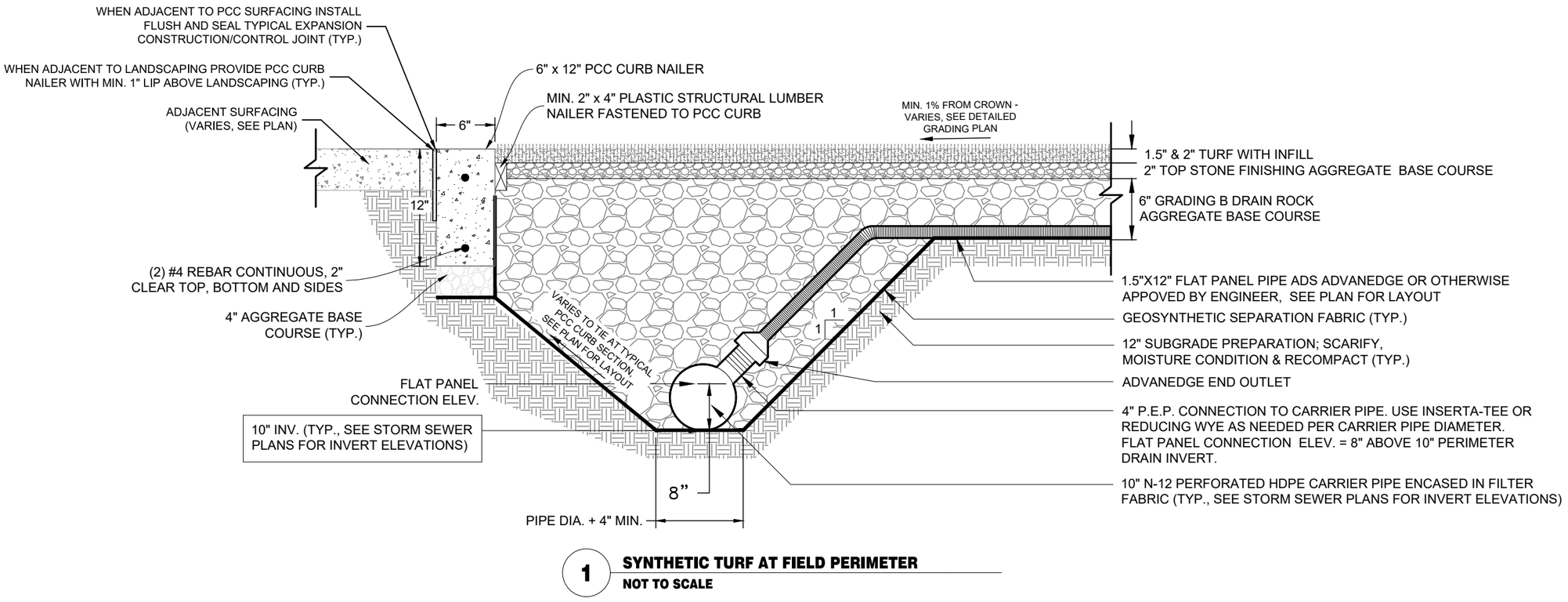
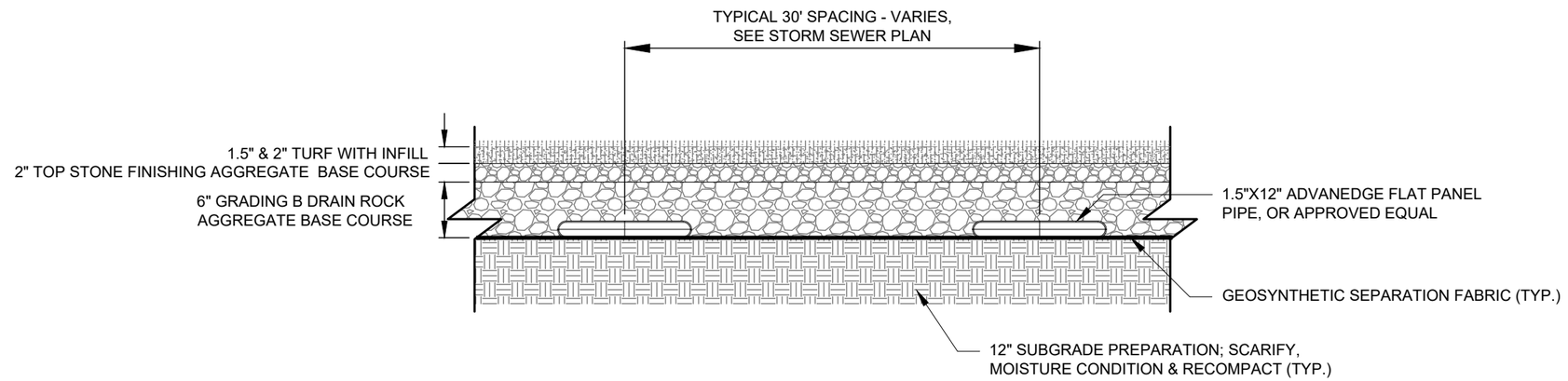


1 SYNTHETIC TURF AT FIELD PERIMETER
NOT TO SCALE



2 SYNTHETIC TURF AND DRAINAGE SYSTEM SECTION - PARALLEL TO CROWN
NOT TO SCALE

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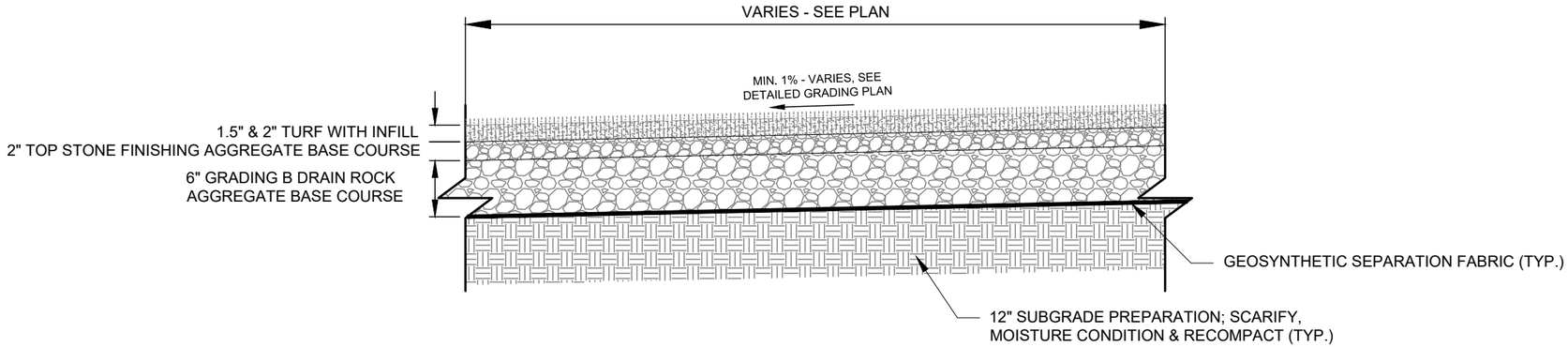
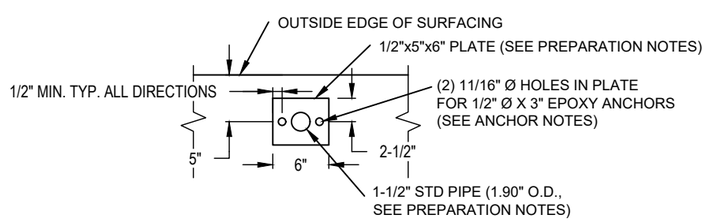


1 SYNTHETIC TURF SECTION - PERPENDICULAR TO CROWN
NOT TO SCALE



2 TYPICAL HANDRAIL BASE PLATE DETAIL
NOT TO SCALE

HANDRAIL ANCHOR NOTES:
INSTALL GALVANIZED APPROVED ANCHORS PER MANUFACTURER SPECIFICATIONS, I.E. 1/2" Ø X 3" TITEN HD ANCHOR:

1. OVERDRILL PILOT HOLE DEPTH INTO CONCRETE OR BRICK, I.E. 1/2" FOR 1/2" Ø ANCHOR OR GREATER, 1/4" FOR LESS THAN 1/2" Ø
2. FULLY CLEAN PILOT HOLE
3. INSTALL EPOXY TO REPAIR MICRO-FRACTURES
4. MINIMUM ANCHOR LENGTH/DEPTH PER MANUFACTURER SPECIFICATIONS BUT NO LESS THAN 3"
5. FOR BRICK APPLICATION, AVOID ANCHOR LOCATIONS WITHIN GROUT

HANDRAIL PREPARATION NOTES:

1. THESE DRAWINGS ARE NOT INTENDED TO SERVE AS STEEL FABRICATOR'S SHOP DRAWINGS, THE FABRICATOR SHALL PROVIDE QUALIFIED STEEL DETAILING SERVICES FOR THE PREPARATION OF THE SHOP DRAWINGS IN ACCORDANCE WITH AISC'S CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES. CONTRACTOR TO VERIFY DIMENSIONS TO ASSIST IN PRODUCTION OF FABRICATOR'S SHOP DRAWINGS TO BE SUBMITTED FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO FABRICATION.
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND SITE CONDITIONS, ESPECIALLY DIMENSIONS OR ELEVATIONS NOTED AS "VARIES" OR "VERIFY" BY CONTRACTOR. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THIS DRAWING AND ACTUAL SITE CONDITIONS. IT IS ASSUMED THAT MINOR FIELD ADJUSTMENTS WILL BE REQUIRED TO COMPLETE INSTALLATION.
3. ALL MEMBERS TO BE BUTT OR FILLET WELDED ALL AROUND. GRIND ALL WELDS SMOOTH. MITER ALL CORNERS AND GRIND SMOOTH.
4. PREPARE, PRIME, AND PAINT ALL SURFACES OF MEMBERS, POSTS, RAILS, AND BASE PLATE ASSEMBLIES TO PROVIDE: EXTERIOR PAINT, FLAT, DTM (DIRECT TO METAL) ACRYLIC ENAMEL, TWO COATS OVER RUST-INHIBITIVE PRIMER
   4.1. PRE-APPROVED SHERWIN WILLIAMS COLOR 6152 - SUPERIOR BRONZE - FINAL PRODUCT AND COLOR SHALL BE SUBMITTED AND APPROVED BY THE CCSD AND ENGINEER
5. PROVIDED METALS SHALL CONFORM TO:
   5.1. W-SHAPE: ASTM A992;
   5.2. STEEL PLATE, L-SHAPE, C-SHAPES, BARS: ASTM A36 / A36M
   5.3. ROLLED STEEL FLOOR PLATE: ASTM A786 / A786M, ROLLED FROM A36 PLATE
   5.4. STEEL TUBING: ASTM A500 / A500M, COLD-FORMED STEEL TUBING
   5.5. STEEL PIPE: ASTM A53 / A53M, STD WEIGHT (SCH 40)
6. FABRICATION AND INSTALLATION SHALL MAINTAIN THE GALVANIZED COATING OF MATERIALS, METALS, AND FASTENERS TO AVOID THE NEED TO PREPARE, PRIME, AND PAINT ANY DAMAGED SURFACES TO PREVENT CORROSION.

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SITE DETAILS
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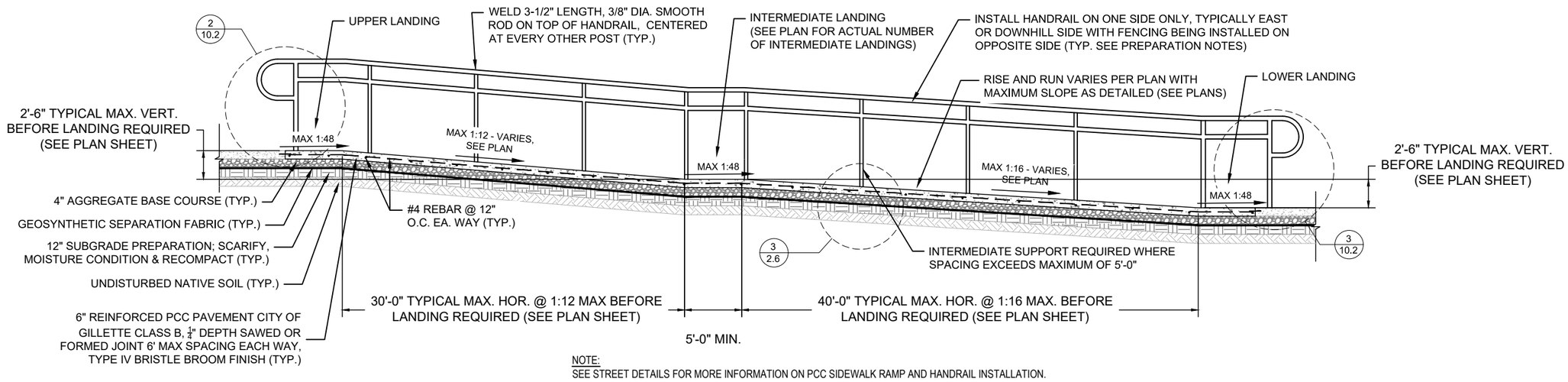
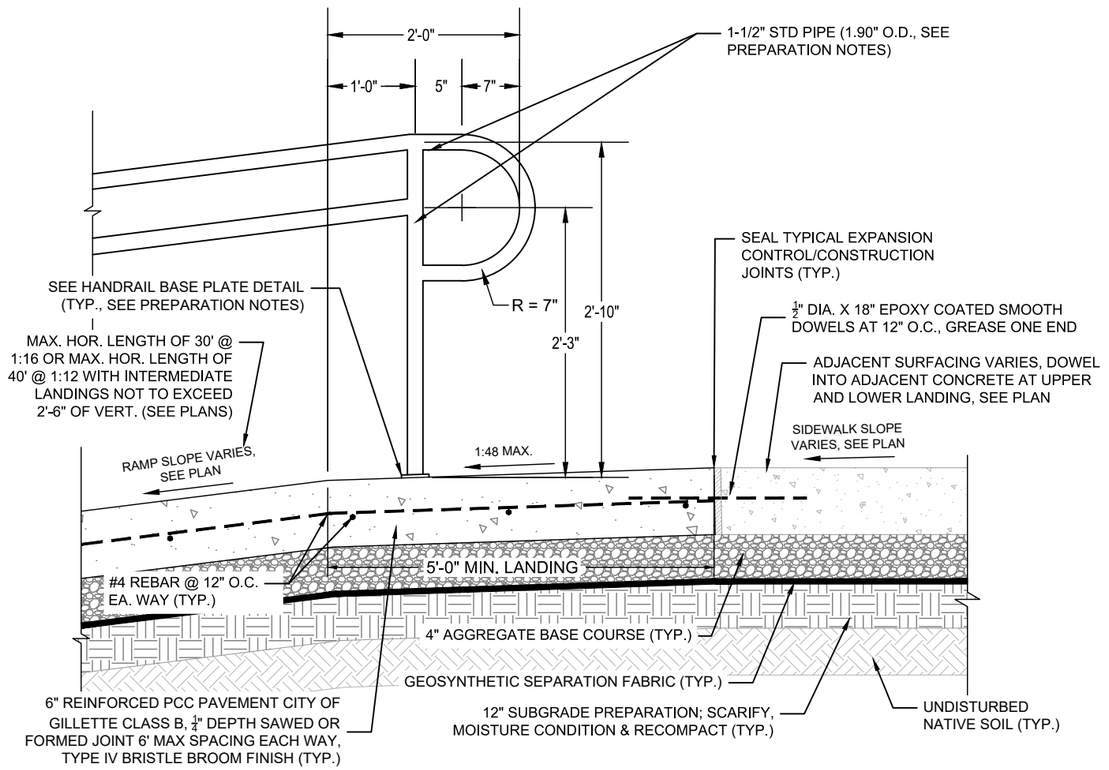
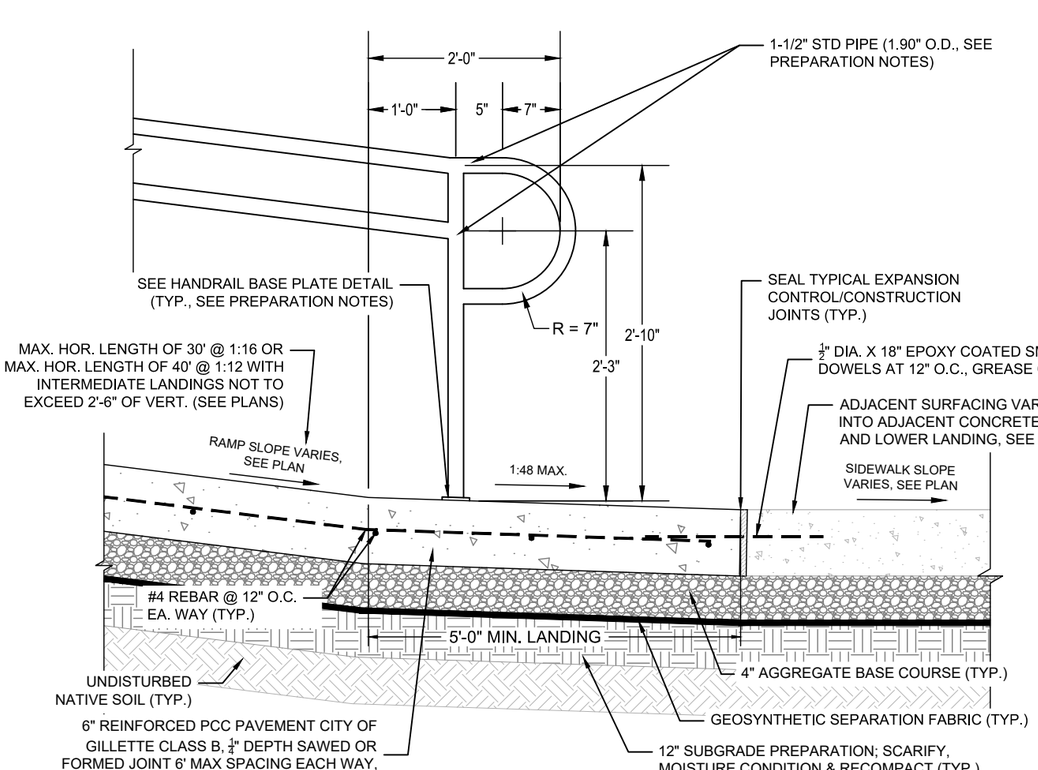


NOTE:
SEE STREET DETAILS FOR MORE INFORMATION ON PCC SIDEWALK RAMP AND HANDRAIL INSTALLATION.

1 TYPICAL CAST IN PLACE RAMP DETAIL
NOT TO SCALE



2 TYPICAL CAST IN PLACE RAMP LANDING DETAIL
NOT TO SCALE



3 TYPICAL CAST IN PLACE RAMP LANDING DETAIL
NOT TO SCALE

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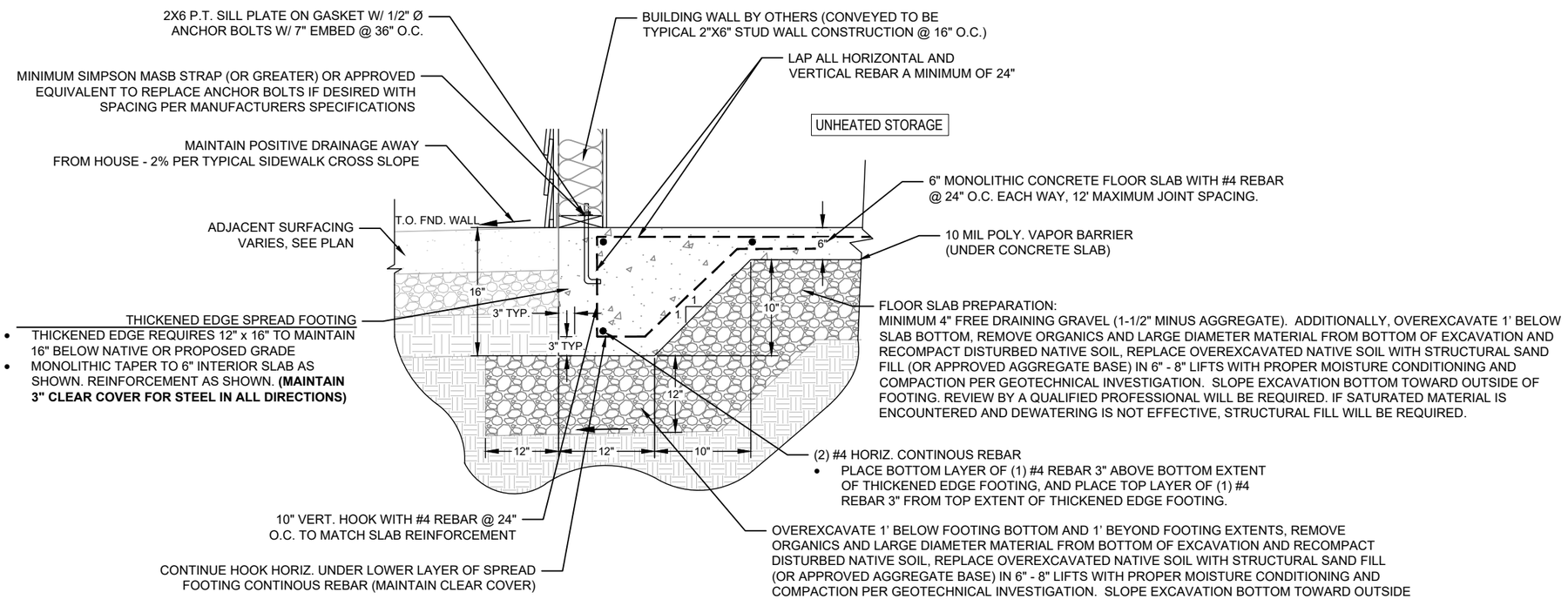
DT-10.2

GENERAL NOTES:

1) ALL EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE CITY OF GILLETTE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS AND THE RECOMMENDATIONS OF THE GEOTECHNICAL INVESTIGATION PREPARED BY STRATA, INC., JANUARY, 2019.
2) IF SATURATED MATERIAL IS ENCOUNTERED AND DEWATERING IS NOT EFFECTIVE, STRUCTURAL FILL WILL BE REQUIRED.
3) REMOVE ANY PIECES OF FROZEN GROUND, LARGE DIAMETER OR ORGANIC MATERIAL FROM SUBGRADE AND BACKFILL.
4) PROVIDE AND MAINTAIN POSITIVE DRAINAGE AWAY FROM THE FOUNDATION ELEMENTS PER DESIGN FOR AT LEAST THE FIRST 10' FROM EXTENTS OF STRUCTURE.
5) DO NOT PLACE CONCRETE ON FROZEN GROUND OR ALLOW CONCRETE TO COOL BELOW 50° FOR 72 HOURS AFTER PLACING.
6) DESIGN CRITERIA:
   IBC 2015 AS ADOPTED BY CITY OF GILLETTE.
7) DESIGN LOADS:
   FLOOR LIVE LOAD - 40 PSF
   FLOOR DEAD LOAD - 15 PSF
   ROOF DEAD LOAD - 12 PSF
   GROUND SNOW LOAD - 30 PSF
8) PROVIDE CONCRETE WITH THE FOLLOWING REQUIREMENTS:
   28 DAY COMPRESSIVE STRENGTH ($f'c$) = 4 KSI PER CLASS "B"
   28 DAY FLEXURAL STRENGTH = 600 PSI
   AIR CONTENT = 4.5% - 7%
   PORTLAND CEMENT = TYPE II OR TYPE V
   MAXIMUM WATER CEMENT RATIO = 0.45
   MINIMUM CEMENT PER CY = 615 LBS
9) FOUNDATION DESIGN BASED ON GEOTECHNICAL INVESTIGATION - PRESUMPTIVE SOIL VALUES PROVIDED IN TABLE R401.4.1 OF THE 2015 IRC (1806.2 OF THE 2015 IBC) FOR SOIL CLASS 4 (SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL - SW, SP, SM, SC, GM, AND GC). VERTICAL BEARING PRESSURE OF 2,000 PSF AND A LATERAL BEARING PRESSURE OF 150 PSF/FT BELOW NATURAL GRADE WERE USED FOR DESIGN. STRUCTURAL SAND FILL (OR APPROVED AGGREGATE BASE) TO BE PLACED IN 6" TO 8" LIFTS, MAINTAIN OPTIMUM MOISTURE CONDITIONING +/-2% AND COMPACT TO 94% (OR 92% FOR SLAB ON GRADE) OF A MODIFIED PROCTOR (ASTM D1557) AS PER GEOTECHNICAL INVESTIGATION.
10) MAINTAIN 3" CLEAR COVER FOR STEEL IN ALL DIRECTIONS (TYP.)
11) REINFORCING BAR ASTM A615 GRADE 60.
12) ALL REINFORCING BAR BENDS SHALL BE IN ACCORDANCE WITH ACI 318.
13) ANCHOR BOLTS PER R403.1.6, AND R602.11.2 (STEPPED FOUNDATIONS) OF 2015 IRC.
14) PROVIDE TOOLED OR SAW CUT CONTROL JOINTS.
15) 4" PERFORATED PERIMETER DRAIN REQUIRED IN THE BOTTOM OF THE EXCAVATION WITH POSITIVE SLOPE TO EXTERIOR DAYLIGHT POINT, WITH BACKFILL OF 12" (MIN.) OF STRUCTURAL SAND OR 8" (MIN.) OF 1" MINUS GRAVEL BASE.
16) THE FOUNDATION IS ASSUMED TO BEAR ENTIRELY IN THE MATERIAL ENCOUNTERED IN THE BORINGS. REVIEW BY A QUALIFIED PROFESSIONAL WILL BE REQUIRED. IF SATURATED MATERIAL IS ENCOUNTERED AND DEWATERING IS NOT EFFECTIVE, ADDITIONAL STRUCTURAL FILL WILL BE REQUIRED.
17) PROVIDE GROUNDING ELECTRODE PER NEC 250.52 (3). REQUIRES MINIMUM OF 20' COMBINED LENGTH OF 1/2" DIAMETER OR LARGER BARE COPPER CONDUCTOR OR STEEL REBAR (#4 OR LARGER) IN FOUNDATION WALL TO SERVE AS CONCRETE ENCASED ELECTRODE. EXTEND ABOVE FOUNDATION WALL TO UTILIZE AS GROUNDING ELECTRODE FOR BUILDING ELECTRICAL SYSTEM.



1 TYPICAL PCC THICKENED EDGE SPREAD FOOTING FOUNDATION DETAIL
NOT TO SCALE

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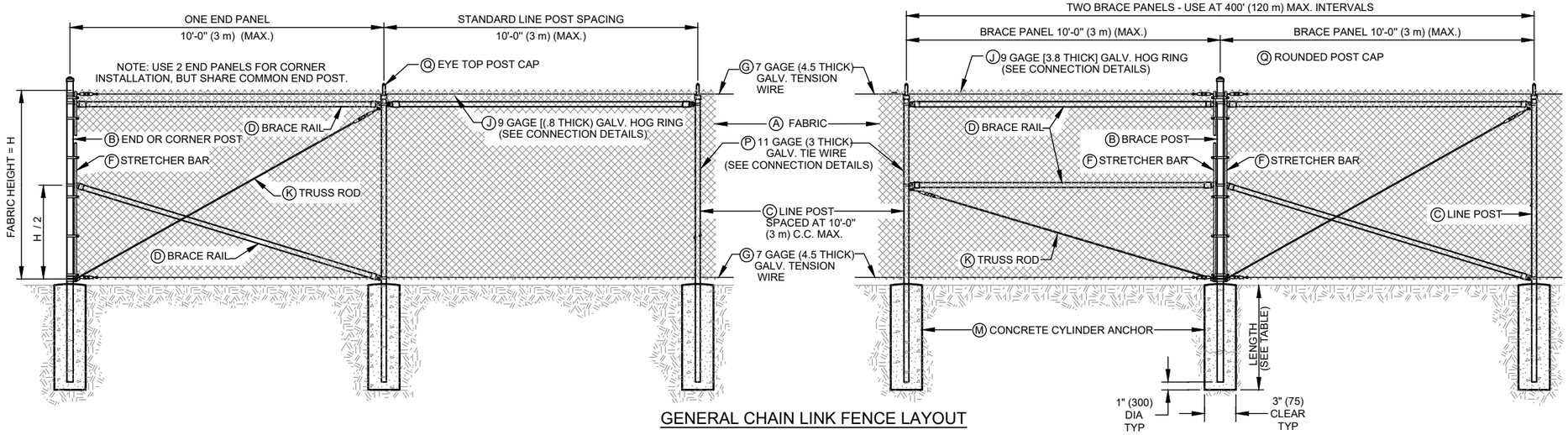
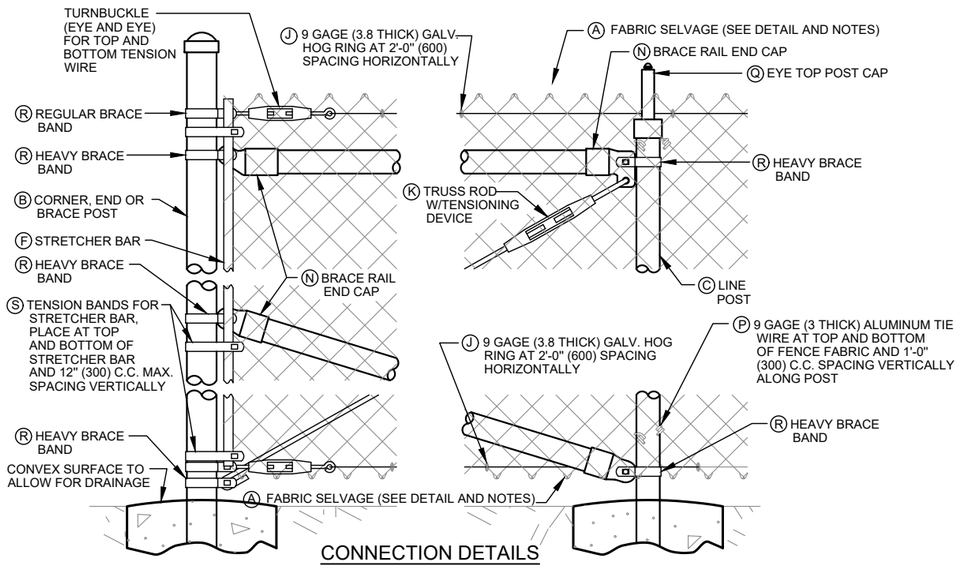


GENERAL CHAIN LINK FENCE LAYOUT

1 CHAIN LINK FENCE DETAILS
NOT TO SCALE



CONNECTION DETAILS

2 CHAIN LINK FENCE DETAILS
NOT TO SCALE

CONCRETE CYLINDER ANCHOR LENGTH

FENCE HEIGHT	LINE POST	END, CORNER, BRACE POST
UP TO 4' (1.2 m)	28" (710)	34" (860)
OVER 4' (1.2 m)	40" (1015)	40" (1015)

GENERAL NOTES FOR INDUSTRIAL FENCE

1. THE CONTRACT REQUIRES THE TOP TENSION WIRE TO BE REPLACED WITH A CONTINUOUS TOP RAIL, MEETING THE SAME REQUIREMENTS FOR CROSS-BRACES. PROVIDE INDUSTRY STANDARD SLEEVES AND END CAPS WHEN CONNECTING TOP RAIL ELEMENTS.

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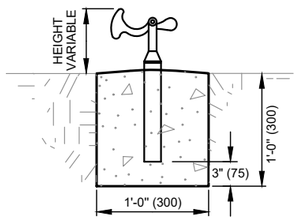
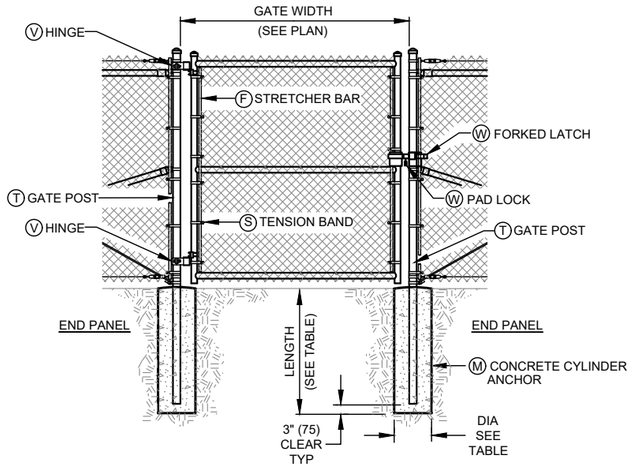


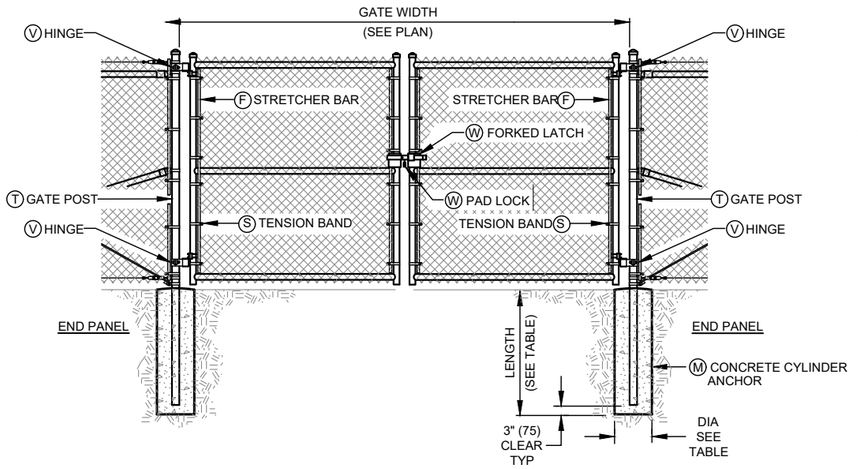
(W) GATE KEEPER

CONCRETE CYLINDER ANCHOR DIAMETER AND LENGTH

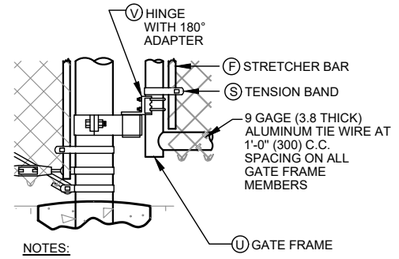
GATE POST DIA. NOMINAL SIZE		DIAMETER		LENGTH	
IN	mm	FT - IN	mm	IN	mm
1 1/2	40	1 - 0	300	34	860
2	50	1 - 0	300	40	1015
2 1/2	65	1 - 0	300	40	1015
3 1/2	90	1 - 0	300	40	1015
6	150	1 - 6	450	46	1170
8	200	2 - 0	600	46	1170



SINGLE SWING GATE



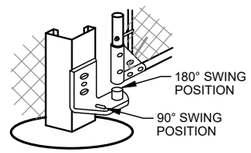
DOUBLE SWING GATE



NOTES:

1. REVERSE FOR TOP HINGE.

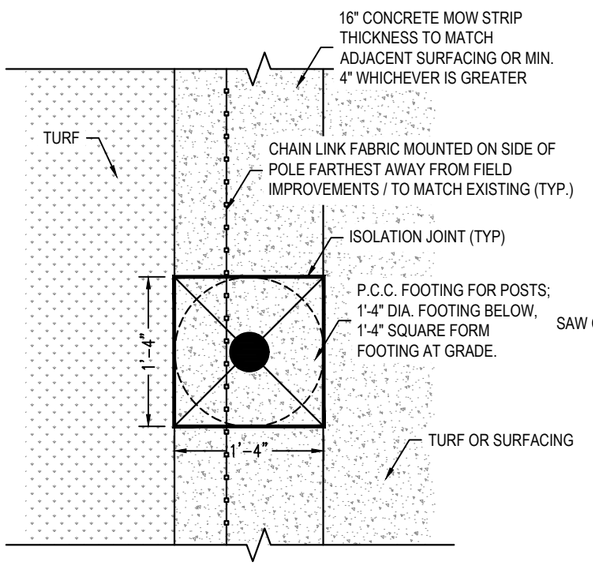
GATE HINGE



(V) ALTERNATE ROLLED-FORM POST HINGE DETAIL

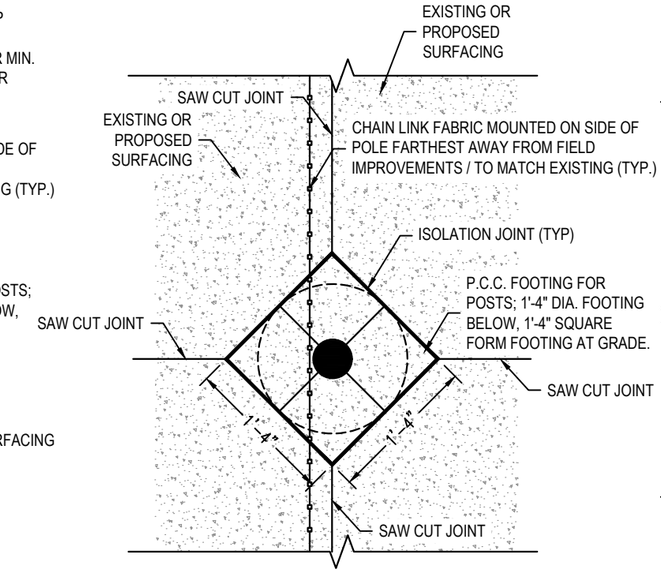
1 CHAIN LINK SWING GATE DETAILS

NOT TO SCALE



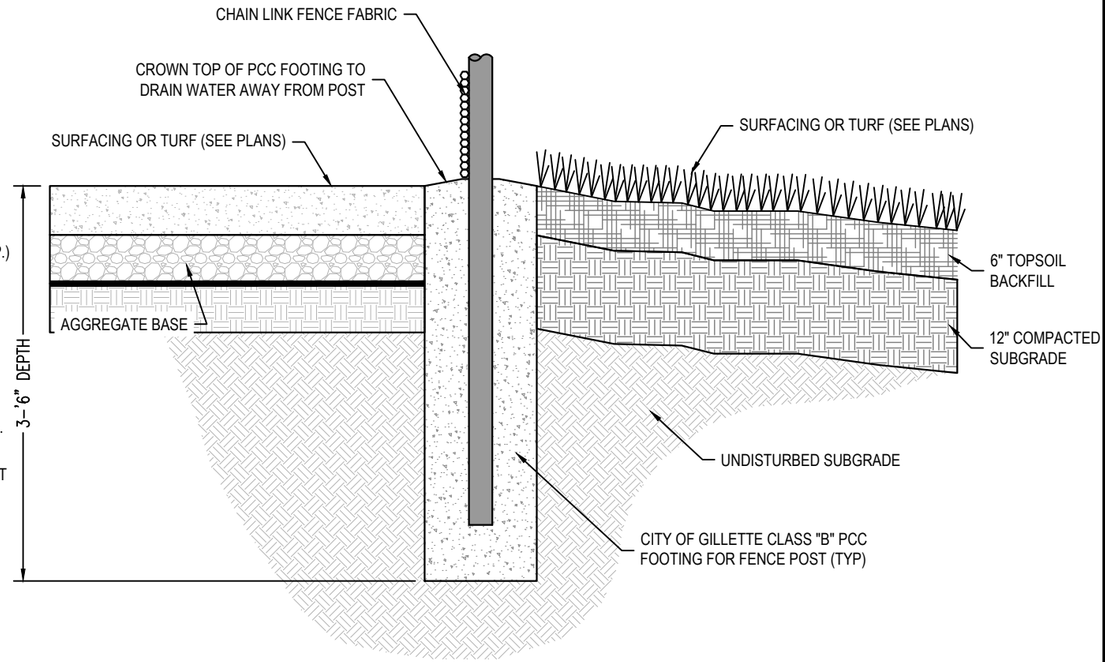
2 FENCE & POST IN TURF - PLAN

NOT TO SCALE



3 FENCE & POST IN P.C.C. PAVEMENT - PLAN

NOT TO SCALE



4 FENCE & POST - SECTION

NOT TO SCALE

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DRAWN BY:	APM
APPROVED BY:	AJH

SITE DETAILS
DT-10.5

MATERIALS NOTES

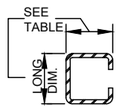
PROVIDE FENCE COMPONENTS MEETING AASHTO M181 UNLESS OTHERWISE SPECIFIED BELOW.

(A) FABRIC - GALVANIZED, 2 IN. (50) BY 2 IN. (50) MESH MEETING THE REQUIREMENTS OF AASHTO M181 OF GAGE AND SELVAGE SHOWN BELOW:

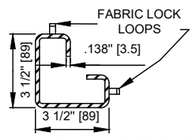
FENCE HEIGHT UNDER 5 FT. (1.5 m):	9 GAGE (3 THICK) FABRIC
FENCE HEIGHT 5 FT. (1.5 m) AND OVER:	9 GAGE (3.8 THICK) FABRIC
FENCE HEIGHT UNDER 6 FT. (1.8 m):	TOP & BOTTOM KNUCKLED SELVAGE
FENCE HEIGHT 6 FT. (1.8 m) AND OVER:	TOP & BOTTOM KNUCKLED SELVAGE

SELVAGE DETAIL

(B) END, CORNER, BRACE, LINE POSTS AND BRACE RAILS - STANDARD PIPE MEETING AASHTO M181, STEEL PIPE MEETING ASTM A569, OR ROLL- FORMED C-SECTIONS SHOWN HEREIN AND IN
(C) ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. GALVANIZE ROLL-FORM POSTS IN
(D) ACCORDANCE WITH ASTM 123. WHERE ROLL-FORMED SECTIONS ARE SELECTED, PROVIDE ALL CONNECTION HARDAWARE TO MEET INDUSTRY STANDRD FOR ROLLED FORM SECTIONS AND PROVIDE EQUAL OR GREATER STRENGTH THAN CONNECTION COMPONENTS REQUIRED FOR ROUND PIPE. SEE TABLE FOR DIMENSIONS.



ALTERNATE
LINE POST



ALTERNATE END, CORNER
OR BRACE POST

(F) STRETCHER BARS - (USE FOR SECURING THE FENCE FABRIC) 3/16 IN x 3/4 IN (4.7 x 20) GALVANIZED STEEL.
(G) TENSION WIRE - 7 GAGE (4.5 THICK) GALVANIZED COIL SPRING WIRE MEETING AASHTO M181. PROVIDE AN EYE TO EYE TURNBUCKLE FOR EACH RUN OF TENSION WIRE AS A TIGHTENING DEVICE. SECURE TENSION WIRE TO END POSTS AND MIDDLE BRACE POSTS WITH TENSION BANDS.
(K) TRUSS RODS - 3/8 IN (10) DIAMETER GALVANIZED STEEL ROD WITH AN INDUSTRIAL TRUSS TIGHTENER OR TURNBUCKLE TENSIONING DEVICE.


INDUSTRIAL TRUSS TIGHTENER


TURNBUCKLE

(M) CONCRETE CYLINDER ANCHORS - (FOR POSTS) CLASS B CONCRETE OR BETTER.

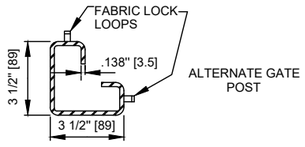
(N) BRACE RAIL END CONNECTION CAPS - (USE FOR BRACE RAILS) FIT TIGHTLY ON THE BRACE RAIL AND MADE FROM PRESSED STEEL ONLY.

(Q) POST CAPS - FOR ALL PIPE POSTS AND CERTAIN ROLL-FORMED C-POSTS. PROVIDE EYE-TOP CAPS FOR ALL POSTS CARRYING A TENSION WIRE TOP OR TOP RAIL (ONLY WHEN PERMITTED IN THE PLANS) THROUGH THE POST. PROVIDE ROUNDED TOPS FOR ALL OTHER ROUND POSTS. WHERE A BARBED WIRE TOP IS SPECIFIED, PROVIDE A 45 DEGREE 3-WIRE BARBED BASE WITH EYE HOLE AT BASE FOR ALL POST STYLES EXCEPT AT END POSTS (SEE BARBED WIRE TOP DETAIL, SHEET 1). POST CAPS TO FIT TIGHTLY ON POSTS TO PREVENT REMOVAL.

(R) BRACE BANDS - (USE FOR BRACE RAILS AND TRUSS RODS) HEAVY DUTY 1/8 IN x 1 IN (3 x 25) PRESSED STEEL WITH A 3/8 IN x 1 1/4 IN (10 x 30) CARRIAGE BOLT. PROVIDE BRACE BANDS FOR TENSION WIRE - STANDARD 12 GAGE x 3/4 IN (2.8 THICK x 20) PRESSED STEEL WITH A 5/16 IN x 1 1/4 IN (8 x 30) CARRIAGE BOLT.

(S) TENSION BANDS - (USE TO SECURE THE FABRIC STRECTHER BAR) 14 GAGE x 3/4 IN (2 THICK x 20) PRESSED STEEL WITH A 5/16 IN x 1 1/4 IN (8 x 30) CARRIAGE BOLT. PLACE TENSION BANDS AT THE TOP AND BOTTOM OF THE STRETCHER BAR AND A 12 IN (300) C.C. MAXIMUM SPACING VERTICALLY.

(T) GATE POSTS - EITHER STANDARD PIPE MEETING AASHTO M181, STEEL PIPE MEETING ASTM A569, OR ROLL-FORMED C-SECTIONS. GALVANIZE ROLL-FORMED POSTS IN ACCORDANCE WITH ASTM 123. WHERE ROLL-FORMED SECTIONS ARE SELECTED, PROVIDE ALL CONNECTION HARDWARE MEETING INDUSTRY STANDARDS FOR ROLL-FORMED SECTIONS AND PROVIDE EQUAL OR GREATER STRENGTH THAN CONNECTION COMPONENTS REQUIRED FOR ROUND PIPE.



(U) GATE FRAMES - CONSTRUCT WITH TUBULAR MEMBERS ASSEMBLED BY USE OF MALLEABLE FITTINGS OR WELDING. EXTEND ONE HORIZONTAL SUPPORT THE WIDTH OF THE GATE AT THE MIDPOINT OF VERTICAL FRAME MEMBERS. FOR GATES OVER 5 FT (1.5 m) IN WIDTH, PROVIDE INTERMEDIATE VERTICAL SUPPORTS. SPACE SUPPORTS EQUIDISTANT FROM EACH OTHER AND/OR FROM GATE ENDS. PROVIDE HORIZONTAL AND VERTICAL SUPPORTS OF THE SAME DIAMETER PIPE AS THE GATE FRAME. ENSURE THE COMPLETE FRAME IS RIGID AND HAS AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(V) HINGES - HEAVY DUTY HINGES OF ADEQUATE STRENGTH FOR GATES AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. PROVIDE HINGES OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING AS SHOWN IN THE PLANS. USE HINGES THAT WILL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. ENSURE GATES ARE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(W) LATCHES, STOPS AND KEEPERS - FOR ALL GATES. FOR SINGLE SWING GATES USE A COMMERCIAL HEAVY DUTY FORKED LATCH, MODEL PL 152 W AS MANUFACTURED BY INTERNATIONAL SECURITY PRODUCTS. FOR DOUBLE SWING GATES, USE A COMMERCIAL HEAVY DUTY FORKED LATCH, MODEL PL 152 AS MANUFACTURED BY INTERNATIONAL SECURITY PRODUCTS. USE A MECHANICAL KEEPER DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IN FULL OPEN POSITION. FOR ROLLING GATES USE A PIN TYPE LATCH

ALTERNATIVE HIGH STRENGTH PIPE
DIMENSIONS (50,000 PSI (345 mPa) - ASTM A569)

NOMINAL PIPE SIZE		OUTSIDE DIA.		WALL THICKNESS		MIN. WEIGHT	
IN	mm	IN	mm	IN	mm	LBS PER FT	kg/m
1 1/4	30	1.660	42	0.111	2.8	1.836	2.73
1 1/2	40	1.900	48	0.120	3.1	2.281	3.39
2	50	2.375	60	0.130	3.3	3.117	4.64
2 1/2	65	2.875	73	0.160	4.1	4.640	6.91

STANDARD PIPE DIMENSIONS, WEIGHTS AND MINIMUM TOLERANCES (ASTM A53)

NOMINAL PIPE SIZE		OUTSIDE DIA.				INSIDE DIA.		WALL THICKNESS				WEIGHT			
		NOM.		MIN.				NOM.		MIN.		NOM.		MIN.	
IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	LBS PER FT	kg/m	LBS PER FT	kg/m
1 1/4	30	1.660	42	1.629	41	1.380	35	0.140	3.6	0.122	3.1	2.27	3.38	2.16	3.21
1 1/2	40	1.900	48	1.869	47	1.610	41	0.145	3.7	0.127	3.2	2.72	4.05	2.58	3.84
2	50	2.375	60	2.351	60	2.067	53	0.154	3.9	0.135	3.4	3.65	5.43	3.47	5.16
2 1/2	65	2.875	73	2.846	72	2.469	63	0.203	5.2	0.178	4.5	5.79	8.62	5.50	8.18
3 1/2	90	4.000	100	3.960	100	3.548	90	0.226	5.7	0.198	5.0	9.11	13.56	8.65	12.87
6	150	6.625	168	6.559	166	6.065	154	0.280	7.1	0.245	6.2	18.97	28.23	18.02	26.82
8	200	8.625	220	8.539	216	7.981	203	0.322	8.2	0.282	7.2	28.55	42.49	27.12	40.36

GATE POST AND GATE FRAME PIPE DIAMETERS

FENCE FABRIC HEIGHTS TO 4 FT (1.2 m) (INCL.)

WIDTH OF GATE, SINGLE OR ONE LEAF OF DOUBLE GATE			(T) GATE POST DIA NOMINAL SIZE		(U) GATE FRAME DIA NOMINAL SIZE	
	FT	m	IN	mm	IN	mm
TO	6	1.8	3 1/2	89	1 1/4	30
OVER	6 TO 8	1.8 TO 2.4	3 1/2	89	1 1/4	30
OVER	8 TO 13	2.4 TO 4	4 1/2	114	1 1/2	40
OVER	13 TO 18	4 TO 5.5	6 5/8	168	1 1/2	40
OVER	18	5.5	8	200	1 1/2	40

FENCE FABRIC HEIGHTS OVER 4 FT (1.2 m) TO 6 FT (1.8 m) (INCL.)

WIDTH OF GATE, SINGLE OR ONE LEAF OF DOUBLE GATE			(T) GATE POST DIA NOMINAL SIZE		(U) GATE FRAME DIA NOMINAL SIZE	
	FT	m	IN	mm	IN	mm
TO	7	2.1	3 1/2	89	1 1/2	40
OVER	7 TO 8	2.1 TO 2.4	3 1/2	89		
OVER	8 TO 13	2.4 TO 4	4 1/2	114		
OVER	13 TO 18	4 TO 5.5	6 5/8	168		
OVER	18	5.5	8	200		

FENCE FABRIC HEIGHTS OVER 6 FT (1.8 m) TO 12 FT (3.6 m) (INCL.)

WIDTH OF GATE, SINGLE OR ONE LEAF OF DOUBLE GATE			(T) GATE POST DIA NOMINAL SIZE		(U) GATE FRAME DIA NOMINAL SIZE	
	FT	m	IN	mm	IN	mm
TO	6	1.8	3 1/2	89	1 1/2	40
OVER	6 TO 13	1.8 TO 4	3 1/2	89		
OVER	13 TO 18	4 TO 5.5	4 1/2	114		
OVER	18	5.5	6 5/8	168		

POST AND BRACE RAIL DIAMETERS

HEIGHT OF FENCE FABRIC	(B) END, CORNER OR BRACE POST		(C) LINE POST		(D) BRACE RAIL	
	NOMINAL DIA.	ALTERNATE C-SECTION	NOMINAL DIA.	ALTERNATE C-SECTION	NOMINAL DIA.	ALTERNATE C-SECTION
TO 6' (1.8 m)	3 1/2" (89)	3.50" x 3.50" x 0.138" (89 x 89 x 3.5) 5.10 LBS./ FT. (7.60 kg/m)	2 3/8" (53)	1.875" x 1.625" x .121" (48 x 41 x 3.1) 2.28 LBS./ FT. (3.40 kg/m)	1 5/8" (43)	1.250" x 1.625" x .111" (32 x 41 x 2.8) 2.08 LBS./ FT. (3.10 kg/m)
OVER 6' (1.8 m) TO 12' (3.6) (INCL.)	3 1/2" (89)		2 3/8" (53)	2.25" x 1.70" x .121" (57 x 43 x 3.1) 2.64 LBS./ FT. (3.93 kg/m)		

1 CHAIN LINK FENCE AND GATE CONNECTION DETAILS
NOT TO SCALE

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
SITE DETAILS

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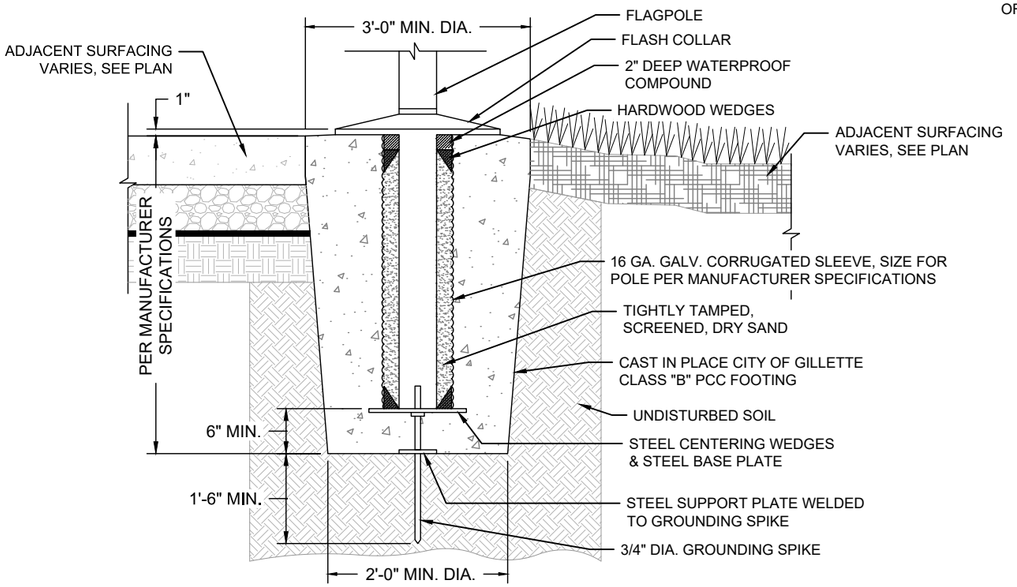
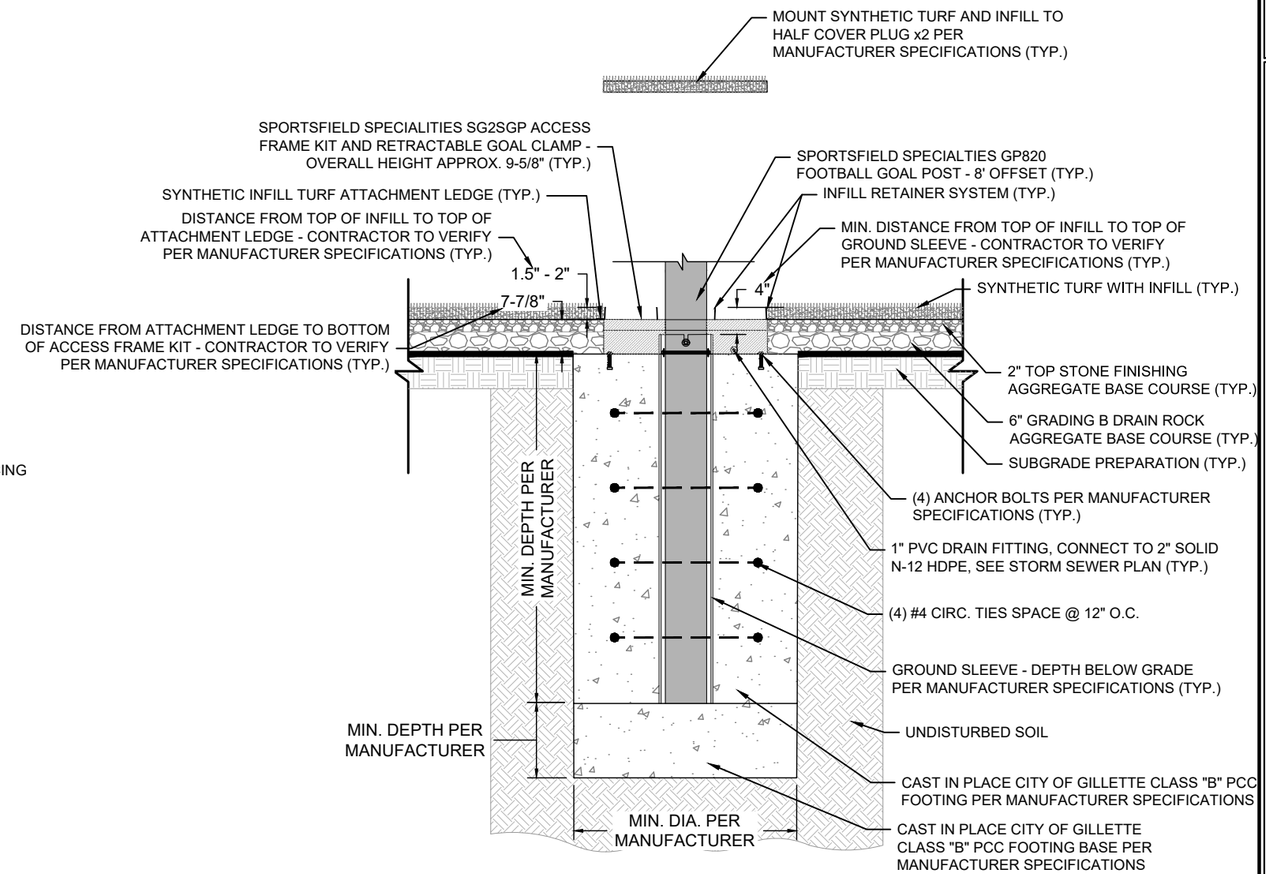


NOTES:

1. REQUIRED DIMENSIONS ARE APPROXIMATE AND NEED TO BE VERIFIED WITH MANUFACTURER SPECIFICATIONS.

1 TYPICAL FLAGPOLE INSTALLATION DETAIL
NOT TO SCALE



NOTES:

1. REQUIRED DIMENSIONS ARE APPROXIMATE AND NEED TO BE VERIFIED WITH MANUFACTURER SPECIFICATIONS.

2 TYPICAL FOOTBALL GOAL POST INSTALLATION DETAIL
NOT TO SCALE

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

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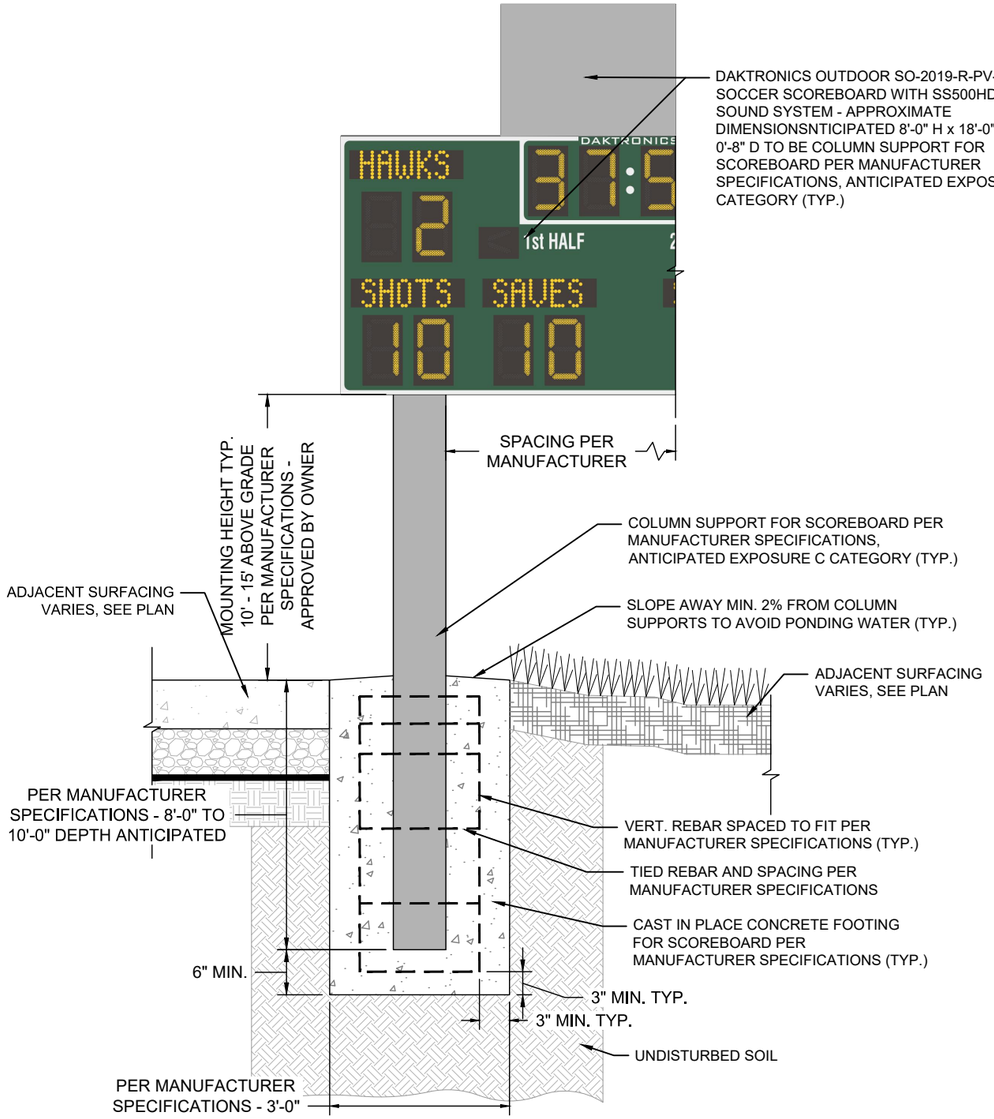
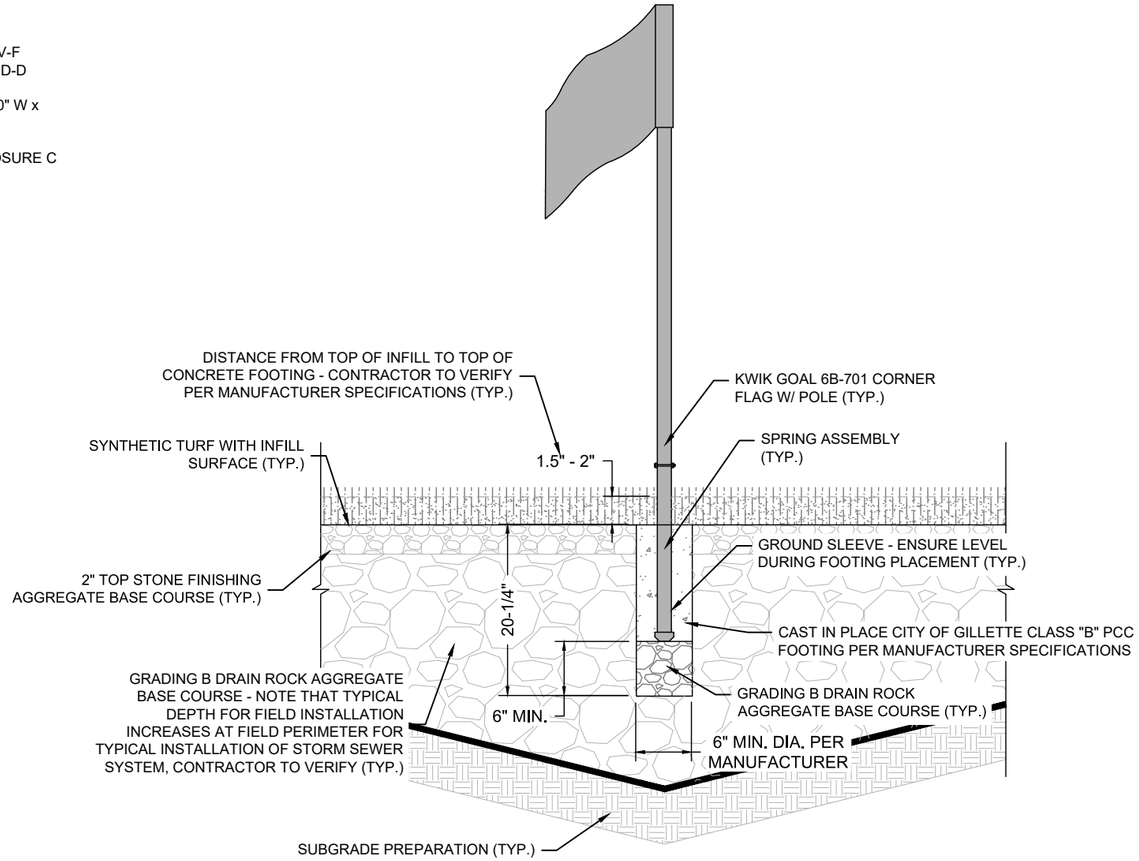


NOTES:

1. REQUIRED DIMENSIONS, MOUNTING HEIGHTS, AND SPACING ARE APPROXIMATE AND NEED TO BE VERIFIED WITH MANUFACTURER SPECIFICATIONS.
2. ANTICIPATED EXPOSURE CATEGORY C PER DAKTRONICS INSTALLATION GUIDE.
3. DESIGN WIND SPEED PER CITY OF GILLETTE CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA: ULTIMATE DESIGN WIND SPEED IS 115 MPH; NOMINAL WIND SPEED IS 90 MPH.

1 TYPICAL SCOREBOARD INSTALLATION DETAIL
NOT TO SCALE



NOTES:

1. REQUIRED DIMENSIONS ARE APPROXIMATE AND NEED TO BE VERIFIED WITH MANUFACTURER SPECIFICATIONS.

2 TYPICAL TURF FLAG INSTALLATION DETAIL
NOT TO SCALE

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

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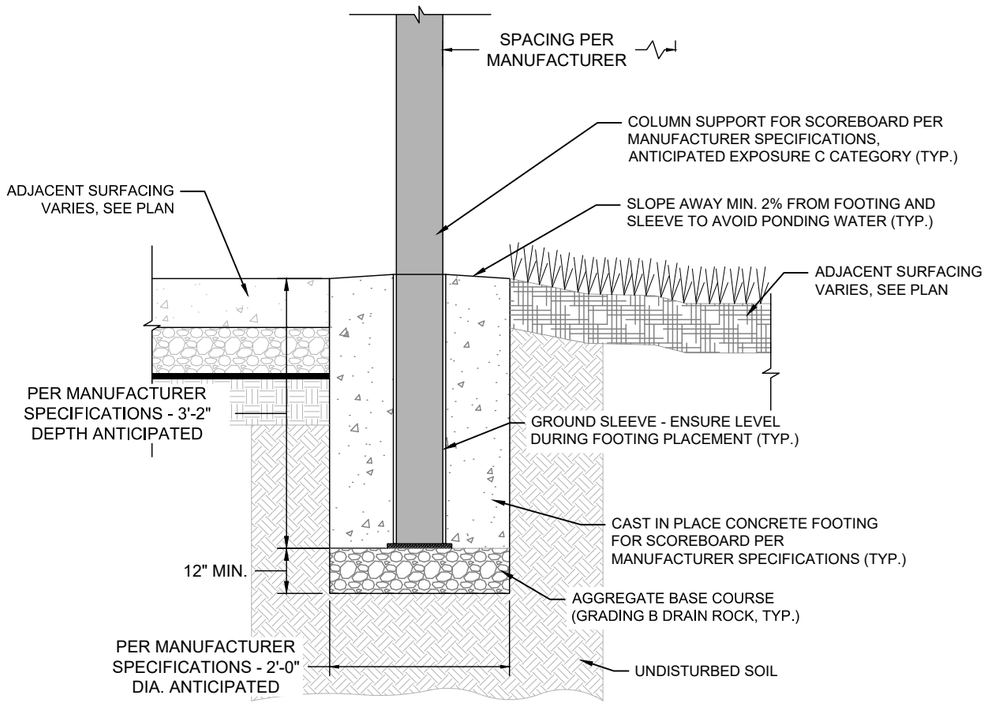
SITE DETAILS
DT-10.8



NOTES:

1. REQUIRED DIMENSIONS AND SPACING ARE APPROXIMATE AND NEED TO BE VERIFIED WITH MANUFACTURER SPECIFICATIONS.

1 TYPICAL SCOREBOARD INSTALLATION DETAIL

NOT TO SCALE

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

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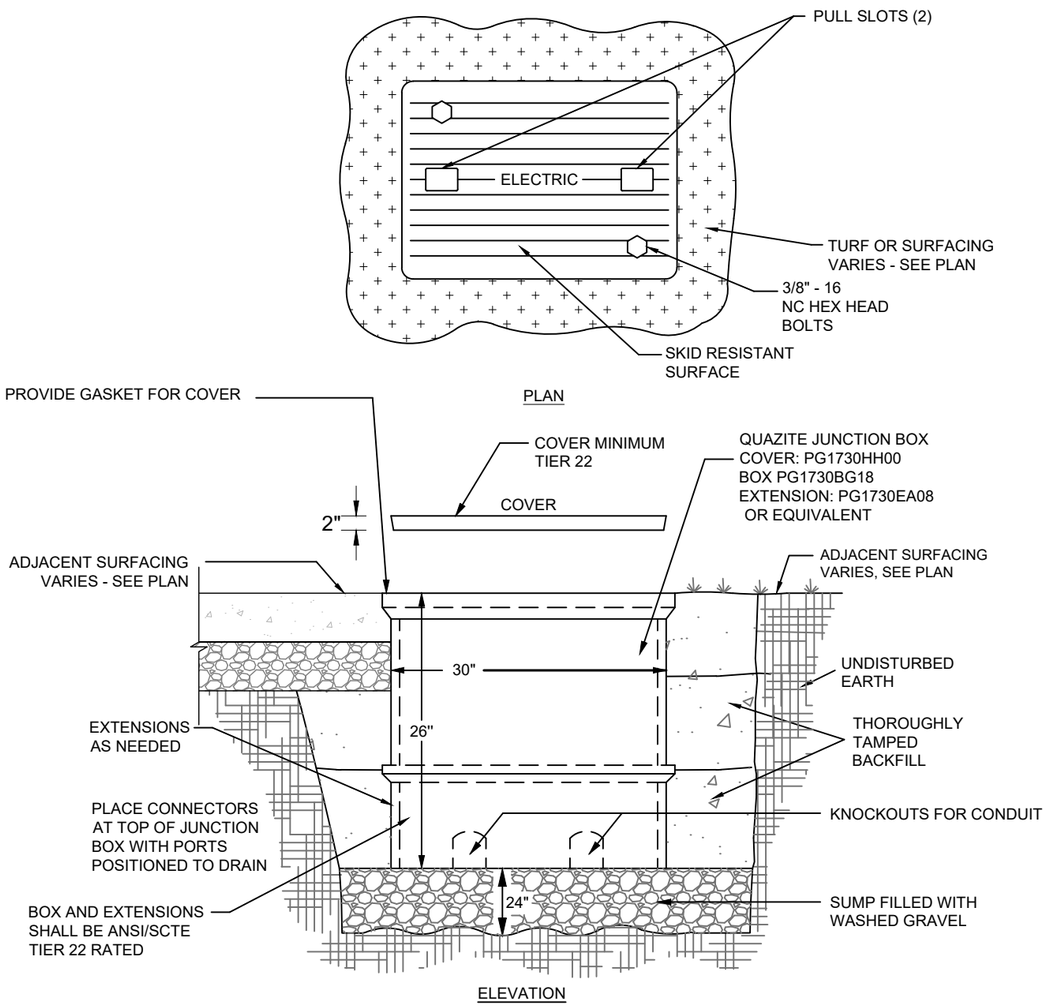
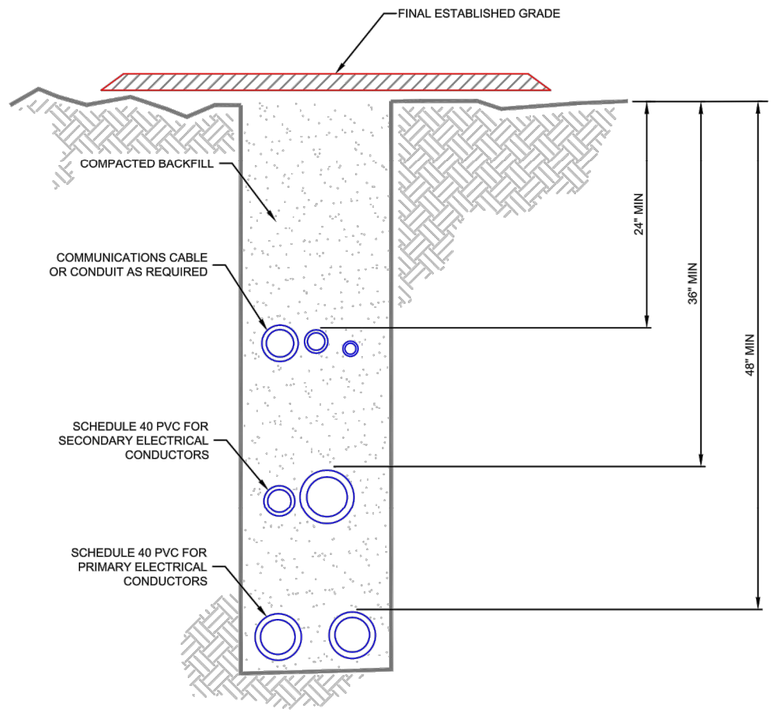
SITE DETAILS
DT-10.9

NOTE:
ELECTRICAL INSTALLATION FOR THE CITY OF GILLETTE PRIMARY EXTENSION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE CITY OF GILLETTE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS, INCLUDING THE PROVIDED DETAILS. THIS WORK GENERALLY INCLUDES PRIMARY EXTENSION FROM THE EXISTING 3 PHASE TRANSFORMER IN THE FACULTY PARKING LOT, TO THE NEW 3 PHASE TRANSFORMER ON SITE.



1 PULL (JUNCTION) BOX DETAIL
NOT TO SCALE



NOTE :

* 12" SEPARATION BETWEEN COMMUNICATIONS, SECONDARY CONDUCTOR AND PRIMARY CONDUCTOR UNLESS OTHERWISE APPROVED
* ALL CONDUIT TO BE SIZED AND REVIEWED BY APPROPRIATE UTILITY COMPANY
* TELEPHONE AND CABLE TELEVISION COMPANIES ARE TO BE CONTACTED TO INSURE CORRECT LOCATION AND INSTALLATION OF THEIR FACILITIES.

TELEPHONE REVIEWED BY:_____

CABLE TELEVISION REVIEWED BY:_____

City Of Gillette
Department of Utilities
Electrical Engineering Division
611 N Exchange Ave
PO Box 3003
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307.686.5277

TYPICAL TRENCHING DETAIL

Date: 2016-02-11
Drawing: trench.dwg

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
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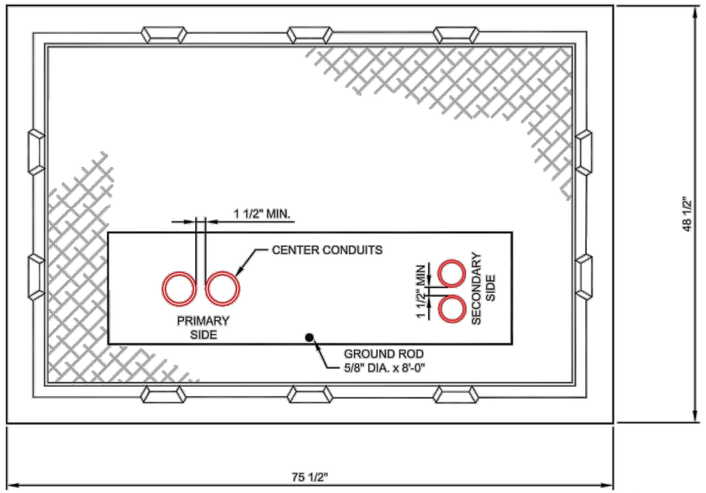
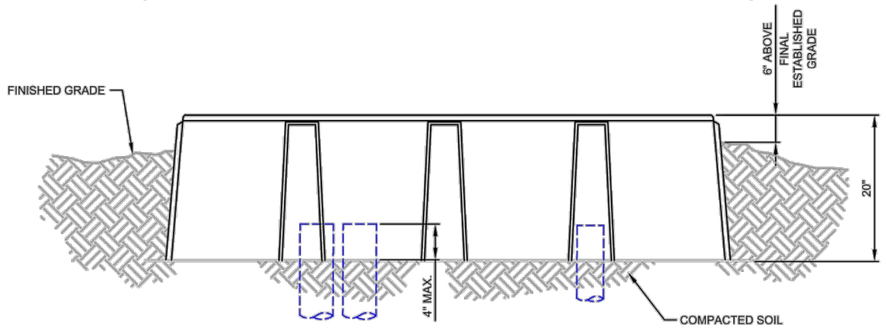
SITE DETAILS
DT-10.10

NOTE:
ELECTRICAL INSTALLATION FOR THE CITY OF GILLETTE PRIMARY EXTENSION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE CITY OF GILLETTE DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS, INCLUDING THE PROVIDED DETAILS. THIS WORK GENERALLY INCLUDES PRIMARY EXTENSION FROM THE EXISTING 3 PHASE TRANSFORMER IN THE FACULTY PARKING LOT, TO THE NEW 3 PHASE TRANSFORMER ON SITE.





NOTE:

* PRIMARY CONDUIT TO BE INSTALLED AT EXTREME LEFT HAND SIDE OF WINDOW
* SECONDARY CONDUIT TO BE INSTALLED AT EXTREME RIGHT HAND SIDE OF WINDOW
* CONDUIT NOT TO EXTEND ABOVE 4" FROM THE BOTTOM OF THE PAD AND IS TO BE INSIDE THE WINDOW (OPENING) OF THE PAD
* 1-1/2" MINIMUM SEPARATION BETWEEN CONDUITS
* COMPACTION TEST IS TO BE DONE BEFORE THE PAD IS SET AND AFTER REPLACING BACKFILL DUE TO OVER EXCAVATING

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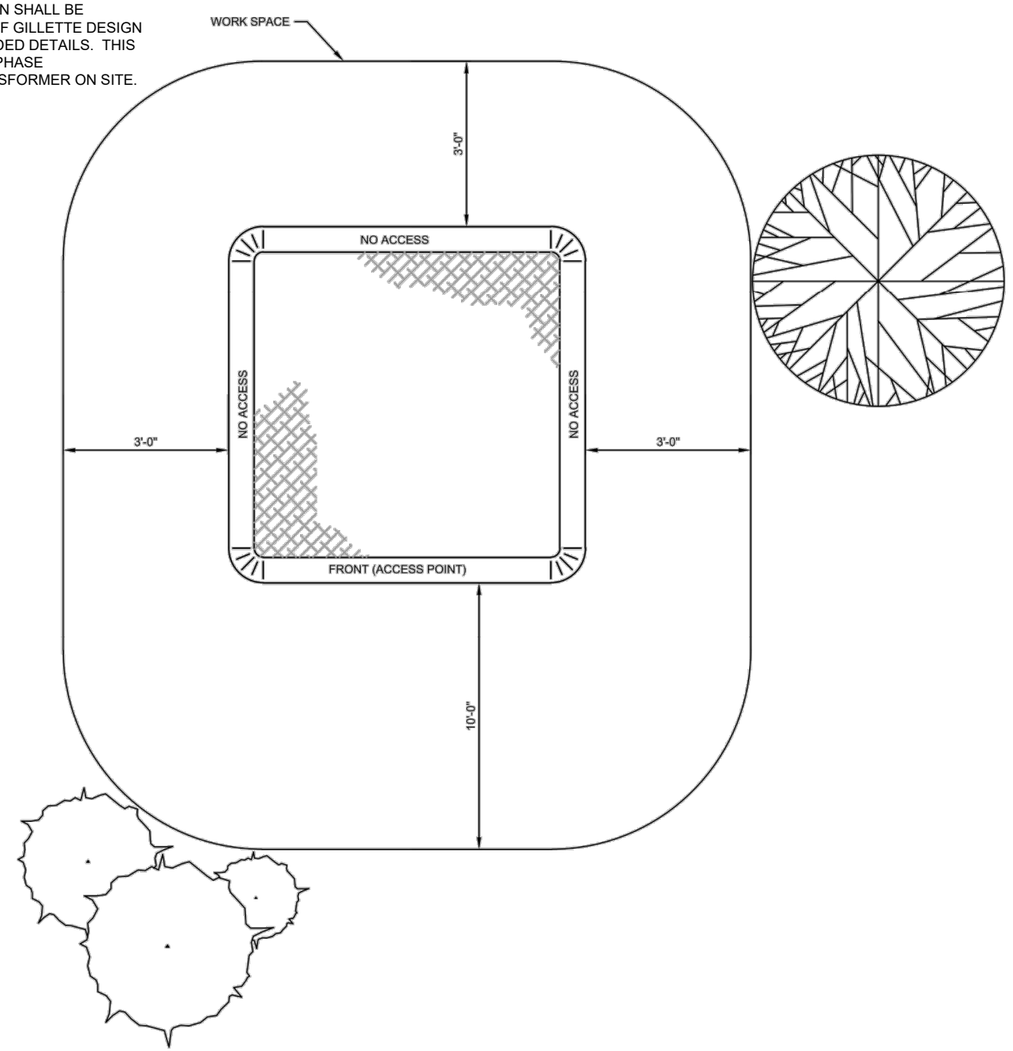
THREE PHASE FIBERGLASS 20" TRANSFORMER PAD

Date: 2016-02-11

Drawing: tr3-fg-pad.dwg



NOTE:

* 10 FOOT CLEAR SPACE IS REQUIRED IN FRONT OF ALL ACCESS DOORS OF ALL PAD MOUNTED EQUIPMENT
* 3 FOOT CLEAR SPACE IS REQUIRED ON THE SIDES AND REAR OF ALL PAD MOUNTED EQUIPMENT
* FOR MULTIPLE PAD MOUNT EQUIPMENT AREAS, CITY ELECTRICAL WILL DETERMINE NECESSARY SEPARATION DISTANCE
* NO VEGETATION IS PERMITTED INSIDE WORK SPACE AREA

City Of Gillette
Department of Utilities
Electrical Engineering Division
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PAD MOUNTED EQUIPMENT CLEARANCES

Date: 2016-02-11

Drawing: ut-clear-pdmnt.dwg

REV. #	REVISION DESCRIPTION	DATE	BY
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CAMPBELL COUNTY HIGH SCHOOL
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SITE DETAILS
DT-10.11

1 PROJECT UNDERSTANDING

Existing Site Conditions

The project is an athletic field located southeast of the Campbell County High School in Gillette, Wyoming. The athletic field is bound by Interstate 90 to the south, the high school to the northwest, the track and football field to the north, and an undeveloped lot to the east. Currently, the athletic field serves as a practice field. The field is relatively flat with an elevation change of less than three feet across the site; however, north of Boring B-1, the site slopes downward to the north, with an approximate elevation change of ten feet.

Proposed Construction

The project consists of constructing a 225 by 360 foot artificial turf competition soccer field with aluminum bleachers, with a capacity for 300 seats, to the east of the field, and portable aluminum benches to the west. The proposed field is situated north and south, and will have a crown and one percent drainage to the east and west. The planned development includes four light poles located at each corner of the field, with a LED light system. A scoreboard is also planned at the north end of the field. We understand the light poles will be supported on drilled shafts. We understand the proposed second athletic field (located west of the the proposed field) will not be constructed during this project.

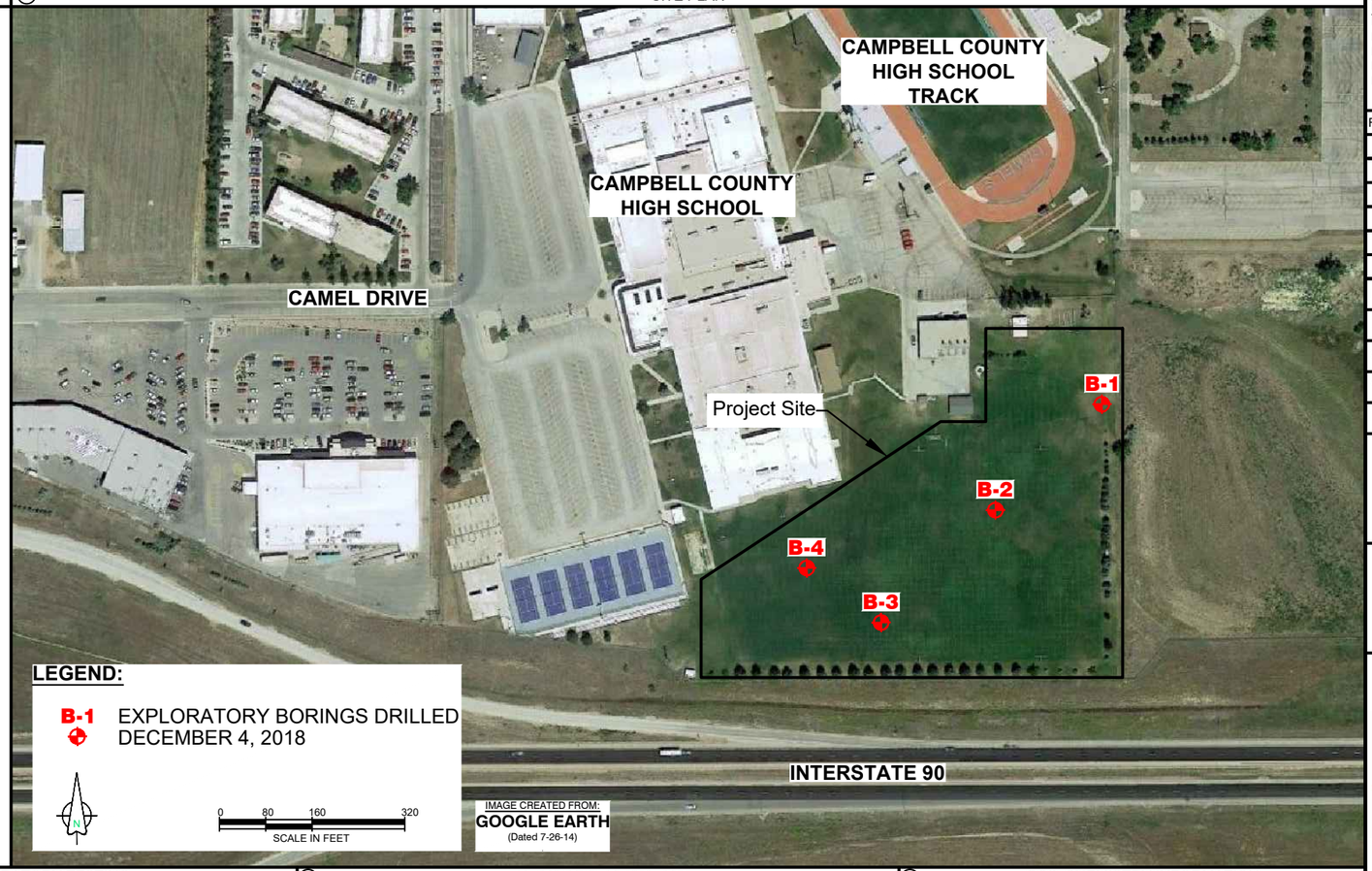
Subsurface Conditions

On December 4, 2018 our senior geotechnical engineer logged and sampled four borings to depths ranging from 6½' to 21½'. We explored the subsurface conditions using a truck-mounted CME 75 geotechnical drill rig equipped with an automatic hammer. We collected soil samples below the existing grade in each boring using Standard Penetration Tests (SPT), ring-lined California Samplers, bulk samples from auger cuttings. In addition, we recorded N-values for each SPT and California sample. We advanced the samplers 18 inches with a 140-pound hammer falling 30 inches. We have not corrected the N-values reported on the boring logs for overburden pressure, dilation effects on the sampler, sampler type, or hammer efficiency.

Generally, subsurface soil consist of about 8½' to 10' of firm to very stiff clay and medium dense sand overlying sandstone bedrock. Subsurface details can be found on the Boring Logs on Sheet G4 through G6.

We did not encounter groundwater during our subsurface exploration; however, it should be noted that our exploration occured in December. Seasonal changes and locally heavy precipitation could change groundwater conditions. The contractor shall prepare to address any changes in groundwater elevations that may have occurred between the time of the field exploration and the time of construction.

2 SITE PLAN



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DATE: January 29, 2019

REV	DATE	DESCRIPTION
A	1-7-19	85% Complete
B	1-29-19	For Design

DRAWN: H. Fitzgerald, E.I.T.

DESIGNED: H. Fitzgerald, E.I.T.

CHECKED: D. Russell, P.E.

ORIGINATION DATE: 12/17/2018

FILE: GI18153A

PROJECT:

Athletic Field Improvements
Campbell County High School

Gillette, Wyoming

PREPARED FOR:

KLJ Engineering
640 N. Highway 14-16, Unit K
Gillette, Wyoming 82716

Attn: Ms. Adrienne Hahn, P.E.

3 DESIGN BASIS

1. Preliminary site plans and grading plans for Campbell County School District NO. 1 Campbell County High School Soccer Field Improvements Option 5-R1 (Artificial Turf) prepared by KLJ Engineering on June 12, 2018.
2. International Building Code, 2018
   - IBC section 1804.3 - Excavation Grading and Fill
   - IBC sction 1810 - Deep Foundations
3. City of Gillette Standard Construction Specifications (2017)
   - Section 02210 Excavation and Embankment
   - Section 02895 Geosynthetics
4. STRATA's Field Exploration
   - Borings performed on December 4, 2018 (reference Sheets G4-G6)
5. STRATA's Laboratory Testing (reference Sheets G6-G8)
6. Frost Depth - 42 inches
7. Groundwater not encountered during site investigation

4 FIELD EXPLORATION AND LABORATORY TESTING

Our field investigation and laboratory testing were performed referencing the latest versions of the following ASTM standards:

Field Exploration

D420	Guide to Site Characterization for Engineering, design, and construction
D1452	Practice for Soil Investigation and Sampling by Auger Boring
D1586	Test method for penetration test and split-barrel sampling of soil
D2487	Test method for classification of soils for engineering purposes (USCS)
D2488	Practice for description and identification of soils (Visual-manual procedure)
D3550	Practice for ring-lined barrel sampling of soils

Laboratory Investigation

C117	Test method for materials finer than 75 micron (No. 200) sieve in mineral aggregate by washing
C136	Test method for sieve analysis of fine and coarse aggregates (based on the material sampled in the ring-lined samples and bulk samples, large gravel and cobbles are not represented)
D422	Test method for particle-size analysis of soils
D1140	Test method for amount of materials in soils finer than No. 200 (75 micron)
D2216	Test method for laboratory determination of water content of soil and rock
D2435	Test method for one-dimensional consolidation properties of soils
D4318	Test method for liquid limit, plastic limit, and plastic index of soils
D4546	Test method for one-dimensional swell or settlement potential of cohesive soils

5 SEISMIC INFORMATION

STRATA utilized site soil and geologic data, the project location, the *2018 International Building Code (IBC)* and the *2009 National Earthquake Hazards Reduction Program* (NEHRP) to establish a Seismic Site Classification of "C" at the project site. We recommend seismic design reference the seismic parameters provided in table below based on the soil conditions and project location:

Seismic Response Criteria (2018 IBC)			
Period (seconds)	Standard Acceleration Coefficients for Site Class C (g)	Site Factor For Site Class C	Modified Acceleration Coefficient for Site Class C (g)
0.0 (Peak)	PGA = 0.122	F_{PGA} = 1.555	PGA_M = 0.190
0.2 (Short)	S_S = 0.221	F_a = 1.200	S_{DS} = 0.177
1.0	S_1 = 0.060	F_v = 1.700	S_{D1} = 0.067

Notes:
1. Values for location Latitude 44.280814 and Longitude -105.486015.
2. Values of peak ground acceleration based on 2% probability of exceedence in 50 years.

6 SOIL CHEMISTRY INFORMATION

Sample Location	Soluble Sulfate (ppm)	Resistivity (ohm-cm)	pH (s.u.)
Boring B-4 @ 2.5'	680	3,520	8.4

Based on the results shown in the table above, concrete in contact with the on-site soil will have a MODERATE potential for sulfate reaction (ACI 318, Table 4.3.1). To achieve the required protection against sulfate related corrosion, we recommend specifying Type II cement and achieve a maximum water-to-cement ratio of 0.5 (by weight, normal weight concrete) and a minimum compressive strength, f'c, of 4,000 pounds per square inch (psi). Details can be found in the above ACI reference and in the Portland Cement Association publication "Design and Control of Concrete Mixtures."

Based on laboratory testing, the on-site soil has a moderate to low potential for corrosion of steel.

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(7) EARTHWORK

Subgrade Preparation

- Soil containing vegetation and organics (topsoil) extended approximately six inches below the existing ground surface in the locations explored. The earthwork contractor shall remove soil containing vegetation and organics below planned improvements.
- Scarify, moisture condition, and compact subgrade soil as specified in the table in Section 8 on this sheet.
- The site soil is moisture sensitive and susceptible to disturbance when moist or wet and may be expected to pump or rut under construction traffic. Soil disturbance negatively impacts the soil's performance.
- Moisture condition and compact disturbed soil or fill placed to achieve site grades to general structural fill requirements in Section 8 on this sheet. This may require considerable moisture conditioning and soil processing due to the clayey nature of the on-site soil.
- Remove pumping or rutting subgrade areas to depths between 12 and 18 or as directed by STRATA.
- Replace over-excavations with granular structural fill. STRATA's geotechnical engineer shall review and approve the exposed subgrade.
- Once prepared and approved by the geotechnical engineer, it is the contractor's sole responsibility to protect subgrades from degradation.

Excavation

Soil encountered below the surface was lean clay which classifies as a Type B soil under OSHA guidelines, provided it remains dry. It is the contractor's responsibility to ensure that all excavations and sloping/shoring is performed in accordance with OSHA guidelines. Temporary excavation slopes may be required for soil improvement excavations and utility trenches. Conduct excavations and shoring in accordance with OSHA standards. Do not allow surcharges within a horizontal distance equal to half the excavation depth. Construction vibrations can cause excavations to slough or cave. Ultimately, the contractor is solely responsible for site safety and excavation configurations.

We did not encounter groundwater during our site investigation. We do not anticipate groundwater will affect construction. Excavations must be carefully planned allowing for water collection points and utilizing conventional sumps and pumps to remove precipitation. If site soil excavations are not immediately backfilled, they may degrade when exposed to runoff and require over-excavation and replacement with granular fill. We recommend construction activities, particularly earthwork, be performed as rapidly as possible and/or during drier conditions to reduce the potential for remedial earthwork.

Cold Weather Construction

Do not place concrete or fill on frozen soil. Do not use frozen soil as fill or backfill. Remove frozen soil, snow, and/or ice from the subgrade or fill soil prior to continuing with construction. Limit winter excavations to areas small enough to be refilled to finished grade or higher on the same day. A STRATA representative must monitor fill placed during freezing conditions to reduce the potential for placing frozen material.

Wet Weather/Soil Construction

- Ideally perform earthwork construction during dry weather conditions.
- The site clay is susceptible to pumping or rutting from heavy loads such as rubber-tired equipment or vehicles any time of the year.
- If possible, do not perform earthwork immediately after rainfall or until soil can dry sufficiently to allow construction traffic without disturbing the subgrade.
- If the subgrade soil becomes wet, it may be necessary to complete earthwork with track-mounted equipment that reduces vehicular pressure applied to the soil if construction commences in wet areas or before soil can dry.
- Depending on precipitation, runoff, and perched groundwater conditions, the site soil will be slightly below optimum moisture content. The contractor shall expect these conditions and be prepared to install runoff management facilities and to replace wet or disturbed soil with granular structural fill.

Over-excavation

- If construction takes place during wet weather conditions (not recommended) or the soil cannot achieve the required compaction following adequate efforts to moisture condition the soil, over-excavate to undisturbed, firm soil.
- Complete over-excavations with smooth blade equipment prior to replacing excavation with geotextile fabric and aggregate base. Soft soil over-excavation criteria shall be determined during construction with STRATA, the contractor, and KLJ Engineering.
- After achieving subgrade, the contractor must take precautions to protect the subgrade from becoming disturbed or saturated. The contractor must limit construction traffic to any prepared subgrades and reduce the subgrades' exposure to precipitation and water. Grade subgrades to aggressively direct surface water away from subgrades to avoid Infiltration

(8) COMPACTION REQUIREMENTS

Item*	Material	Allowable use	Material Specifications	Minimum % Compaction (ASTM D1557)	Moisture Content (percent of optimum)
0	Unsatisfactory soil	None	Soil classified as MH, OH, CH, OL or PT may not be used	N/A	N/A
1	Subgrade preparation	Soil underlying structure	Disturbed soil exposed at bottom of slabs and pavement excavation	90	≥2
2	Non-structural fill	Any area that will not contain structures (typically landscape areas, does not include any fill below the turf)	• Soil classified as GM, GW, GC, SM, SC, SW, CL, or ML according to the USCS • May not contain particles larger than 6" in median diameter • Soil must be reasonably free from deleterious substances such as wood metal, plastic, waste, etc.	88	±4
3	General structural fill	Site grading fill, utility backfill, and non-structural fill	• On-site or imported soil classified as GM, GW, GC, SM, SC, SW, CL, or ML according to the USCS • May not contain particles larger than 4" in median diameter • Soil must contain less than 3% (by weight) of organics, vegetation, wood, metal, plastic or other deleterious substances	92	-4 to +2
4	Granular structural fill	Over-excavations, soil improvements, and general structural fill	• Soil classified as GM, GW, GC, SM, SC, or SW according to the USCS • May not contain particles larger than 4" in median diameter • Soil must contain less than 3% (by weight) of organics, vegetation, wood, metal, plastic or other deleterious substances • Non-frost susceptible soil must classify as GP, GW, SP, or SW	92	-4 to +2
5	Aggregate base	Pavement aggregate, granular structural fill, and general structural fill	Aggregate meeting requirements of Grading W or L in Section 02231, Aggregate Sub-Base and Base Courses, and Section 02190, Aggregates, of the *City of Gillette 2017 Standard Construction Specifications*	92	-4 to +2

* item number corresponds to callouts in Details

Soil Compaction and Moisture Content

Density and moisture requirements for compacted soil are based on the maximum dry density and optimum moisture content as determined by ASTM D1557 (modified Proctor). Structural fill must be placed in loose lifts not exceeding 8" in thickness.

Testing Frequencies

Site Grading and Subgrade Preparation - 1 compaction test every 10,000 square feet, per each 1' lift

Required Observations

To ensure that construction conforms to the intent of the specifications, we recommend that STRATA be retained to observe, test and record the following:

Site Preparation - including grubbing, stripping, excavating and proofrolling where required.

Earthwork Observations - including monitoring and recording deviations from subsurface soil and groundwater conditions as presented in the Boring Logs on Sheets G4-G6. These observations should be performed by STRATA and include, but are not limited to:

- observe and approve removal of topsoil and root zone beneath improvements
- observe and approve all excavations and over-excavations prior to placing backfill/fill materials
- approve additional excavation, replacement or stabilization if unsuitable soil is identified by the geotechnical engineer during excavation or proofrolling operations
- perform all testing per Section 8 of this sheet

REQUIRED VERIFICATION AND INSPECTION OF SOILS (2018 IBC Table 1705.6)		
VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1.Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	--	X
2. Verify excavations are extended to proper depth and have reached proper material.	--	X
3. Perform classification and testing of compacted fill materials.	--	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	--
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	--	X

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DESIGNED: H. Fitzgerald, E.I.T.

CHECKED: D. Russell, P.E.

ORIGINATION DATE: 12/17/2018

FILE: GI18153A

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Campbell County High School

Gillette, Wyoming

PREPARED FOR:

KLJ Engineering
640 N. Highway 14-16, Unit K
Gillette, Wyoming 82716

Attn: Ms. Adrienne Hahn, P.E.

ENGINEER'S STAMP:

Professional Engineer (Civil) DENNIS A. RUSSELL 11932 Date 1-29-19 WYOMING

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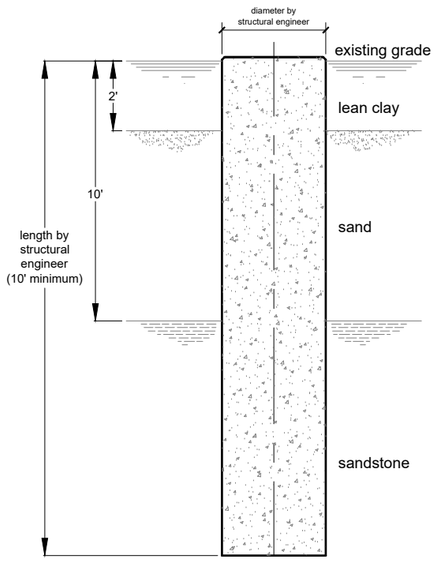
(9) DRILLED SHAFT DETAIL



*Subsurface profile at Boring B-1

General Specifications

Drilled pier construction shall conform to ACI 336.1.

Maximum out-of-plumb shall be 1.5% (0.75" in 4').

All piers shall be reinforced their entire length.

If auger refusal is met on rock, the contractor should be equipped to rock core and advance piers to the required depths.

Pier holes shall be thoroughly cleaned and dewatered, and shall be inspected by a STRATA representative immediately prior to concrete placement.

The top portion of the pier hole shall not be allowed to "mushroom." Contractor shall provide forms that match the pier diameter for the top 2' of the pier if the soil are loose and slough.

Minimum pier spacing shall be 3 times the pier diameter.

Concrete shall be placed immediately following drilling to reduce drying or sloughing of soil into the hole.

See Soil Chemistry Detail 5 on Sheet G1 for concrete requirements.

We anticipate total and differential settlements of the piers to be on the order of 1" and ½", respectively.

L-PILE Engineering Parameters						
Depth (in)	L-Pile Soil Type	Effective Unit Weight (pci)	Angle of Internal Friction, Ø	P/Y Modulus k (pci)	Undrained Cohesion C (psi)	Strain Factor E_{50}
0-24	medium clay	0.061	n/a	n/a	10	0.010
24-120	sand	0.063	30	90	n/a	n/a
120-180	sand (sandstone)	0.067	36	225	n/a	n/a

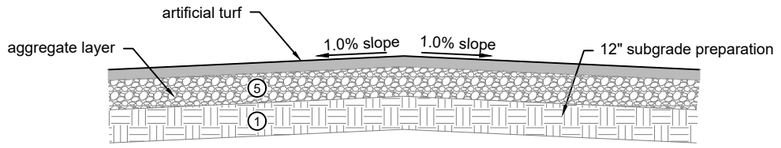
DEPTH	SECTION	End Bearing (ksf)	Skin Friction (ksf)
0'-5'	lean clay & silty sand	---	---
5'-10'	sand	4.0	0.25
10'-15'	sandstone	12.0	0.80

REQUIRED VERIFICATION AND INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS		
VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. Observe drilling operations and maintain complete and accurate records for each element.	X	--
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable), and adequate end-bearing strata capacity. Record concrete or grout volumes	X	--

Note: 2012 IBC Table 1705.8

(10) ATHLETIC FIELD SUBGRADE

Based on laboratory testing, the subsurface soil has a minimal swell potential. We provide recommendations for the athletic field subgrade in the detail below. Place aggregate layer below the artificial field turf per the manufacturer's recommendations. We recommend scarifying, moisture conditioning, and re-compacting twelve inches of the subgrade.



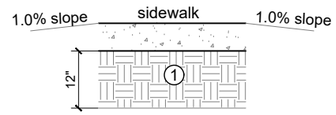
MATERIAL	DESCRIPTION
1	Subgrade prep
6	Aggregate layer per field turf manufacturers specifications

General Notes

- Remove any unsuitable material including soft and/or organic soil encountered. Scarify and moisture condition subgrade soil as shown in detail above.
- Aggregate layer shall meet the artificial field turf manufacturer's recommended gradation and thickness.
- Compact subgrade in accordance with the table in Section 8 on sheet G2.
- Place and compact structural fill in level lifts, not more than 8 inches in loose thickness, up to planned grade. Compact soil materials (and subgrade) in accordance with the table in Section 8 on this sheet.
- Grade subgrade such that surface water drains off the field at a minimum 1.0% slope.
- Water that ponds at the subgrade surface can induce heaving during freeze-thaw process.
- Never allow inverted crowns at the subgrade.

(11) SIDEWALK DETAIL

Scarify, moisture condition, and compact a minimum of twelve inches of the native subgrade below the Portland cement concrete sidewalks. Remove soil containing deleterious material below planned improvements.



(1) subgrade preparation

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PREPARED FOR:

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Attn: Ms. Adrienne Hahn, P.E.

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(12) SYMBOL KEY

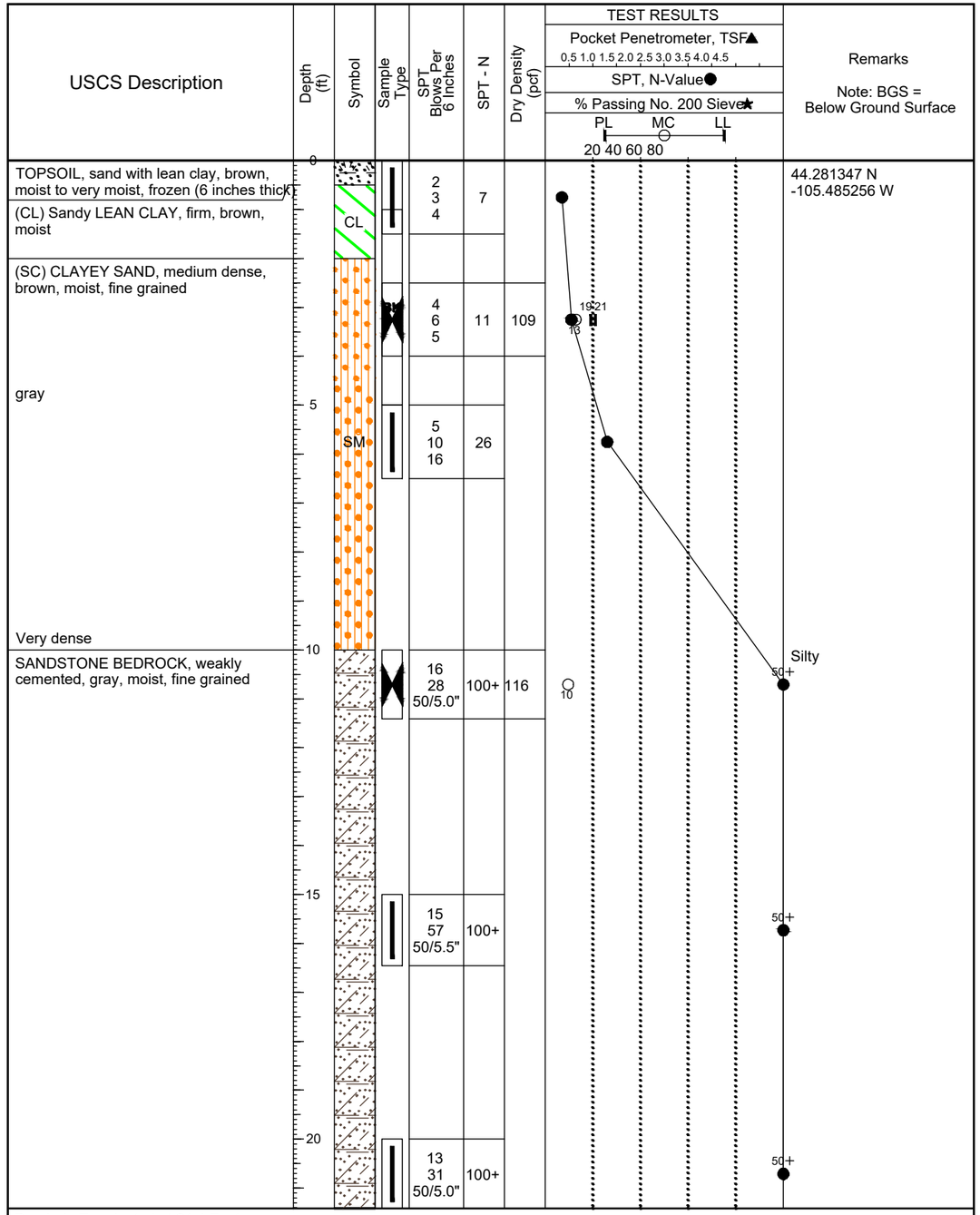
UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS	GRAVELS	CLEAN GRAVELS		GW	Well-Graded Gravel, Gravel-Sand Mixtures.
				GP	Poorly-Graded Gravel, Gravel-Sand Mixtures.
		GRAVELS WITH FINES		GM	Silty Gravel, Gravel-Sand-Silt Mixtures.
				GC	Clayey Gravel, Gravel-Sand-Clay Mixtures.
	SANDS	CLEAN SANDS		SW	Well-Graded Sand, Gravelly Sand.
				SP	Poorly-Graded Sand, Gravelly Sand.
		SANDS WITH FINES		SM	Silty Sand, Sand-Silt Mixtures.
				SC	Clayey Sand, Sand-Clay Mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50%			ML	Inorganic Silt, Sandy or Clayey Silt.
				CL	Inorganic Clay of Low to Medium Plasticity, Sandy or Silty Clay.
				OL	Organic Silt and Clay of Low Plasticity.
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%			MH	Inorganic Silt, Micaceous Silt, Plastic Silt.
				CH	Inorganic Clay of High Plasticity, Fat Clay.
				OH	Organic Clay of Medium to High Plasticity.
				PT	Peat, Muck and Other Highly Organic Soils.

BORING LOG SYMBOLS	GROUNDWATER SYMBOLS	TEST PIT LOG SYMBOLS
Standard 2-Inch OD SPT Sample	Groundwater After 24 Hours	BG Baggie Sample
California 2.5-Inch OD Split-Spoon Sample	(7-3-07) Indicates Date of Reading	BK Bulk Sample
Rock Core	Groundwater at Time of Drilling	RG Ring Sample
Shelby Tube 3-Inch OD Sample		

Shorthand Notation:
BGS = Below Existing Ground Surface
N.E. = None Encountered
HSA = Hollow Stem Auger
SSA = Solid Stem Auger
NP = Non-Plastic
NV = No Value

(13) EXPLORATION LOGS



Borehole Terminated at 21.4 Feet.

Project Name: CCHS Athletic Field Improvements - Gillette, Wyoming		
Project Number: GI18153A	Client: KLJ	
Date Drilled: 12/4/2018	Drill Rig: CME 75	Borehole Dia.: 3.25" HSA
Groundwater Depth: N.E.	Drilled By: HENDERSON	Logged By: D. Russell

BORING LOG
B-1

Sheet 1 Of 1

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Professional Engineer (Civil) DENNIS R. RUSSELL 17932 WYOMING Date 1-29-19

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USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value● ; % Passing No. 200 Sieve★ (PL MC LL 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
TOPSOIL, clayey sand, brown, moist, frozen (6 inches thick)	0			3 4 4	8			44.2808138 N -105.486015 W
(SC) CLAYEY SAND, loose, brown, moist, fine grained		SC						
(CL) Sandy LEAN CLAY, very stiff, gray with red mottles, moist		CL		5 10 13	23		19 43	
	5			8 17 23	40	104	18	
Borehole Terminated at 6.5 Feet.								

Project Name: CCHS Athletic Field Improvements - Gillette, Wyoming		
Project Number: GI18153A	Client: KLJ	
Date Drilled: 11/30/2018	Drill Rig: CME 75	Borehole Dia.: 3.25" HSA
Groundwater Depth: N.E.	Drilled By: HENDERSON	Logged By: D. Russell

BORING LOG
B-2

Sheet 1 Of 1

USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value● ; % Passing No. 200 Sieve★ (PL MC LL 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
TOPSOIL, lean clay, brown, moist to very moist, frozen (6 inches thick)	0			2 4 7	11			44.280267 N -105.486694 W
(CL) LEAN CLAY with Sand, stiff, brownish gray, moist		CL						
Very hard, red mottles			BK	10 22 38	60	114	20 19 43 ★	
	5			10 17 30	47			
(SM) SILTY SAND, dense, gray, moist, fine grained		SM						
SANDSTONE BEDROCK, weakly cemented, gray, moist, fine grained	10			22 50/5.0"	100+	112	13 50+	
Rust colored mottling	15			16 35 50/4.0"	100+		50+	
	20			18 40 50/4.0"	100+		50+	
Borehole Terminated at 21.3 Feet.								

Project Name: CCHS Athletic Field Improvements - Gillette, Wyoming		
Project Number: GI18153A	Client: KLJ	
Date Drilled: 12/4/2018	Drill Rig: CME 75	Borehole Dia.: 3.25" HSA
Groundwater Depth: N.E.	Drilled By: HENDERSON	Logged By: D. Russell

BORING LOG
B-3

Sheet 1 Of 1

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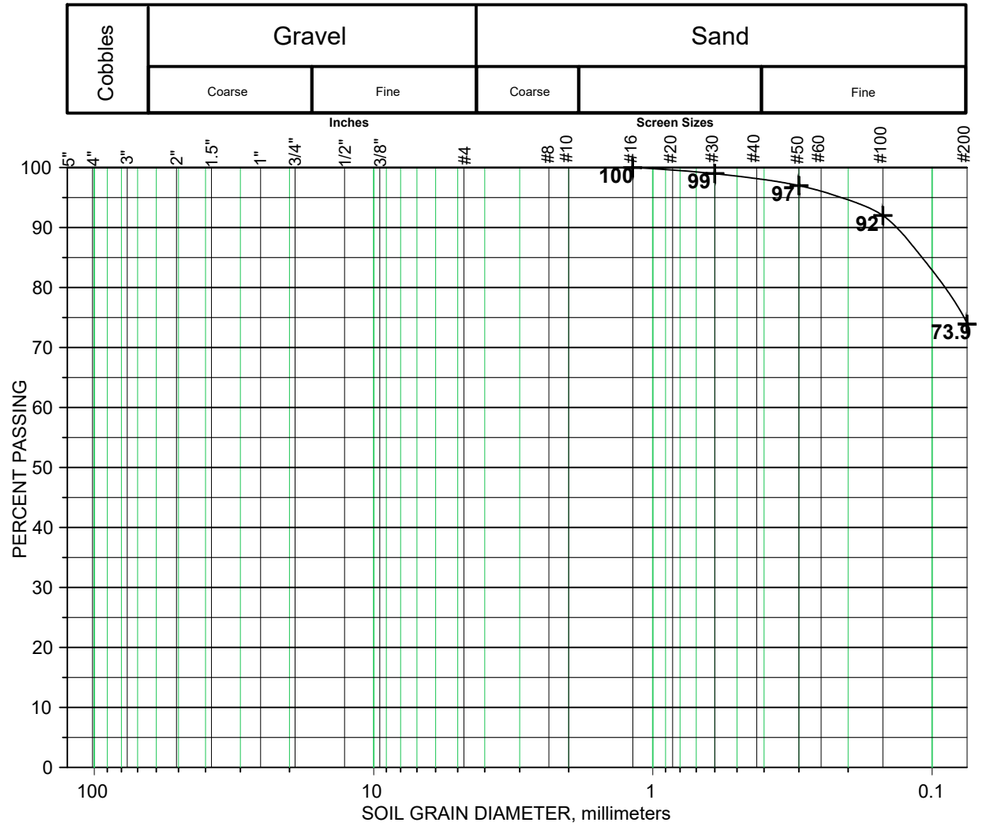
USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT - N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★ (PL MC LL; 20 40 60 80)	Remarks (Note: BGS = Below Ground Surface)
TOPSOIL, sand with lean clay, brown, moist to very moist, frozen (6 inches thick)	0			2 6 5	11			44.280557 N -105.487261 W
(CL) Sandy LEAN CLAY, stiff, brown, moist		CL						Trace gypsum salts
				3 5 9	14	106	○ 11	Sulfates=680 ppm pH=8.4 Resistivity=3520 ohm-cm
	5			5 7 11	18		○ 15 ★	
Borehole Terminated at 6.5 Feet.								

Project Name: CCHS Athletic Field Improvements - Gillette, Wyoming			BORING LOG B-4
Project Number: GI18153A	Client: KLJ		
Date Drilled: 11/30/2018	Drill Rig: CME 75	Borehole Dia.: 3.25" HSA	
Groundwater Depth: N.E.	Drilled By: HENDERSON	Logged By: D. Russell	Sheet 1 Of 1

GRADATION ANALYSIS
ASTM C136 & C137

Project: Athletic Field Improvements - Campbell County High School
Client: KLJ Engineering
Project Number: GI18153A
Sample Identification: B-3 @ 2.5 feet
Sample Classification: Sandy LEAN CLAY (CL)
Date Tested: 12/6/2018
By: JF

ATTERBERG LIMITS
Liquid Limit 43
Plasticity Index 23



ISSUED FOR
- DESIGN USE
- PRELIMINARY REVIEW
- YOUR APPROVAL
- REFERENCE
- CONSTRUCTION
- DESTROY PREVIOUS PRINTS

DATE: January 29, 2019

REV	DATE	DESCRIPTION
A	1-7-19	85% Complete
B	1-29-19	For Design

DRAWN: H. Fitzgerald, E.I.T.
DESIGNED: H. Fitzgerald, E.I.T.
CHECKED: D. Russell, P.E.
ORIGINATION DATE: 12/17/2018
FILE: GI18153A

PROJECT:
Athletic Field Improvements
Campbell County High School
Gillette, Wyoming

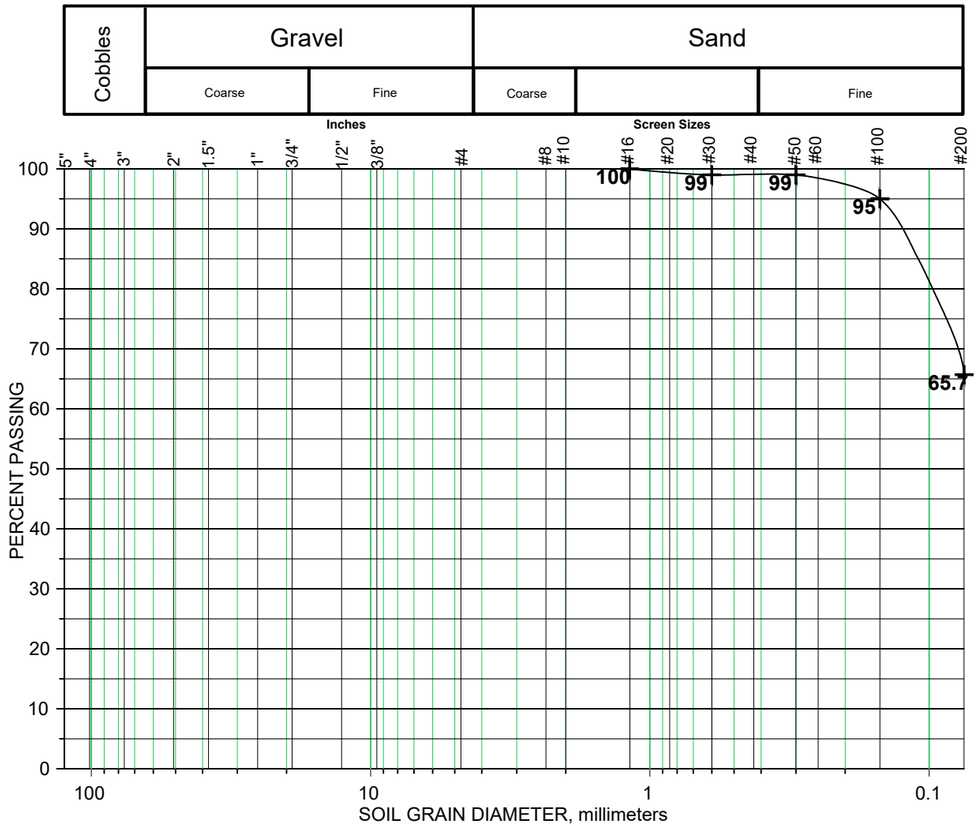
PREPARED FOR:
KLJ Engineering
640 N. Highway 14-16, Unit K
Gillette, Wyoming 82716
Attn: Ms. Adrienne Hahn, P.E.

ENGINEER'S STAMP:
Professional Engineer (Civil) DENNIS RUSSELL 11932 Date 1-29-19 WYOMING

STRATA
Integrity from the Ground Up
PO Box 1498
Gillette, WY 82717-1498
Phone: (307) 686-6409
www.StrataGeotech.com

GRADATION ANALYSIS
ASTM C136 & C137

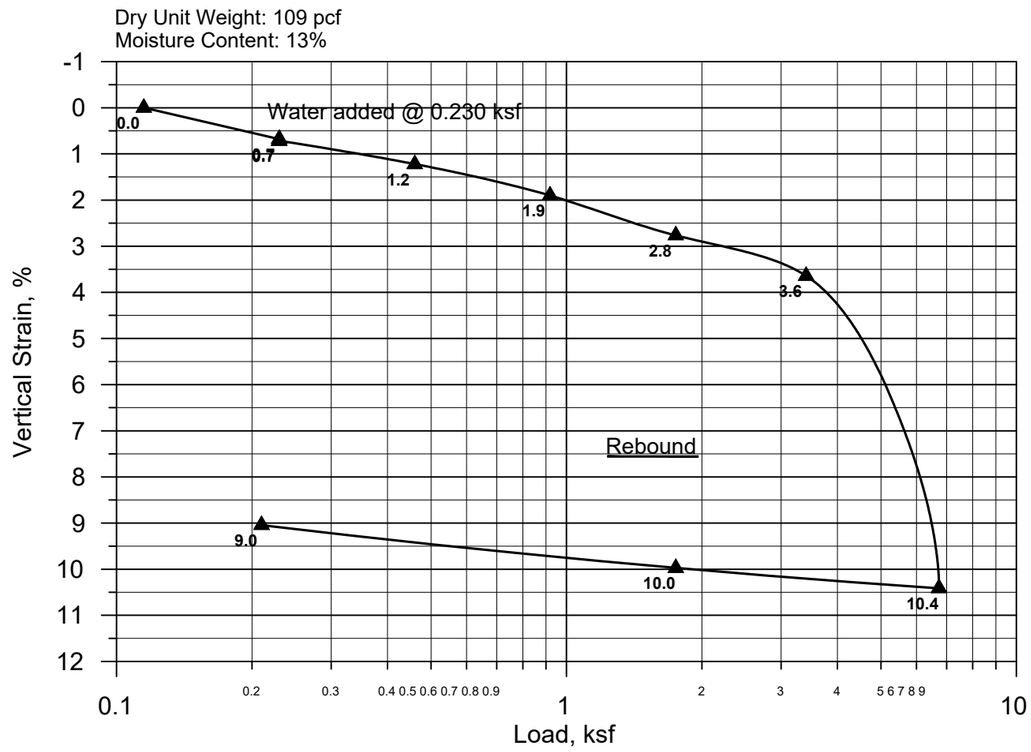
Project: Athletic Field Improvements - Campbell County High School
Client: KLJ Engineering
Project Number: GI18153A
Sample Identification: B-4 @ 5 feet
Sample Classification: Sandy LEAN CLAY (CL)
Date Tested: 12/6/2018
By: JF



ONE-DIMENSIONAL, SWELL OR COLLAPSE/CONSOLIDATION TEST RESULTS
ASTM D 4546/2435

Project: Athletic Field Improvements - Campbell County High School
Client: KLJ Engineering
Project Number: GI18153A
Sample Identification: B-1 @ 2.5 feet
Sample Classification: SILTY SAND (SM)
Date Tested: 12/6/2018
By: JF

Dry Unit Weight: 109 pcf
Moisture Content: 13%



ISSUED FOR
- [x] DESIGN USE
- [ ] PRELIMINARY REVIEW
- [ ] YOUR APPROVAL
- [ ] REFERENCE
- [ ] CONSTRUCTION
- [ ] DESTROY PREVIOUS PRINTS

DATE: January 29, 2019

REV	DATE	DESCRIPTION
A	1-7-19	85% Complete
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DRAWN: H. Fitzgerald, E.I.T.
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CHECKED: D. Russell, P.E.
ORIGINATION DATE: 12/17/2018
FILE: GI18153A

PROJECT:
Athletic Field Improvements
Campbell County High School
Gillette, Wyoming

PREPARED FOR:
KLJ Engineering
640 N. Highway 14-16, Unit K
Gillette, Wyoming 82716
Attn: Ms. Adrienne Hahn, P.E.

ENGINEER'S STAMP:
Professional Engineer (Civil) DENNIS A. RUSSELL 11932 WYOMING Date 1-29-19

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PO Box 1498
Gillette, WY 82717-1498
Phone: (307) 686-6409
www.StrataGeotech.com

LABORATORY TESTING SUMMARY

Boring	Depth (feet)	Description and Remarks (U.S.C.S. Classification)	In situ Moisture, (%)	In situ Dry Density, (pcf)	Liquid Limit	Plasticity Index	Passing No. 200, (%)	Soluble Sulfates (ppm)	pH	Resistivity (ohm-cm)
B-1	2.5	SILTY SAND (SM)	13	109	21	2				
	10	SANDSTONE BEDROCK	10	116						
B-2	2.5	Sandy LEAN CLAY (CL)			43	24				
	5	Sandy SILT (ML)	18	104						
B-3	2.5	LEAN CLAY with Sand (CL)	19	114	43	23	74			
	10	SANDSTONE BEDROCK	13	112						
B-4	2.5	Sandy LEAN CLAY (CL)	11	106				680	8.4	3520
	5	Sandy LEAN CLAY (CL)					66			

ISSUED FOR
- DESIGN USE
- PRELIMINARY REVIEW
- YOUR APPROVAL
- REFERENCE
- CONSTRUCTION
- DESTROY PREVIOUS PRINTS

DATE: January 29, 2019

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DRAWN: H. Fitzgerald, E.I.T.

DESIGNED: H. Fitzgerald, E.I.T.

CHECKED: D. Russell, P.E.

ORIGINATION DATE: 12/17/2018

FILE: GI18153A

PROJECT:

Athletic Field Improvements
Campbell County High School

Gillette, Wyoming

PREPARED FOR:

KLJ Engineering
640 N. Highway 14-16, Unit K
Gillette, Wyoming 82716

Attn: Ms. Adrienne Hahn, P.E.

ENGINEER'S STAMP:

Professional Engineer (Civil) DENNIS RUSSELL 11932 WYOMING Date 1-29-19

STRATA
Integrity from the Ground Up
PO Box 1498
Gillette, WY 82717-1498
Phone: (307) 686-6409
www.StrataGeotech.com

CONSTRUCTION PLANS FOR
CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST

OWNER:

CAMPBELL COUNTY SCHOOL
DISTRICT NO.1
109 NORTH GURLEY AVENUE
GILLETTE, WY 82716
PHONE #307.682.2750

ENGINEER:

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
PHONE #307.682.9500
FAX #855.288.8055

VICINITY MAP
N.T.S.

SHEET NO. SHEET TITLE

TOTAL # OF SHEETS = 21

CALL BEFORE YOU DIG
ONE-CALL OF WYOMING
1-800-849-2476
OR
811
UTILITY NOTIFICATION CENTER OF WYOMING

BENCHMARK (CCHS ACCESS ROAD):

CITY OF GILLETTE VCM #: 26

NORTHING: 1378573.0000
EASTING: 572794.1000
ELEVATION: 4534.940'

BENCHMARK (E. EIGHTH STREET):

CITY OF GILLETTE VCM #: 27

NORTHING: 1380365.4100
EASTING: 570288.9800
ELEVATION: 4532.823'

REFER TO THE INDIVIDUAL PLAN SHEETS WITHIN THIS DOCUMENT THAT ARE SEALED BY THE APPLICABLE DISCIPLINE

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
COVER SHEET

640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
www.KLJENG.COM

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DATE: 03/20/2019
JOB NO: 1817-00975
DRAWN BY: APM
APPROVED BY: AJH

COVER SHEET
CS-1

TEMPORARILY SUSPEND INSTALLATION OF THE TOPSOIL AND REPLACEMENT SOD IN ALL DISTURBED IRRIGATED AREAS WITHIN APPROXIMATE 10' BUFFER OF THE BUILDING UNTIL COMPLETION OF THE BUILDING AND ASSOCIATED SURFACING - REFERENCE TOPSOIL AND REPLACEMENT SOD AS PART OF BASE BID PROJECT (TYP.)

TEMPORARY FENCING AND DISTURBANCE EXTENTS AS PART OF BASE BID PROJECT (SEE DEMOLITION AND LANDSCAPING PLAN OF BASE BID PLAN SET)

OMIT THE 6" PCC SURFACING PAD FOR THE ELECTRICAL PEDESTAL AND STORM SEWER INLET COLLAR FROM THE BASE BID (SEE THE BASE BID PLAN SET)

PERFORM FINAL ADJUSTMENT OF NYLOPLAST INLET WITH PEDESTRIAN GRATE WITH CONCRETE COLLAR AFTER COMPLETION OF BUILDING - REFERENCE STORM SEWER PLAN AND COLLAR DETAIL AS PART OF BASE BID PROJECT (TYP.)

COORDINATE AND PRESERVE IRRIGATION COMPONENTS AS PART OF BASE BID PROJECT (SEE IRRIGATION PLAN OF BASE BID PLAN SET)

STORM SEWER AS PART OF BASE BID PROJECT (SEE STORM SEWER PLAN OF BASE BID PLAN SET)

LANDSCAPING TO TRANSITION FROM PROPOSED FIELD TO EXISTING SITE AS PART OF BASE BID PROJECT (SEE LANDSCAPING PLAN OF BASE BID PLAN SET)

INSTALL CROW'S NEST BUILDING (SEE ARCHITECTURAL PLAN)

SITE GRADING AND GRASS LINED FLOW LINE AS PART OF BASE BID PROJECT (SEE DETAILED GRADING PLAN OF BASE BID PLAN SET)

ELECTRICAL CONDUIT AS PART OF BASE BID PROJECT (SEE ELECTRICAL PLAN OF BASE BID PLAN SET)

ELECTRICAL CONDUIT FOR ATHLETIC LIGHTING SYSTEM AS PART OF BASE BID PROJECT (SEE ELECTRICAL PLAN OF BASE BID PLAN SET)

CURB NAILER AS PART OF BASE BID PROJECT (SEE SURFACING AND JOINTING PLAN OF BASE BID PLAN SET)

OMIT INSTALLATION OF ELECTRICAL PEDESTAL AS PART OF BASE BID PROJECT (SEE ELECTRICAL PLAN OF BASE BID PLAN SET)

AUDIO SIGNAL CONDUIT AS PART OF BASE BID PROJECT (SEE ELECTRICAL PLAN OF BASE BID PLAN SET)

DATA CONDUIT AS PART OF BASE BID PROJECT (SEE ELECTRICAL PLAN OF BASE BID PLAN SET)

EXTEND ELECTRICAL, DATA, AND AUDIO CONDUIT AND WIRING INTO BUILDING (SEE ELECTRICAL PLAN)

INSTALL FOUNDATION AND VARIOUS SURFACING FOR BUILDING (SEE STRUCTURAL PLAN)

COORDINATE AND PRESERVE IRRIGATION COMPONENTS AS PART OF BASE BID PROJECT (SEE IRRIGATION PLAN OF BASE BID PLAN SET)

RELOCATE PULL (JUNCTION) BOX AS PART OF BASE BID PROJECT TO LOCATION SHOWN, GENERALLY OUTSIDE OF BUILDING ENVELOPE, AND COORDINATE CONDUIT AND WIRING INTO BUILDING (SEE ELECTRICAL PLAN, AND ELECTRICAL PLAN OF BASE BID PLAN SET)

PROPOSED SYNTHETIC TURF COMPETITION FIELD AS PART OF BASE BID PROJECT

NOTES:

1. THE WORK ON THIS PLAN IS DETAILED ASSUMING THE ACCEPTANCE OF THE ALTERNATE CROW'S NEST WORK. IF NOT ACCEPTED THE BASE BID PROJECT AND PLAN SET REMAINS UNCHANGED. REFERENCE AND COORDINATE WITH BASE BID PROJECT PLAN SET FOR MORE INFORMATION.
2. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK.
3. ALL ITEMS NOT SPECIFICALLY IDENTIFIED TO BE REPLACED ARE TO REMAIN IN PLACE AND BE PROTECTED FOR THE ENTIRETY OF THE PROJECT. TAKE CARE AS TO CAUSE NO DAMAGE WITH WORK AROUND EXISTING FACILITIES TO REMAIN IN PLACE.
4. SURPLUS CUT MATERIAL GENERATED FROM EFFORTS ON FOUNDATION AND SURFACING INSTALLATION TO BE PLACED WITHIN EXISTING CCSD SPOIL LOCATION ADJACENT TO PROJECT EXTENTS, SOUTH OF THE EAST PARKING LOT. COORDINATE WITH CCSD.

**SEE ARCHITECTURAL, ELECTRICAL, AND STRUCTURAL PLANS FOR ADDITIONAL INFORMATION. ALSO REFERENCE BASE BID PLAN SET FOR ADDITIONAL INFORMATION.*

N

SCALE 5 0 5 10 FEET

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ENGINEER IN THE STATE OF WYOMING.

Professional Engineer (Civil) ANTHONY P. MACDONALD 13597 Date 3/20/19 WYOMING

REV. #	REVISION DESCRIPTION	DATE	BY
0	FOR CONSTRUCTION	03.20.19	APM

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS CROW'S NEST OVERALL SITE PLAN

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
www.KLJENG.com

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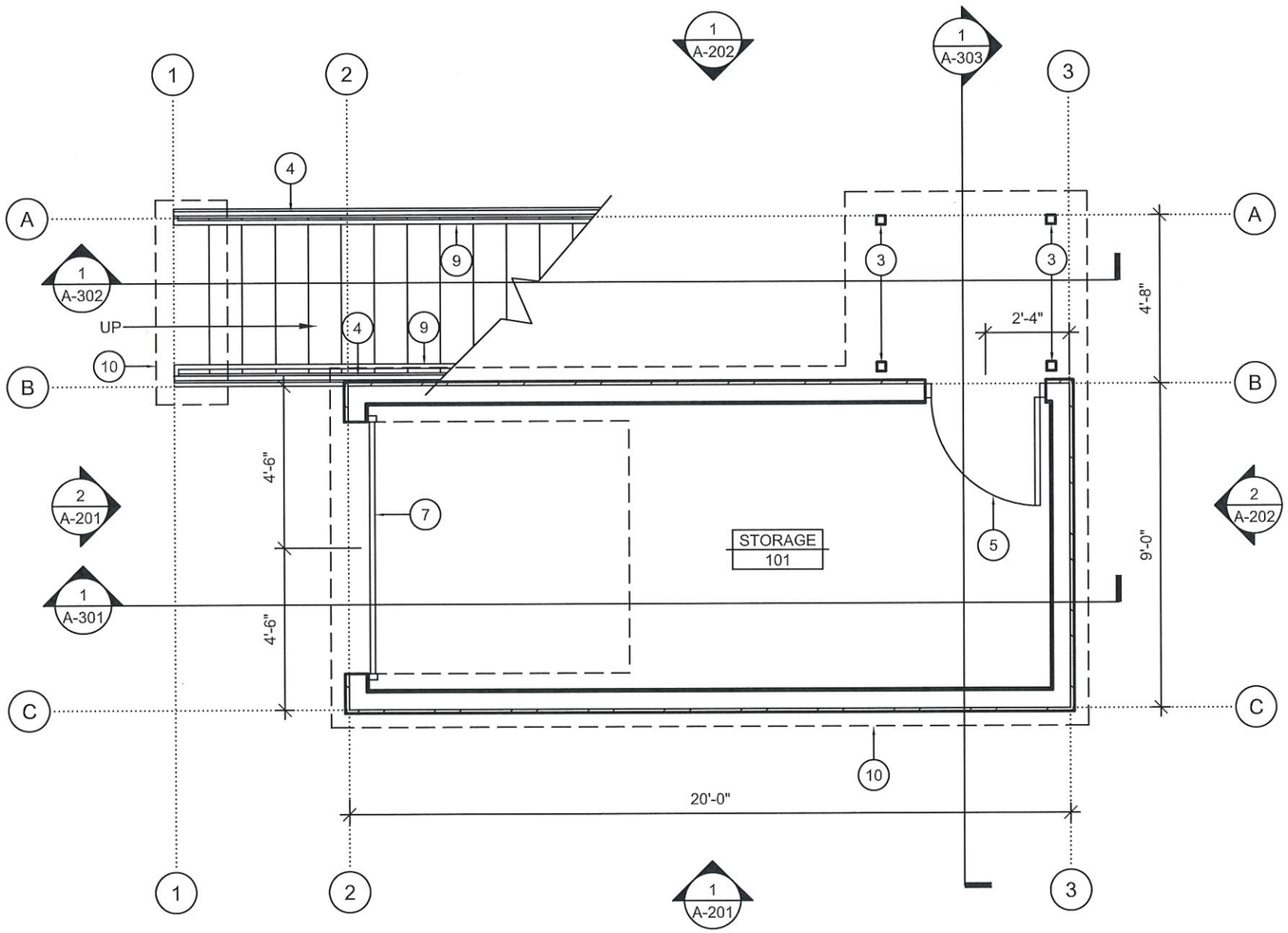
DATE:	03/20/2019
JOB NO:	1817-00975
DRAWN BY:	APM
APPROVED BY:	AJH

OVERALL SITE PLAN
SP-1.0



1 LOWER FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL FLOOR PLAN NOTES:

1. ALL DIMENSIONS ARE TO OUTSIDE FACE OF EXTERIOR WALL SHEATHING. AND FOUNDATION UNLESS OTHERWISE NOTED.
2. SEE CIVIL, STRUCTURAL, AND ELECTRICAL FOR RESPECTIVE WORK.
3. PROVIDE RUBBER CLOSURES AT TOP AND BOTTOM OF ALL WALLS AND ROOF EDGES ALONG WITH PRE-FINISHED METAL CAP, DRIP EDGE, AND J-TRIM AROUND ALL OPENINGS AND AT WALL SOFFIT CONNECTION.

REFERENCED FLOOR PLAN NOTES:

1. SURFACE MOUNTED 10LB FIRE EXTINGUISHER.
2. 18" DEEP WD. SHELF WITH METAL SUPPORT BRACKETS AT 4'-0" O.C. AND 1X4 SHELF SUPPORT UNDER PERIMETER.
3. STEEL COLUMN STAIR SUPPORT, (SEE STRUCT.), (PAINTED), COLOR SELECTED BY OWNER.
4. 1 1/2" DIA. METAL GUARDRAIL, (PAINTED), COLOR SELECTED BY OWNER.
5. 36" W. X 80" H. MASTERCRAFT PRE-FINISHED, FLUSH PREHUNG EXTERIOR METAL DOOR WITH BRICK MOLDING OR APPROVED EQUAL, INSWING. (COLOR: SELECTED BY OWNER)
6. ANDERSEN, 100 SERIES, 47 1/2" H. X 59 1/2" W. COMPOSITE OR VINYL WINDOW, WITH STANDARD LOCKS, NO GRILLES, NAILING FLANGE, AND STANDARD GLASS, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
7. CLOPLAY, 8,-0" H. X 7'-0" W. INSULATED STEEL SECTIONAL OVERHEAD DOOR WITH STANDARD LOCK AND LATCH SYSTEM OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
8. STEEL COLUMN STAIR SUPPORT BELOW LANDING, (SEE STRUCT.)
9. 1 1/2" DIA. METAL HANDRAIL, (PAINTED), COLOR SELECTED BY OWNER.
10. CONCRETE SLAB, (SEE STRUCTURAL)

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT IN THE STATE OF WYOMING.

LICENSED ARCHITECT
DANIEL J. SCHAFF
C-3048
Date: 3/20/19
STATE OF WYOMING

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
LOWER FLOOR PLAN

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
www.KLJENG.COM

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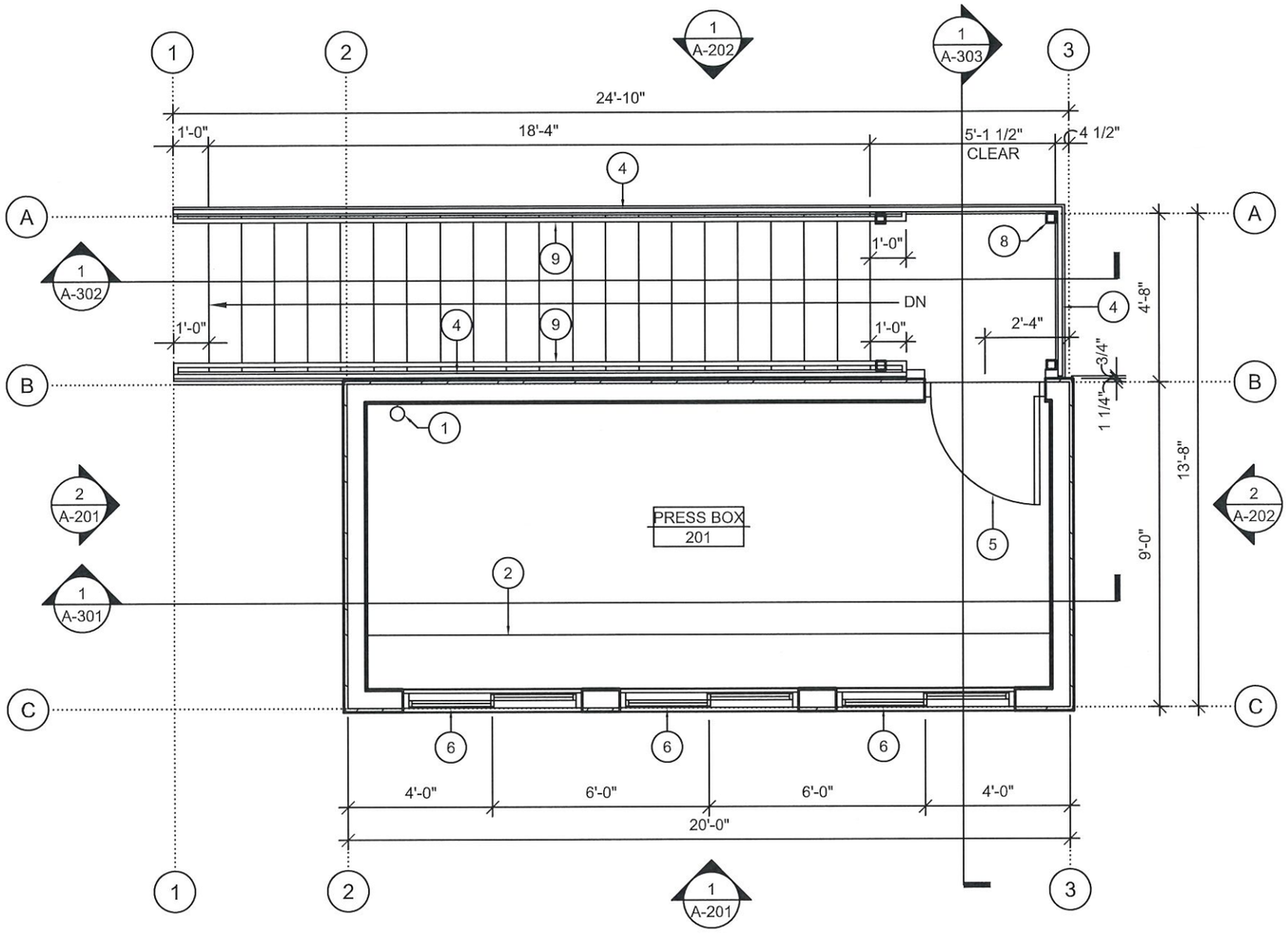
DATE:	03/20/2019
JOB NO:	1817_00975
DRAWN BY:	LGF/DJS
APPROVED BY:	DJS

LOWER FLOOR PLAN
A-101



1 UPPER FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL FLOOR PLAN NOTES:

1. ALL DIMENSIONS ARE TO OUTSIDE FACE OF EXTERIOR WALL SHEATHING. AND FOUNDATION UNLESS OTHERWISE NOTED.
2. SEE CIVIL, STRUCTURAL, AND ELECTRICAL FOR RESPECTIVE WORK.
3. PROVIDE RUBBER CLOSURES AT TOP AND BOTTOM OF ALL WALLS AND ROOF EDGES ALONG WITH PRE-FINISHED METAL CAP, DRIP EDGE, AND J-TRIM AROUND ALL OPENINGS AND AT WALL SOFFIT CONNECTION.

REFERENCED FLOOR PLAN NOTES:

1. SURFACE MOUNTED 10LB FIRE EXTINGUISHER.
2. 18" DEEP WD. SHELF WITH METAL SUPPORT BRACKETS AT 4'-0" O.C. AND 1X4 SHELF SUPPORT UNDER PERIMETER.
3. STEEL COLUMN STAIR SUPPORT, (SEE STRUCT.), (PAINTED), COLOR SELECTED BY OWNER.
4. 1 1/2" DIA. METAL GUARDRAIL, (PAINTED), COLOR SELECTED BY OWNER.
5. 36" W. X 80" H. MASTERCRAFT PRE-FINISHED, FLUSH PREHUNG EXTERIOR METAL DOOR WITH BRICK MOLDING OR APPROVED EQUAL, INSWING. (COLOR: SELECTED BY OWNER)
6. ANDERSEN, 100 SERIES, 47 1/2" H. X 59 1/2" W. COMPOSITE OR VINYL WINDOW, WITH STANDARD LOCKS, NO GRILLES, NAILING FLANGE, AND STANDARD GLASS, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
7. CLOPLAY, 8,-0" H. X 7'-0" W. INSULATED STEEL SECTIONAL OVERHEAD DOOR WITH STANDARD LOCK AND LATCH SYSTEM OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
8. STEEL COLUMN STAIR SUPPORT BELOW LANDING, (SEE STRUCT.)
9. 1 1/2" DIA. METAL HANDRAIL, (PAINTED), COLOR SELECTED BY OWNER.
10. CONCRETE SLAB, (SEE STRUCTURAL)

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT IN THE STATE OF WYOMING.

LICENSED ARCHITECT DANIEL J. SCHAFF C-3048 STATE OF WYOMING Date: 3/20/19

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
UPPER FLOOR PLAN

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
WWW.KLJENG.COM

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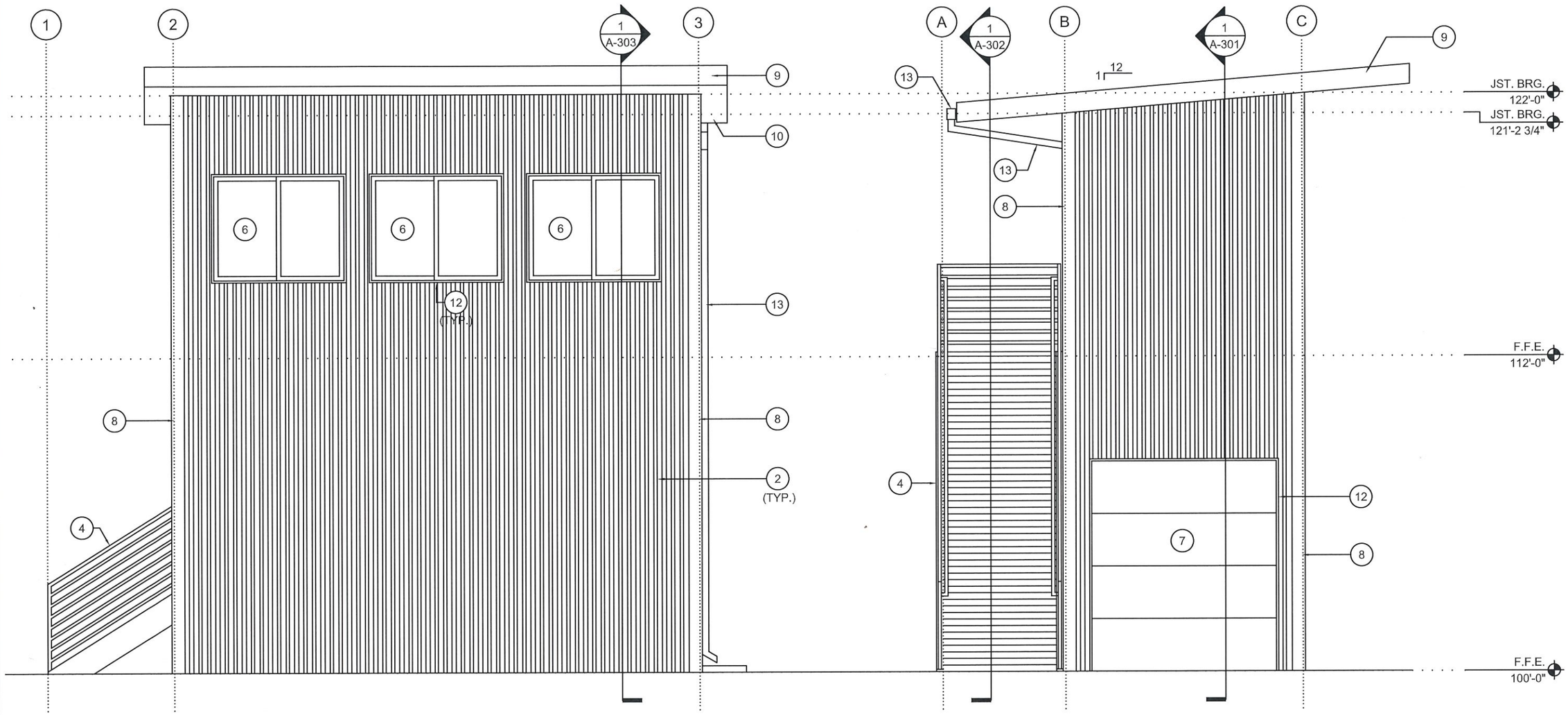
DATE:	03/20/2019
JOB NO:	1817_00975
DRAWN BY:	LGP/DJS
APPROVED BY:	DJS

UPPER FLOOR PLAN
A-102



1 EAST ELEVATION

SCALE: 1/4" = 1'-0"

2 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"

GENERAL ELEVATION NOTES:

1. SEE ELECTRICAL FOR ADDITIONAL INFORMATION.

REFERENCED ELEVATION NOTES:

1. PAC-CLAD R-36 CORRUGATED METAL ROOF PANEL, 24 GAUGE, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
2. PAC-CLAD R-36 CORRUGATED METAL WALL PANEL, 26 GAUGE, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
3. STEEL COLUMN STAIR SUPPORT, (SEE STRUCT.), (PAINTED - COLOR: SELECTED BY OWNER)
4. STEEL STAIRS, STRINGERS, GUARDRAIL, RAILING, AND LANDING, (PAINTED - COLOR: SELECTED BY OWNER)
5. 36" W. X 80" H. MASTERCRAFT PRE-FINISHED, FLUSH, PREHUNG EXTERIOR METAL DOOR WITH BRICK MOLDING OR APPROVED EQUAL, INSWING. (COLOR: SELECTED BY OWNER)
6. ANDERSEN, 100 SERIES, 47 1/2" H. X 59 1/2" W. COMPOSITE OR VINYL WINDOW, WITH STANDARD LOCKS, NO GRILLES, NAILING FLANGE, AND STANDARD GLASS, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
7. CLOPLAY, 8,-0" H. X 7'-0" W. INSULATED STEEL SECTIONAL OVERHEAD DOOR WITH STANDARD LOCK AND LATCH SYSTEM OR APPROVED EQUAL, (COLOR: SELECTED BY OWNER)
8. PRE-FINISHED METAL OUTSIDE TRIM, 26 GAUGE. (COLOR SELECTED BY OWNER)
9. PRE-FINISHED METAL RAKE FLASHING, 26 GAUGE. (COLOR SELECTED BY OWNER)
10. PRE-FINISHED, VENTED PREMIUM PRO-STEEL METAL SOFFIT OR APPROVED EQUAL, (COLOR: AS SELECTED BY OWNER)
11. CORBIN RUSSWIN CL3351 DOOR HARDWARE, FINISH 626
12. PRE-FINISHED METAL J-TRIM AROUND ALL OPENINGS, (COLOR: SELECTED BY OWNER)
13. PRE-FINISHED, SEAMLESS ALUMINUM RAIN GUTTER AND DOWNSPOUT, (COLOR SELECTED BY OWNER), PROVIDE CONCRETE SPLASH BLOCK AT BASE

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT IN THE STATE OF WYOMING.

LICENSED ARCHITECT DANIEL J. SCHAFF C-3048 STATE OF WYOMING Date: 3/20/19

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS CROW'S NEST EXTERIOR ELEVATIONS

KLJ
640 N HWY 14-16 UNIT K
GILLETTE, WY 82716
307.682.9500
WWW.KLJENG.COM

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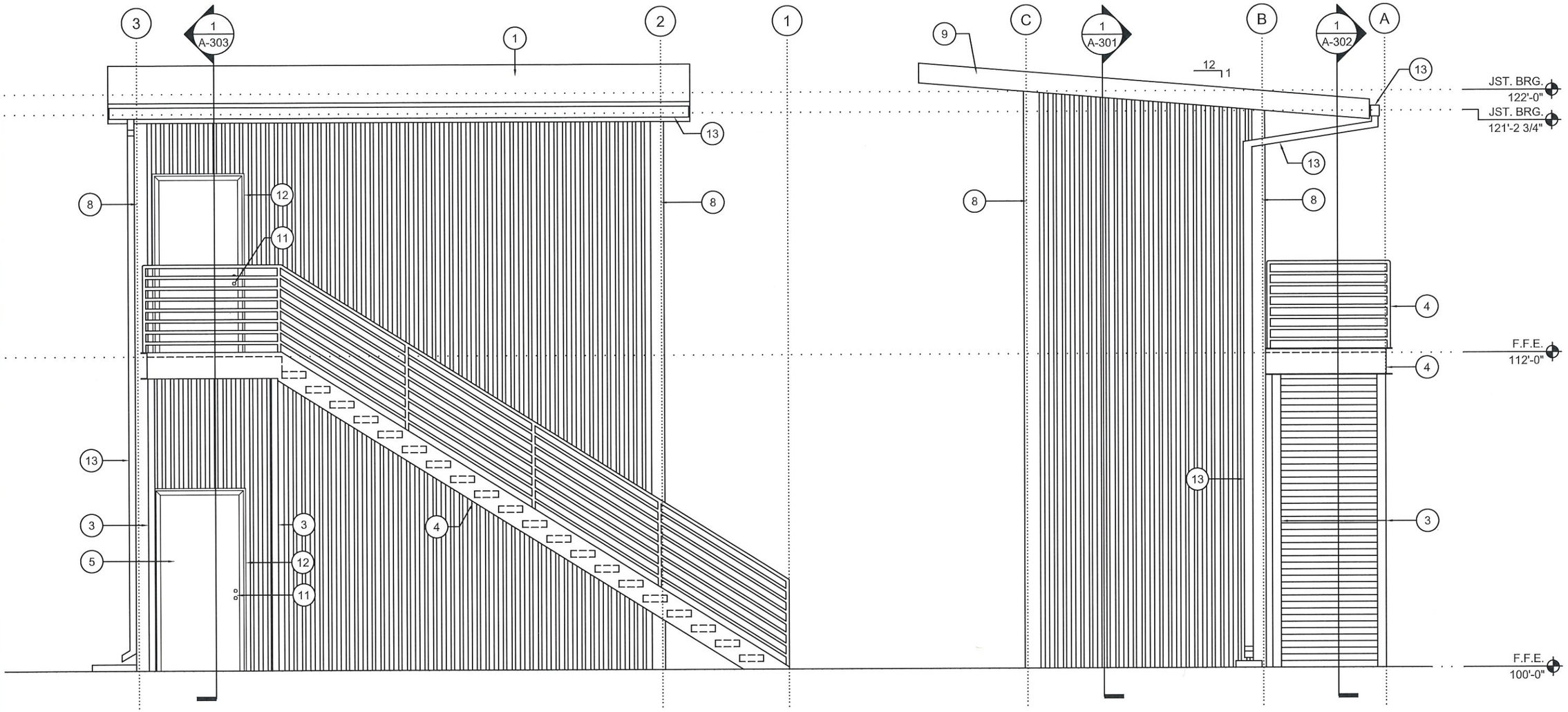
DATE:	03/20/2019
JOB NO:	1817_00975
DRAWN BY:	LGF/DJS
APPROVED BY:	DJS

EXTERIOR ELEVATIONS

A-201



1 WEST ELEVATION

SCALE: 1/4" = 1'-0"

2 NORTH ELEVATION

SCALE: 1/4" = 1'-0"

GENERAL ELEVATION NOTES:

1. SEE ELECTRICAL FOR ADDITIONAL INFORMATION.

REFERENCED ELEVATION NOTES:

1. PAC-CLAD R-36 CORRUGATED METAL ROOF PANEL, 24 GAUGE, OR APPROVED EQUAL. (COLOR: SELECTED BY OWNER)
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3. STEEL COLUMN STAIR SUPPORT, (SEE STRUCT.), (PAINTED - COLOR: SELECTED BY OWNER)
4. STEEL STAIRS, STRINGERS, GUARDRAIL, RAILING, AND LANDING, (PAINTED - COLOR: SELECTED BY OWNER)
5. 36" W. X 80" H. MASTERCRAFT PRE-FINISHED, FLUSH, PREHUNG EXTERIOR METAL DOOR WITH BRICK MOLDING OR APPROVED EQUAL, INSWING. (COLOR: SELECTED BY OWNER)
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7. CLOPLAY, 8,-0" H. X 7'-0" W. INSULATED STEEL SECTIONAL OVERHEAD DOOR WITH STANDARD LOCK AND LATCH SYSTEM OR APPROVED EQUAL, (COLOR: SELECTED BY OWNER)
8. PRE-FINISHED METAL OUTSIDE TRIM, 26 GAUGE. (COLOR SELECTED BY OWNER)
9. PRE-FINISHED METAL RAKE FLASHING, 26 GAUGE. (COLOR SELECTED BY OWNER)
10. PRE-FINISHED, VENTED PREMIUM PRO-STEEL METAL SOFFIT OR APPROVED EQUAL, (COLOR: AS SELECTED BY OWNER)
11. CORBIN RUSSWIN CL3351 DOOR HARDWARE, FINISH 626
12. PRE-FINISHED METAL J-TRIM AROUND ALL OPENINGS, (COLOR: SELECTED BY OWNER)
13. PRE-FINISHED, SEAMLESS ALUMINUM RAIN GUTTER AND DOWNSPOUT, (COLOR SELECTED BY OWNER), PROVIDE CONCRETE SPLASH BLOCK AT BASE

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ARCHITECT IN THE STATE OF WYOMING.

LICENSED ARCHITECT DANIEL J. SCHAFF C-3048 STATE OF WYOMING
Date: 3/20/19

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
EXTERIOR ELEVATIONS

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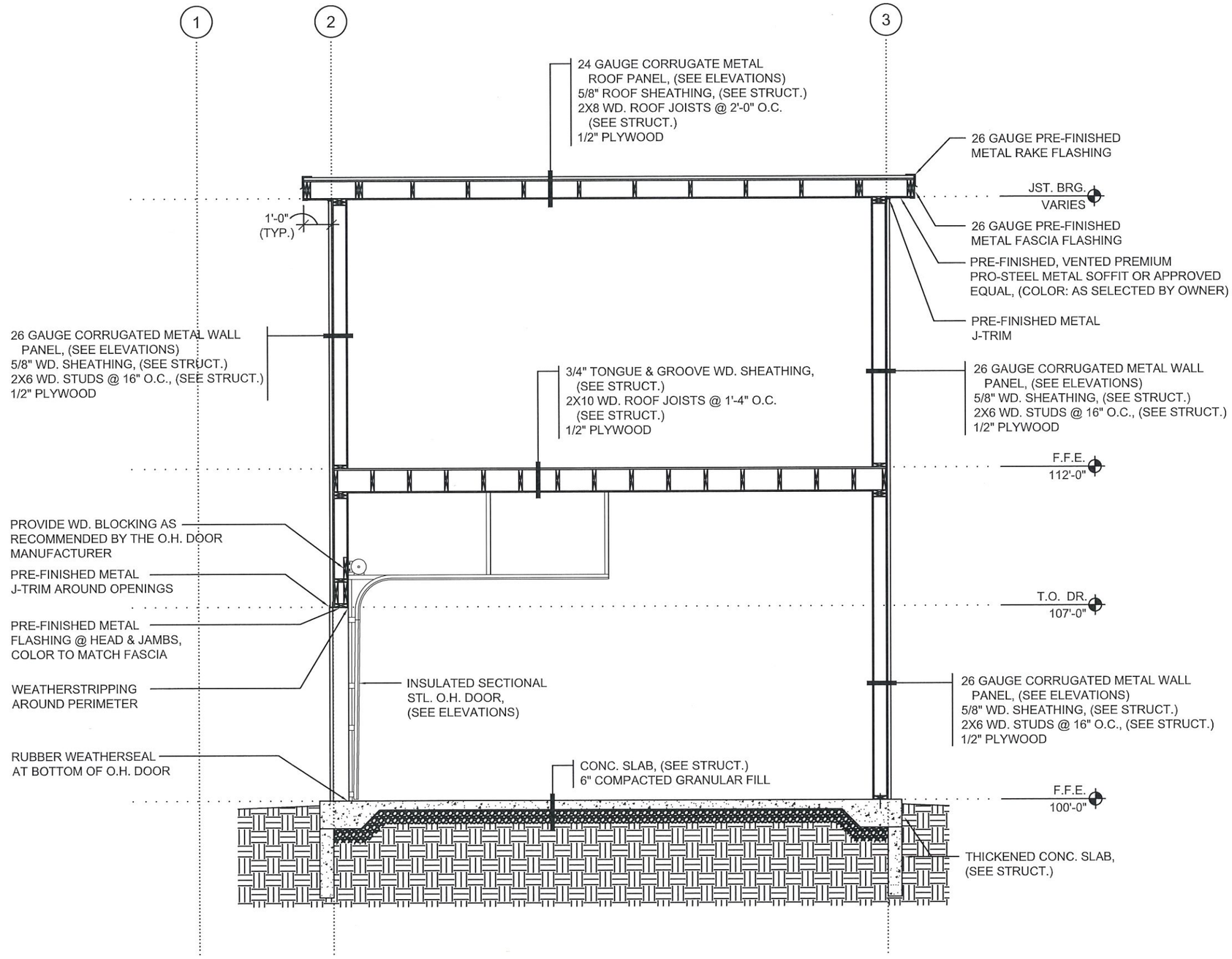
EXTERIOR ELEVATIONS
A-202



1 BUILDING SECTION

SCALE: 1/4" = 1'-0"

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
BUILDING SECTION

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LICENSED ARCHITECT
DANIEL J. SCHAFF
C-3048
Date: 3/20/19
STATE OF WYOMING

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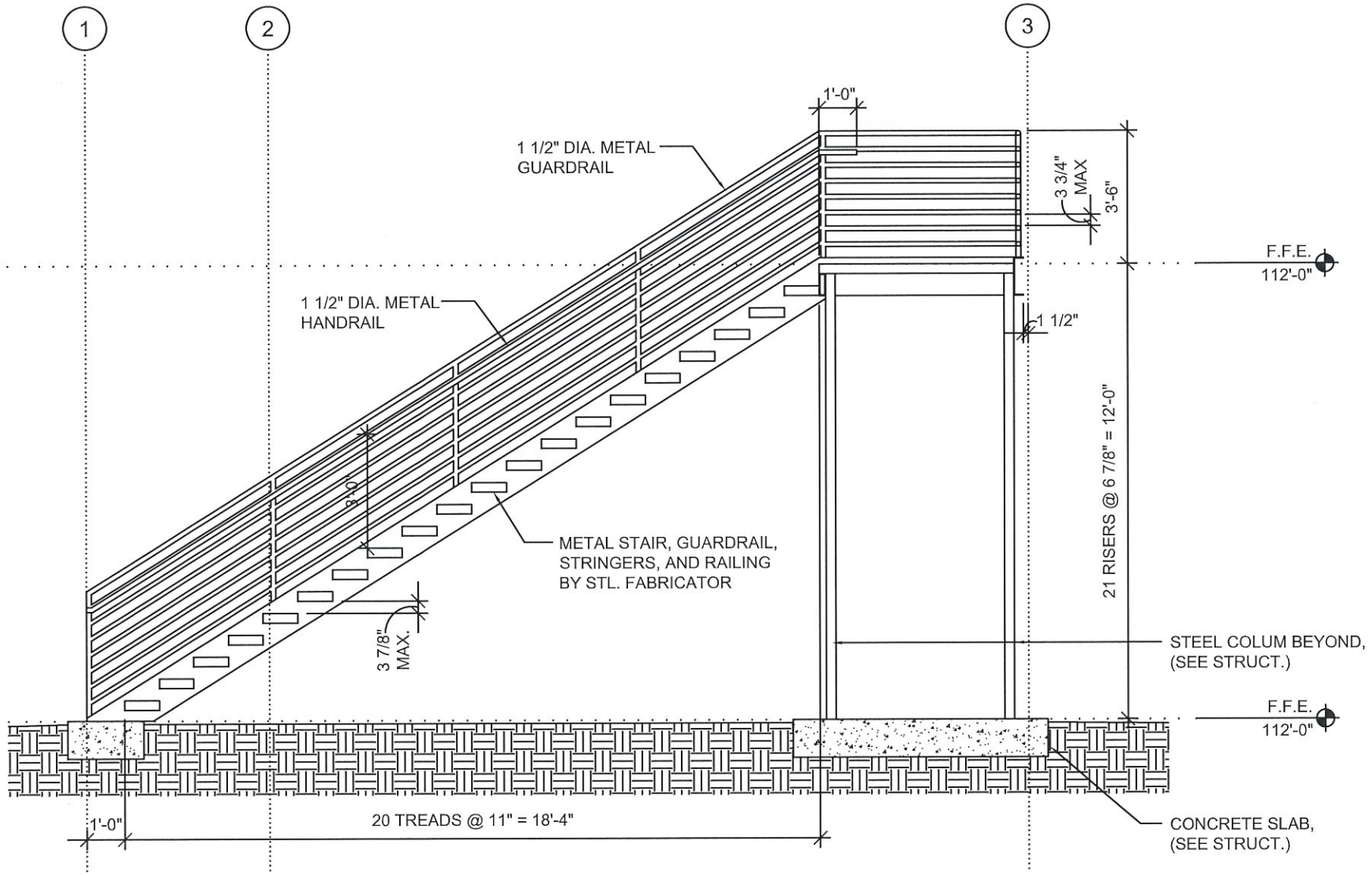
BUILDING SECTION
A-301



GENERAL METAL STAIR NOTES:

1. SEE STRUCTURAL FOR COLUMN X-BRACING AND ADDITIONAL INFORMATION.
2. TREADS ARE TO BE DIRECT METALS SAFETY GRATING - TRACTION TREAD PLANKING - 3" DEEP WITH SQUARE HOLE PATTERN OR APPROVED EQUAL. GALVANIZED STL. OR ALUMINUM. GAUGE OR THICKNESS AS RECOMMENDED BY THE MANUFACTURER FOR THE SPANS INDICATED.
3. THE LANDING IS TO BE DIRECT METALS SAFETY GRATING - TRACTION TREAD FLOORING OVER 3" DEEP FRAME WITH SQUARE HOLE PATTERN OR APPROVED EQUAL. GALVANIZED STL. OR ALUMINUM. GAUGE OR THICKNESS AS RECOMMENDED BY THE MANUFACTURER FOR THE SPANS INDICATED.
4. PRIME AND PAINT STRINGERS, RAILINGS, COLUMNS, SUPPORTS, AND GUARDRAILS WITH SHERWIN WILLIAMS PAINT AND PRIMER TYPE OR APPROVED EQUAL AS RECOMMENDED BY THE MANUFACTURER.

1 STAIR SECTION

SCALE: 1/4" = 1'-0"

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LICENSED ARCHITECT DANIEL J. SCHAFF C-3048 STATE OF WYOMING Date: 3/20/19

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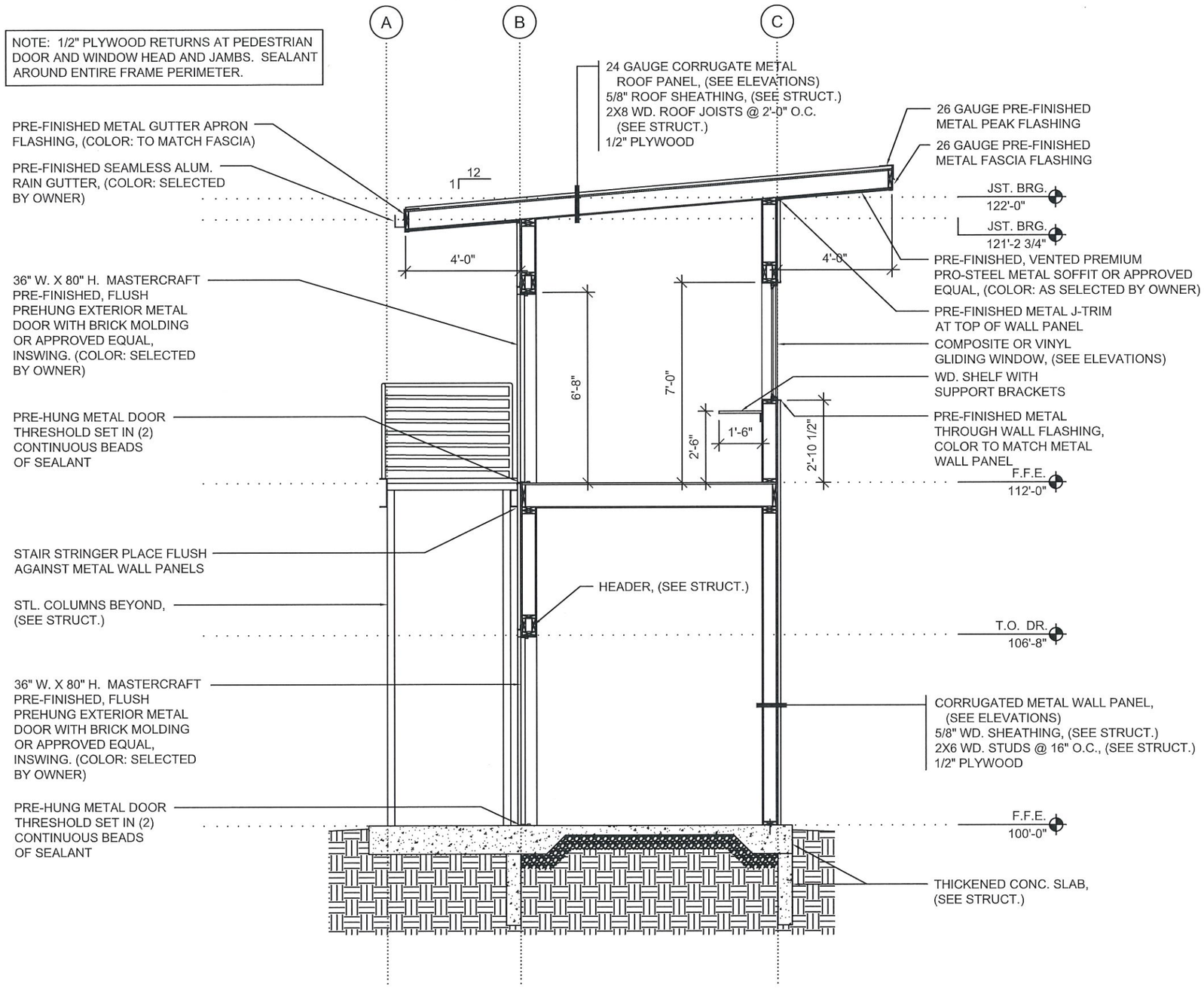
BUILDING SECTION

A-302

NOTE: 1/2" PLYWOOD RETURNS AT PEDESTRIAN DOOR AND WINDOW HEAD AND JAMBS. SEALANT AROUND ENTIRE FRAME PERIMETER.



1 BUILDING SECTION

SCALE: 1/4" = 1'-0"

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LICENSED ARCHITECT DANIEL J. SCHAFF C-3048 STATE OF WYOMING

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CAMPBELL COUNTY HIGH SCHOOL ATHLETIC FIELD IMPROVEMENTS

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BUILDING SECTION

A-303

STANDARD ABBREVIATIONS

AC	ABOVE COUNTER (MIN 4" ABOVE BACKSLPASH)	MC	MECHANICAL CONTRACTOR
AFF	ABOVE FINISH FLOOR	MCA	MINIMUM CIRCUIT AMPACITY
AFG	ABOVE FINISH GRADE	MCB	MAIN CIRCUIT BREAKER
AHU	AIR HANDLING UNIT	MLO	MAIN LUG ONLY
ATC	AUTOMATIC TEMPERATURE CONTROL	NC	NURSES CALL
BOF	BOTTOM OF FIXTURE	NFDS	NON-FUSIBLE DISCONNECT SWITCH
CKT	CIRCUIT	NR	NOT REQUIRED
CM	CEILING MOUNTED	P	PAGING/BACKGROUND MUSIC
CP	CONTROL PANEL	PA	PUBLIC ADDRESS
CU	CONDENSING UNIT	PRV	POWER ROOF VENTILATOR
CUH	CABINET UNIT HEATER	RF	RELIEF FAN
DT	DUST TIGHT	RGSC	RIGID GALVANIZED STEEL CONDUIT
DTR	DATA RACK	RT	RAIN-TIGHT
EC	ELECTRICAL CONTRACTOR	RTU	ROOFTOP UNIT
EF	EXHAUST FAN	S	SECURITY
EM	EMERGENCY	SCP	SOUND CONTROL PANEL
EP	EXPLOSION PROOF	SD	SEE DETAIL
EWC	ELECTRIC WATER COOLER	SS	SURGE SUPPRESSION
EWH	ELECTRIC WATER HEATER	SW	SWITCH
F	FUSED	T	TELEPHONE
FA	FIRE ALARM	TSSW	TWO SPEED SEPERATE WINDING
FACP	FIRE ALARM CONTROL PANEL	TTB	TELEPHONE TERMINAL BOARD
FDS	FUSIBLE DISCONNECT SWITCH	VT	VAPOR TIGHT
FLA	FULL LOAD AMPERES	W	WALL MTG. (46" AFF FORWARD REACH (52" AFF SIDE REACH)
FVNR	FULL VOLTAGE NON REVERSING		
FVR	FULL VOLTAGE REVERSING	WG	WIRE GUARD
IC	INTERCOM	WM	WIREMOLD
ICCP	INTERCOM CONTROL PANEL	WP	WEATHERPROOF
IG	ISOLATED GROUND	WT	WATER TIGHT
IL	INTERLOCK		
LV	LOW VOLTAGE		

STANDARD ELECTRICAL SYMBOLS

BASED ON ANSI Y32.9-1972, ANSI A117.1-1986, AND FEDERAL REGISTER 56-144(ADA)

MOUNTING HEIGHT MEASUREMENTS SHALL BE MADE FROM FINISH FLOOR TO CENTER LINE OF OUTLET

SYMBOL	DESCRIPTION	MTG. HT.
	LIGHTING OUTLETS	
A 1 b	CEILING INCANDESCENT OR HID. TYPE A, CKT 1, SW b.	
	WALL INCANDESCENT OR HID.	SCHEDULED
	FLUORESCENT, SLASH INDICATES INBOARD LAMP UNSWITCHED.	
	BARE LAMP FLUORESCENT STRIP WITH WIRE GUARD.	
	EXIT SIGNAGE	
	EMERGENCY BATTERY UNIT	SCHEDULED
	REMOTE SEALED BEAM	SCHEDULED
PLH	PORCELAIN LAMPHOLDER. 100A LAMP	
J	JUNCTION BOX	
	CEILING MOUNTED MOTION SENSOR	
	WALL MOUNTED MOTION SENSOR	46"
	RECEPTACLE OUTLETS	
1	SINGLE. CKT 1	22"
	DUPLEX	22"
	DUPLEX - SPLIT WIRED	22"
	DUPLEX - GROUND FAULT CIRCUIT INTERRUPTER	22"
A	SPECIAL CONFIGURATION. DESIGNATION REFERS TO SCHEDULE	SCHEDULED
18	MULTI-OUTLET ASSEMBLY. ARROWS EXTEND TO LIMIT OF INSTALLATION. SUBSCRIPT INDICATES SPACING OF OUTLETS	
C	CLOCK RECEPTACLE	82"
	DUPLEX RECEPTACLE - FLOOR BOX SD FOR QUANTITIES	
	SWITCH OUTLETS	
$	SINGLE POLE	46"
$2	DOUBLE POLE	46"
$3	THREE-WAY	46"
$4	FOUR-WAY	46"
$K	KEY OPERATED	
$M	MOTOR - PROVIDE OVERLOAD UNIT AS REQ'D. TOGGLE ACCEPTABLE IF INTERNAL THERMAL PROTECTION INCLUDED. SWITCH NOT REQUIRED IF MOTOR ASSEMBLY HAS INTEGRAL DISCONNECTING MEANS.	
$P	PILOT HANDLE	46"
$T	TIME DELAY	46"
D	DIMMER - 1000W UNLESS OTHERWISE INDICATED	46"
$$	GANGED SWITCHES - ARROW INDICATES MULTI-LEVEL SWITCHING	46"

STANDARD ELECTRICAL SYMBOLS

BASED ON ANSI Y32.9-1972, ANSI A117.1-1986, AND FEDERAL REGISTER 56-144(ADA)

MOUNTING HEIGHT MEASUREMENTS SHALL BE MADE FROM FINISH FLOOR TO CENTER LINE OF OUTLET

SYMBOL	DESCRIPTION	MTG. HT.
	MISCELLANEOUS	
1	PLAN OR DETAIL NOTE	
	SPECIAL PURPOSE CONNECTION - AS REQUIRED BY EQUIPMENT MANUFACTURER. CO-ORDINATE ROUGH-IN WITH SHOP DWG.	
	BRANCH CIRCUIT PANELBOARD, SHADING INDICATES NEW PANEL	TOP 75"
	CONTROL PANEL	
	EXTERNALLY OPERATED DISCONNECT SWITCH	
	CONTROLLER OR RELAY	
	COMBINATION CONTROLLER AND DISCONNECTION MEANS	
$ 1	MOTOR. DESIGNATION REFERS TO SCHEDULE.	
2	EQUIPMENT DESIGNATION. SEE SCHEDULE.	
T BB-1	ELECTRIC HEAT TO SCALE. DESIGNATION REFER TO SCHEDULE. "T" INDICATES INTEGRAL THERMOSTAT.	
T E	THERMOSTAT-PROVIDED BY DIV. 16	46"
T	THERMOSTAT-FURNISHED BY DIV. 15, INSTALLED BY DIV. 16	46"
H	HUMIDISTAT-FURNISHED BY DIV. 15, INSTALLED BY DIV. 16	46"
P	POTENTIOMETER-FURNISHED BY DIV.15, INSTALLED BY DIV.16	46"
TS	TIME SWITCH	
PS	PHOTOELECTRIC SWITCH	
DV	WALL SERVICES BOX	22"
	CIRCUITING	
	HOME RUN. MIN 3/4" C. ARROWS AND SUBSCRIPTS INDICATE NUMBER AND IDENTIFICATION OF CIRCUITS.	
	EMERGENCY. MIN 1/2" C-#10 AWG.	
T	TELEPHONE. MIN 3/4"C, HOME RUN TO TERMINAL BOARD	
T	TELEPHONE. MIN 3/4"C, STUB INTO CEILING SPACE	
LV	LOW VOLTAGE. MIN 1/2"C-#14 AWG AS REQ'D.	
FA	SPECIAL SYSTEMS. MIN 3/4"C. PROVIDE CONDUCTORS AS REQ'D BY MANUFACTURER. SUBSCRIPT INDICATES SYSTEM. SEE STANDARD ABBREVIATIONS.	

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ENGINEER IN THE STATE OF WYOMING.

PROFESSIONAL ENGINEER (ELECTRICAL) JASON L. MUNK PE 11109 WYOMING Date 3/20/19

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL
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CROW'S NEST
ELECTRICAL SYMBOLS

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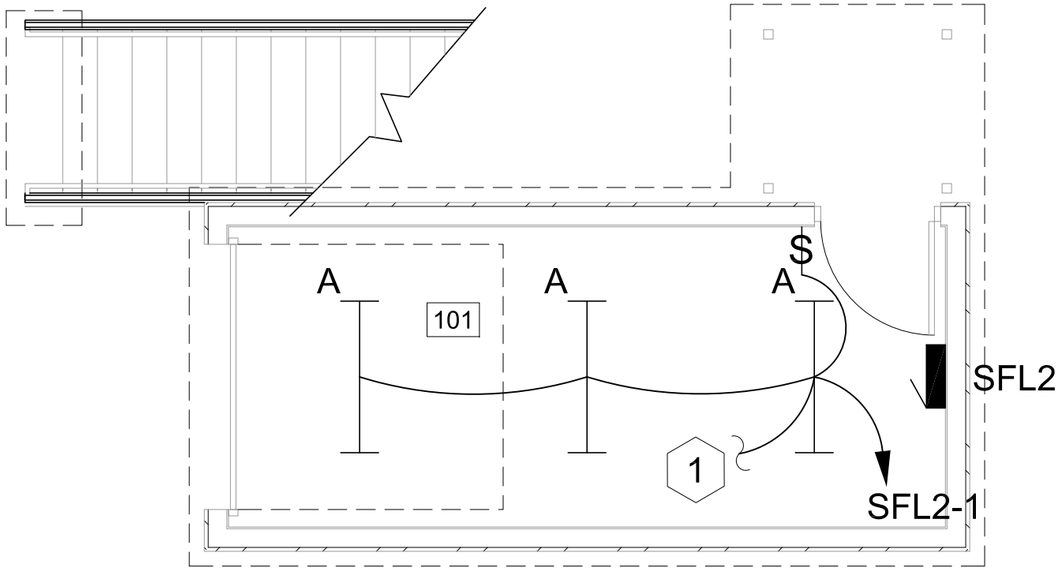
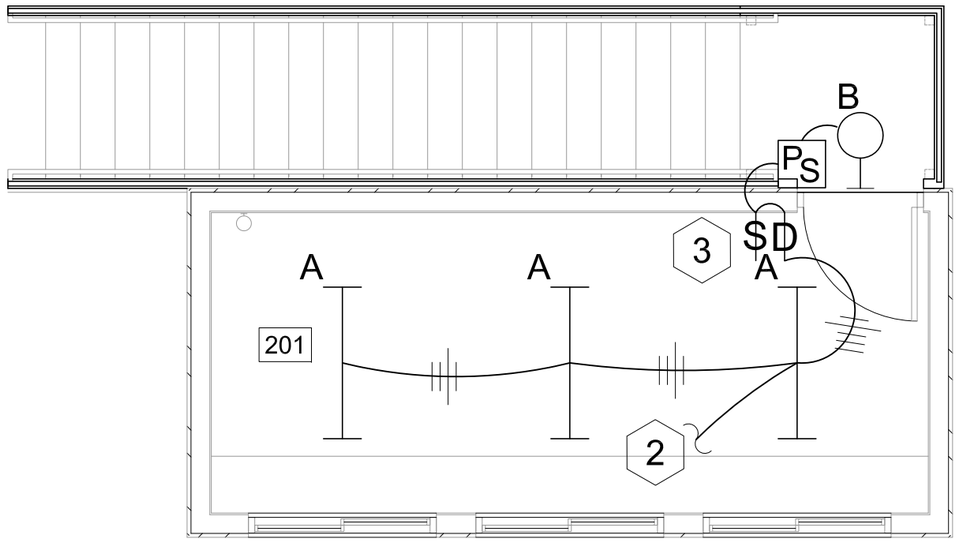
APPROVED BY:	JTH

ELECTRICAL SYMBOLS
E-001



1 E101 LOWER LEVEL LIGHTING PLAN N

1/4" = 1'-0"



2 E101 UPPER LEVEL LIGHTING PLAN N

1/4" = 1'-0"

NOTES: DETAILS 1 AND 2 OF E101

1. TO UPPER LEVEL LUMINAIRES.
2. TO LOWER LEVEL LUMINAIRES.
3. PROVIDE 0-10 VOLT DIMMER SWITCH FOR CONTROL OF ROOM LUMINAIRES. PROVIDE SWITCH TO CONTROL POWER TO PHOTOCELL AND EXTERIOR LUMINAIRE AS INDICATED.

0' 2' 4' 6' 8'

SCALE: 1/4" = 1'-0"

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PROFESSIONAL ENGINEER (ELECTRICAL)
JASON L. HUNT
PE 11109
Date 3/20/19
WYOMING

REV. #	REVISION DESCRIPTION	DATE	BY

CAMPBELL COUNTY HIGH SCHOOL
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LIGHTING PLANS

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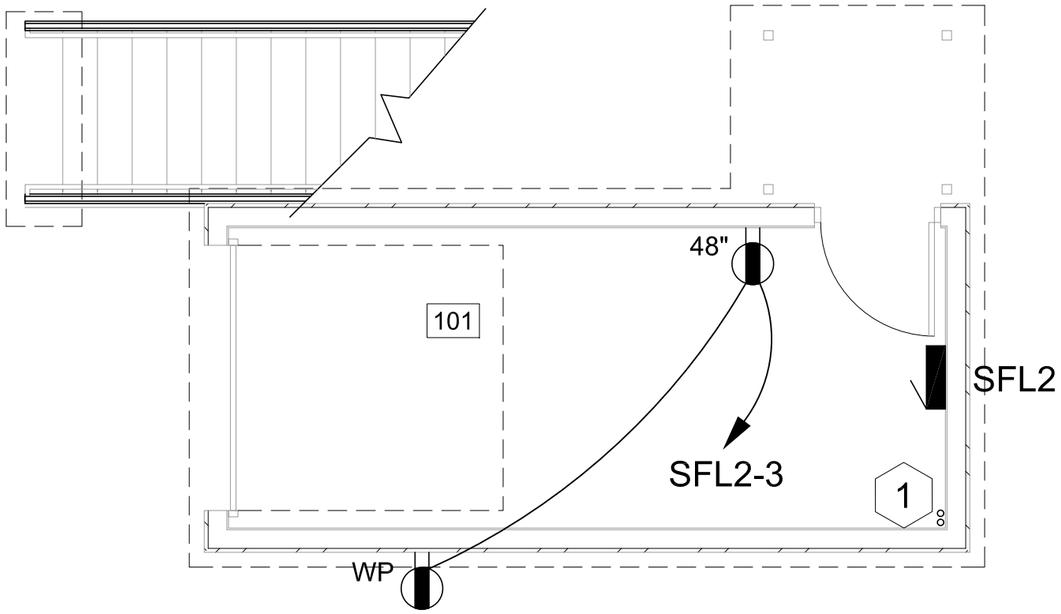
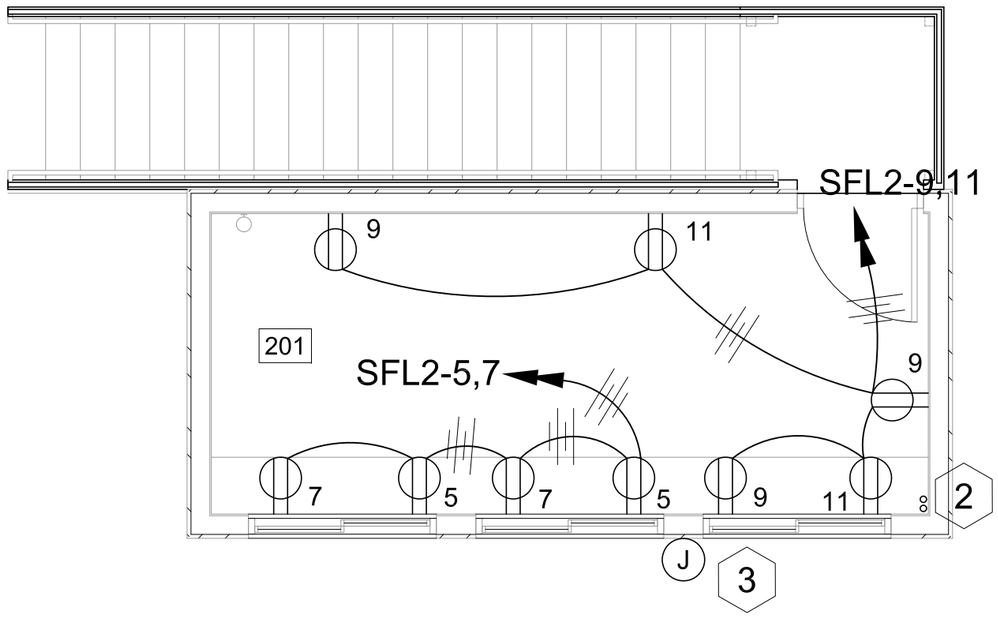
LIGHTING PLAN
E-101



1 E150 LOWER LEVEL POWER PLAN

1/4" = 1'-0"

N



2 E150 UPPER LEVEL POWER PLAN

1/4" = 1'-0"

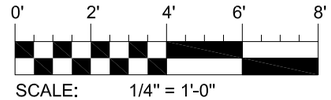
N

NOTES: DETAILS 1 AND 2 OF E150

1. TWO 2" CONDUITS FOR DATA. EXTEND CONDUITS FROM ADJACENT IN-GRADE JUNCTION BOX AND IN THROUGH FLOOR OF BUILDING. ROUTE SURFACE UP WALL INTO UPPER LEVEL.

2. STUB TWO 2" CONDUITS FROM NOTE 1 BELOW DESK AREA, MINIMUM 4" ABOVE FINISHED FLOOR. CONDUITS TO BE USED FOR OWNER'S DATA CABLING INSTALLATION.

3. PROVIDE JUNCTION BOX ON WALL, HIGH AS POSSIBLE, WITH ONE 1" CONDUIT FROM THIS LOCATION TO NOTE 2 CONDUIT LOCATIONS. JUNCTION BOX AND CONDUIT TO BE USED FOR CAMERA CONNECTIONS. COORDINATE ROUGH-IN REQUIREMENTS WITH OWNER'S CAMERA SUPPLIER/INSTALLER.



SCALE: 1/4" = 1'-0"

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PROFESSIONAL ENGINEER (ELECTRICAL)
JASON L. HUNT
PE 11109
Date 3/20/19
WYOMING

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CAMPBELL COUNTY HIGH SCHOOL
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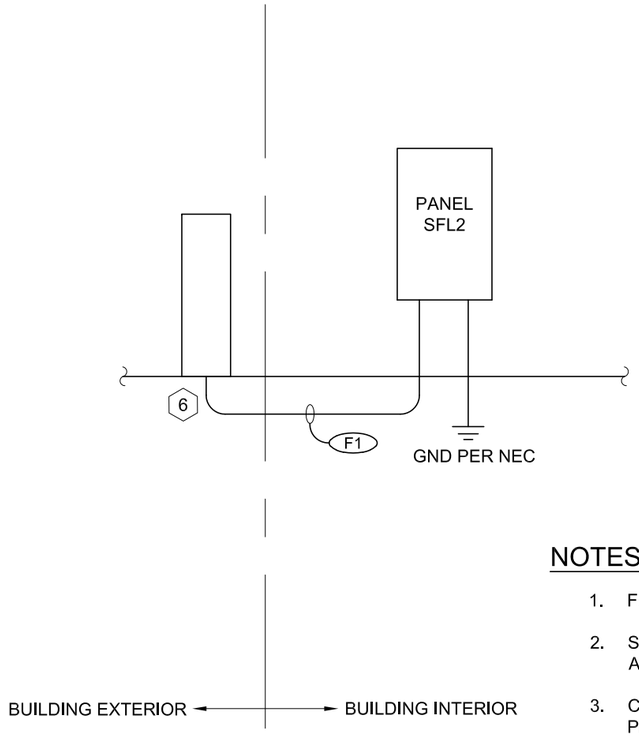
POWER PLANS
E-150



1 E601 RISER

NO SCALE

NOTES:

1. FEEDER RISERS ARE SCHEMATIC ONLY, AND NOT INTENDED TO INFER LUG ARRANGEMENTS.
2. SEE SPECIFICATION FOR GROUNDING REQUIREMENTS, ALLOWABLE PVC USAGE, AND ALLOWABLE EXPOSED EXTERIOR STUB-UPS.
3. CONDUCTORS SIZING BASED UPON 60 DEGREE TERMINATION'S FOR OVERCURRENT PROTECTIVE DEVICES RATED 100 AMPERES OR LESS, AND 75 DEGREE TERMINATION'S FOR RATINGS GREATER THAN 100 AMPERES, AS PER NEC TABLE 310.16, 240.4, 310.15(B2), AND 310.15(B4). IN NO CASE SHALL INDICATED SIZING BE DECREASED.
4. EQUIPMENT GROUNDING CONDUCTOR.
5. MATCH PANEL FAULT CURRENT WITH UPSTREAM BREAKER FEEDING PANEL.
6. EXTEND 3" CONDUIT MEANT FOR RECEPTACLE PEDESTAL TO NEW PANEL IN BUILDING. EXTEND CONDUCTORS AS INDICATED TO NEW BUILDING PANEL. PEDESTAL MAY BE REMOVED IF BUILDING BID IS ACCEPTED.

FEEDER SCHEDULE

DESIG-NATION	CONFIGU-RATION	REQUIRED AMPACITY	CONDUCTOR SIZE (NOTE 3)			CONDUIT
			PHASE	NEUTRAL	EGC (NOTE 4)	
F1	1Ø 3W	70	#4 AWG	#4 AWG	#10	3"

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PROFESSIONAL ENGINEER (ELECTRICAL) JASON L. HUNTER PE 11109 WYOMING Date 3/20/19

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ELECTRICAL RISER
E-601

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER	CATALOG NO.	LAMPS NO.	LAMPS TYPE	FINISH	MOUNTING	REMARKS
A	LITHONIA OR EQUAL BY COOPER HUBBELL HE WILLIAMS MAXLITE	CLX-L48-5000LM-SEF-RDL-WD-MVOLT-GZ10-40K-80CRI-SERIES	-	5,000 LUMEN LED'S, 4000K	WHITE	CEILING SURFACE	4' LED STRIP LIGHT WITH STANDARD EFFICIENCY, ROUND DIFFUSE LENS, WIDE DISTRIBUTION, AND MULTI-VOLT 0-10 VOLT DIMMING DRIVER.
B	LITHONIA OR EQUAL BY COOPER HUBBELL HE WILLIAMS MAXLITE	OWLX1-LED-20W-40K-M4-SERIES	-	2,600 LUMEN LED'S, 4000K	DARK BRONZE	NOTE 2	LOW-PROFILE LED WALL PACK.

NOTES:

1. UNLESS OTHERWISE INDICATED, ALL LIGHT FIXTURES TO INCLUDE MULTI-VOLT DRIVERS.
2. WALL MOUNT ON BUILDING ABOVE DOOR INTO UPPER LEVEL, HIGH AS POSSIBLE. EXTEND CIRCUITRY TO LUMINAIRE THROUGH ADJACENT PHOTOCELL AND SWITCH IN BUILDING FOR LIGHTING CONTROL. SWITCH SHALL ENERGIZE PHOTOCELL AND LUMINAIRE.

PANEL SFL2

120/240 VOLTS 1Ø 3W 100 A. MLO SURFACE MOUNTED

EATON LOAD CENTER OR EQUAL BY SIEMENS AND SQUARE D

CIRCUIT DESCRIPTION	POLES	AMPS	CKT	Ø	CKT	AMPS	POLES	CIRCUIT DESCRIPTION
LIGHTING	1	20	1	A	2	20	1	SPARE
RECEPTACLES	1	20	3	B	4	20	1	SPARE
RECEPTACLES	1	20	5	A	6	20	1	SPARE
RECEPTACLES	1	20	7	B	8	20	1	SPARE
RECEPTACLES	1	20	9	A	10	20	1	SPARE
RECEPTACLES	1	20	11	B	12	20	1	SPARE

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PROFESSIONAL ENGINEER (ELECTRICAL) JASON L. HUNTER PE 11109 WYOMING Date 3/20/19

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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
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ELECTRICAL SCHEDULES

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APPROVED BY: JLH

ELECTRICAL SCHEDULES
E-650

DESIGN CODES:

1. INTERNATIONAL BUILDING CODE (IBC), 2018, WITH THE STATE OF WY AMENDMENTS
2. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD 7-16: MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
3. AMERICAN CONCRETE INSTITUTE (ACI) 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
4. AMERICAN FOREST & PAPER ASSOCIATION (AFPA) / AMERICAN WOOD COUNCIL (AWC): WOOD DESIGN PACKAGE - 2018.

DESIGN LOADS:

1.	LIVE LOADS:	
1.1.	ASSEMBLY AREAS, MOVEABLE SEATS	100 PSF
1.2.	ROOF	20 PSF
1.3.	STAIRS AND EXITS	100 PSF
2.	DEAD LOADS:	
2.1.	ROOF:	
2.1.1.	WOOD JOISTS	15 PSF
2.2.	FLOOR:	
2.2.1.	WOOD JOISTS	15 PSF
3.	SNOW LOADS:	
3.1.	GROUND SNOW, Pg	35 PSF
3.2.	FLAT ROOF SNOW LOAD, Pf	35 PSF
3.3.	SLOPED ROOF SNOW, Ps	35 PSF
3.4.	IMPORTANCE FACTOR, Is	1.0
3.5.	EXPOSURE FACTOR, Ce	1.0
3.6.	THERMAL FACTOR, Ct	1.2
3.7.	SLOPED ROOF FACTOR, Cs	1.0
4.	WIND LOADS:	
4.1.	MWFRS WIND PRESSURE:	
4.1.1.	WALL: PARALLEL TO RIDGE	24.5 PSF
4.1.2.	WALL: NORMAL TO RIDGE	29.2 PSF
4.1.3.	ROOF: TYPICAL	-33.9 PSF
4.1.4.	ROOF: OVERHANGS	-51.8 PSF
4.2.	COMPONENTS & CLADDING WIND PRESSURE (A_e=10sf):	
4.2.1.	ZONE 1	-33.8 PSF/ 16.0 PSF
4.2.2.	ZONE 2	-39.0 PSF/ 16.0 PSF
4.2.3.	ZONE 3	-47.0 PSF/ 16.0 PSF
4.2.4.	ZONE 4	-30.9 PSF/ 28.5 PSF
4.2.5	ZONE 5	-38.0 PSF/ 28.5 PSF
4.3.	ULT. DESIGN WIND SPEED (Vult)	115 MPH
4.4	NOMINAL DESIGN WIND SPEED (Vasd)	90 MPH
4.5	INTERNAL PRESSURE COEFFICIENT	+/-0.18
4.6.	IMPORTANCE FACTOR, Iw	1.0
4.7.	RISK CATEGORY	II
4.8.	EXPOSURE CATEGORY	C
4.9.	WIND BASE SHEAR	13 KIPS
5.	SEISMIC LOADS:	
5.1.	BASIC SEISMIC FORCE RESISTING SYSTEM:	
5.1.1.	LIGHT FRAME (WOOD) WALLS w/ STRUCTURAL WOOD SHEAR PANELS	
5.2.	ANALYSIS PROCEDURE USED:	
5.2.1.	EQUIVALENT LATERAL FORCE ANALYSIS	
5.3.	IMPORTANCE FACTOR, I_e	1.0
5.4.	MAPPED SPECTRAL RESPONSE ACCELERATION:	
5.4.1.	SHORT PERIOD RESPONSE, S_S	0.149g
5.4.2.	1-SECOND PERIOD RESPONSE, S_1	0.078g
5.5	DESIGNED SPECTRAL RESPONSE ACCELERATION	
5.5.1.	SHORT PERIOD RESPONSE, S_{DS}	0.159g
5.5.2.	1-SECOND RESPONSE, S_{D1}	0.125g
5.6.	SITE CLASS	D
5.7.	SEISMIC DESIGN CATEGORY, SDC	B
5.8.	RISK CATEGORY	II
5.9.	DESIGN BASE SHEAR, V	1 KIPS
5.10.	SEISMIC RESPONSE COEFFICIENT, C_S	0.024
5.11.	RESPONSE MODIFICATION FACTOR, R	6.5

MATERIAL PROPERTIES:

CONCRETE PROPERTIES, 28-DAY COMPRESSIVE STRENGTH:

1.	EXTERIOR SLAB ON GRADE	4,000 PSI
2.	INTERIOR SLAB ON GRADE	4,000 PSI

REINFORCING PROPERTIES:

1.	REINFORCING BARS	60 KSI
2.	WELDED WIRE FABRIC	60 KSI

WOOD PROPERTIES:

1.	2x4 DIMENSIONED LUMBER	SPF STUD
2.	2x6 AND LARGER DIMENSIONED LUMBER	SPF NO. 2
3.	4x4 AND LARGER TIMBERS	SPF NO. 2
4.	LAMINATED VENEERED LUMBER, LVL	
4.1.	FLEXURAL STRESS, Fb	2,600 PSI
4.2.	MODULUS OF ELASTICITY, E	1,900 KSI

SOILS AND FOUNDATIONS:

1. THE FOUNDATION HAS BEEN DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AS PER GEOTECHNICAL REPORT (No. GI18153A) PREPARED BY STRATA, INC. DATED JANUARY 28, 2019.
2. FOLLOW EXCAVATION AND FILL REQUIREMENTS DETAILED IN GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
3. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AS REQUIRED TO COMPLY WITH OSHA STANDARDS.
4. PROTECT BOTTOM OF EXCAVATIONS AND SOIL ADJACENT TO AND BENEATH FOUNDATION FROM FREEZING.
5. CONTRACTOR IS RESPONSIBLE FOR DEWATERING FOUNDATION DURING CONSTRUCTION. PROTECT SOILS BELOW FOUNDATION & BUILDING FROM BECOMING SATURATED DURING CONSTRUCTION.

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED ENGINEER IN THE STATE OF WYOMING.

Professional Engineer (Structural) CASSIE McNAMES 13777 Date 3/20/19 WYOMING

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CAMPBELL COUNTY HIGH SCHOOL
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CROW'S NEST
GENERAL NOTES

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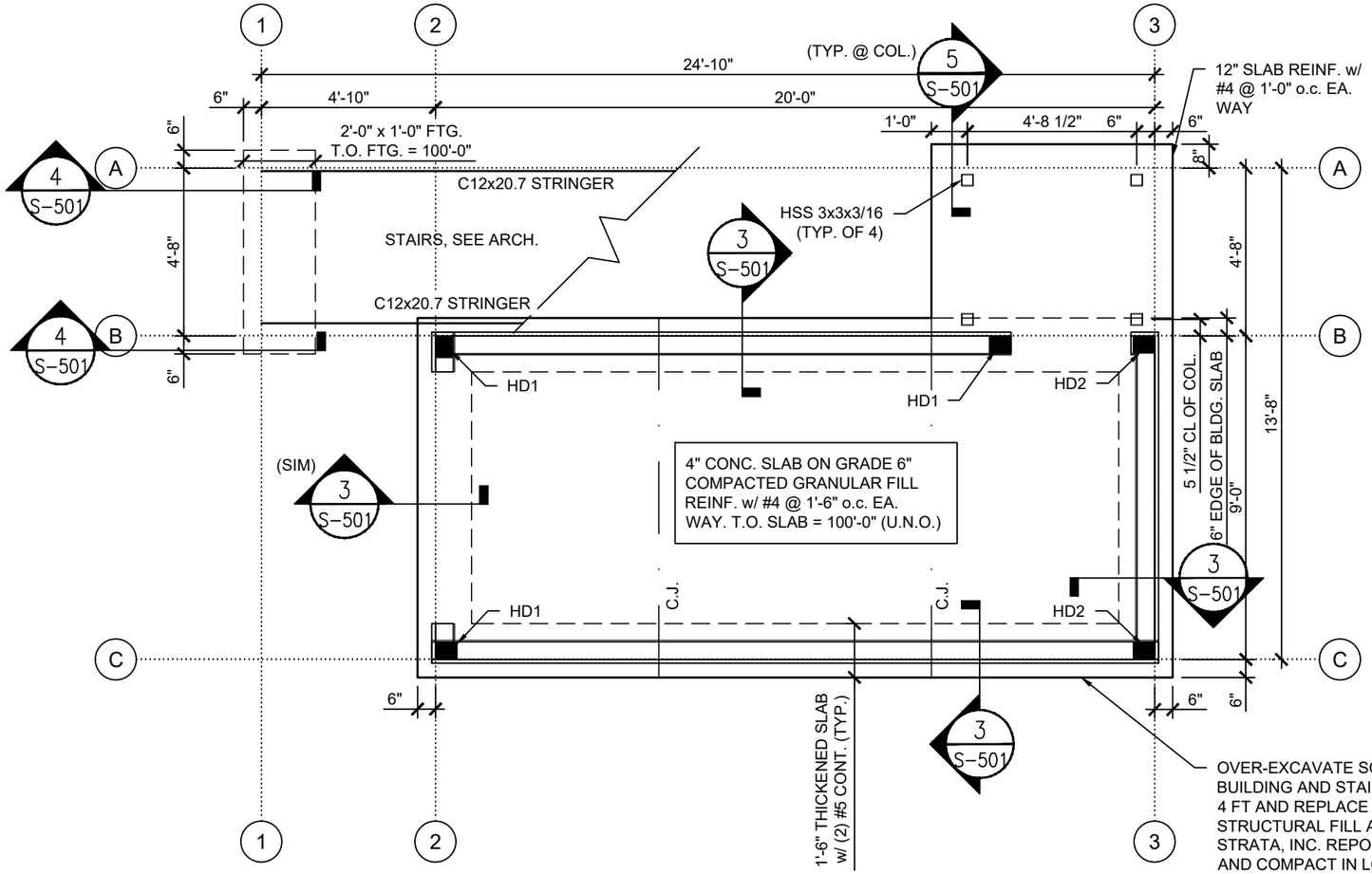
GENERAL NOTES
S-001



1 FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

CONCRETE:

1. ALL FOOTINGS SHALL BE CENTERED UNDER WALLS AND PIERS UNLESS OTHERWISE NOTED.
2. DOWELS, SAME SIZE AND SPACING AS VERTICAL BARS, SHALL BE PLACED IN ALL FOOTINGS UNLESS OTHERWISE NOTED.
3. CONCRETE REINFORCING SHALL BE DETAILED AS PER THE CRSI MANUAL OF STANDARD PRACTICE.
4. CONCRETE COVER SHALL BE PROVIDED AS FOLLOWS:
   - 4.1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3 IN
   - 4.2. CONCRETE EXPOSED TO EARTH OR WEATHER:
     - 4.2.1. NO. 5 BAR, W31 WIRE, AND SMALLER 1-1/2 IN
     - 4.2.2. NO. 6 BAR THROUGH NO. 18 BAR 2 IN
   - 4.3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
     - 4.3.1. NO. 11 BAR AND SMALLER 3/4 IN
     - 4.3.2. NO. 14 AND NO. 18 BAR 1-1/2 IN
5. CONCRETE SHALL BE PROTECTED FROM FREEZING DURING CONSTRUCTION.
6. CONCRETE SHALL NOT BE PLACED ON SATURATED OR FROZEN SOIL.
7. WATER SHALL NOT BE ADDED TO THE CONCRETE ON SITE.
8. REINFORCING SHALL BE FREE OF LOOSE RUST AND MILL SCALE, EARTH, ICE, AND OTHER FOREIGN MATERIALS THAT WOULD REDUCE BOND TO CONCRETE.
9. CONCRETE CONTRACTOR SHALL COORDINATE LOCATION OF EMBEDDED ITEMS BY OTHER DISCIPLINES WITH GENERAL CONTRACTOR.
10. DO NOT REPAIR, FILL, TOUCH-UP OR REPLACE EXPOSED CONCRETE WITHOUT ENGINEER/ARCHITECT APPROVAL.
11. COLD WEATHER CONCRETING SHALL CONFORM TO SPECIFICATION OF ACI 306R.
12. HOT WEATHER CONCRETING SHALL CONFORM TO ACI 305R.

SHEET NOTES:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE SHEET S-001 FOR GENERAL NOTES.
3. C.J. = CONTROL JOINT, S.D. 1/S-501.
4. REFER TO DETAIL 1/S-501 FOR REINF. PLACEMENT IN SLAB.
5. HD1 = SIMPSON HDU11-SDS2.5 w/ 1" DIA, A.B., S.D. 6/S-501.
6. HD2 = SIMPSON HDU14-SDS2.5 w/ 1" DIA,. A.B., S.D. 6/S-501.

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CAMPBELL COUNTY HIGH SCHOOL
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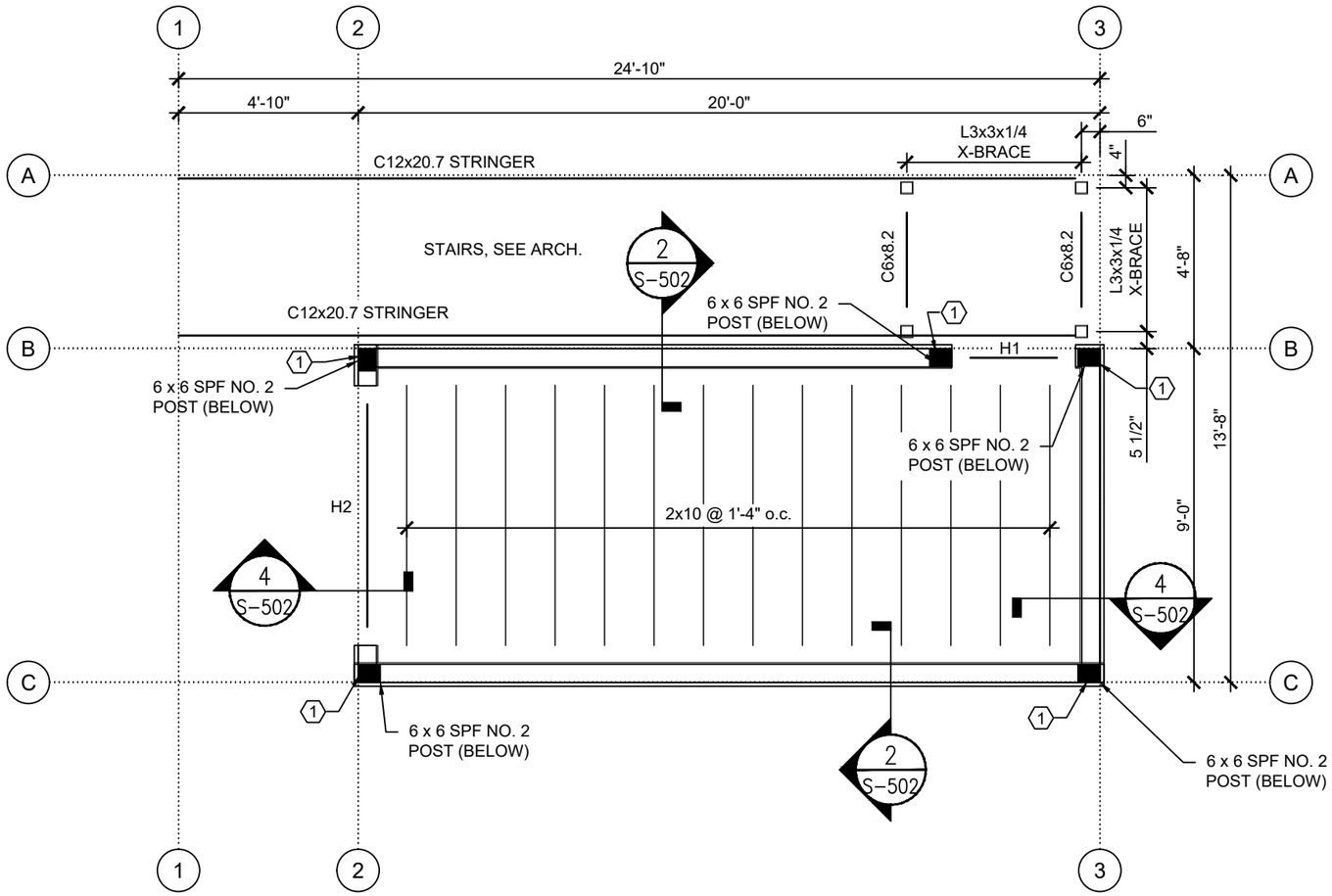
FOUNDATION PLAN
S-101



1 FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"

SHEET NOTES:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE SHEET S-001 FOR GENERAL NOTES AND SPECIAL INSPECTIONS.
3. FLOOR JOIST BEARING ELEVATION = 111'-2" (U.N.O).
4. ALL FIRST FLOOR WALLS TO BE 2x6 SPF. No. 2 @ 1'-4" o.c. SHEATH WALL w/ 5/8" APA RATED SHEATHING FASTENED w/ 10d NAILS @ 3" o.c. @ PANEL EDGES AND 1'-0" o.c. @ IMTERMEDIATE FRAMING MEMBERS, BLOCKED.
5. S.D. 1/S-502 FOR BOX HEADER DETAIL.
6. SHEATHING FLOOR w/ 3/4" APA RATED SHEATHING w/ 10d NAILS @ 3" o.c. @ SUPPORTED PANEL EDGES AND 10d NAILS @ 12" o.c. @ INTERMEDIATE SUPPORTS, BLOCKED.

KEY NOTES:

(1) PROVIDE CS14 STRAP, S.D. 4/S-502.

HEADER SCHEDULE			
MARK	SIZE	JACK STUD(S)	KING STUD(S)
H1	(2) 2x6	(2) 2x6	(1) 2x6
H2	(2) 2x10	(2) 2x6	(2) 2x6

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13777
Date 3/20/19
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CAMPBELL COUNTY HIGH SCHOOL
ATHLETIC FIELD IMPROVEMENTS
CROW'S NEST
SECOND FLOOR FRAMING PLAN

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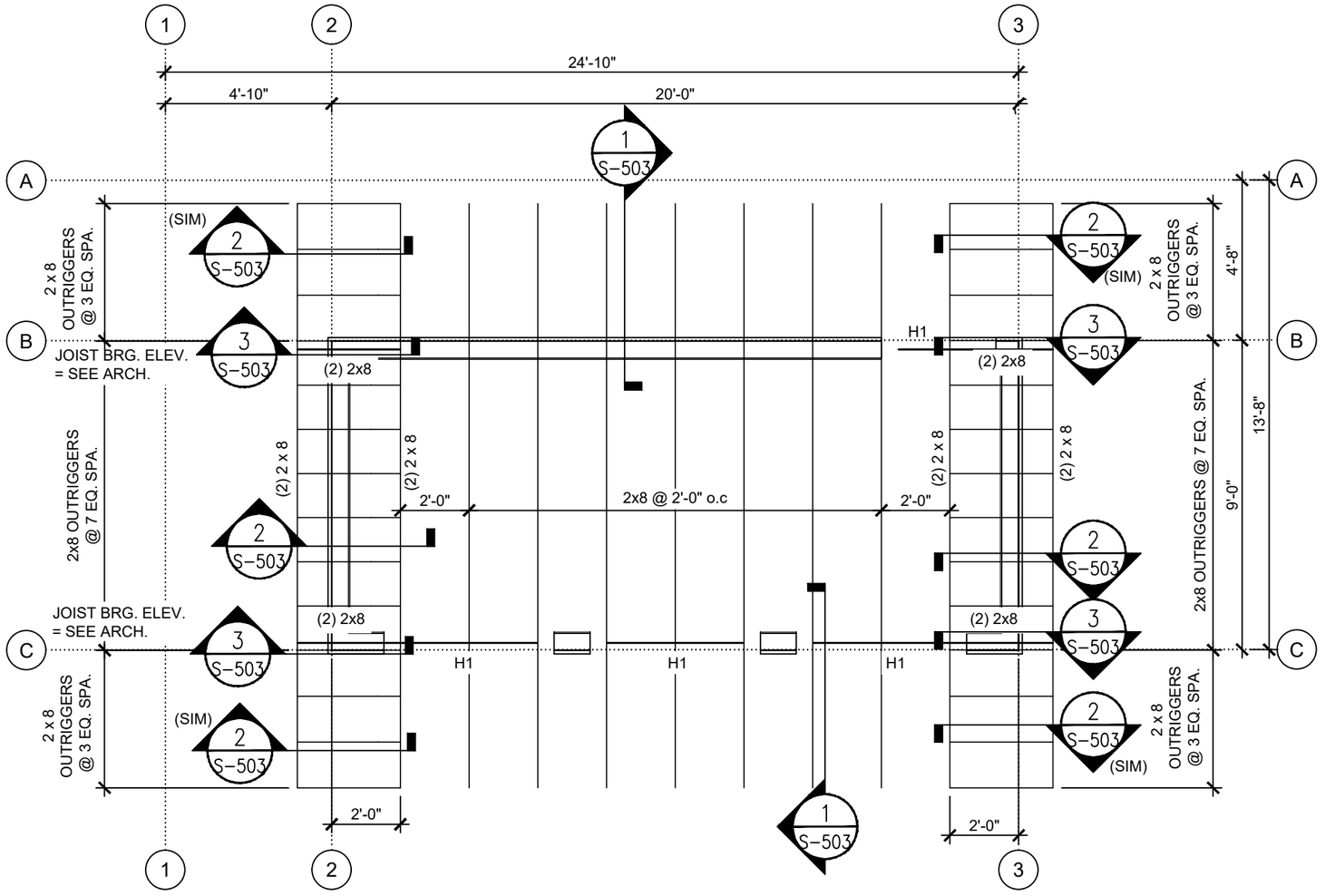
FLOOR FRAMING PLAN
S-102



1 **ROOF FRAMING PLAN**

SCALE: 1/4" = 1'-0"

WOOD:
DIMENSIONED LUMBER:

1. CONTRACTOR SHALL PROTECT ALL WOOD PRODUCTS FROM DAMAGE AND MOISTURE DURING STORAGE AND INSTALLATION.
2. ALL WOOD PRODUCTS SHALL COMPLY WITH PS 20-15.
3. LUMBER FROM OLD GROWTH IS NOT PERMITTED.
4. ALL LUMBER IN CONTACT WITH CONCRETE SHALL BE PRE-TREATED LUMBER.
5. INSTALL STRUCTURAL MEMBERS FULL LENGTH WITHOUT SPLICES UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS.
6. CONSTRUCT DOUBLE JOIST HEADERS AT FLOOR AND CEILING OPENINGS AND UNDER WALL STUD PARTITIONS THAT ARE PARALLEL TO FLOOR JOISTS.
7. FRAME WALL OPENINGS WITH A MINIMUM OF TWO STUDS AT EACH JAMB. SUPPORT HEADERS ON CRIPPLE STUDS.
8. PROVIDE CONTINUOUS 2x NOMINAL BLOCKING ALONG HORIZONTAL JOINTS OF VERTICAL SHEATHING AT SHEAR WALLS.
9. ALL FASTENERS SHALL BE GALVANIZED.
10. EXTERIOR WALL SHEATHING SHALL BE APA RATED SHEATHING WITH A MINIMUM THICKNESS OF 7/16" WITH A MINIMUM SPAN RATING OF 24/0 UNLESS OTHERWISE NOTED.
11. ROOF SHEATHING SHALL BE APA RATED SHEATHING WITH A MINIMUM THICKNESS OF 1/2" AND MINIMUM SPAN RATING OF 24/16 UNLESS OTHERWISE NOTED.
12. FLOOR SHEATHING SHALL BE APA RATED SHEATHING WITH A MINIMUM THICKNESS OF 3/4" AND MINIMUM SPAN RATING OF 48/24 UNLESS OTHERWISE NOTED.

SHEET NOTES:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE SHEET S-001 FOR GENERAL NOTES.
3. ALL SECOND FLOOR WALLS TO BE 2x6 SPF. No. 2 @ 1'-4" o.c. SHEATH WALL w/ 5/8" APA RATED SHEATHING FASTENED w/ 10d NAILS @ 6" o.c. @ PANEL EDGES AND 1'-0" o.c. @ IMTERMEDIATE FRAMING MEMBERS, UNBLOCKED.
4. SHEATHING ROOF w/ 5/8" APA RATED SHEATHING w/ 10d NAILS @ 6" o.c. @ SUPPORTED PANEL EDGES AND 10d NAILS @ 12" o.c. @ INTERMEDIATE SUPPORTS, BLOCKED.
5. SEE SHEET S-102 FOR HEADER SCHEDULE.

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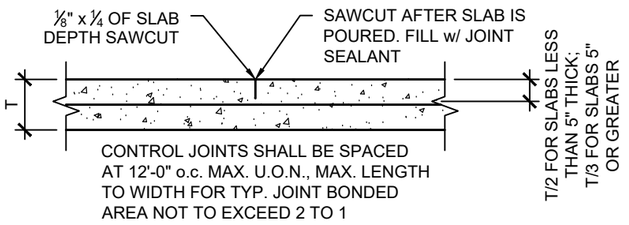
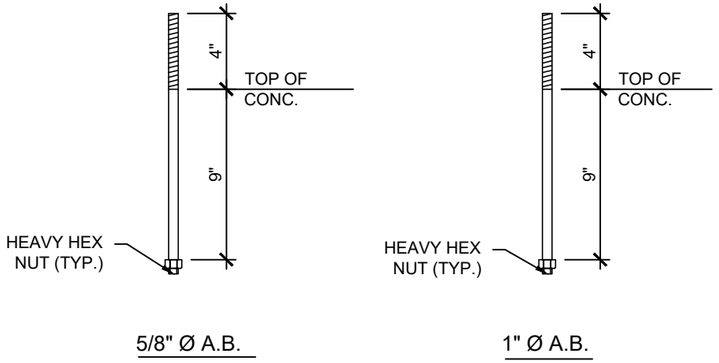
ROOFFRAMING PLAN
S-150



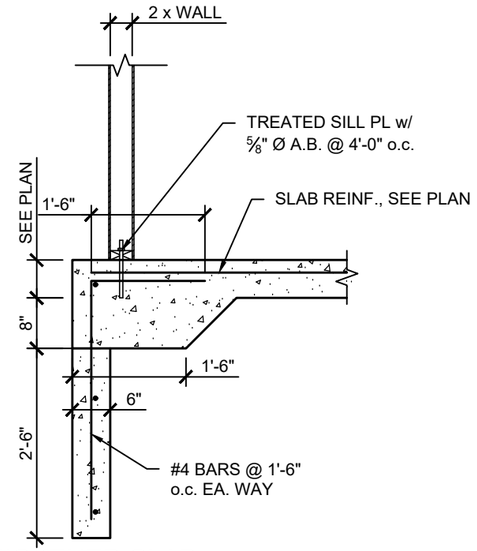
1 S-501 SLAB CONTROL JOINT

SCALE: NOT TO SCALE



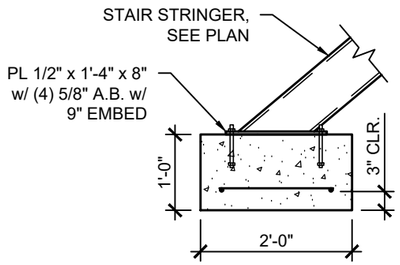
2 S-501 ANCHOR BOLT DETAILS

SCALE: NOT TO SCALE



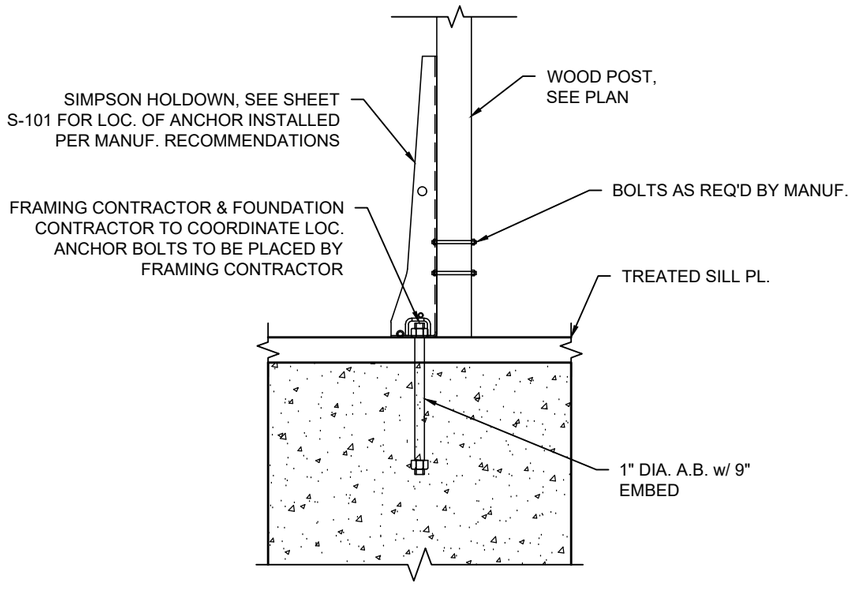
3 S-501 THICKENED SLAB

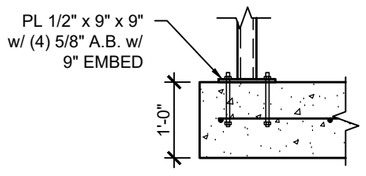
SCALE: 1/2" = 1'-0"



4 S-501 STAIR STRINGER ANCHORAGE

SCALE: 1/2" = 1'-0"





5 S-501 STAIR COL. ANCHORAGE

SCALE: 1/2" = 1'-0"

6 S-501 HOLDOWN DETAIL

SCALE: NOT TO SCALE

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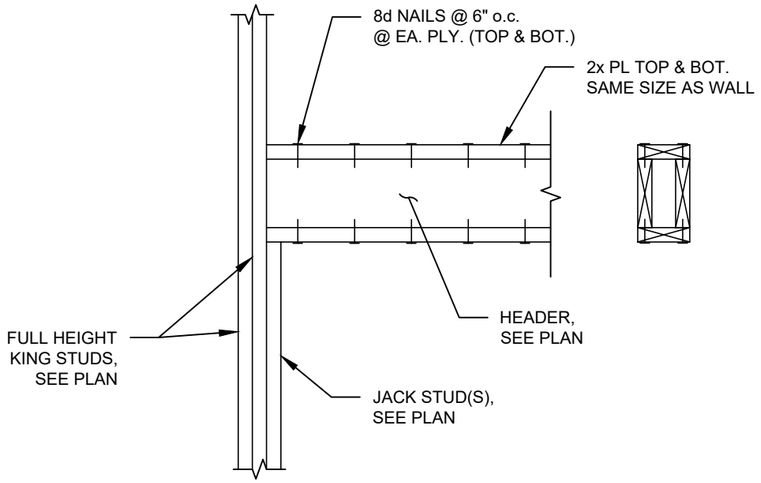
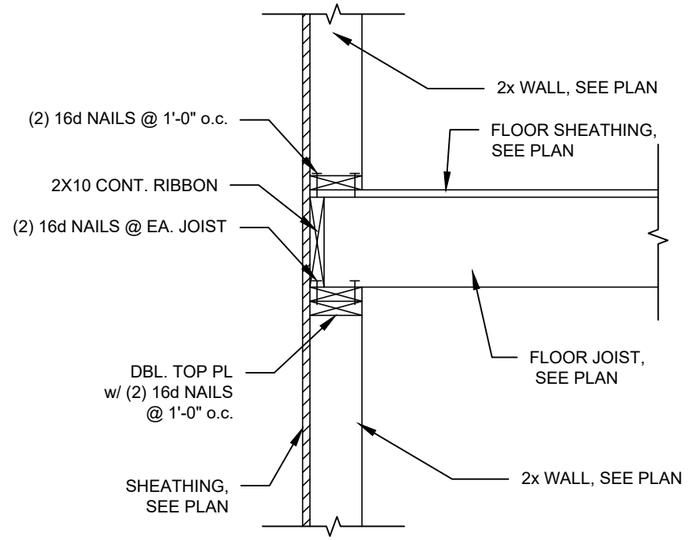


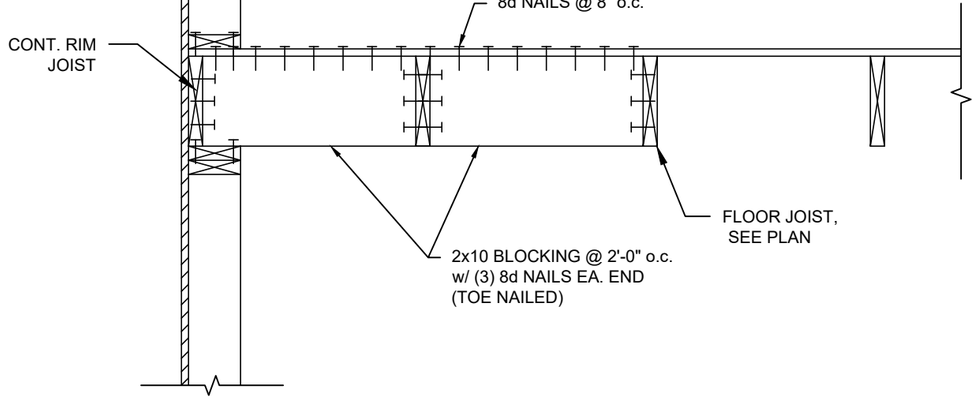
1 S-502 BOX HEADER DETAIL

SCALE: 3/4" = 1'-0"



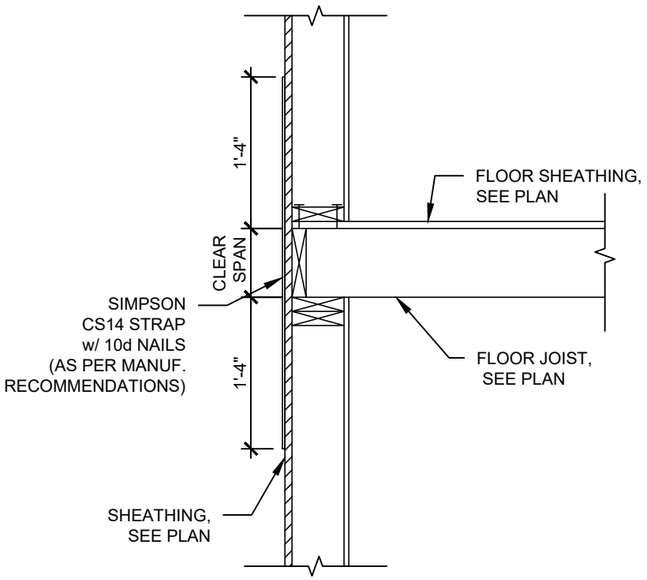
2 S-502 FLOOR JOIST BRG.DETAIL @ EXT. WALL

SCALE: 3/4" = 1'-0"



3 S-502 PARALLEL FLOOR JOIST @ EXT. WALL

SCALE: 3/4" = 1'-0"



4 S-502 STRAP DETAIL @ EXTERIOR SHEAR WALL

SCALE: 3/4" = 1'-0"

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CROW'S NEST

FRAMING DETAILS

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FRAMING DETAILS
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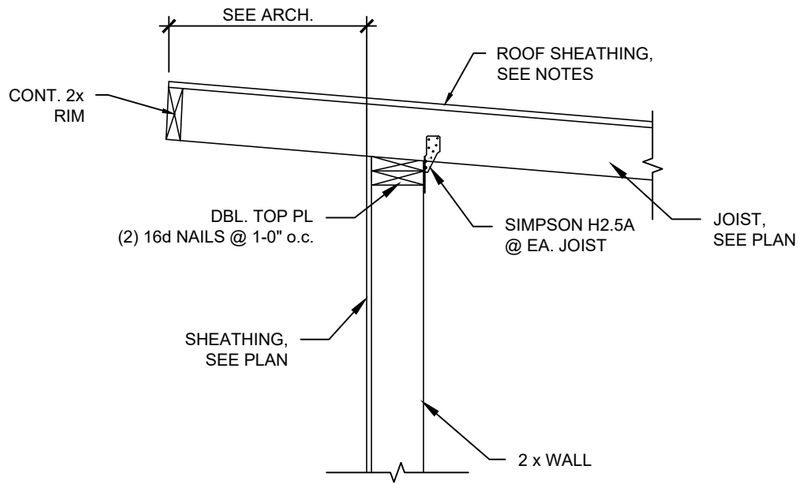
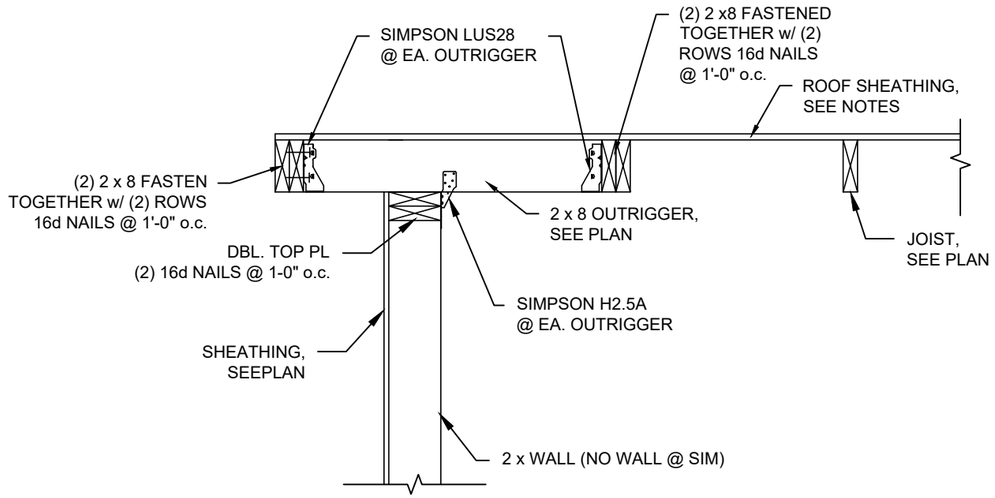


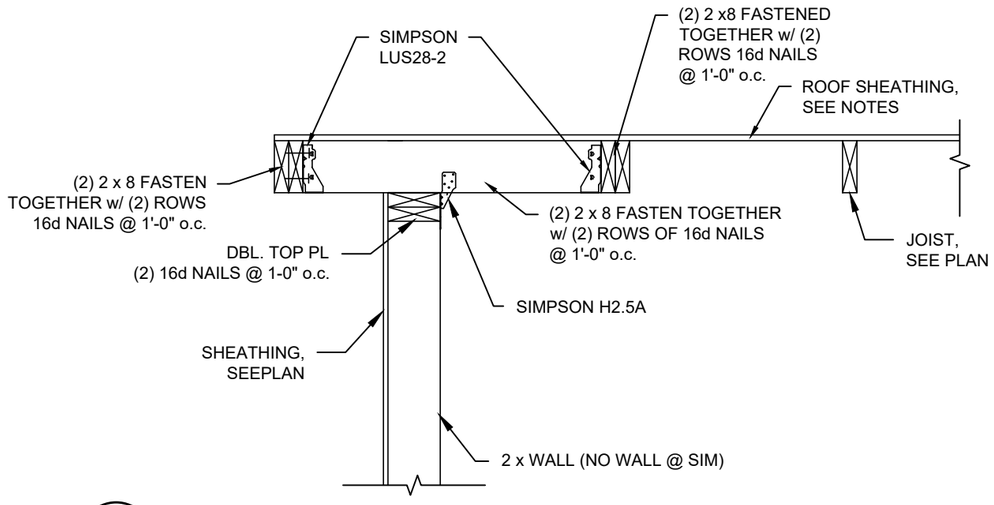
1 / S-503 ROOF JOIST BRG.

SCALE: 3/4" = 1'-0"



2 / S-503 OUTRIGGER BRG.

SCALE: 3/4" = 1'-0"



3 / S-503 ROOF BEAM BRG.

SCALE: 3/4" = 1'-0"

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FRAMING DETAILS

S-503

Bid Item	Item Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	$	$
2	Contract and Payment Performance Bond	1	LS	$	$
3	Construction Stormwater Management	1	LS	$	$
4	Construction Signing and Traffic Control	1	LS	$	$
5	Remove Sod	157,100	SF	$	$
6	Remove Tree	3	EA	$	$
7	Topsoil Stockpile	2,920	CY	$	$
8	Topsoil Placement	879	CY	$	$
9	Removal of Concrete Pavement	190	SY	$	$
10	Removal of Asphalt Pavement	25	SY	$	$
11	Removal of Concrete Sidewalk	1,260	SF	$	$
12	Removal of Curb and Gutter	120	LF	$	$
13	Remove Existing Storm Drain	10	LF	$	$
14	Removal of Chain Link Fence	1,330	LF	$	$
15	Relocate, Adjust and Repair Irrigation System	1	LS	$	$
16	Remove and Store Football Goal Post	4	EA	$	$
17	Relocate Existing Storage Building	1	LS	$	$
18	Unclassified Excavation/Grading	1,466	CY	$	$
19	Surplus Material Disposal	2,062	CY	$	$
20	Perform 12" Subgrade Preparation	13,247	SY	$	$
21	Install PCC Thickened Edge Spread Footing Foundation	1	LS	$	$
22	Install 6" PCC Surfacing W/ Thickened Edge	370	SY	$	$
23	Install 6" Asphaltic Concrete Patch	27	SY	$	$
24	Install Replacement 30" Spill Curb and Gutter	120	LF	$	$
25	Install Miscellaneous Curb (6"x12" Nailer Curb)	1,350	LF	$	$
26	Install 6" PCC Surfacing/Sidewalk	6,285	SF	$	$
27	Install 6" Reinforced PCC Sidewalk W/ Handrail	2,400	SF	$	$
28	Install 6" PCC Valley Pan	900	SF	$	$
29	Install 6" Aggregate Base Course (Grading B Drain Rock)	11,670	SY	$	$
30	Install 4" Aggregate Base Course (Grading "W")	1,542	SY	$	$
31	Install 2" Aggregate Base Course (Top Stone Finishing)	11,670	SY	$	$
32	Install Material Separation Fabric	13,212	SY	$	$
33	Install Synthetic Turf, Striping, and Components	104,750	SF	$	$
34	Synthetic Turf Additional Equipment	1	LS	$	$
35	Install 18" N-12 HDPE Storm Pipe	445	LF	$	$
36	Install 12" N-12 HDPE Storm Pipe	650	LF	$	$
37	Install 10" N-12 HDPE Storm Pipe	110	LF	$	$
38	Install 10" PERF. N-12 HDPE Storm Pipe	770	LF	$	$
39	Install 1.5"x12" Flat Panel ADS Under Drain	3,220	LF	$	$
40	Install 2" Solid N-12 HDPE Sleeve Drain	20	LF	$	$

41	Install 24" Nyloplast Storm Inlet w/ Pedestrian Grate	8	EA	$	$
42	Install 48" Dia. Storm Drain Manhole	1	EA	$	$
43	Install 18" Flared End Section, Rip Rap Protection	1	EA	$	$
44	Install Irrigation System and Components	1	LS	$	$
45	Install Sod	32,850	SF	$	$
46	Install Hydroseed/Landscaping	5,000	SF	$	$
47	Install 144" Galv. Chain Link Fencing	500	LF	$	$
48	Install 120" Galv. Chain Link Fencing	400	LF	$	$
49	Install 72" Galv. Chain Link Fencing	870	LF	$	$
50	Install Temporary Fencing	870	LF	$	$
51	Connect to Primary Electrical Service (Contractor)	1	LS	$	$
52	Install 4" SCH 40 Elec. Conduit (Bored)	170	LF	$	$
53	Install 4" SCH 40 Elec. Conduit (Trenched)	230	LF	$	$
54	Install 3" SCH 40 Elec. Conduit (Trenched)	220	LF	$	$
55	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	225	LF	$	$
56	Install 1-1/2" SCH 40 Elec. Conduit (Trenched)	2,195	LF	$	$
57	Install 2" SCH 40 Elec. Conduit (Trenched, Pull String Only)	720	LF	$	$
58	Install 3" SCH 40 Elec. Conduit (Trenched, Pull String Only)	610	LF	$	$
59	Install Pull (Junction) Box	12	EA	$	$
60	Install 3 Phase Transformer Pad	1	EA	$	$
61	Install Single Phase Transformer and Pad	1	EA	$	$
62	Install 3 Phase Control Panel and Service	1	EA	$	$
63	Install Single Phase Control Panel and Service	1	EA	$	$
64	Install Exterior Athletic Lighting	1	LS	$	$
65	Install Pedestrain Overhead Light Fixture	7	EA	$	$
66	Install Exterior Power Pedestal	1	EA	$	$
67	Install Scoreboard	1	LS	$	$
68	Install Emergency Access Area Striping	1	LS	$	$
69	Install Backstop System	2	EA	$	$
70	Install Soccer Goal	2	EA	$	$
71	Install Football Goal Post	2	EA	$	$
72	Install Team and Coaching Benches	4	EA	$	$
73	Install Corner Flags	4	EA	$	$
74	Install Aluminum Bleachers	6	EA	$	$
75	Install Trash Receptacles	8	EA	$	$
76	Install Stored Football Goal Post	2	EA	$	$
77	Install Flag Pole	1	EA	$	$
Bid Item	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Total**
78	**Alternate 1:** Crow's Nest Building	1	EA	$	$