City of Leavenworth

LAND DISTURBANCE PERMIT APPLICATION

(Fill Permits Require An Additional Application)

City of Leavenworth Public Works
100 N. 5th Street
Leavenworth, KS. 66048
913 684 0378

Date 11/6/2020

Applicant Name: Mammoth Sports Construction Phone: 785-400-6136

Complete Mailing Address: 601 E Wyandotte St. Meriden, KS 66512.

Email: Connor@mammothturf.com

Project Type

___ Single Family Home	___ Utility Extension
___ Commercial/Mutli-family	___ General Grading/Filling
___ Single Family Subdivision	___ Public Improvement Project
___ Building Addition	✓ Other: explain Below

Leavenworth school district Baseball & Softball Complex.

Project Location

Property Address: New lawrence Rd & Gatewood St.

Name of Project or Subdivision: LSD Baseball & Softball Complex.

Owner of Record : Mike Roth Phone number: 913-684-1400

Work Schedule Start Date: 11/9/2020 End Date: 4/1/2020

Total Site Area: +/- 17 Acres/or ___ Sq. Feet

Total Area of Land Disturbance: 15.5 Acres/or ___ Sq. Feet

City of Leavenworth

LAND DISTURBANCE PERMIT APPLICATION

Parties Responsible for Maintaining Erosion Control

Check one: Contractor ✓ Or Property Owner _____

Name: Mammoth Sports Construction

Mailing Address: 601 E. Wyandotte St. Meriden, KS. 66512

Business Phone : 785-400-6136 Cell Phone 816-352-1993

Email: Connor@mammothturf.com

General Contractor contact information

Company Name: Same as above ↑

Mailing Address: _____

Business Phone: _____ Cell Phone: _____

Email: _____

Does work include any construction activity in the FEMA regulated floodplain?

Yes ____ No X

Note; Additional permits for work in floodplain are required. Attach any additional information to this permit application.

City of Leavenworth

LAND DISTURBANCE PERMIT APPLICATION

Applicant knowledges they have provided the following documents and have been advised of inspection requirement. *(Initial next to each item)*

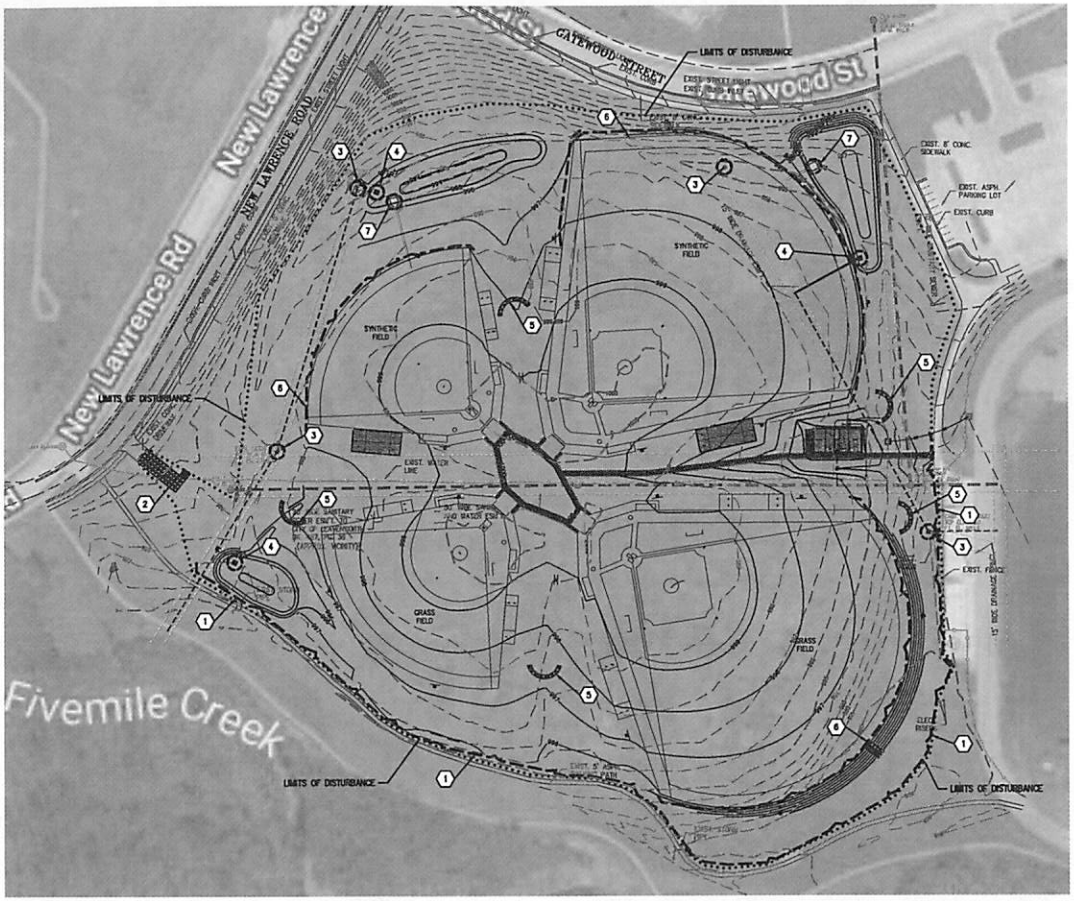
✓ Completed Land Disturbance Application
✓ Attached site specific Erosion Control Plan
✓ Attached site specific grading plan
✓ Schedule for duration of land disturbance
NA This is a single family building project or home addition and I as applicant will follow the attached "Single Family Lot Erosion and Sediment Control Plan"

✓ The applicant by submitting this application does agree to perform all necessary work to include bi-weekly inspections and inspections after each ½" rain event (24 hour). The applicant will supply the City of Leavenworth with all inspection records upon request, and copies must be provided in order to obtain a Compliance Certificate.

The applicant fully understands that the responsible party shall comply with this permit and repair all substandard erosion control within a 24 hour period after notification of failure to comply with the plan. Failure to comply within the allotted time frame is a violation and shall be reason for the City of Leavenworth to issue a **Stop Order** on all work, repair the damaged erosion control, and clean all surrounding grounds. The contractor/owner shall be held responsible for all expense incurred to remedy the violation and may be charged with a Nuisance Complaint in Municipal Court. Contractors will be required to submit copies of BMP Inspections prior to a certificates of occupancy being issued.

Applicant Signature: _____

Owner Signature: _____



EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. Prior to Land Disturbance activities, the contractor shall:
   -Delineate the outer limits of any tree or stream preservation designated to remain with construction fencing.
   -Construct a stabilized entrance/parking/delivery area and install all perimeter sediment controls on the site.
   -Install and request the inspection of the preconstruction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until it here is a satisfactory inspection.
   -Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing, placement of physical barriers or other means acceptable to the contractor and the City Inspector.
2. Erosion and sediment control devices protecting the public right-of-way shall be installed as soon as the right-of-way has been backfilled and graded.
3. The contractor shall comply with all requirements of City Ordinances or State permit requirements, such as:
   -The contractor shall seed, mulch, or otherwise stabilize any disturbed area where the land disturbance activity has ceased for more than 14 days.
   -The contractor shall perform inspections of erosion and sediment control measures at least once a every 14 days and within 24 hours following each rainfall event of ½" or more within any 24-hour period.
   -The contractor shall maintain an inspection log including the inspector's name, date of inspection, observations as to the effectiveness of the erosion and sediment control measures, actions necessary to correct deficiencies, when the deficiencies were corrected, and the signature of the person performing the inspection. The log shall be available for review by the City, the State of Kansas, or other authorities having jurisdiction.
4. The contractor shall maintain installed erosion and sediment control devices on a manner that preserves their effectiveness for preventing sediment from leaving the site or entering a sensitive area such as a natural stream corridor, tree preservation areas of the site intended to be left undisturbed, a storm sewer, or an on-site drainage channel. Failure to do so is a violation of the provisions of City Ordinances and State permit requirements.
5. The contractor is responsible for providing erosion and sediment control for the duration of a project. If the City determines that the BMP's in place do not provide adequate erosion and sediment control at any time during the project, the contractor shall install additional or alternate measures that provide effective control.
6. Concrete wash or rinsewater from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., may not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place and excess water evaporated or infiltrated into the ground.
7. Chemicals or materials capable of causing pollution may only be stored onsite in their original container. Materials store outside must be in closed and sealed water-proof containers and located outside of drainageways or areas subject to flooding. Locks and other means to prevent or reduce vandalism shall be used. Spills will be reported as required by law and immediate actions taken to contain them.

MAINTENANCE: ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLANATION, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-THIRD THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

LEGEND

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM

STAGING CHART

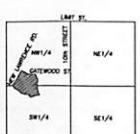
Project Stage	BMP Plan Ref No.	BMP Description	Remove after Stage	Notes:
A. Prior to Land Disturbance/ Sanitary Sewer Installation	①	Sediment Fence	C	Place downstream project site perimeter.
	②	Const. Entrance & Staging Area	C	Includes concrete washout pit.
	③	Inlet Protection	C	Install Inlet Protection before and after grading
B. Mass Grading & Storm Sewer Installation	④	Inlet Protection	C	Install Inlet Protection before and after grading
	⑤	Rock Ditch Check	C	Install rock ditch check.
	⑥	Sediment Fence	C	Place downstream bail field perimeter.
	⑦	Outlet Protection	C	Install Rip-Rap at end section
C. During Field Construction Until Closure of Land Disturbance Permit		Seed/Sod & Landscape	NA	Install Sod/Seed and Landscaping

DISTURBED AREA = 15.44± ACRES

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
ROUGH GRADE / SEDIMENT CONTROL																		
TEMPORARY CONTROL MEASURES																		
STRIP & STOCKPILE TOPSOIL																		
STORM FACILITIES																		
TEMPORARY CONSTRUCTION ROADS																		
FOUNDATION / BUILDING CONSTRUCTION																		
SITE CONSTRUCTION																		
PERMANENT CONTROL STRUCTURES																		
FINISH GRADING																		
LANDSCAPING/SEED/FINAL STABILIZATION																		



SCALE: 1"=2000'

VICINITY MAP
SEC. 11-9S-22E

811 Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCALE: 1"=50'

CE Golf Design
Golf Course Design & Landscape Architecture
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.0760
www.cegolfdesign.com

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.phelpsengineering.com

MAMMOTH SPORTS CONSTRUCTION
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

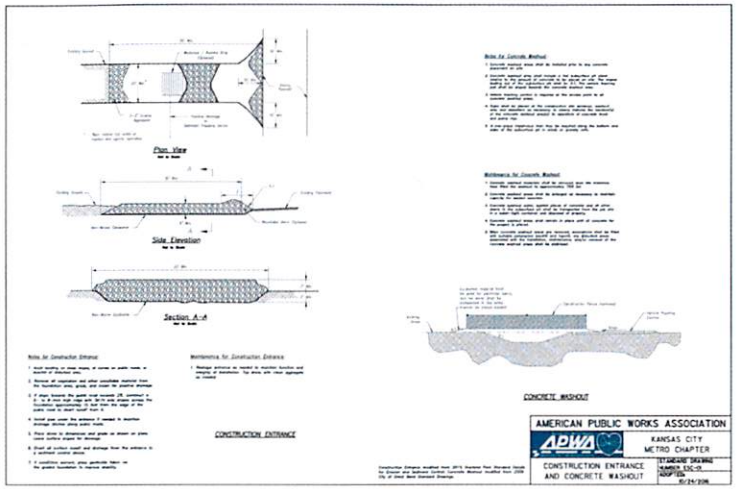
NEW BASEBALL & SOFTBALL COMPLEX

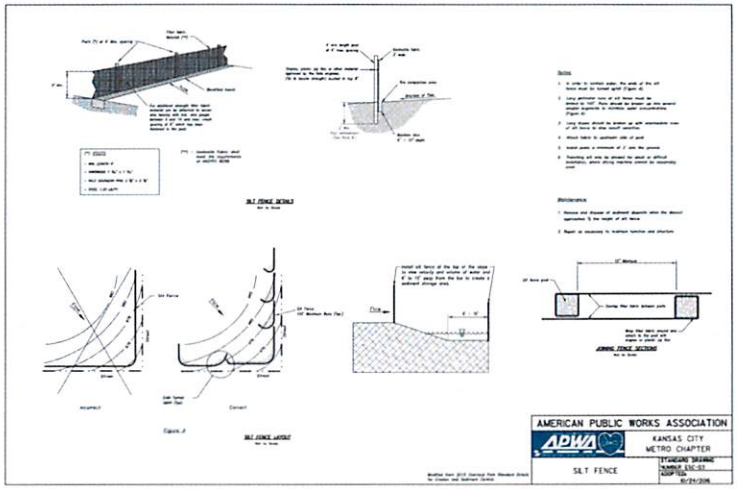
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

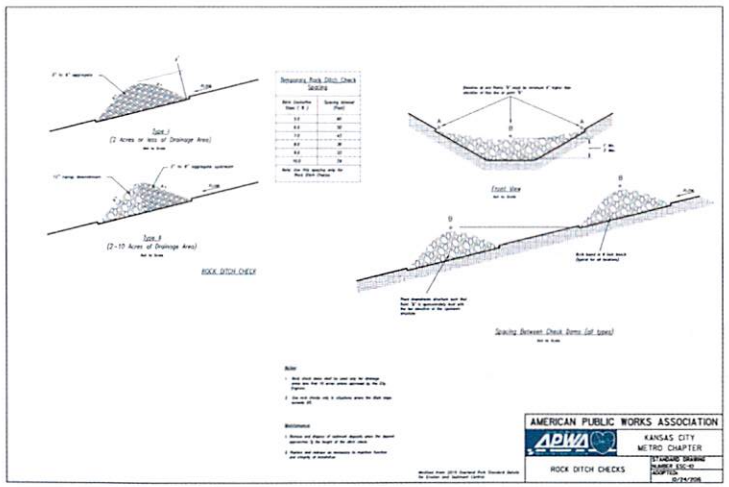
JOB NO: 200824
DRAWN BY: MRF
CHECKED BY: DEU
DATE: 12.23.20
REVISIONS:

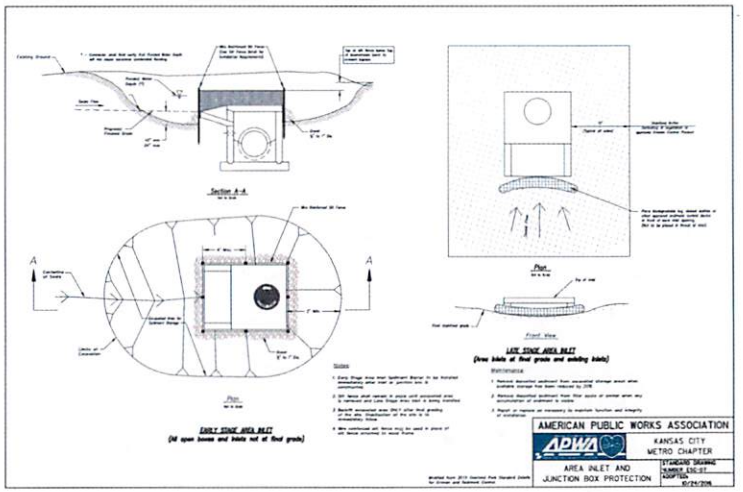
EROSION CONTROL PLAN

SHEET:
C6









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3250 Brinkerhoff Road
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Phone: 913.621.1214
Fax: 913.621.0760
www.cegolfdesign.com

PEI
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.pheljoseengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

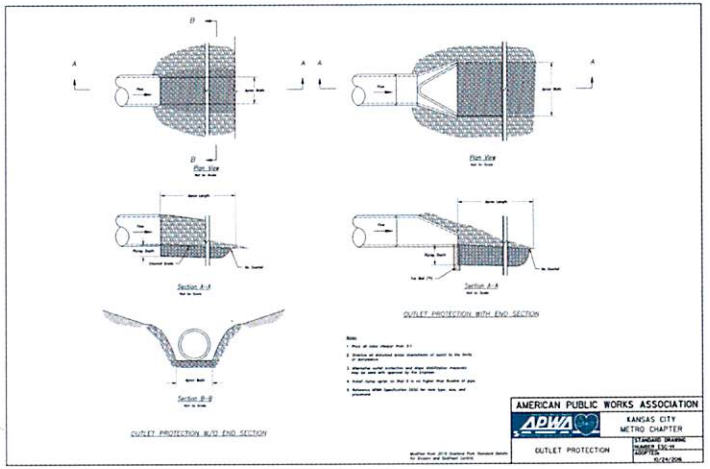
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.20
REVISIONS:

EROSION CONTROL DETAILS

SHEET:
C6.1



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www.phelpsengineering.com

MAMMOTH
GRADING & CONSTRUCTION
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Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO:	200824
DRAWN BY:	MRR
CHECKED BY:	DEU
DATE:	10.23.20
REVISIONS:	

EROSION CONTROL DETAILS

SHEET:

C6.2

Kansas Department of Health and Environment

NOTICE OF INTENT (NOI)

For Authorization to Discharge Stormwater Runoff from Construction Activities
In accordance with the Kansas Water Pollution Control General Permit
Under the National Pollutant Discharge Elimination System (NPDES)

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form requests authorization for coverage under the Kansas Water Pollution Control general permit, or KDHE issued successor permits, issued for stormwater runoff from construction activities in the State of Kansas. Becoming a permittee obligates the discharger to comply with the terms and conditions of the general permit. **Completion of this NOI does not provide automatic coverage under the general permit. Coverage is provided and discharge permitted when the Kansas Department of Health and Environment (KDHE) authorizes the discharge of stormwater runoff from the construction activities identified on the NOI and supporting documentation. A signed and dated copy of the first page of the NOI indicating the Authorization will be provided to the owner or operator, or all three pages for Conditional Authorizations.** Upon authorization of the construction activity discharge, a Kansas permit number and a Federal permit number will be assigned to the construction project. **A complete request for Authorization for coverage under the general permit must be submitted or the request will not be processed (see listing on Page 3 of this NOI).** KDHE will notify owners or operators whose Notice of Intent (NOI) and supporting documentation for Authorization of stormwater runoff associated with construction activities are incomplete, deficient, or denied.

Please Print or Type.

I. OWNER OR OPERATOR ADDRESS, BILLING, CONTACT & RECORDS LOCATION INFORMATION

A. Owner or Operator's Name: Mike Roth - Super Intendant
Company Name: Leavenworth Public Schools USD 453
Owner or Operator's Phone: 913-684-1400.
Mailing Address: 200 N. 4th St.
City: Leavenworth State: Ks Zip: 66046
E-mail Address (optional): mike.roth@lvpioneers.org

C. Contact Name: Mike Roth - Super Intendant
Company Name: Leavenworth Public Schools USD 45:
Contact Phone: 913-684-1400.
Mailing Address: 200 N. 4th St.
City: Leavenworth State: MO Zip: 66046
E-mail Address (optional): mike.roth@lvpioneers.org

B. Billing Contact Name: same as above
Billing Contact Phone:
Billing Address (if different):
City: State: Zip:
E-mail Address (optional):

D. Address where records will be kept (if not on-site):
Records Address: same as above
City: State: Zip:

II. SITE INFORMATION, Type of Request: ☐ New Permit Authorization ☐ Modification of Existing Permit Authorization

A. Project Name: Richard Warren Middle School-Baseball & Softball Complex
Site Address: New Lawrence Rd. & Gatewood St.
City: Leavenworth State: KS Zip: 66048
(Nearest City to Project)
County: Leavenworth

B. LEGAL SITE DESCRIPTION:
___ QTR of ___ QTR of NW&SW QTR Section: 11
Township: 52N South; Range: 22E ☒E ☐W
Latitude: 39° 16' 15.5" , Longitude: - 94° 56'02.1"
Deg. Min. Sec. Deg. Min. Sec.

For Official Use Only:

Received		
RECEIVED SEP 17 2020 BUREAU OF WATER	Amount Paid: 60.00	Reviewer [signature]
	Date: 2020-09-17	Authorized: ✱ ☒Y; ☐N
	Initials: CS	
	Check No.: 40182	Is Authorization Conditional? ☐Y; ☒N

Authorized by: [signature] Lee A. Norman MD
Secretary, Kansas Department of Health and Environment
Date 11/2/2020
(if yes, see page 3 of NOI for conditions)

KS Permit No.: S-MO12-0187
Federal Permit No.: KSR115941

Send completed 3 page NOI form with original signature and all appropriate submittals (see page 3 of NOI) to:

Kansas Department of Health and Environment
Bureau of Water, Industrial Programs Section
1000 SW Jackson, Suite 420
Topeka, KS 66612-1367

Note: A copy of the permit can be obtained at: www.kdheks.gov/stormwater or by submitting a written request to KDHE.

KDHE Contact Information:
Phone: (785) 296-5545
E-mail: kdhe.stormwater@ks.gov

✱ Revise Note 3 on Sheet C4 to comply with permit (Part 7.2.10) determination of ½" or greater rainfall event.

Project Name: Richard Warren Middle School-Baseball & Softball Complex Notice of Intent (NOI)

C. Existing Conditions/Uses

1) Is any part of the project located on Indian Country land? ☐ Y; ☒ N
If yes: Contact EPA regarding discharging stormwater runoff from industrial activities on Indian Country land.

2) If stormwater runoff drains to or through a Municipal Separate Storm Sewer System (MS4): MS4 Name: Leavenworth

3) Name of the first receiving water, stream, or lake: Fivemile Creek, River Basin: Missouri River

4) Are contaminated soils present on the site or is there groundwater contamination located within the site boundary? ☐ Y; ☒ N
If yes: On separate paper describe in detail the locations and concentrations of the contaminants.

5) Are there any contaminated soils that will be disturbed or any contaminated groundwater that will be pumped by the proposed construction activity? ☐ Y; ☒ N
If yes: On separate paper describe the special procedures and erosion and sediment control measures to be implemented to eliminate or minimize the potential to discharge the soil and/or groundwater contaminants.

6) Are there any surface water intakes for public drinking water supplies located within ½ mile of the site discharge points? ☐ Y; ☒ N

7) Are there any known historical or archeological sites present within the site boundary or any historic structures located within 1000 feet of the project site? ☐ Y; ☒ N
Note: Include documentation of project-specific coordination with the Kansas Historical Society in making this determination.

8) Is any threatened or endangered species habitat located within the site boundary or in the receiving water body? ☐ Y; ☒ N
Note: Include documentation of project-specific coordination with the Kansas Department of Wildlife, Parks & Tourism in making this determination.

9) Will the project impact the line or grade of a stream or does it include dredge or fill of a potential jurisdictional water body or wetlands? ☐ Y; ☒ N
If yes: Include documentation of project-specific coordination with the US Army Corps of Engineers and/or the Kansas Department of Agriculture, Division of Water Resources in making this determination.

10) Are any Critical Water Quality Management Areas, Special Aquatic Life Use Waters, or Outstanding National Resource Waters located within ½ mile of the facility boundary? ☐ Y; ☒ N

If yes: List the names of all such areas and waters: _____

D. Project Description

1) Project Description: Baseball & Softball Complex

2) Does this NOI include all proposed soil disturbing activities associated with the entire common plan of development? ☐ Y; ☒ N

If no: Explain what development areas of the site are not included in this NOI and provide contact information, if available, for the party or parties that own or have operational control of these areas:

3) Anticipated project Start Date: fall 2020, and Completion Date: fall 2021

4) Estimated total area to be disturbed: 15.5 Acres Total area of the site: 17+/- Acres

5) Do you plan to disturb ten or more acres that are within a common drainage area? ☐ Y; ☒ N

If yes: Will a sedimentation basin be installed in that drainage area? (Attach design calculations for each sedimentation basin.) If a sediment basin is not feasible, on a separate sheet describe similarly effective erosion and sediment control measures to be implemented in lieu of a sedimentation basin. ☐ Y; ☒ N

E. Maps

Include an area map showing the outline of the construction site and the topographic features of the area at least one mile beyond the project site.

F. Erosion Control Plan and Best Management Practices

1) Provide a summary of the sequence of major soil disturbing activities including installation of the corresponding stormwater management and pollution control features.

2) Provide one or more site plans covering the anticipated soil disturbing activities showing the limits of disturbance, the existing and proposed elevation contours, the types and locations of erosion/sediment control measures and stormwater management/pollution control features during each phase of construction and the locations where stormwater runoff leaves the construction site.

3) Provide a description of the best management practices to be utilized to control erosion and the discharge of sediment and other pollutants in stormwater runoff throughout construction and the design calculations for each sediment basin including total drainage area and storage capacity below the elevation of the mass volume flow outlet device.

4) Provide the name and License or Certification Number of the engineer, geologist, architect, landscape architect, or Certified Professional in Erosion and Sediment Control (CPESC) under which the construction stormwater pollution prevention plan has been developed.

Douglas E. Ubben, Jr., P.E.	20950	Professional Engineer
Name	License or Certification Number	Profession or Field (Engineer, Architect, etc.)

III. ANNUAL FEE

Enclose a check for the first year of the annual permit fee specified in K.A.R. 28-16-56 et seq. as amended. Make the check payable to "KDHE". Per K.A.R. 28-16-56, as amended, the current annual permit fee for this general permit is $60. An invoice for the annual permit fee will be sent to the contact person requesting a permit until such time as the permittee submits a Notice of Termination (NOT).

Failure to pay the annual fee will result in termination of the construction stormwater discharge Authorization.

IV. OWNER OR OPERATOR CERTIFICATIONS

I, the undersigned, certify that a Stormwater Pollution Prevention Plan (SWP2 Plan) will be or has been developed for the construction site described in this NOI and supporting documentation. I further certify that the plan will be implemented at the time construction begins, and, as required by the NPDES general permit for Stormwater Runoff from Construction Activity, will revise the SWP2 plan if necessary.

I understand that continued coverage under the NPDES general permit for Stormwater Runoff from Construction Activities is contingent upon maintaining eligibility as provided for in the requirements and conditions of the general permit, and paying the annual fee.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Mike Roth 9-17-2020

Signature (owner or operator) Date

Mike Roth-Super Intendant, Leavenworth Public Schools USD 453

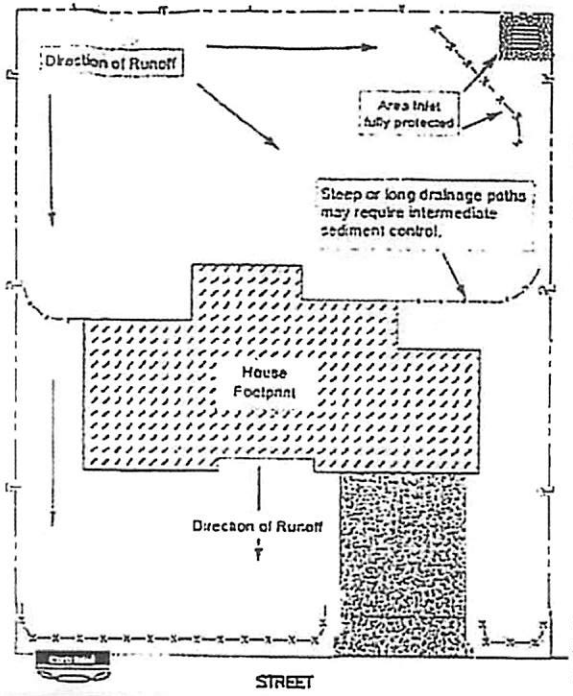
Name and Official Title (Please print or type. **Form with original signature must be sent to KDHE.**)

Conditions of Authorization - For Official Use Only:

When indicated, Conditions of Authorization are as follows:

A complete request for Authorization for coverage under the general permit must be submitted or the request will not be processed. A complete request for Authorization includes:

- **An NOI form (construction stormwater) with an original authorized signature;**
- **The annual permit fee for the first year; ($60.)**
- **An area map showing the outline of the construction site and the general topographic features of the area at least one mile beyond the project site boundary;**
- **Sequence of major soil disturbing activities including installation of stormwater management and pollution control features;**
- **A detailed site plan/plans showing the limits of disturbance, existing and proposed contours, erosion and sediment control features, locations where stormwater runoff leaves the construction site;**
- **A narrative summary of the additional erosion and sediment control and other best management practices that will be utilized to prevent or reduce contamination of stormwater runoff from the construction activities;**
- **Total drainage area, storage capacity and design calculations for each sedimentation basin; and**
- **Copies of letters or e-mails documenting coordination with appropriate local, state or federal agencies.**



Single Family Lot Erosion and Sediment Control Plan

This sample plan represents a typical single family lot. Users of this plan must make their own assessment (or seek professional advice) as to the conditions and drainage patterns of individual sites. These conditions should determine the selection and location of appropriate BMPs.

Sediment Control (Silt Fence, Wattles, Buffers)

Lot Access

Direction of Surface Water Runoff

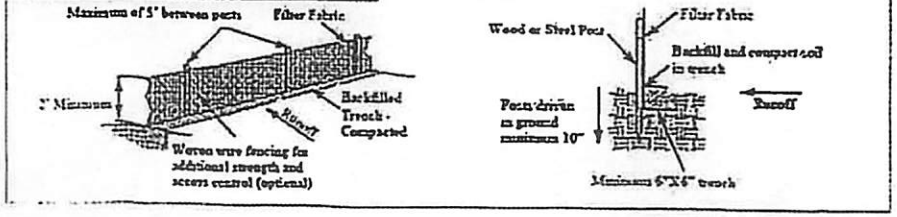
Area Inlet with Buffer (grass, sod, blanket)

Curb Inlet with Filter Protection

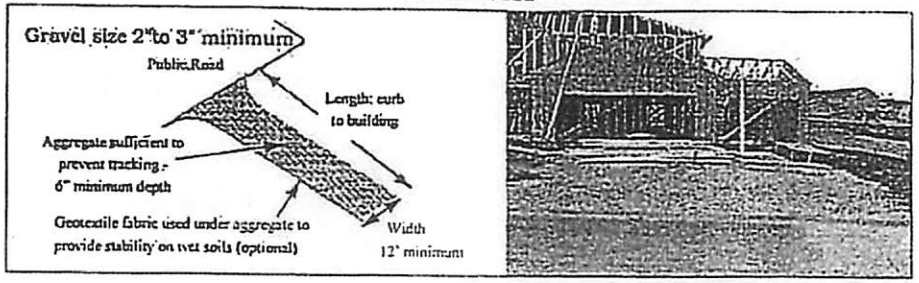
NOTE: Once sidewalk is installed, BMPs should be installed back of sidewalk to prevent sediment from reaching the sidewalk.

Silt Fence

- Turn ends of silt fence uphill to capture runoff.
- Overlap to next stake when joining two sections.
- Remove accumulated sediment to maintain capacity and reduce stress on fence.



Lot Access



Silt Fence Alternatives

Straw wattles, compost logs, silt dikes, grass buffers and mulch are good alternatives to silt fence, reducing erosion and filtering sediment. These BMPs can be installed in all weather conditions and are easily repaired if necessary. They are appropriate for perimeter control on most individual building lots. Installation of manufactured products should follow the instructions provided with the product.

Wattle / Log

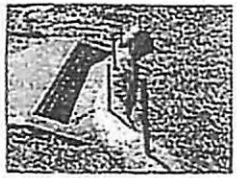
Silt Dike

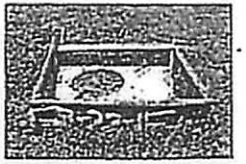
Grass Buffer

Mulch

Inlet Protection

Many products are available for inlet protection. Regular maintenance of all inlet BMPs is critical to prevent localized flooding and to prevent sediment from entering the stormwater system. Area inlets can be protected with a stabilized buffer and wattle placed in front or by wrapping the inlet with reinforced silt fence. Curb inlets can be protected with a manufactured product or clean gravel placed in a non-biodegradable bag.





Other Pollutants

In addition to sediment, other pollutants must also be controlled on a construction site. Some common pollutants requiring BMPs include, but are not limited to, concrete washout, mechanical fluids, paint, stucco, sanitary waste, trash and dewatering discharge.

City of Leavenworth

100 N. 5th St.
Leavenworth, KS 66048
(913)684-0378

Building Permit

Application Number	**8535**
Date	11/10/2020
Permit Type	LAND DISTURBANCE OVER 5 ACRES

PARCEL NUMBER	STREET ADDRESS
1011102007006000	3601 NEW LAWRENCE ROAD
ZONE CODE	**JURISDICTION**
R19	LEAVENWORTH

OWNER INFORMATION		APPLICANT INFORMATION	
NAME:	LEAVENWORTH CITY	NAME:	MAMMOTH SPORTS CONSTRUCTION
ADDRESS:	100 N 5TH ST LEAVENWORTH, KS 66048	ADDRESS:	601 E WYANDOTTE ST
PHONE:	913-684-0375	PHONE:	785-400-6136

CONTRACTOR INFORMATION

NAME:	MAMMOTH SPORTS CONSTRUCTION	LICENSE NUMBER:	
ADDRESS:	601 E WYANDOTTE ST	LICENSE EXP. DATE:	
		INSURANCE EXP. DATE:	
PHONE:			

BUILDING INFORMATION

PROPOSED USE:	HEATED SQ. FT:
CONSTRUCTION TYPE:	UNHEATED SQ. FT:
NUMBER OF STORIES:	GARAGE SQ. FT:
ESTIMATED COST OF CONSTRUCTION:	NUMBER OF STORIES

PROJECT DESCRIPTION	SCOPE OF WORK
LAND DISTURBANCE OVER 5 ACRES	SITE GRADING FOR BALL FIELD PROJECT

PERMIT DETAILS:

I, the undersigned, hereby agree to comply with all applicable laws regulating the work. I have also received a copy of this document and understand that it is my responsibility to inform this office of any change of contractor by completing and submitting a change of contractor form if necessary. Separate permits are required for electrical, plumbing, heating, ventilating or air conditioning. It is the responsibility of the owner/applicant to identify and abide by all easements, covenants and other regulations related to land use that may be affected by the construction work for which this permit is issued.

ANY PERMIT ISSUED EXPIRES 180 DAYS AFTER ISSUANCE IF NO WORK HAS COMMENCED.
ANY PERMIT ISSUED SHALL EXPIRE 180 DAYS AFTER ISSUANCE IF THE WORK IS DISCONTINUED FOR 180 DAYS.

Signature of Owner/Contractor

Signature of Approving Official

ORIGINAL COPY

Permit Number	**9723**
Total Fees	

Leavenworth, Kansas
City Clerk
100 North 5th Street
Leavenworth, KS 66048
Welcome

005924-0001 Staci A. 11/10/2020 04:38PM

MISCELLANEOUS
Description: Land Distrubance Cash Bond (LD2)
2020 Item: LD2
1.0 @ 10,000.00 10,000.00

10,000.00

Subtotal 10,000.00
Total 10,000.00

CHECK 10,000.00
Check Number1240003601

Change due 0.00

Paid by: DENISON STATE BANK

Comments: 3601 N.L.R.
MAMMOTH SPORTS CONSTRUCTION LLC

Thank you for your payment

CUSTOMER COPY
DUPLICATE RECEIPT

DENISON STATE BANK
421 NEW YORK AVENUE
HOLTON, KANSAS 66436

124000

Remitter : Mammoth Sports Construction Llc	DATE	AMOUNT
10,000 DOLLARS AND 00 CENTS	November 10, 2020	$10,000.00

CITY OF LEAVENWORTH

NON-NEGOTIABLE

Final Stormwater Management Plan

New Baseball & Softball Complex - Leavenworth School District USD 453

3501 New Lawrence Road
Section: NW/SW ¼ Sec. 11-9S-22E
Leavenworth, Kansas

Prepared By:

PLANNING
ENGINEERING
IMPLEMENTATION

PHELPS ENGINEERING, INC
1270 N. Winchester
Olathe, KS 66061
(913) 393-1155

PEI #200824
November 4, 2020

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LIST OF TABLES & FIGURES

1.0 Introduction

Phelps Engineering, Inc. (PEI) is pleased to submit this Final Stormwater Management Plan for the New Baseball & Softball Complex for Leavenworth School District USD 453 located at 3501 New Lawrence Road in the City of Leavenworth, Kansas. The site is 19.85 acres and contains four existing turf baseball fields. The proposed project plans to redevelop the area with a new baseball and softball complex which will contain two synthetic turf fields and two natural turf fields. The property is bound by New Lawrence Road to the west, Gatewood Street and the Richard Warren Middle School to the north, a natural turf football field to the east, and Fivemile Creek to the south. See Appendix "A" for the project aerial map.

2.0 Existing Conditions & Drainage System

The project site is located in the Fivemile Creek watershed. The entirety of the existing site is collected in an existing enclosed storm sewer system and ultimately discharges south into the Fivemile Creek located south of the site which flows west to east. See Appendix "C" for the Existing Conditions Drainage Map.

Soils data for the site watershed was determined using the NRCS Web Soil Survey for Leavenworth County. The existing site watershed consists entirely of Hydrologic Soil Group (HSG) Type "C" soils, including Sharpsburg silty clay loam at 1 to 8 percent slopes and Judson silt loam at 0 to 1 percent slopes. The existing site is considered to be grassland in good condition. The existing soils has been previously disturbed with construction of the existing natural turf baseball fields. See Appendix "A" of this report for aerial imagery exhibits, Appendix "B" for the NRCS Web Soil Survey and Appendix "C" for the Existing Conditions Plan.

3.0 Proposed Conditions & Drainage System

Runoff from the proposed 19.85-acre redevelopment will approximately maintain the existing drainage patterns. The proposed site will contain a new storm sewer system which will contain overland water quality basins and an enclosed storm sewer system that ultimately connect to the existing storm system and discharge south into Fivemile Creek. See Appendix "D" for the Proposed Site Conditions Plan.

4.0 Downstream Analysis

The existing onsite drainage area draining south totals 19.85 acres. The drainage system will need to be studied downstream to a point in the watershed in which the onsite contributing drainage area is less than 10% of the overall contributing drainage area, or 198.5 acres. The 19.85 acres site is located adjacent to the FEMA Zone AE Floodplain associated with Fivemile Creek to the south. The total drainage area for Fivemile Creek at the southeast corner of the proposed site is approximately 3,150 acres. There are no structures or flooding issues located within the drainage path from the proposed site to its discharge point into Fivemile Creek. All proposed work will occur outside of the FEMA Zone AE floodplain.

5.0 Stormwater Detention Requirements

As discussed above in the Section 4.0 of this report, there are no flooding issues located within the downstream analysis study area associated with the proposed site. The proposed 19.85 acre site accounts for approximately 0.7% of the total 3,150 acre Fivemile Creek watershed contributing drainage area at the southeast corner of the site.

The proposed baseball and softball complex redevelopment will consist of construction of two synthetic turf fields and two natural turf fields. Conservatively estimating the runoff impacts of the synthetic turf fields as impervious area, the final impervious area will total 3.01 acres over the 19.85 acre site, or 15.2% impervious. The proposed redevelopment will also include a total of three water quality basins onsite which will contain storage for the water quality volume draining to each basin. In addition, the synthetic turf fields will consist of a gravel aggregate base and underdrain system. The gravel aggregate will provide 40% void storage over the surface area of the synthetic turf which will have an added benefit for infiltration into the surrounding soils as the underdrains collect surface runoff over the field.

Due to the absence of any existing flooding issues within the downstream analysis study area as described in Section 4.0 of this report, and due to the low amount of impervious area associated with the development in addition to the added benefits from the storage provided within the water quality basins and gravel aggregate storage under the synthetic turf fields, stormwater detention is not required for the proposed redevelopment.

6.0 Stormwater Treatment Requirements

The proposed project is subject to the stormwater treatment requirements set forth in the 2012 edition of the APWA MARC Manual of Best Management Practices (BMP) for Stormwater Quality. A pre-and post-development Curve Number (CN) is calculated based off of ground cover and Hydrologic Soil Group (HSG) type for the existing and proposed conditions in order to determine a required Level of Service (LOS) for the site. Stormwater treatment facilities must be provided on site in order to reach the required LOS.

The predevelopment CN is calculated at 74 based off of a land cover type of a combination of grassland in good condition, and Hydrologic Soil Groups (HSG) Type "C".

The post development CN is calculated at 78 based off of a total of 16.84 acres of open space grass area and 3.01 acres of impervious area. The synthetic turf area's land cover type and runoff impact is conservatively estimated impervious area.

The proposed development increases the CN by 4, therefore requiring a level of service of 5.3 in accordance with APWA Best Management Practices for Water Quality and BMP Manual Addendum #1 dated November 10, 2016.

The proposed development required to provide a minimum water quality level of service of 5.0 is provided with preserved and planted native vegetative area and three bioretention basins. The Level of Service provided with the proposed development is

5.37, therefore meeting the requirements set forth in the 2012 APWA MARC BMP Manual. See Level of Service Worksheet 1 & 2 and the Stormwater Treatment Plan in Appendix "E" for more details.

7.0 Permitting Requirements

7.1 FEMA/DWR

Per FEMA Map Panels 20103C0141G and 20103C0143G of the Flood Insurance Rate Map dated July 16, 2015, a small portion of the southern property is located within the FEMA Zone AE Floodplain. The FEMA Zone AE floodplain will be preserved and will not be encroached or disturbed upon with this redevelopment. Therefore, no FEMA permitting is required.

The Kansas Division of Water Resources (KDWR) has jurisdiction over stream ways with contributing drainage areas greater than 640-acres. All of the property site discharge points affected by the redevelopment (south Flvemile Creek steram is not being disturbed) are less than 640-acres. Therefore, no KDWR permitting is required.

8.0 Conclusion

This report and attached exhibits complete PEI's Final Stormwater Management Plan for the New Baseball & Softball Complex for Leavenworth School District USD 453 located at 3501 New Lawrence Road in the City of Leavenworth, Kansas. Please feel free to contact PEI at (913) 393-1155 if you require further information or have additional questions.

Sincerely,

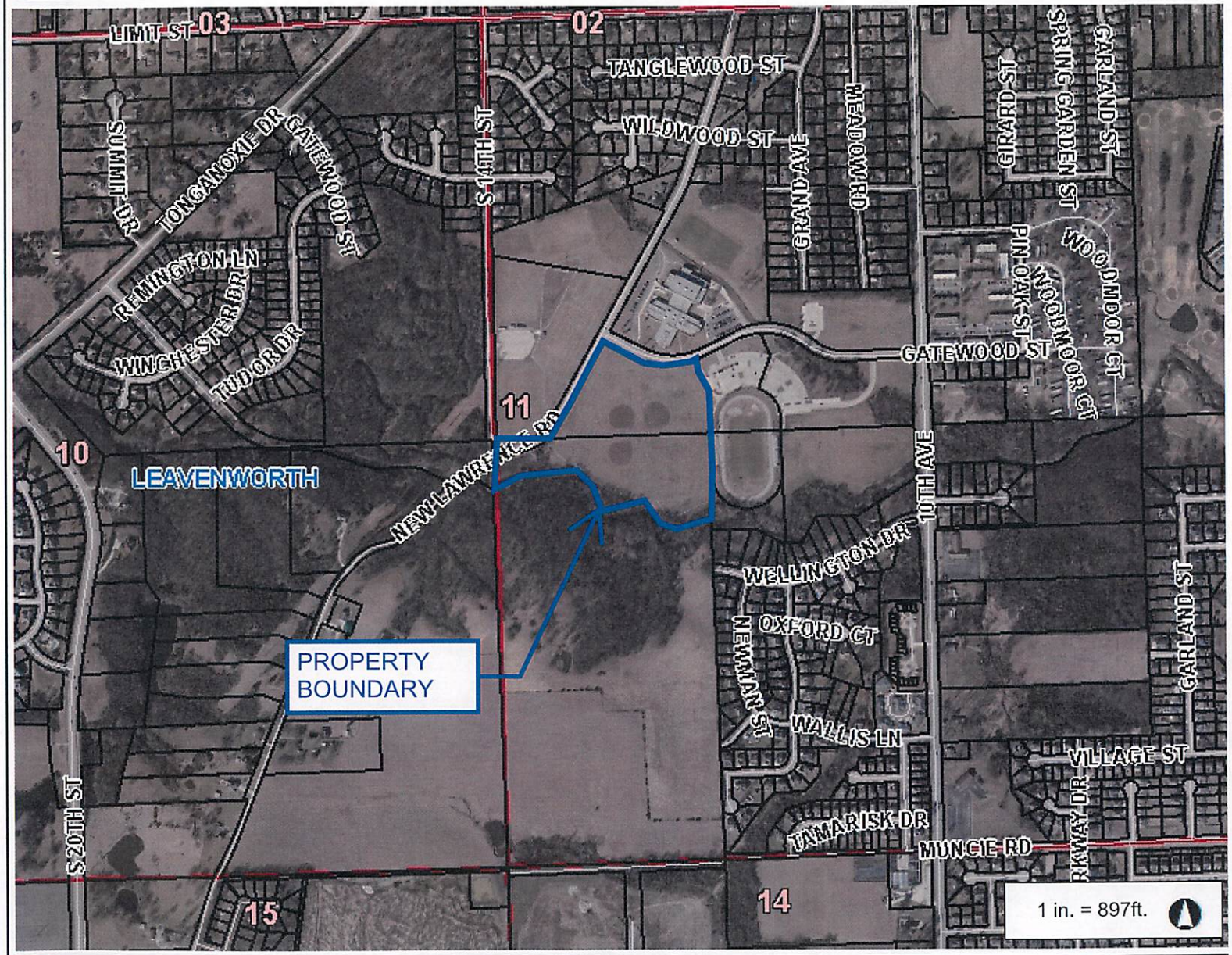
PHELPS ENGINEERING, INC.

Daniel McMullen, P.E.

Enclosures

Appendix A

Leavenworth County, KS



Legend

- Parcel
- City Limit Line
- Major Road
  - <all other values>
  - 70
- Road
- Railroad
- Section
- Section Boundaries
- County Boundary

Notes

1,794.0 0 897.01 1,794.0 Feet

This Cadastral Map is for informational purposes only. It does not purport to represent a property boundary survey of the parcels shown and shall not be used for conveyances or the establishment of property boundaries.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix B

United States Department of Agriculture

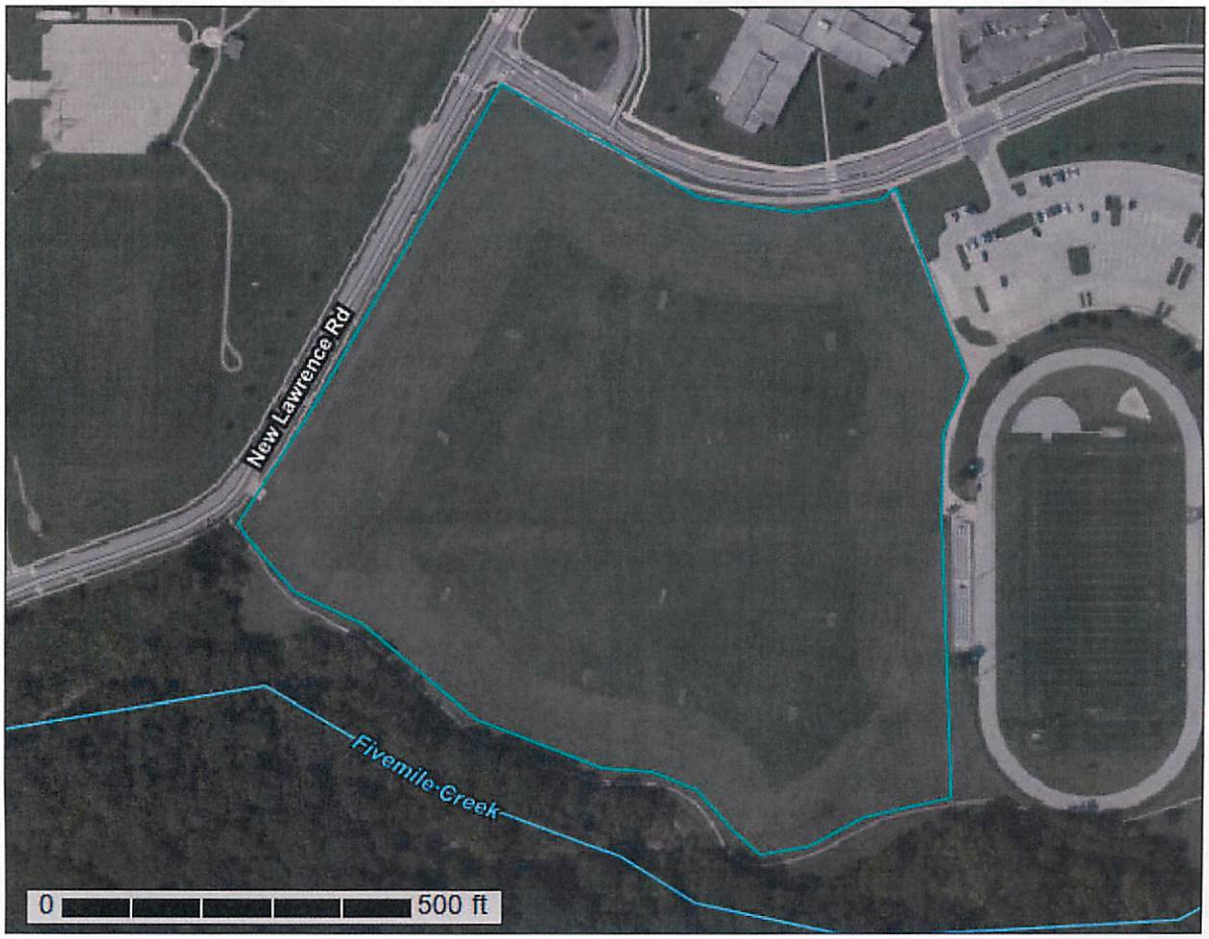
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Leavenworth County, Kansas

Richard Warren Middle School-Baseball & Softball Complex



September 17, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

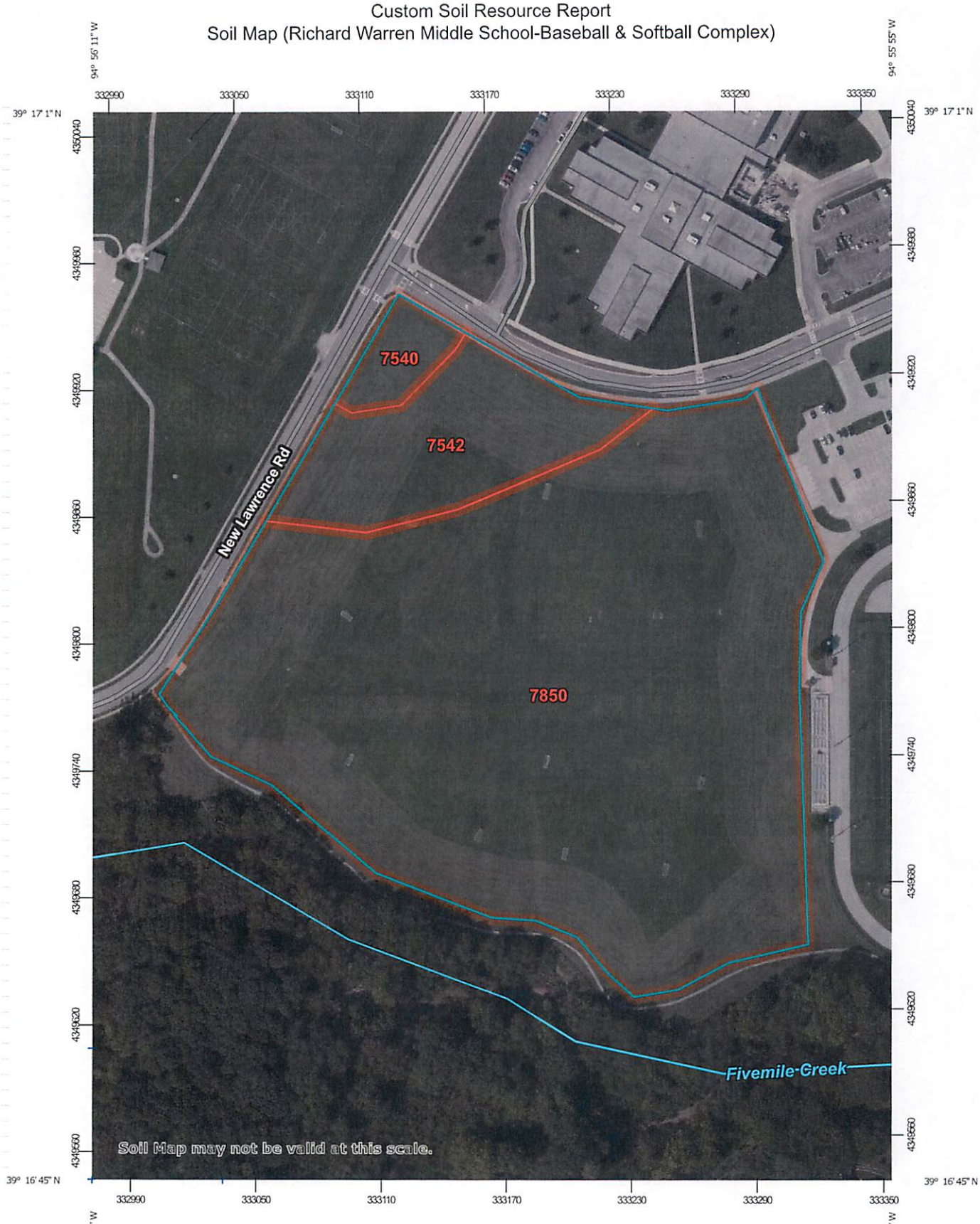
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Richard Warren Middle School-Baseball & Softball Complex)



Map Scale: 1:2,460 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Leavenworth County, Kansas
Survey Area Data: Version 15, Jun 10, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 16, 2019—Sep 23, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Richard Warren Middle School-Baseball & Softball Complex)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7540	Sharpsburg silty clay loam, 1 to 4 percent slopes	0.4	2.6%
7542	Sharpsburg silty clay loam, 4 to 8 percent slopes, eroded	2.1	12.5%
7850	Judson silt loam, 0 to 1 percent slopes	14.3	84.9%
Totals for Area of Interest		**16.8**	**100.0%**

Map Unit Descriptions (Richard Warren Middle School-Baseball & Softball Complex)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Leavenworth County, Kansas

7540—Sharpsburg silty clay loam, 1 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2q4rw
Elevation: 980 to 1,660 feet
Mean annual precipitation: 28 to 39 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 158 to 203 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sharpsburg and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharpsburg

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silty clay loam
A - 6 to 12 inches: silty clay loam
Bt1 - 12 to 18 inches: silty clay loam
Bt2 - 18 to 46 inches: silty clay loam
BC - 46 to 58 inches: silty clay loam
C - 58 to 79 inches: silty clay loam

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 45 to 50 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R106XY015KS - Loamy Upland (PE 30-37)
Forage suitability group: Loam (G106XY100NE)

Other vegetative classification: Loam (G106XY100NE)
Hydric soil rating: No

Minor Components

Pawnee

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R106XY007KS - Clay Upland (PE 30-37)
Other vegetative classification: Clayey Subsoil (G106XY210NE)
Hydric soil rating: No

Wymore

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R106XY007KS - Clay Upland (PE 30-37)
Other vegetative classification: Clayey Subsoil (G106XY210NE)
Hydric soil rating: No

Sarcoxie

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: R106XY015KS - Loamy Upland (PE 30-37)
Other vegetative classification: Loam (G106XY100NE)
Hydric soil rating: No

7542—Sharpsburg silty clay loam, 4 to 8 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2q4rx
Elevation: 980 to 1,660 feet
Mean annual precipitation: 28 to 39 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 158 to 203 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sharpsburg, eroded, and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sharpsburg, Eroded

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silty clay loam
A - 6 to 10 inches: silty clay loam
Bt1 - 10 to 14 inches: silty clay loam
Bt2 - 14 to 46 inches: silty clay loam
BC - 46 to 58 inches: silty clay loam
C - 58 to 79 inches: silty clay loam

Properties and qualities

Slope: 4 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 45 to 50 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R106XY015KS - Loamy Upland (PE 30-37)
Forage suitability group: Loam (G106XY100NE)
Other vegetative classification: Loam (G106XY100NE)
Hydric soil rating: No

Minor Components

Sarcoxie, eroded

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY015KS - Loamy Upland (PE 30-37)
Other vegetative classification: Loam (G106XY100NE)
Hydric soil rating: No

Shelby, eroded

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY015KS - Loamy Upland (PE 30-37)
Other vegetative classification: Loam (G106XY100NE)
Hydric soil rating: No

Grundy, eroded

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY007KS - Clay Upland (PE 30-37)
Other vegetative classification: Clayey Subsoil (G106XY210NE)
Hydric soil rating: No

7850—Judson silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 20hzq
Elevation: 500 to 1,400 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 43 to 66 degrees F
Frost-free period: 175 to 215 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Judson and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Judson

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-silty colluvium

Typical profile

Ap - 0 to 8 inches: silt loam
A - 8 to 30 inches: silt loam
Bw - 30 to 50 inches: silty clay loam
C - 50 to 70 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 12.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: R107BY008MO - Loamy Footslope Savanna Quercus alba-Quercus macrocarpa/Andropogon gerardii-Sorghastrum nutans White Oak-Bur Oak/Big Bluestem-Indiangrass
Hydric soil rating: No

Minor Components

Bremer

Percent of map unit: 5 percent
Landform: Flood-plain steps
Ecological site: R107BY021MO - Wet Terrace Savanna Quercus macrocarpa-Quercus bicolor/Spartina pectinata-Helianthus grosseserratus Bur Oak-Swamp White Oak/Prairie Cordgrass-Sawtooth Sunflower
Hydric soil rating: Yes

Kennebec

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: R107BY008MO - Loamy Footslope Savanna Quercus alba-Quercus macrocarpa/Andropogon gerardii-Sorghastrum nutans White Oak-Bur Oak/Big Bluestem-Indiangrass
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

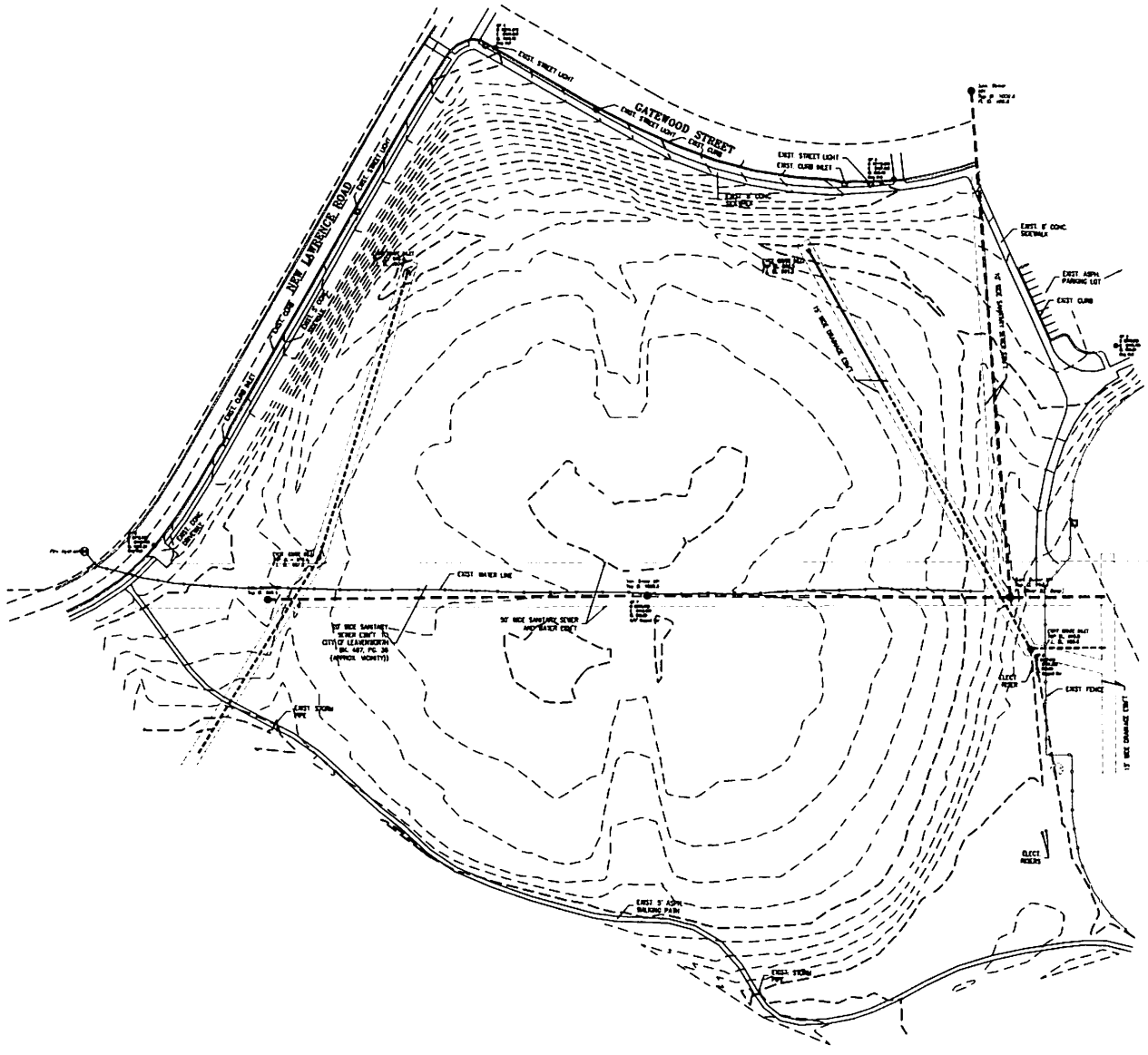
United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C



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UTILITY NOTES:
LOCAL LOCATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THOR LOCATING, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

N

SCALE: 1" = 50'

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200 N. 4th Street
Leavenworth, Kansas 66048

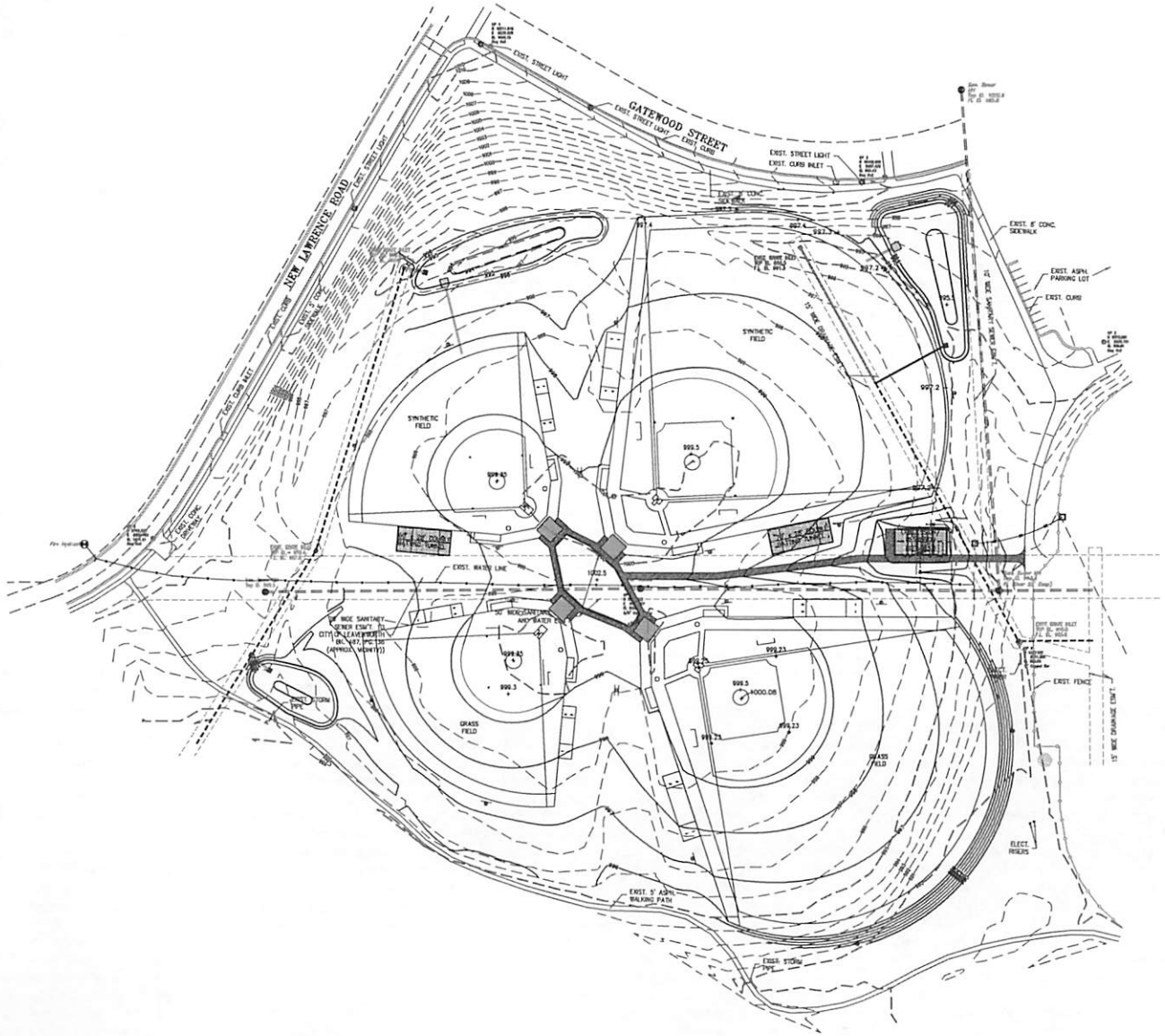
CHECK SET

JOB NO. 200624
DRAWN BY MRR
CHECKED BY CEU
DATE 10.23.20
REVISIONS

EXISTING CONDITIONS PLAN

C1

Appendix D



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SCALE: 1"=50'

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Leavenworth, Kansas 66048

CHECK SET

JOB NO: 200624
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.20
REVISIONS:

PROPOSED CONDITIONS PLAN

SHEET:
D1

Appendix E

WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE

Project:	**New Baseball/Softball Complex**	**By:**	**KAD**	**Date:**	**10/20/2020**
Location:	**Leavenworth, Kansas**	**Checked:**	**DEU**	**Date:**	**10/20/2020**

1. Runoff Curve Number

A. Predevelopment CN

Cover Description	Soil HSG	CN	Area (ac.)	Product of CN x Area
Grassland (Good)	C	74	19.85	1468.9
		Totals:	19.85	1468.9

Area-Weighted CN = total product/total area = 74 (Round)

B. Postdevelopment CN

Cover Description	Soil HSG[1]	CN	Area (ac.)	Product of CN x Area
Impervious Area	D	98	3.01	294.98
Open Space	C	74	16.84	1246.16
		Totals:	19.85	1541.14

[1] Postdevelopment CN is one HSG higher for all cover types except preserved vegetation, absent documentation showing how postdevelopment soil structure will be preserved.

Area-Weighted CN = total product/total area = 78 (Round)

C. Level of Service (LOS) Calculation

Predevelopment CN:	74
Postdevelopment CN:	78
Difference:	4
LOS Required:	5.3

WORKSHEET 2: DEVELOP MITGATION PACKAGE(S) THAT MEETS REQUIRED LOS

Project:	**New Baseball/Softball Complex**	**By:**	**KAD**	**Date:**	**10/20/2020**
Location:	**Leavenworth, Kansas**	**Checked:**	**DEU**	**Date:**	**10/20/2020**
Sheet:	1 of 1				

1. **Required LOS (from Table 1 or 1A or Worksheet 1 or 1A, as appropriate):** 5.3

Note: Various BMPs may alter CN of proposed development, and LS; recalculate both if applicable.

2. **Proposed BMP Option Package No.** 1

ID	BMP / Cover Description	Treatment Area, ac.	VR[1]	Product of VR x Area
NVA	Native Vegetation (South)	2.82	9.25	26.09
NVA-BIO	Native Vegetation to Bio-Retention	0.95	11.75	11.16
BIO	Bio-Retention (Northeast)	3.08	8.5	26.18
BIO	Bio-Retention (Northwest)	2.51	8.5	21.34
BIO	Bio-Retention (Southwest)	1.55	8.5	13.18
NVA	Native Vegeation (West)	0.93	9.25	8.60
	Bypass	8.01		
	Total[2]:	19.85	**Total VR:**	106.54
			Proposed LOS:	5.37

= total product/total area

[1] VR calculated for final BMP only in Treatment Train.

[2] Total treatment area cannot exceed 100 percent of the actual site area.

2) **Meets required LOS (Yes/No)?** Yes (If No, or if additional options are being tested, move to next sheet.)

BMP Manual Addendum #1 Accepted November 10, 2016

Addendum #1 to the BMP Manual incudes:

- Remove existing Table 4.2, LS for Previously Undeveloped Sites,

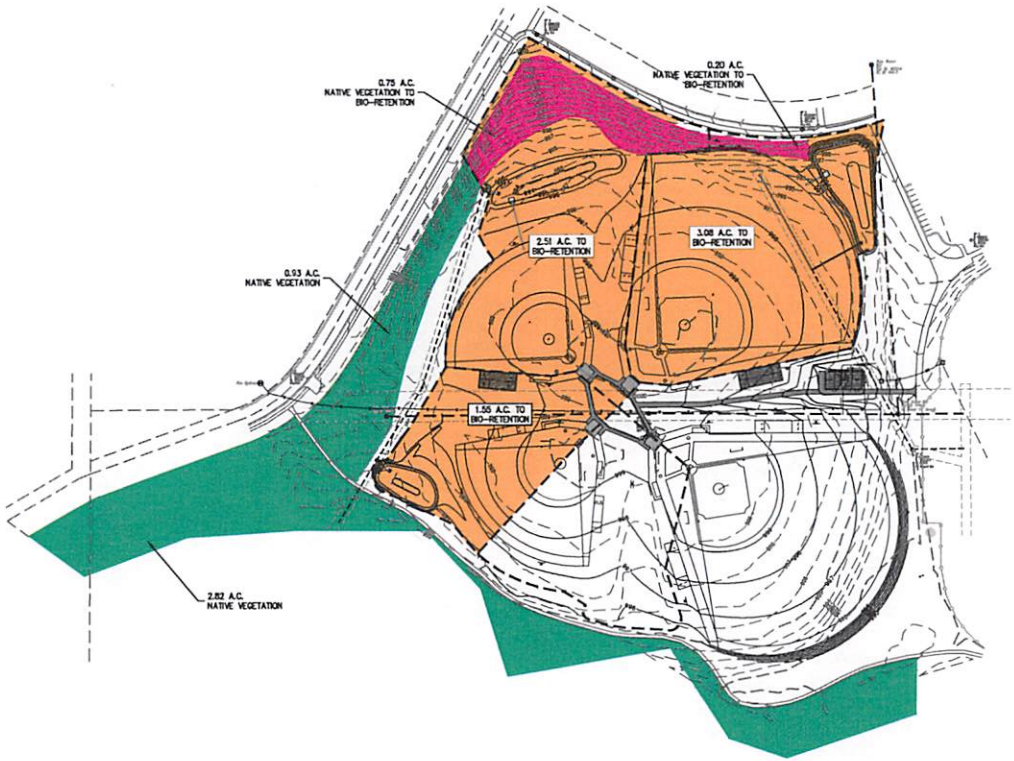
TABLE 4.2
LS for Previously Undeveloped Sites

Change in CN	Impact	LS
17 or greater	High water quality impact	8
7 to 16	Moderate water quality impact	7
4 to 6	Low water quality impact	6
1 to 3	Minimal water quality impact	5

- Insert New Table 4.2, LS for Previously Undeveloped Sites

Table 4.2
LS for Previously Undeveloped Sites

Change in CN	LS		Change in CN	LS
1	4.3		17	7.1
2	4.7		18	7.2
3	5		19	7.3
4	5.3		20	7.4
5	5.7		21	7.6
6	6		22	7.7
7	6.1		23	7.8
8	6.2		24	7.9
9	6.3		25	8
10	6.4		25+	8
11	6.5			
12	6.6			
13	6.7			
14	6.8			
15	6.9			
16	7			



WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE

Project: New Baseball/Softball Complex — By: KAG — Date: 10/30/2020
Location: Leavenworth, Kansas — Checked: DEU — Date: 10/30/2020

1. Runoff Curve Number

A. Predevelopment CN

Cover Description	Soil HSG	CN	Area (ac.)	Product of CN x Area
Grassland (Good)	C	74	19.85	1469.9
		Totals	19.85	1469.9

Area Weighted CN = total product/total area = 74 (Round)

B. Postdevelopment CN

Cover Description	Soil HSG[1]	CN	Area (ac.)	Product of CN x Area
Impervious Area	D	98	3.01	294.98
Open Space	C	74	16.84	1246.15
		Totals	19.85	1541.14

[1] Postdevelopment CN is one HSG higher for all cover types except preserved vegetation, absent documentation showing how postdevelopment soil structure will be preserved.

Area Weighted CN = total product/total area = 78 (Round)

C. Level of Service (LOS) Calculation

Predevelopment CN:	74
Postdevelopment CN:	78
Difference:	4
LOS Required:	5.5

WORKSHEET 2: DEVELOP MITIGATION PACKAGE(S) THAT MEETS REQUIRED LOS

Project: New Baseball/Softball Complex — By: KAG — Date: 10/30/2020
Location: Leavenworth, Kansas — Checked: DEU — Date: 10/30/2020
Sheet: 1 of 1

1. Required LOS (from Table 1 or 1A or Worksheet 1 or 1A, as appropriate): 5.5

Note: Various BMPs may offer DA of proposed development, and LID vegetation both if applicable.

2. Proposed BMP Option Package No.: 3

ID	BMP / Cover Description	Treatment Area, ac	VR*	Product of VR x Area
MVA	Native Vegetation (South)	2.82	0.25	66.00
MVA-BIO	Native Vegetation to Bio-Retention	0.93	11.76	11.16
BIO	Bio-Retention (Northeast)	3.08	8.5	26.18
BIO	Bio-Retention (Northwest)	2.51	8.5	21.34
BIO	Bio-Retention (Southwest)	1.55	8.5	13.18
MVA	Native Vegetation (West)	0.93	9.25	8.60
	Runoff	9.01		
	Total	19.85	Total VR	198.91
			Proposed LOS	9.97

* VR calculated for final BMP only or Treatment Train.
Total treatment area cannot exceed 150 percent of the actual site area.

= total product/total area

3) Meets required LOS (Yes/No)? Yes (If No, or if additional options are being tested, move to next sheet.)

LEGEND

- PL — PROPERTY LINE
- LOT LINE
- R/W — RIGHT-OF-WAY
- NATIVE VEGETATION
- BIO-RETENTION
- NATIVE VEGETATION TO BIO-RETENTION
- BYPASS
- DRAINAGE BOUNDARY FOR LOS VALUE RATING CALCULATION

N

SCALE: 1"=80'
0' 80' 160'

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CHECK SET

JOB NO: 206824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.20
REVISIONS:

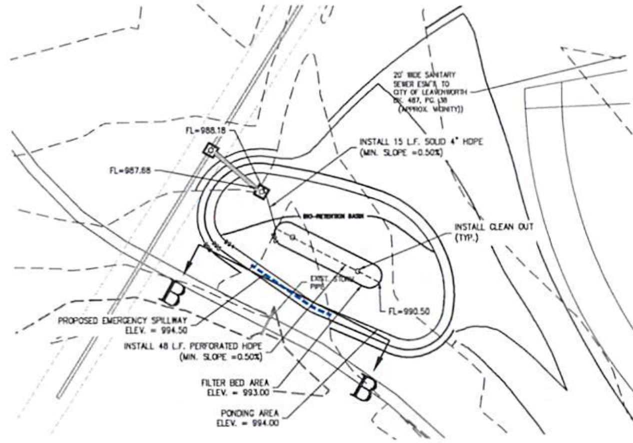
STORMWATER TREATMENT PLAN

SHEET: E1

Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year an application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).



BIORETENTION BASIN (BR-2)

TREATMENT AREA=1.55 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 457 S.F.

PONDING ELEVATION=994.00
PONDING AREA=4,024 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

1.55 Acres	Treatment Area
25.00%	% Impervious to Basin
0.05 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
392 Sq. Ft.	Minimum Required Filter Bed Area
2,120 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{100} =7.44 CFS

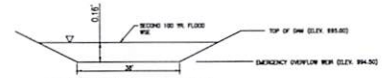
Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 38'

100-Year Emergency Spillway Flow Depth, H = 0.16'
$Q = CLH^{1.5}$ $7.44 = (3.1)(38)(.16)^{1.5}$

Bioretention Basin Berm Elevation = 995.00'

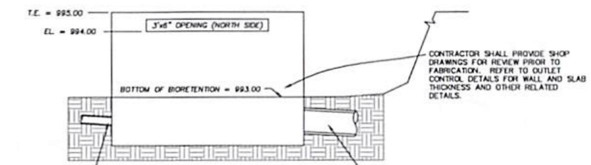
LEGEND

— - —	WATER SURFACE ELEVATION
960 / 962	PROPOSED CONTOURS
960 / 962 (dashed)	EXISTING CONTOURS
- - - (blue)	EMERGENCY SPILLWAY

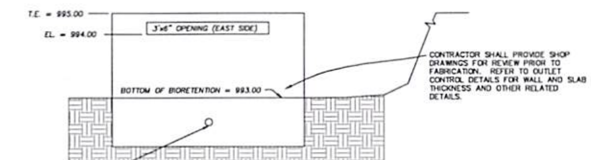


EMERGENCY OVERFLOW B-B

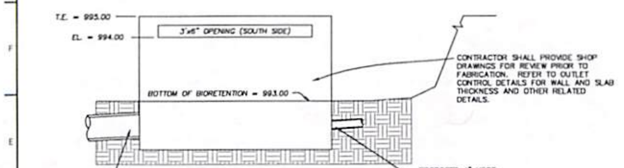
Q100 (INFLOW) = 7.44 cfs
Q = CwL H^(3/2)
Cw = 3.1



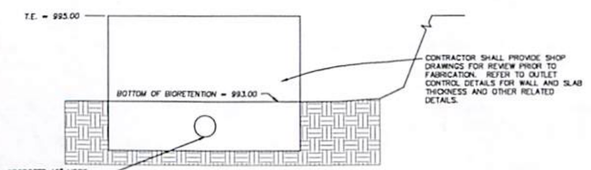
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



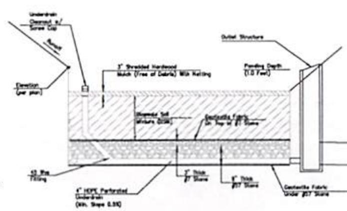
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



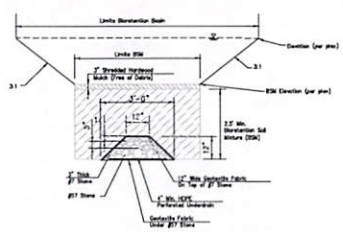
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture: The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	20%	See below.
Organic Compost	20%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil: The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By Weight	Test Method
Sand (2.0 - 0.050 mm)	50 - 85%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 50%	AASHTO T88
Clay (less than 0.002 mm)	2 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No time extensions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost: Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase.
Compost is deemed acceptable if it meets 2 of the following requirements:

1. C/N ratio <= 25;

2. Oxygen uptake rate <= 150 mg O2/kg volatile solids per hour; and

3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding mineral soils, woody material and rocks.

4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P2O5)	not to exceed 60 ppm plant available phosphorus	*
Potassium (K2O)	Minimum 75 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedures

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2x Shredded Hardwood Bark	See below
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provide a uniform texture free from sawdust, slag, soil, foreign materials, and any artificially introduced chemical compounds that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	98
No. 100	50

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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1270 N. Winchester
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601 E. Wyandotte Street
Meriden, Kansas 66512
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www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 230824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.23
REVISIONS:

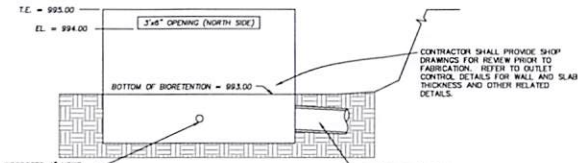
BIO-RETENTION PLAN

SHEET:
C5.1

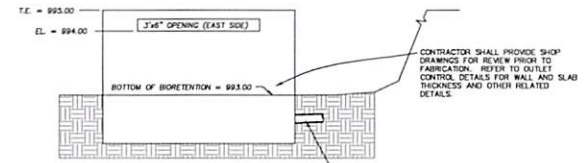
Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

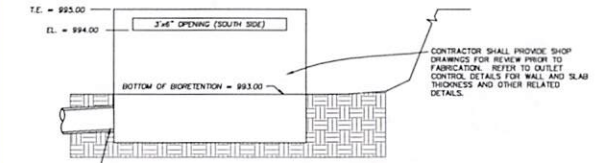
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year an application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).



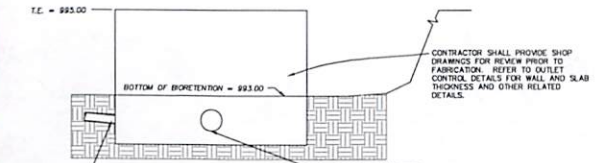
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



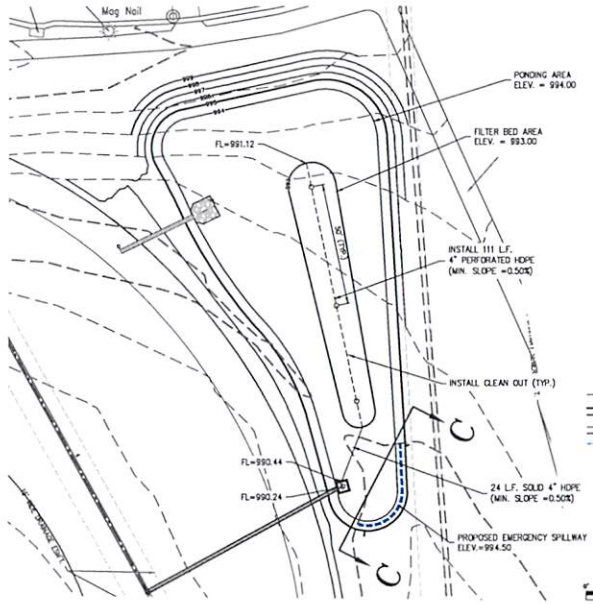
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN (BR-3)

TREATMENT AREA=3.28 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 1,772 S.F.

PONDING ELEVATION=994.00
PONDING AREA=9,335 S.F.

LEGEND

- WATER SURFACE ELEVATION
- 990 / 992 PROPOSED CONTOURS
- 990 / 992 EXISTING CONTOURS
- EMERGENCY SPILLWAY

BIORETENTION BASIN BR-1 PARAMETERS

3.28 Acres	Treatment Area
57%	% Impervious to Basin
0.21 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,701 Sq. Ft.	Minimum Required Filter Bed Area
9,183 Sq. Ft.	Minimum Required Ponding Area

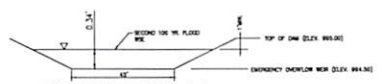
100-YEAR OVERFLOW

100-Year Inflow Q_{in} =27.50 CFS

Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 45'

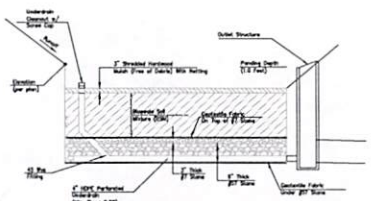
100-Year Emergency Spillway Flow Depth, H = 0.34'
$Q = CLH^{1.5}$ 27.50 = (3.1)(45)(.34)$^{1.5}$

Bioretention Basin Berm Elevation = 995.00'

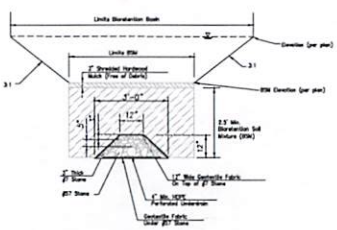


EMERGENCY OVERFLOW C-C

Q100 (WEIR) = 27.50 cfs
$Q = C_d L H^{\frac{3}{2}}$
C_d = 3.1



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture: The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below.
Organic Compost	20%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil: The USDA textural classification of the Planting Soil for this BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the local existing on site material or borrowed. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By Weight	Test Method
Sand (2.0 - 0.050 mm)	50 - 80%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 50%	AASHTO T88
Clay (less than 0.002 mm)	2 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No time extensions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost: Compost is a homogeneous and stable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a biodegradable phase. Compost is deemed acceptable if it meets 3 of the following requirements:

1. C/N ratio <= 25.
2. Oxygen uptake rate <= 150 mg CO_2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding mineral soils, woody material and rocks.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or stumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P_2O_5)	not to exceed 80 ppm plant available phosphorus	*
Potassium (K_2O)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedure

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash shall be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting and sand for BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the correct proportions and additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
6-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2x Shredded Hardwood Bark	See below.
Sand	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (30/50) from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provides a uniform texture free from sawdust, chips, soil, foreign materials, and any artificially introduced chemical components that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and pollutants that is injurious to plant life.

3. Water: Water used in the planting, establishing, or curing for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 80 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 30	95
No. 100	30

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

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Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.20
REVISIONS:

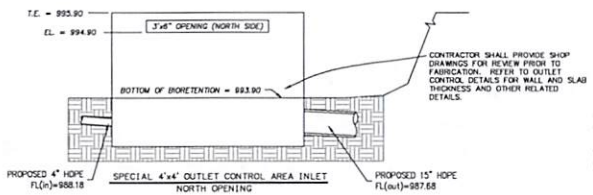
BIO-RETENTION PLAN

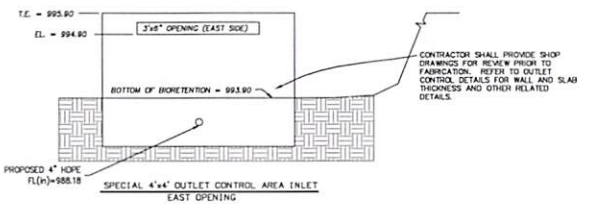
SHEET:
C5.2

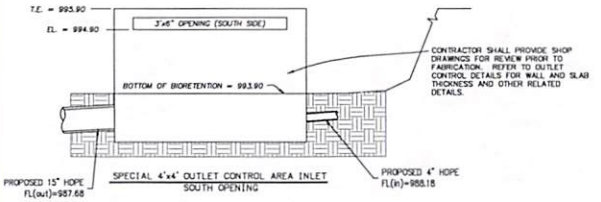
Bioretention Basin Maintenance and Inspections

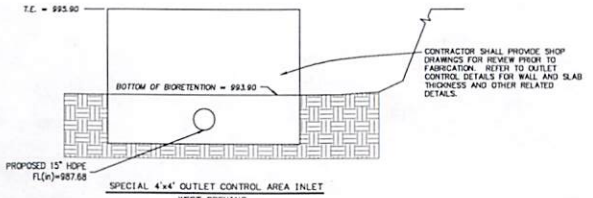
Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

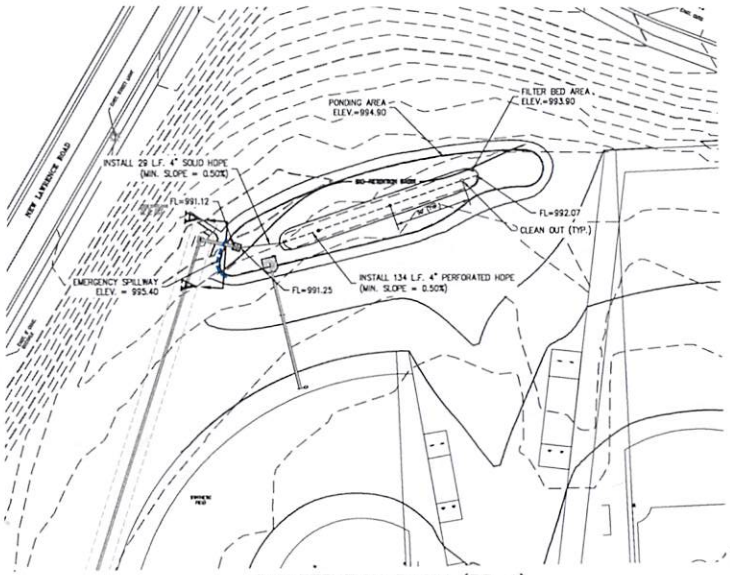
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year an application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).











BIORETENTION BASIN (BR-1)

TREATMENT AREA=3.26 ACRES

FILTER BED ELEVATION=993.90
FILTER BED AREA 1,450 S.F.

PONDING ELEVATION=994.90
PONDING AREA=7,793 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

3.26 Acres	Treatment Area
40%	% Impervious to Basin
0.15 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,230 Sq. Ft.	Minimum Required Filter Bed Area
6,647 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{100} = 20.67 CFS

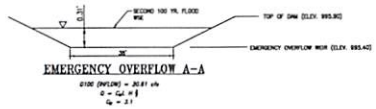
Emergency Spillway Elevation = 995.40'
Emergency Spillway Width = 36'

100-Year Emergency Spillway Flow Depth, H = 0.31'
$Q = CLH^{1.5}$ 20.61 = (3.1)(36)(.31)$^{1.5}$

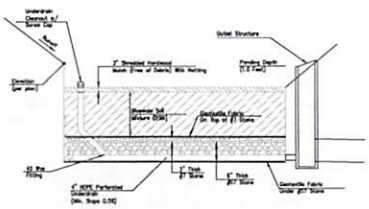
Bioretention Basin Berm Elevation = 995.90'

LEGEND

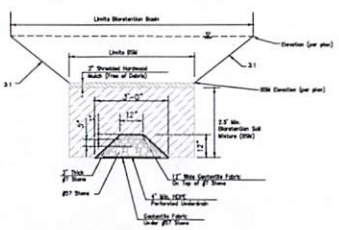
- WATER SURFACE ELEVATION
- 960 962 PROPOSED CONTOURS
- 960 962 EXISTING CONTOURS
- EMERGENCY SPILLWAY



EMERGENCY OVERFLOW A-A



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture. The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	50%	See below.
Organic Compost	20%	See below.
Sand	30%	ASTM C33 Fine Aggregate

B. Planting Soil. The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By Weight	Test Method
Sand (2.0 - 0.050 mm)	50 - 80%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 30%	AASHTO T88
Clay (less than 0.002 mm)	3 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
3 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No blind substitutions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost. Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. Compost is deemed acceptable if it meets 2 of the following requirements:

1. C/N ratio <= 25
2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm screen size that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding mineral soils, woody material and roots.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria
Corrected pH	5.5 - 7.5
Magnesium	Minimum 32 ppm
Phosphorus (Phosphate - P_2O_5)	not to exceed 80 ppm plant available phosphorus
Potassium (K_2O)	Minimum 78 ppm
Soluble Salts	Not to exceed 500 ppm

*Use authorized soil test procedure

Test Method
ASTM D4972
*
*
*

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2in Shredded Hardwood Bark	See below
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 1 in. particle size and provide a uniform texture free from admixture, clay, soil, foreign materials, and any artificially introduced chemical components that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for dredging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	95
No. 100	30

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 10.23.22
REVISIONS:

BIO-RETENTION PLAN

SHEET:

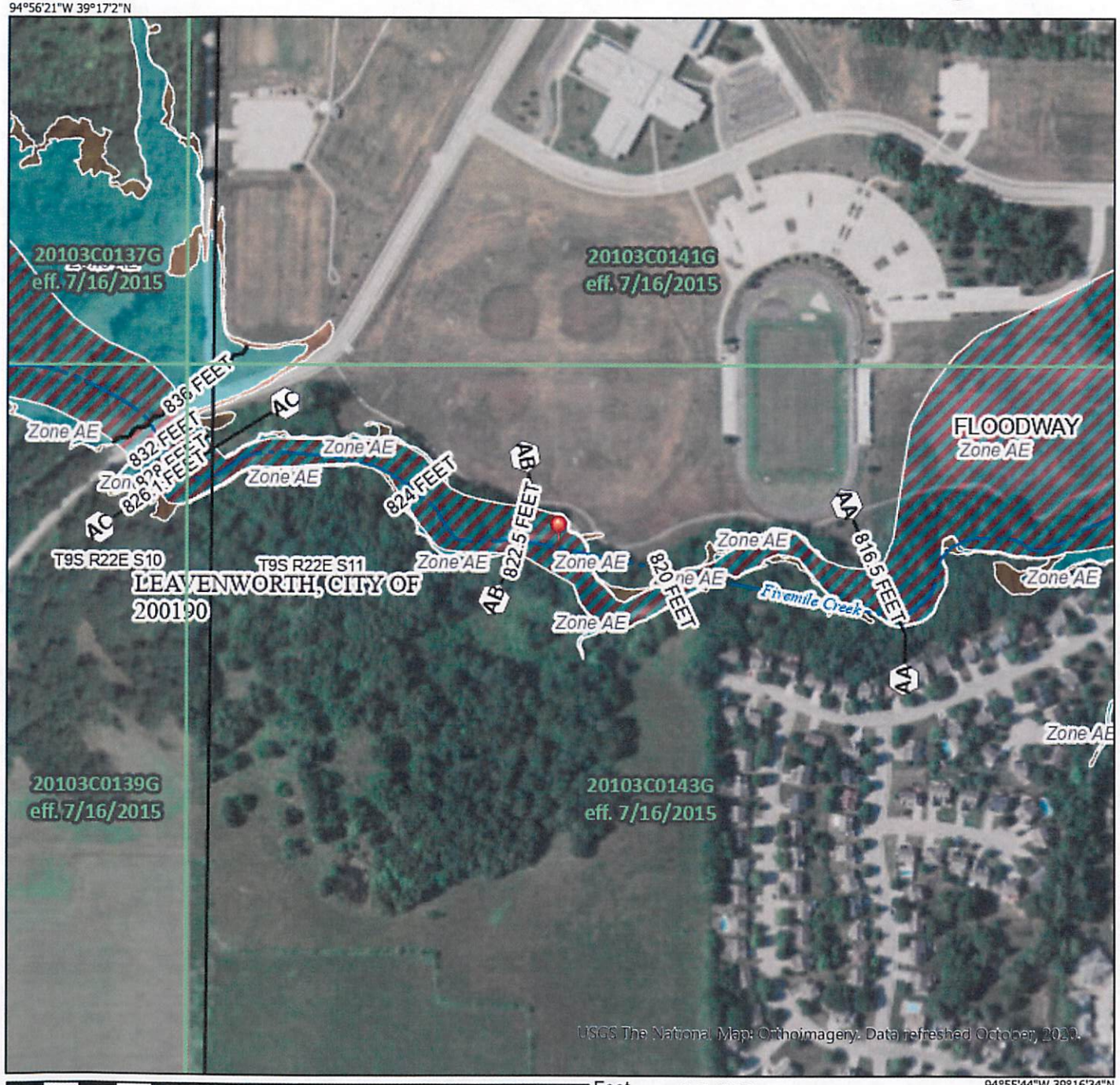
C5

Appendix F

National Flood Hazard Layer FIRMette

FEMA

94°56'21"W 39°17'2"N



94°55'44"W 39°16'34"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

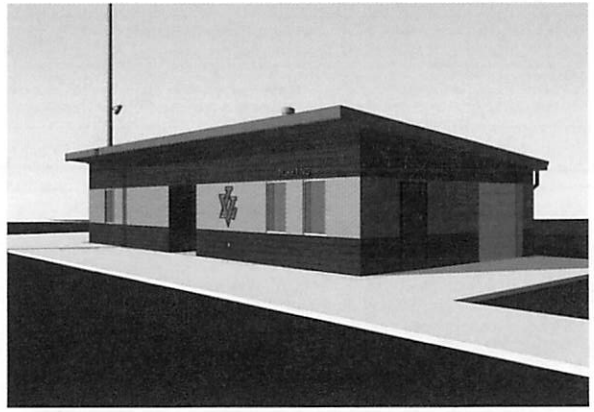
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/4/2020 at 11:22 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

New Baseball and Softball Complex

2012 10th Ave
Leavenworth, KS 66048



Project No. 20-1416L

Bid Documents

12/18/2020

PROJECT DIRECTORY

OWNER
USD 453

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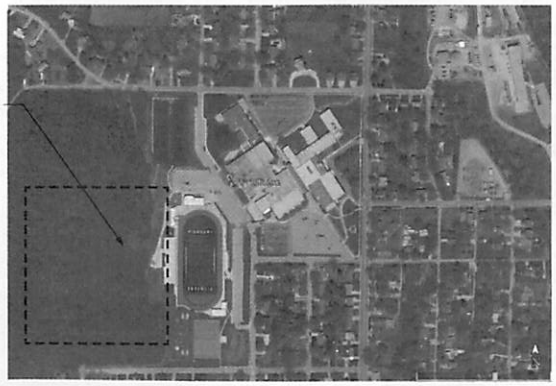
LOCATION MAP

PROJECT LOCATION



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G103	Accessibility Details
G104	Partition Type Schedule
G105	Code Information
Structural	
S000	Structural General Notes
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A301	Building Sections
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Electrical	
E101	Floor Plan - Electrical
E501	Electrical Details
E601	Electrical Schedules

DAVID BRIAN DEVORE LICENSED PROFESSIONAL KANSAS ARCHITECT

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USD 453 Sports Complex

New Baseball and Softball Complex

2012 10th Ave
Leavenworth, KS 66048

Revision Key

No.	Date	Revision

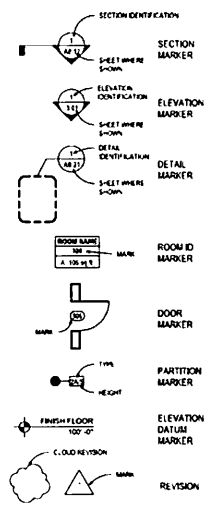
Project Manager: David Devore, AIA
Project Engineer: Jarrod Mann, P.E.
Checked By:
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number:

G101

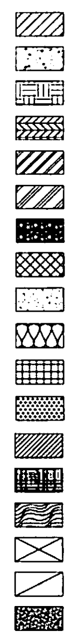
Cover Sheet

ABBREVIATIONS

SYMBOL LEGEND



MATERIAL LEGEND



PROJECT GENERAL NOTES

STANDARDS AND REGULATIONS

1. CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH APPLICABLE BUILDING CODES, REGULATIONS, ORDINANCES, UTILITY PROVIDER REQUIREMENTS, AND SIMILAR STANDARDS
2. CONTRACTOR SHALL COORDINATE WORK WITH APPLICABLE UTILITY PROVIDERS
3. CONTRACTOR SHALL BE FAMILIAR WITH AND WORK SHALL BE IN COMPLIANCE WITH REFERENCED FIRE-RATED ASSEMBLY TESTS AND STANDARDS
4. IF UNANTICIPATED HAZARDOUS MATERIALS ARE ENCOUNTERED, CONTRACTOR SHALL CEASE WORK IN THE AREA AND CONTACT OWNER'S REPRESENTATIVE IMMEDIATELY

ADMINISTRATION OF THE WORK

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCES OF CONSTRUCTION
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION PERSONNEL AND AUTHORIZED VISITORS
3. CONTRACTOR SHALL BECOME FULLY ACQUAINTED WITH CONDITIONS RELATED TO THE WORK. ANY KNOWN DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION PRIOR TO PROCEEDING WITH WORK RELATED TO THE DISCREPANCY
4. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION AND DEMOLITION DEBRIS. CONTRACTOR SHALL CLEAR AND REPAIR ANY DAMAGES TO EXISTING SYSTEMS SOILED OR DAMAGED BY DEBRIS REMOVAL PROCESS
5. EACH INSTALLER SHALL EXAMINE SUBSTRATE CONDITION AND/OR SITE CONDITIONS WHICH AFFECT THE QUALITY OF EACH PRODUCT TO BE INSTALLED. IF ANY CONDITIONS EXIST WHICH WILL HAVE A DETRIMENTAL EFFECT ON THE QUALITY OF THE INSTALLATION, THE INSTALLER SHALL IMMEDIATELY NOTIFY THE CONTRACTOR. INSTALLATION SHALL NOT PROCEED UNTIL THE UNSATISFACTORY CONDITIONS ARE CORRECTED. INSTALLATION SHALL SIGNIFY ACCEPTANCE OF THE CONDITIONS
6. CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COORDINATION EFFORTS OF ALL SUBCONTRACTORS
8. CONTRACTOR SHALL LAY OUT WORK AS SOON AS POSSIBLE. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK IN QUESTION

USE OF CONSTRUCTION DOCUMENTS

1. CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS FOR KEYED NOTES SHALL BE USED. CONTACT ARCHITECT IF CLARIFICATION OR ADDITIONAL INFORMATION IS REQUIRED
2. MEP DRAWINGS ARE SCHEMATIC IN NATURE. MODIFICATIONS IN DUCTS, PIPING, CONDUIT AND/OR WIRING MAY BE REQUIRED TO ACCOMMODATE ACTUAL FIELD CONDITIONS
3. DRAWINGS SHALL NOT BE REPRODUCED FOR SUBMITTALS. DRAWINGS OR PORTIONS OF DRAWINGS USED FOR SUBMITTALS WILL BE REJECTED AND RETURNED TO THE CONTRACTOR. ELECTRONIC COPIES OF BASE PLANS MAY BE PURCHASED FROM THE ARCHITECT
4. DIMENSIONS ARE AS FOLLOWS UNLESS NOTED OTHERWISE
   A. TO FINISHED FACE OF PARTITION OR EXTERIOR WALL
   B. TO CENTERLINE OR COLUMNS AND DOORS
   C. TO TOP OF STRUCTURAL FLOOR
   D. TO BOTTOM OF FINISHED CEILING

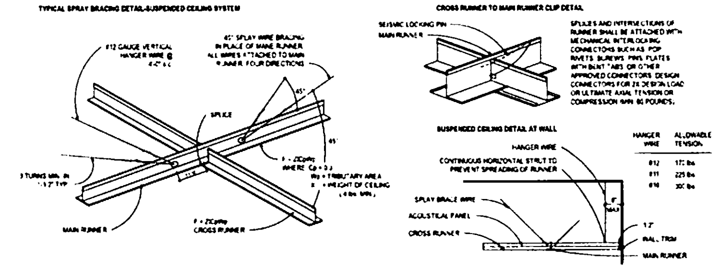
DEFINITIONS

1. "ALIGN" AS USED IN THESE DOCUMENTS SHALL MEAN TO ACCURATELY LOCATE AND FINISH FACES IN THE SAME PLANE AND/OR INSTALL NEW CONSTRUCTION ADJACENT TO EXISTING CONSTRUCTION WITHOUT ANY VISIBLE JOINTS OR SURFACE IRREGULARITIES
2. "CLEAR" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS NOT ADJUSTABLE WITHOUT THE APPROVAL OF THE ARCHITECT. CLEAR DIMENSIONS ARE TYPICALLY TO FINISH FACE
3. "MAXIMUM" OR "MAX" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY GREATER THAN THAT SHOWN WITHOUT APPROVAL OF THE ARCHITECT
4. "MINIMUM" OR "MIN" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS SLIGHTLY ADJUSTABLE BUT MAY NOT VARY TO A DIMENSION OR QUANTITY LESS THAN THAT SHOW WITHOUT APPROVAL OF THE ARCHITECT
5. "TYPICAL" OR "TYP" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION OR DIMENSION IS THE SAME OR REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT
6. "±" AS USED IN THESE DOCUMENTS SHALL MEAN THE DIMENSION OR QUANTITY IS SLIGHTLY ADJUSTABLE TO ACCOMMODATE ACTUAL CONDITIONS

MATERIALS

1. ALL DISSIMILAR METAL MATERIALS SHALL BE ISOLATED WITH NONMETALLIC SEPARATOR
2. ALL MATERIALS USED IN AIR DISTRIBUTION/RETURN PLENUMS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND SHALL BE APPROVED BY BUILDING CODE AUTHORITIES
3. ALL MATERIALS USED IN FIRE RATED ASSEMBLIES SHALL BE APPROVED BY UL OR OTHER RECOGNIZED STANDARDS FOR USE IN SUCH ASSEMBLIES
4. ALL SHEET METAL PRODUCTS USED IN THE EXTERIOR WALLS SHALL BE STAINLESS OR GALVANIZED. ALL EXTERIOR SHEET METAL SHALL BE GALVANIZED UNLESS NOTED OR SPECIFIED OTHERWISE
5. ALL SHEET METAL FLASHING SHALL ALLOW FOR THERMAL MOVEMENT OF THE MATERIALS WITHOUT DEFLECTION AND/OR OIL-CANNING. ALL FINISHED MATERIALS, COLOR, FIXTURES, HARDWARE, AS WELL AS ALL OTHER ITEMS NOT EXPLICITLY CALLED OUT ON PLANS ARE TO BE SPECIFIED AND SELECTED BY OWNER AND ARCHITECT AS AGREED. CONTRACTOR AND OWNER TO NOTIFY ARCHITECT OF THESE ITEMS WHEN ENCOUNTERED

SEISMIC BRACING DETAIL FOR LAY-IN CEILINGS



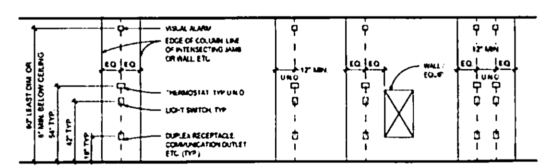
DEVICE LOCATION DIAGRAM

SPECIFICATIONS FOR LOCATION OF DEVICES

LAYOUT OF WORK: THE CONTRACTOR SHALL EXERCISE SPECIAL CARE IN THE VERIFICATION OF EXISTING CONDITIONS AND DIMENSIONS, ALONG WITH "THE LAYOUT" OF THE WORK. THE ALIGNMENT AND COORDINATION OF THE WORK WITH ITSELF AND OTHER ADJACENT WORK IS OF PRIMARY IMPORTANCE AND SHOULD TAKE PRECEDENCE OVER DIMENSIONS, ESPECIALLY THOSE INDICATED AS APPROXIMATE. THE CONTRACTOR SHALL LAYOUT AND VERIFY HIS WORK TO INSURE ALIGNMENT AND FIT AND REPORT ANY DISCREPANCIES TO THE ARCHITECT

LOCATION OF DEVICES IN FINISHED AREAS

A. LOCATION OF WALL DEVICES AS SHOWN ON PLANS IS APPROXIMATE AND FOR ESTIMATING PURPOSES ONLY
B. WHEN MOUNTING MULTIPLE DEVICES FROM DIFFERENT TRADES IN THE SAME LOCATION (SUCH AS LIGHTING SWITCHES, THERMOSTATS, ETC.) THEIR ARRANGEMENT SHALL BE IN ACCORDANCE WITH THE FOLLOWING
   - LOCATE DEVICES AS SHOWN ON THE ARCHITECTURAL PLANS, ELEVATIONS, OR SECTIONS
   - WHEN SHOWN ON MECHANICAL OR ELECTRICAL DRAWING BUT NOT ON ARCHITECTURAL DRAWINGS, DEVICES SHALL BE UNIFORMLY AND SYMMETRICALLY MOUNTED. VERTICALLY ALIGN DEVICES MOUNTED AT HEIGHTS INDICATED UNLESS SEPARATED HORIZONTALLY BY A MINIMUM OF 24"
   - DEVICES INSTALLED IN MASONRY OR SURFACES TO RECEIVE WOOD PANELS, WALL COVERING, OR SIMILAR MATERIALS AND SHALL BE INSPECTED BY THE ARCHITECT AT TIME OF ROUGH-IN
   - IF THE CONTRACTOR HAS ANY DOUBTS REGARDING THE LOCATION OF DEVICES, THEY SHOULD CONSULT WITH THE ARCHITECT PRIOR TO ROUGH-IN
C. DEVIATIONS FROM THE ABOVE PRINCIPLES WITHOUT PRIOR APPROVAL BY THE ARCHITECT SHALL BE CORRECTED BY THE CONTRACTOR. ANY COST, INCLUDING CUTTING AND PATCHING ENTAILED IN THE REMOVAL, RELOCATION AND REINSTALLATION OF ANY DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR



LIST OF ALTERNATES

SEE SECTION 12 30 00 ALTERNATES

- ALTERNATE 1: AC ADDED TO ROOM 131 AND ROOM 132

Bid Documents

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Revision Key

No. Date Revision

David Devore, AIA

Jarrod Mann, P.E.

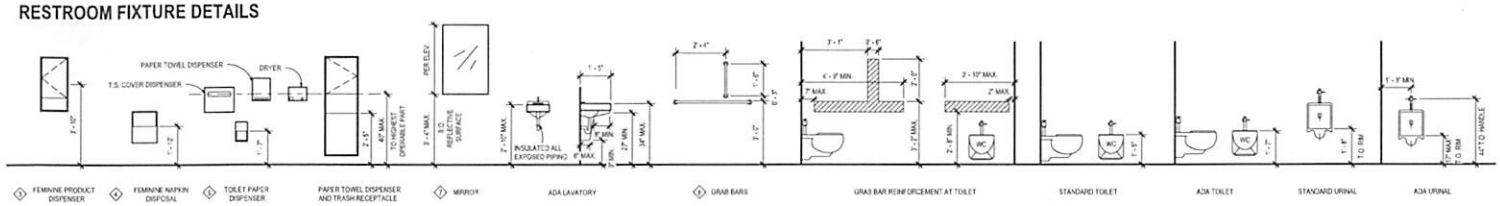
20-1416L

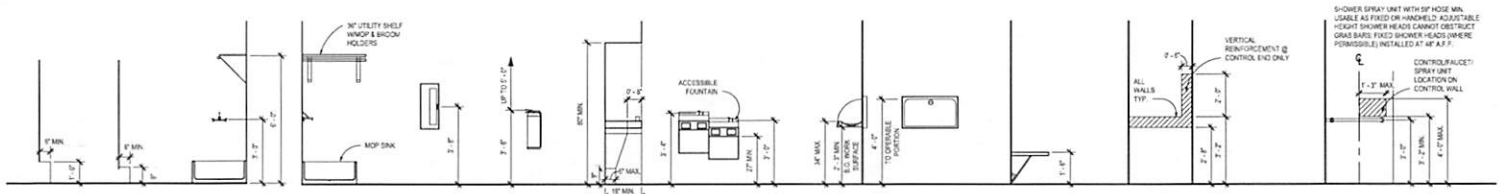
12/18/2020

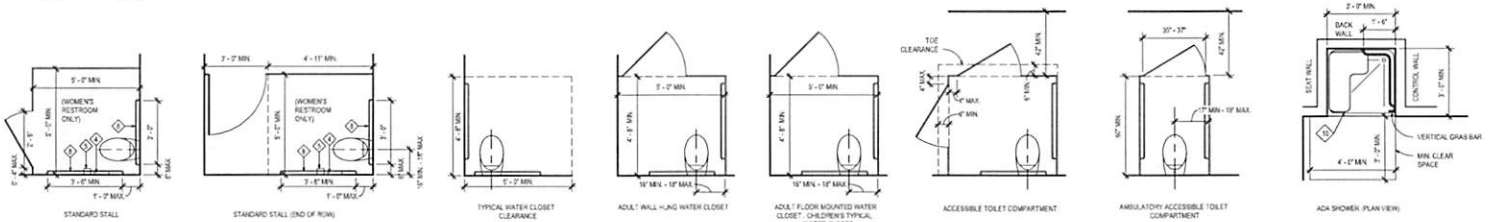
G102

General Information

RESTROOM FIXTURE DETAILS







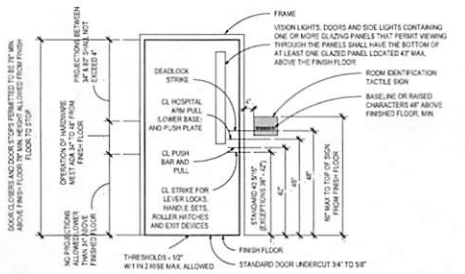
GENERAL NOTES

1. NOT ALL FIXTURES AND DEVICES INDICATED MAY BE USED IN THE PROJECT
2. MOUNTING HEIGHTS INDICATED MAY BE SUPERSEDED BY MORE SPECIFIC INFORMATION ELSEWHERE IN THE DOCUMENT
3. ALL APPLIANCES AND PLUMBING FIXTURES MUST COMPLY WITH APPLICABLE ANSI AND ADA REQUIREMENTS
4. ALL ACCESSIBLE SINKS SHALL HAVE A MAXIMUM HEIGHT OF 34" TO THE RIM OR COUNTER (WHICHEVER IS HIGHER) AND PROVIDE A 27" MINIMUM HIGH KNEE SPACE
5. PROVIDE AND INSTALL BLOCKING/ REINFORCEMENT FOR ALL ACCESSORIES PER MANUFACTURER'S INSTRUCTIONS
6. THERE SHALL BE NO SHARP ABRASIVE SURFACES UNDER LAVATORIES
7. ALL HOT WATER AND ALL DRAIN PIPES MUST BE INSULATED OR OTHERWISE COVERED
8. THE TOILET FLUSH CONTROLS MUST BE INSTALLED ON THE OPEN SIDE OF A TOILET WITH THE CLEAREST FLOOR SPACE AND MOUNTED NO HIGHER THAN 44" A.F.F.

FIXTURE SCHEDULE

1. TOILET PARTITION
2. URINAL PARTITION
3. FEMININE PRODUCT DISPENSER
4. FEMININE NAPKIN DISPOSAL
5. TOILET PAPER DISPENSER
6. PAPER TOWEL DISPENSER AND TRASH RECEPTACLE
7. MIRROR
8. GRAB BARS
9. BABY CHANGING STATION, 2'-10" AFF TO WORK SURFACE
10. ADA FOLD-UP SHOWER SEAT
11. SOAP DISPENSER

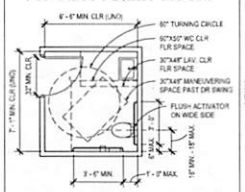
DOOR HARDWARE & ROOM SIGNAGE



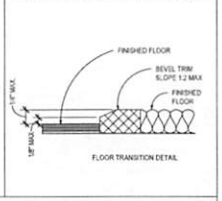
GENERAL NOTES

1. REQUIRED FIRE DOORS SHALL HAVE THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
2. OTHER THAN REQUIRED FIRE DOORS, INTERIOR DOORS SHALL HAVE A MAXIMUM OPENING FORCE OF 5 POUNDS.
3. OTHER THAN THE REQUIRED FIRE DOORS, EXTERIOR DOORS SHALL HAVE A MAXIMUM OPENING FORCE OF 5 POUNDS.
4. DOOR OPENING HARDWARE SHALL BE CENTERED BETWEEN 30" MIN & 44" MAX AFF.
5. DOORWAYS INTO UNISEX SANITARY FACILITIES SHALL BE IDENTIFIED BY A CIRCLE 1/4" THICK, 12" IN DIAMETER, WITH A 1/4" THICK TRIANGLE SUPERIMPOSED ON THE CIRCLE AND WITHIN THE 12" DIAMETER. THE GEOMETRIC SYMBOL SHALL BE CENTERED ON THE DOOR AT A HEIGHT OF 60" AFF AND SHALL BE A COLOR AND CONTRAST DISTINCTLY DIFFERENT FROM THE COLOR AND CONTRAST OF THE DOOR.
6. A PERMANENT IDENTIFICATION SIGN, INCLUDING RAISED LETTERS ACCOMPANIED BY BRAILLE, SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, THE SIDE SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT. MOUNTING HEIGHT SHALL BE 60" AFF TO THE CENTERLINE OF THE SIGN. MOUNTING LOCATION SHALL BE DETERMINED SO THAT A PERSON MAY APPROACH WITHIN 3" OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.
7. RAISED CHARACTERS OR SYMBOLS SHALL CONFORM THE FOLLOWING:
   A. LETTERS AND NUMBERS ON THE PERMANENT IDENTIFICATION SIGNS SHALL BE RAISED 1/32" MINIMUM AND SHALL BE SANS SERIF UPPERCASE CHARACTERS AND ACCOMPANIED BY GRADE 2 BRAILLE.
   B. RAISED CHARACTERS OR SYMBOLS SHALL BE A MINIMUM OF 5/8" AND MAXIMUM OF 2" HIGH
   C. PICTORIAL SYMBOL SIGNS (PICTOGRAMS) SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE BORDER DIMENSION OF THE PICTOGRAM SHALL BE A MINIMUM OF 6" IN HEIGHT.
   D. CHARACTERS AND BRAILLE SHALL BE IN A HORIZONTAL FORMAT. BRAILLE SHALL BE PLACED A MINIMUM OF 3/8" AND A MAXIMUM OF 1/2" DIRECTLY BELOW THE TACTILE CHARACTERS. FOR LEFT OR CENTERED, WHEN TACTILE TEXT IS MULTI-LINED, ALL BRAILLE SHALL BE PLACED TOGETHER BELOW ALL LINES OF TACTILE TEXT.
8. CONTRACTED (GRADE 2) BRAILLE SHALL BE USED ON THE PERMANENT IDENTIFICATION SIGN.
9. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND, EITHER LIGHT CHARACTERS ON A DARK BACKGROUNDS OR DARK CHARACTERS ON A LIGHT BACKGROUND.
10. ALL SIGNAGE TO HAVE NON-GLARE BACKGROUND AND CONTRACT BETWEEN CHARACTERS AND BACKGROUND PER ADAAG A4.30.5.

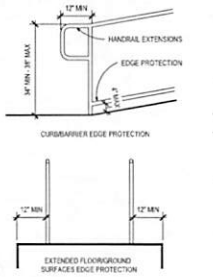
TYP ADA TOILET ROOM



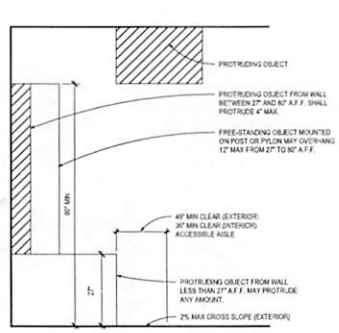
FLOOR LEVEL CHANGES



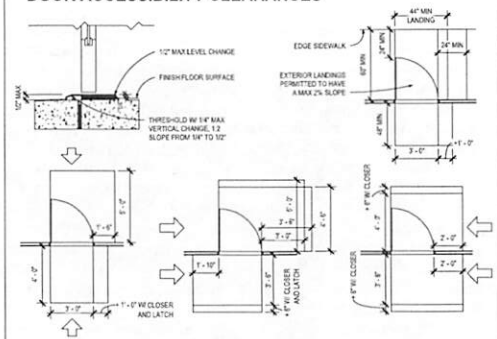
HANDRAIL DETAILS



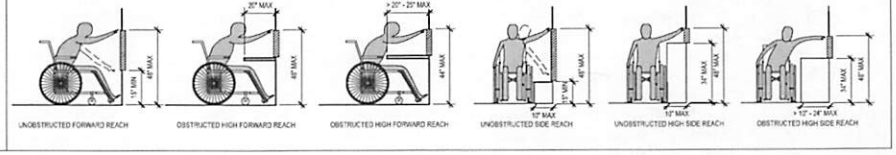
ACCESSIBILE ROUTE DETAILS



DOOR ACCESSIBILITY CLEARANCES



REACH RANGES



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USD 453 Sports Complex

New Baseball and Softball Complex

2012 10th Ave
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Revision Key

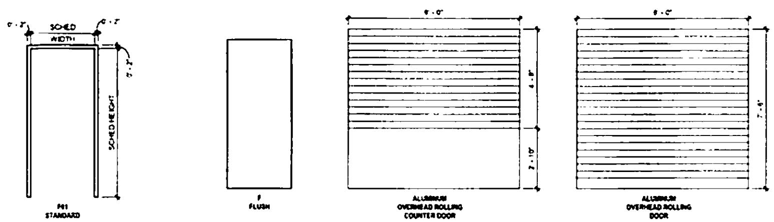
No.	Date	Revision

Project Manager: David Devore, AIA
Project Engineer: Jarrod Mann, P.E.
Checked By:
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number: G103

Accessibility Details

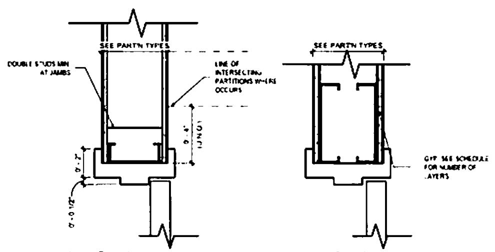
Door and Frame Schedule

Door ID	Room Name	Door Width	Door Height	Frame Type	Panel Type	Frame Material	Hardware	Comments
Level 1								
101.1	Concessions	8' - 0"	4' - 0"				Per Manuf	Ceiling Counter Door
101.2	Storage	3' - 0"	7' - 2"	F01	F	HM	No Spec	
102.1	Storage	3' - 0"	7' - 2"	F01	F	HM	No Spec	
103.1	Mens	3' - 2"	7' - 2"	F01	F	HM	No Spec	
104.1	Womens	3' - 0"	7' - 2"	F01	F	HM	No Spec	
105.1	Ticket Booth	3' - 0"	7' - 2"	F01	F	HM	No Spec	
106.1	Equip. Storage	8' - 0"	7' - 6"				Per Manuf	Overhead Door
107.1	Mech Chase	3' - 0"	7' - 2"	F01	F	HM	No Spec	



Door Frame Types

Door Panel Types



Jamb Detail

Head Detail

PARTITION ASSEMBLY SCHEDULES

METAL (M) PARTITION SCHEDULE

TYPE	THK	FIRE RATING	TEST NUMBER	STC RATING	SIDE A TYPE	SIDE A THK	SIDE B TYPE	SIDE B THK	STUD SIZE	O.C. SPACING	REMARKS
M1A	4 7/8"	T		40	-	5/8"	-	5/8"	3 5/8"	16"	
M3A	2 1/4"	T		40	-	-	-	5/8"	1 5/8"	16"	
M1B	4 1/4"			-	-	-	-	5/8"	3 5/8"	16"	

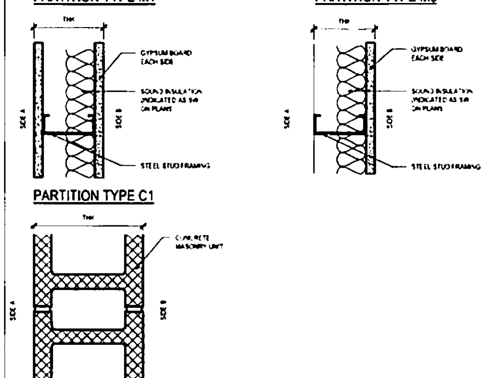
CMU (C) PARTITION SCHEDULE

PARTITION TYPE	PARTITION THK	PARTITION FIRE RATING	PARTITION TEST NUMBER	PARTITION STC RATING	CMU THK	GYPSUM BOARD SIDE A TYPE	GYPSUM BOARD SIDE A THK	GYPSUM BOARD SIDE B TYPE	GYPSUM BOARD SIDE B THK	FRAMING STUD SIZE	FRAMING O.C. SPAC'G	REMARKS
C1A	3 5/8"	F		-	3 5/8"	-	-	-	-	-	-	
C1B	7 5/8"	F		-	9 5/8"	-	-	-	-	-	-	

PARTITION TYPES

PARTITION TYPE M1

PARTITION TYPE M3

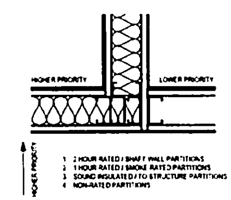


PARTITION TYPE C1

PARTITION NOTES

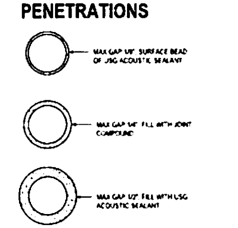
1. FRAMING
   - A. All bearing partitions shall be constructed per structural drawings and specifications.
   - B. All non-bearing partitions shall be constructed to limit deflection to L/360 of the span with uniform 5 psf horizontal loading. Chase wall shall resist expected load particular to shaft.
   - C. Provide double framing at jambs of frames and cased openings.
   - D. Isolate nonbearing framing from structural elements to prevent transfer of loads to partition framing.
   - E. Control joints (C.J.) shall be installed at maximum 30' - 0" o.c. and at all major interruptions at the wall such as doors, windows, and equipment. See elevations for addition locations. Verify locations with Architect prior to installation.
   - F. Screw attach studs to runner tracks at both sides.
   - G. Provide fire-retardant blocking for all wall mounted architectural woodwork, finish carpentry, toilet partitions, toilet accessories, railings, hardware, and similar mounted items.
   - H. Framing shall coordinate with required mechanical, electrical, and other work.
   - I. Top of wall shall be constructed as follows:
     - U - Underside of Finish Ceiling
     - T - Through Finish Ceiling
     - S - To Structural Deck
2. GYPSUM BOARD
   - A. Gypsum Board shall be installed in accordance with ASTM C 840.
   - B. Recessed items shall be installed flush with partitions unless noted otherwise. Partition depth shall be adjusted to accommodate depth of recessed item or as directed by the Architect.
   - C. Gypsum board partitions shall be taped and sanded smooth with no visible joints.
   - D. Corners and exposed edges of gypsum board shall be finished with taped-in metal trim accessories. Exposed trim shall be used only when approved by the Architect.
   - E. Provide water resistant backer board at all tile locations.
3. FIRE RESISTANT RATED PARTITIONS
   - A. All partitions noted to be fire-resistance rated (i.e. 1 HR Rated, 2 HR Rated, 3 HR Rated) shall be constructed in strict accordance with the referenced fire resistance test. If no test is referenced, an industry recognized fire resistance test shall be used.
   - B. All fire-resistance rated partitions shall be constructed from the finish floor to underside of structural deck above.
   - C. All penetrations thru fire-resistance rated partitions shall be sealed with materials and assemblies necessary to maintain the required fire resistance rating of the wall, floor and/or roof.
4. SOUND RESISTANCE RATED PARTITIONS
   - A. All partitions noted to be sound resistance rated (s.e.) shall be constructed per referenced test.
   - B. Gypsum board partitions shall be constructed with sound attenuation insulation as scheduled. Insulation shall be continuous.
   - C. All penetrations shall be sealed with acoustical sealant to maintain sound resistance rating. If partition is also fire-resistance rated, then sealant shall maintain rating.
   - D. Recessed items in partition shall not be installed back-to-back.
5. MASONRY
   - A. Reinforce CMU partitions with horizontal joint reinforcement at 16" o.c. vertically.
   - B. All bearing CMU partitions shall be built per structural drawings.

WALL PRIORITY KEY



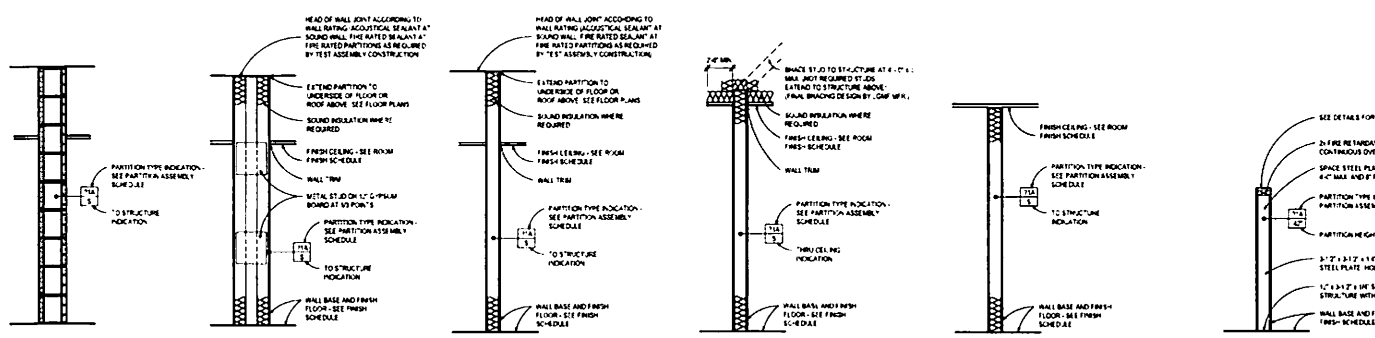
1. 2 HOUR RATED / SHAFT WALL PARTITIONS
2. 1 HOUR RATED / SMOKE RATED PARTITIONS
3. SOUND INSULATED / TO STRUCTURE PARTITIONS
4. NON-RATED PARTITIONS

NON-RATED WALL PENETRATIONS



NOTE:
1. PICTURE FRAME ALL PENETRATIONS WITH 4" DIA. OR GREATER
2. PENETRATIONS AT ALL RATED WALLS SHOULD USE THE APPROPRIATE FIRE STOPPING

PARTITION SCHEDULE



CMU WALL

CHASE WALL

PARTITION TO STRUCTURE (S)

PARTITION TO THRU CEILING (T)

PARTITION TO UNDERSIDE OF CEILING (U)

PARTIAL HEIGHT WALL

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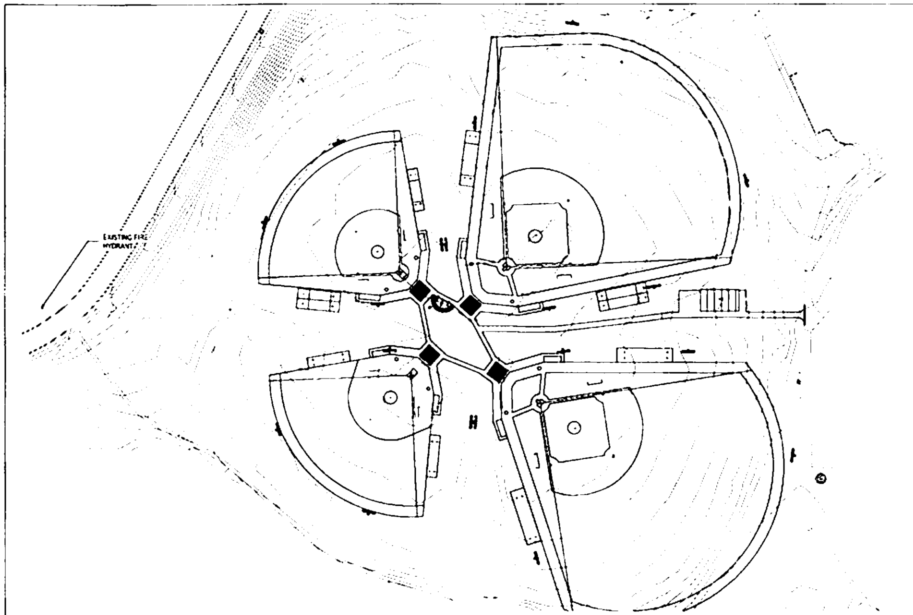
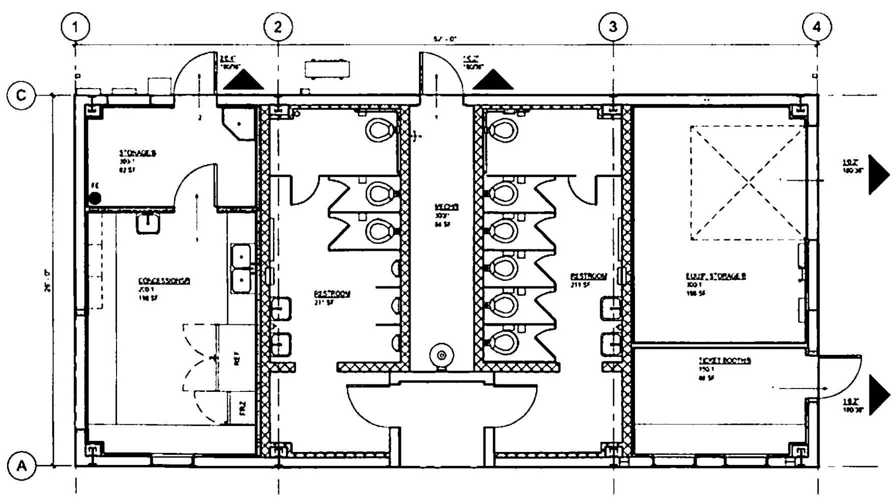
Checked By:
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number: G104

Partition Type Schedule

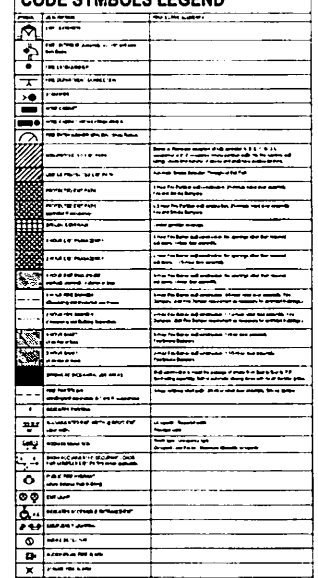


D6 | Code Site Plan
G105 | SCALE 1" = 80'-0"



A6 | Restroom/Concession Building- Code Plan
G105 | SCALE 1/4" = 1'-0"

CODE SYMBOLS LEGEND



GENERAL INFORMATION

LOCATION	2012 10th Ave Leavenworth, KS 66048
REASON FOR SUBMITTAL	New Concession Building
OWNER/AGENCY	USD 453
ARCHITECT	BG Consultants, Inc.
RESPONDING FIRE DEPARTMENT	Leavenworth Fire Department
WATER SERVICE	City of Leavenworth
SEWER TREATMENT	City of Leavenworth

APPLICABLE CODES

2018 International Building Code
2018 International Fire Code
2017 International Code Council Electrical Code
2018 International Mechanical Code
2018 International Plumbing Code
2018 International Fuel Gas Code
Kansas Fire Prevention Code
ICC/ANSI A117.1-2009
2010 ADA Standards for Accessible Design

PROJECT DESCRIPTION

Concession Building 1,352 SF Occupancy Type B New Construction

CONSTRUCTION/OCCUPANCY TYPE

Occupancy Type per 301: B
Mixed Occupancy: None
Construction Type per 601: II-B

Structural Frame	not rated
Exterior Bearing Walls	not rated
Interior Bearing Walls	not rated
Exterior Walls	not rated
Interior Walls	not rated
Floor Construction	not rated
Roof Construction	not rated

Exterior Wall Protection per 1602

<5'	1
≥5' <10	1
≥10' <30	0
≥30	0

BUILDING HEIGHTS AND AREAS

Actual Building Area: 1,352 SF / Flr, 1 Story

Allowable SF per T506.2	23,000 SF
Allowable Height/ Stories	55 FT / 3
Actual Stories	1
Actual Height	12 FT

EGRESS COMPONENTS

Single Egress from Spaces per T1006.2.1	49 Occupants
Common Path of Egress per 1006.2.1	100 ft
Egress Width Factors per 1005.3.2	
Door	0.2 in /Occupant

OCCUPANT LOAD

Occupancy B	5 Occupants
Total Occupants	5 Occupants

ACTIVE LIFE SAFETY SYSTEMS

Exit Signs per 1013.1	Not Required
Emergency Lights per 1008	Required, Provided
Fire Alarm per 907	Not Required
Voice Alarm per 907	Not Required
Manual/Pull per 907	Not Required
Zones per 907.6.4	Not Required
Smoke Detection per 907	Not Required
Fire Connection per 912	Not Required
Sprinkler System per 903	Not Required
Standpipe per 905	Not Required
Fire Extinguishers per 906	Required, Provided
Smoke Control per 909	Not Required
CO Detection per 915	Not Required

REQUIRED PLUMBING SYSTEMS

REQUIRED		PROVIDED	
Water Closets	1M 1W	Water Closets	6M 6W
Lavatories	1M 1W	Lavatories	2M 2W
Drinking Fountain	Not Required	Drinking Fountain	Not Provided
Service Sink	Not Required	Service Sink	1

DAVID BRIAN DEVORE LICENSED ARCHITECT KANSAS

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Project Engineer	Jarrod Mann, P.E.
Checked By	
Project Number	20-1416L
Date of Issue	12/18/2020
Sheet Number	G105

Code Information

Structural General Notes

1. All work shall be in conformance with the following:
   2018 International Building Code
   ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures

2. Contractor shall field verify all existing dimensions and conditions. Any discrepancies shall be reported to the Engineer prior to construction.

3. Design Loads:
   A. Roof Live Load = 20 psf

4. Snow Loads:
   A. Ground Snow Load, P_g = 20 psf
   B. Flat Roof Snow Load, P_f = 20 psf
   C. Snow Exposure Factor, C_e = 0.9
   D. Snow Load Importance Factor, I_s = 1.0
   E. Thermal Factor, C_t = 1.0
   F. Sloped Roof Snow Load, P_s = 12.6 psf

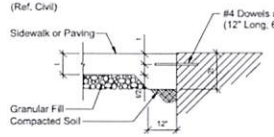
5. Wind Loads:
   A. Risk Category = II
   B. Ultimate Design Wind Speed, Vult = 110 mph
   C. Wind Exposure Category C
   D. Internal Pressure Coefficient, GC_{pi} = 0.18
   E. Components in Cladding
      1. Windward Wall = 26.41 psf
      2. Leeward Wall = -35.36 psf
      3. Windward Roof = 7.16 psf
      4. Leeward Roof = -62.22 psf
   F. MWFRS
      1. Windward Wall = 19.25 psf
      2. Leeward Wall = -9.15 psf
      3. Windward Roof = -14.30 psf
      4. Leeward Roof = -14.30 psf
      5. Sidewalls = -11.73 psf

6. Seismic Loads:
   A. Seismic Risk Category = II
   B. Seismic Importance Factor, I_E = 1.0
   C. Mapped Spectral Response Coefficients S_S = 9.2% g and S_1 = 6.5% g
   D. Site Class D
   E. Spectral Response Coefficients S_{DS} = 0.10 and S_{D1} = 0.10
   F. Seismic Design Category B
   G. Basic Seismic-Force-Resisting System: Steel Systems Not Specifically Detailed for Seismic Resistance.
   H. Design Base Shear, V = 1.11 Kips
   I. Seismic Response Coefficient, C_s = 0.04
   J. Response Modification Factor, R = 3
   K. Analysis Procedure: Equivalent Lateral Force Procedure for Seismic Design of Buildings

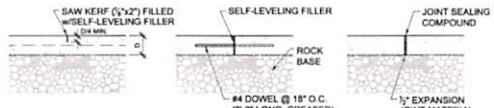
7. Soils:
   A. No soils investigation or report has been performed for this site.
   B. Allowable Soil Bearing Pressure = 1,500 psf (2018 IBC)
   C. Provide 18" of Low-Volume-Change Fill below concret slab. The low-volume-change material can be CL or GM similar to KDOT Type AB-3 crushed limestone aggregate, limestone screenings, or other dense graded granular material containing at least 15% low plasticity fines and have LL < 45 and PI < 20. Provide 4" capillary break beneath slab (free-draining granular material having less than 5% fines).
   E. Aggregates for underdrain and other permeable backfill
      1. USe (UD-1) as per KDOT Standard Specifications for State Road and Bridge Construction.

8. Foundations:
   A. All shallow foundations shall bear a minimum of 34" below the final adjacent grade as per 2018 International Building code section 1809.5

9. Concrete:
   A. All concrete designs shall be in conformance with ACI 318-14 Building Code Requirements for Structural Concrete.
   B. f'_c = 4,000 psi (28 Day)
   C. All exterior paving or sidewalk shall be constructed on compacted soil. Paving and sidewalks shall be dowelled at all structure openings with #4 dowels (12" Long, 6" embedment) at 18" o.c. into structure foundation.



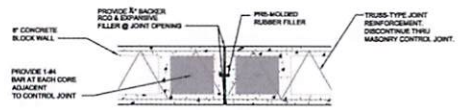
   D. Design Mixes to provide normal weight concrete with the following properties:
      1. 4,000 psi 28-day compressive strength; 480 lbs cement per cu. yard minimum; W/C ratio: 0.46 maximum, foundations and building frames. Provide 6.5% (+/- 1.5%) air entrained at foundations or building frame if exposed to freeze-thaw.
      2. 4,000 psi 28-day compressive strength; 480 lbs cement per cu. yard minimum; W/C ratio: 044 maximum, 6.5% (+/- 1.5%) air entrained at exterior slabs.
      3. 4,000 psi 28-day compressive strength; 480 lbs per cu. yard minimum; W/C ratio: 0.48 maximum, no air enbtrainment at interior slabs.
      4. Slump: The slump of concrete shall be 4" +/- 1" (unless specified otherwise) as tested according to method of test for slump of Portland Cement Concrete (ASTM C 143).
      5. Mixing: Contractor shall use ready-mixed concrete, mixed and delivered in conformance with ASTM C143 unless otherwise approved by the Engineer.
   E. Concrete Joints: Control Joints, Construction Joints and Expansion Joints shall be constructed as shown below, as per ACI 360R-10. Control Joint spacing shall be @ 12' centers max, unless noted otherwise.
   F. Slab reinforcement shall be discontinuous at construction joints and expansion joints.



CONTROL JOINT | CONSTRUCTION JOINT | EXPANSION JOINT

10. Reinforcing Steel:
   A. Grade 60 Steel (F_y = 60 ksi)
   B. Minimum Lap = 40 Bar Diameters
   C. Horizontal Reinforcing Steel shall be continuous around exterior corners
   D. Slab Reinforcement shall be #3 Bars @ 18" O.C., E.W. or 6x6-W2.9xW2.9 WWF. Slab Reinforcement shall not be continuous through Control Joints, Construction Joints or Expansion Joints as per ACI 360R-10.

11. Masonry:
   A. All designs shall be in accordance with TMS 402/602-16 Building Code Requirements and Specifications for Masonry Structures.
   B. Normal Weight Concrete Masonry Units (Manufactured with integral water repellant if exposed to exterior)
      1. ASTM C90, Grade N
      2. F'_m = 1,900 psi
   C. Grout and Mortar
      1. 28 Day Compressive Strength Grout = 2,000 psi.
      2. 28 Day Compressive Strength Type S Mortar = 1,800 psi.
      3. All reinforced cores shall be grouted full.
      4. Provide integral water repellant additive into mortar exposed to exterior.
   D. Reinforcement
      1. Provide (1) #4 Bar adjacent to all horizontal and vertical openings and corners as per 2018 International Building Code.
      2. Provide continuous bond beam at top of walls with (1) #4 Bar, Continuous.
      3. Provide (1) #4 Bar in masonry lintels above doors and windows.
      4. Provide (1) #4 Bar adjacent to control joints.
      5. Provide Truss-Type or Ladder-Type Joint Reinforcement @ 16" O.C. (9 Ga. wire minimum). Discontinue at control joints.
      6. All reinforced cores shall be grouted full.
   E. Control Joint: Construct as shown below.



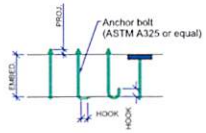
MASONRY CONTROL JOINT DETAIL

12. Steel:
   A. All designs shall be in accordance with AISC Steel Construction Manual, Fifteenth Addition
   B. All steel design based on ASTM A992 Steel, F_y = 50 ksi, unless noted otherwise.
   C. Channels, Angles and Plates based on ASTM A36 Steel, F_y = 36 ksi.
   D. Hollow Structural Sections (HSS) based on ASTM A500 Steel, F_y = 46 ksi.
   E. High Strength Bolts based on ASTM A325, F_u = 120 ksi.
   F. Nuts based on ASTM A563
   G. Washers based on ASTM F436
   H. Anchor Bolts based on ASTM F1554 Grade 105, F_y = 105 ksi.
   I. Adhesive Anchor Rods based on ASTM F1554 Grade 105, F_y = 105 ksi.
   J. Welding Electrode = E70. F_{EXX} = 70 ksi.

MINIMUM ANCHOR BOLT DIMENSIONS

DIAMETER (IN.)	MIN. HOOK (IN.)	EMBEDMENT (IN.)	MIN. SPACING (IN.)	MIN. EDGE DISTANCE (IN.)
½"	1½"	4"	4"	2"
⅝"	1¾"	12"	3½"	3½"
¾"	2¼"	14"	4½"	4½"
⅞"	2⅝"	18"	5¼"	5¼"
1"	3"	20"	6"	6"
1¼"	3¾"	22"	4½"	4½"
1½"	3½"	24"	7½"	7½"

All values based on ACI 318-14, Section 17.3.1.1 as adopted by the 2018 International Building Code.



MINIMUM ADHESIVE ANCHOR BOLT DIMENSIONS

DIAMETER (IN.)	EMBEDMENT (IN.)	MIN. SPACING (IN.)	MIN. EDGE DISTANCE (IN.)
½"	6"	3"	3"
⅝"	7½"	3½"	3½"
¾"	9"	4½"	4½"

13. Cold-Formed Metal Framing:
   A. All designs shall be in accordance with AISI S100-16 North American Specifications for the Design of Cold-Formed Steel Structural Members.
   B. General framing shall be 20 Ga. unless noted otherwise.
   D. Provide intermediate bracing at third points on all walls taller than 10 feet.

14. Pre-Engineered Metal Building:
   Pre-Engineered metal building shall be designed in accordance with the 2018 International Building Code.
   A. All purlins shall 8" in Depth.
   B. All girts shall be Inset and have an 8" depth.
   C. Provide X-Bracing in bays indicated.
   D. Pre-Engineered metal building shall be as manufactured by Nucor or approved equal.
   E. Pre-Engineered building manufacturer shall provide shop drawings indicating anchor bolt layout as shown on the foundation plan and the maximum and minimum reactions based on load combinations applied. Footing sizes are subject to change dependent upon manufacturer's building reactions. If the contractor chose to provide a building with either a different layout or different structural system, then the foundation re-design shall be done at the contractor's expense.

JOHN P. ECLAVEA LICENSED 11-18-2020 22387 STATE OF KANSAS PROFESSIONAL ENGINEER

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USD 453 Sports Complex

New Baseball and Softball Complex

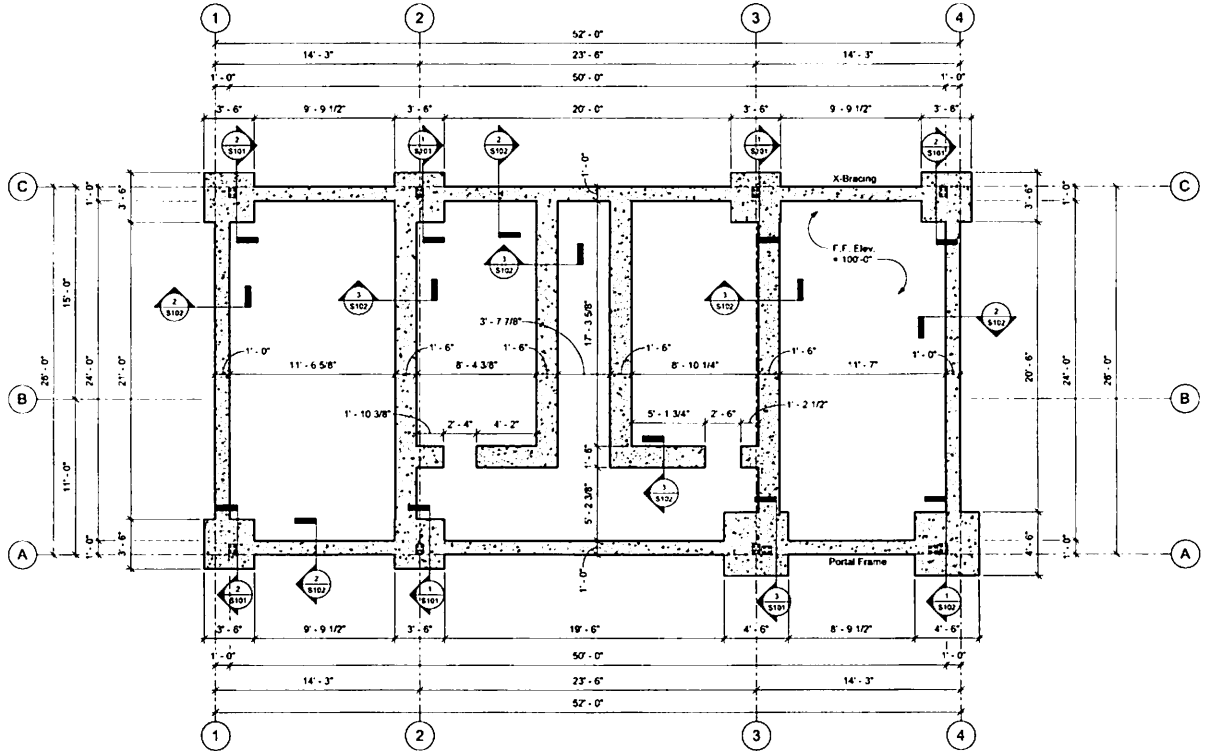
2012 10th Ave
Leavenworth, KS 66048

Revision Key

No.	Date	Revision

Project Manager: David Devore, AIA
Project Engineer: Johnny Eclavea, P.E.
Checked By: Johnny Eclavea, P.E.
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number: S000

Structural General Notes



1 S100 Foundation Plan
1/4" = 1'-0"

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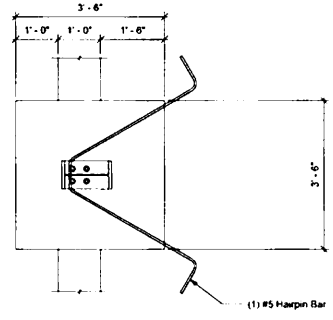
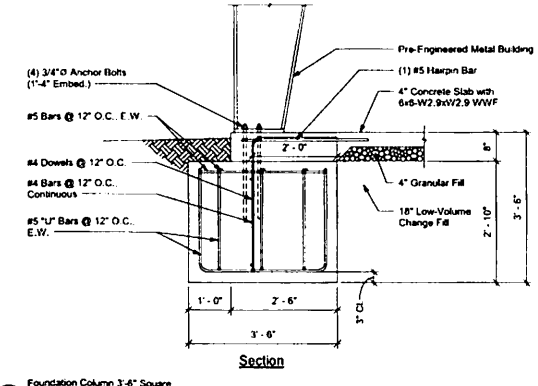
S100

Foundation Plan

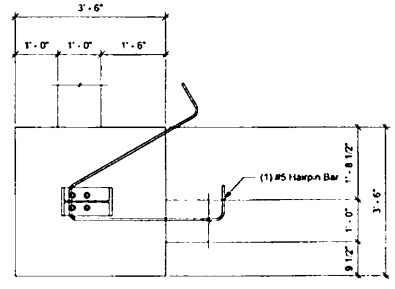


Plan

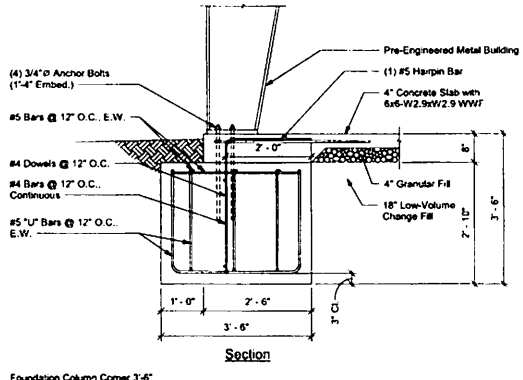


Section

1 S101 Foundation Column 3'-6" Square (A2, C2 and C3)
3/4" = 1'-0"

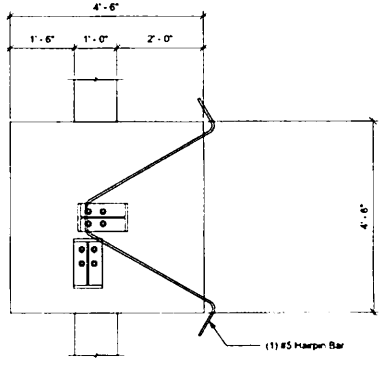


Plan

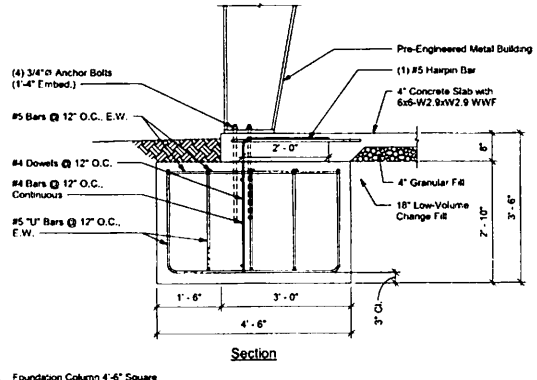


Section

2 S101 Foundation Column Corner 3'-6" Square (A1, C1 and C4)
3/4" = 1'-0"



Plan



Section

3 S101 Foundation Column 4'-6" Square (A3)
3/4" = 1'-0"

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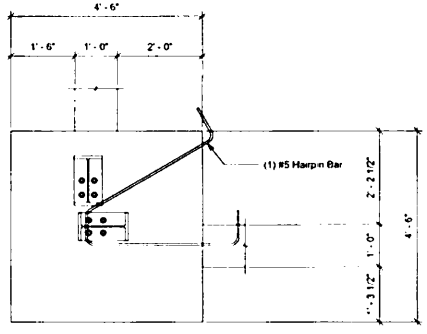
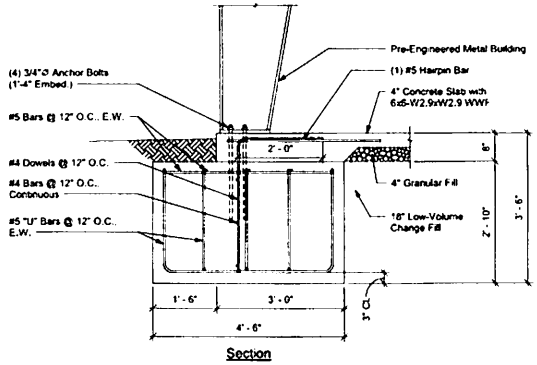
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number: S101

Foundation Details

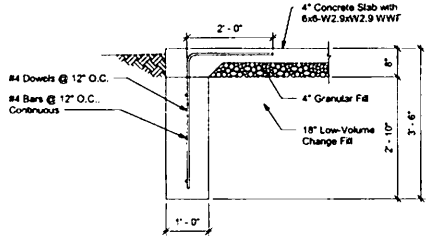


Plan

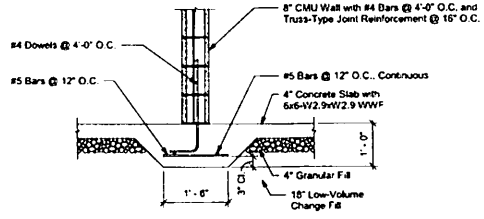


Section

1 S102 Foundation Column Corner 4'-6" Square (A4)
3/4" = 1'-0"



2 S102 Typical Trench Detail
3/4" = 1'-0"



3 S102 Thickened Slab Detail
3/4" = 1'-0"

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LICENSED
12-19-2020
PROFESSIONAL ENGINEER

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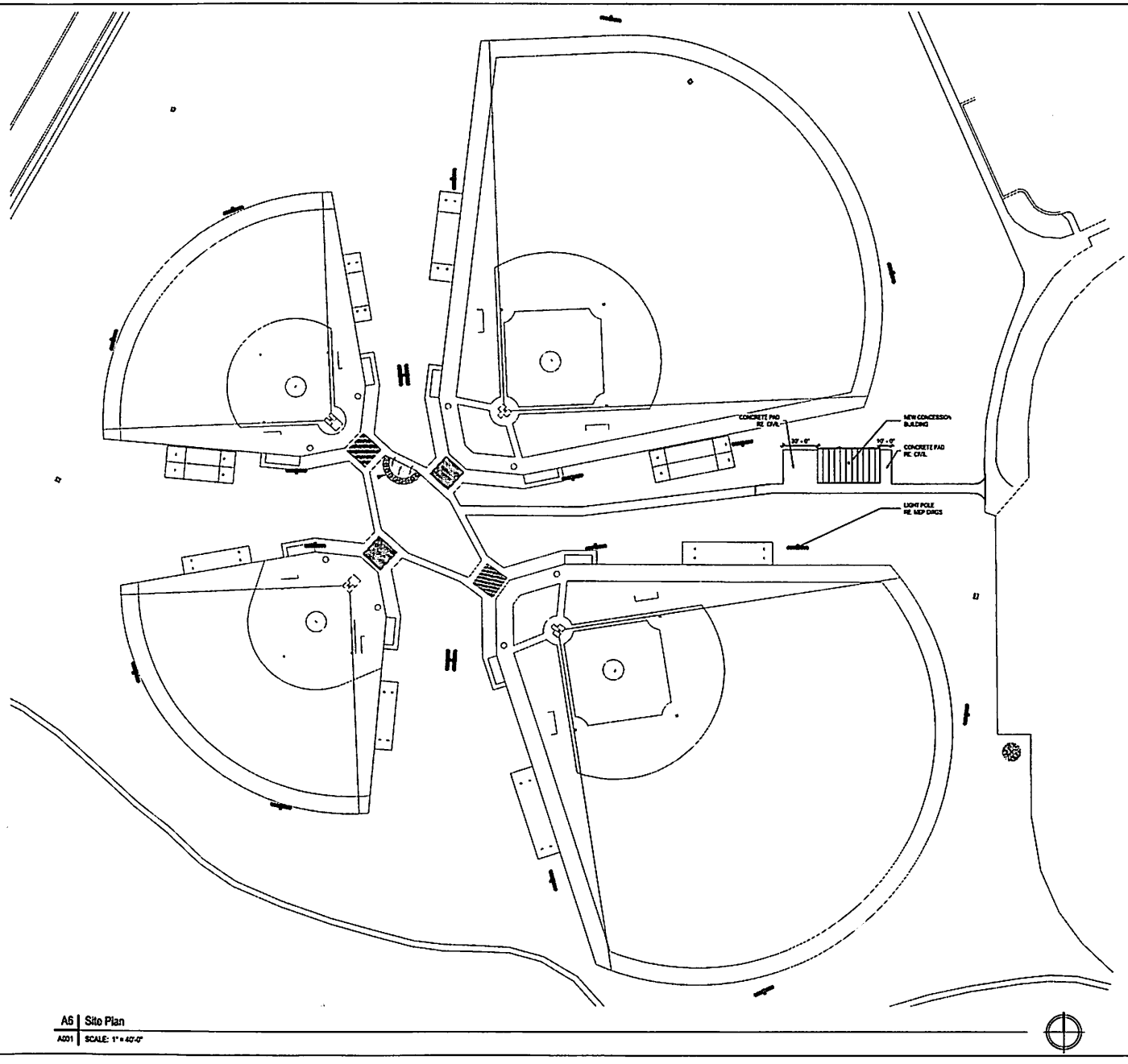
Sheet Number: S102

Foundation Details



A5 | Site Plan
A001 | SCALE: 1" = 40'-0"

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Project Engineer: Jarrod Mann, P.E.
Checked By:
Project Number: 20-1416L
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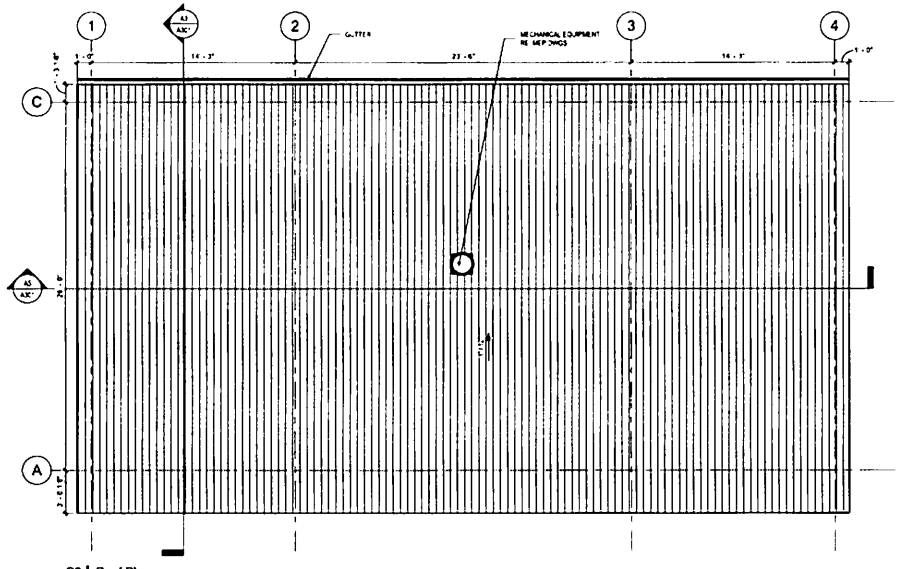
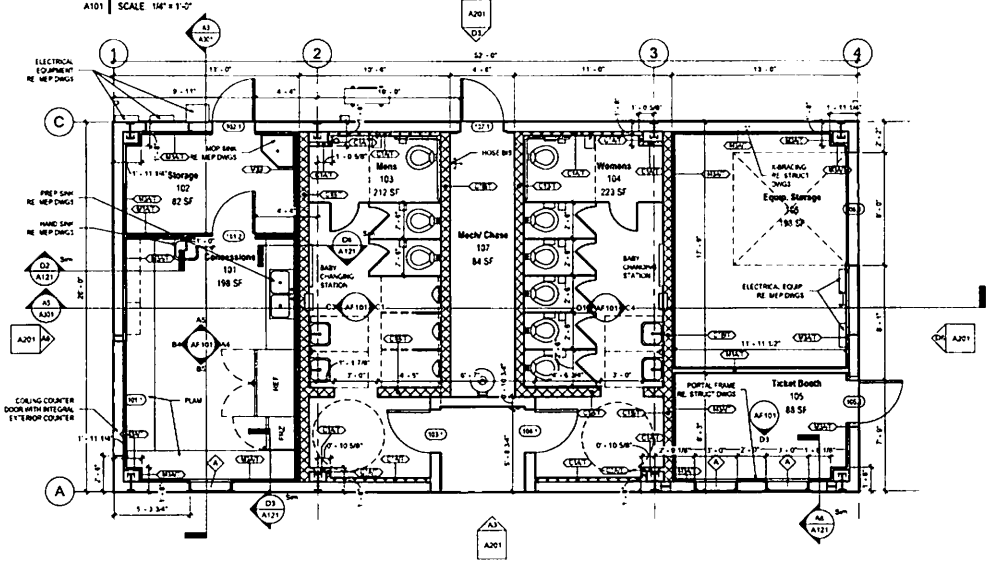
Sheet Number:

A001

Architectural Site Plan



C2 | Roof Plan
A101 | SCALE 1/4" = 1'-0"



A2 | Restroom/Concession Building- Floor Plan
A101 | SCALE 1/4" = 1'-0"

KEY NOTES - ROOF PLAN

G — GAS LINE

ROOFTOP EQUIPMENT

ROOF SLOPE AND DIRECTION

ROOF PLAN LEGEND

SELF ADHERING UNDERLAYMENT 36" WIDE

SELF ADHERING UNDERLAYMENT 18" WIDE

SELF ADHERING UNDERLAYMENT FULL COVER

ROOFTOP EQUIPMENT

METAL SOFFIT PANEL

EDGE OF WALL CONSTRUCTION BELOW

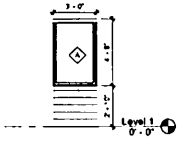
TAPERED INSULATION

ROOF GENERAL NOTES

1. COORDINATE INSTALLATION OF NEW ROOFING WITH OTHER TRADES REPORT ANY CONFLICTS WITH ITEMS INSTALLED BY OTHER TRADES TO ARCHITECT
2. ALL ROOF CURBS FOR NEW ROOFTOP EX-AS-1ST FANS HVAC UNITS AND CONDENSING UNITS SHALL HAVE CURB HEIGHTS THAT WILL ALLOW FOR A MINIMUM OF 8" BASE FLASHING HEIGHTS FOR THE ROOF SYSTEM
3. ALL PLUMBING VENTS SHALL EXTEND ABOVE THE FINISHED SURFACE OF THE ROOF SYSTEM AS REQUIRED TO PROVIDE A MINIMUM OF 8" BASE FLASHING
4. PROVIDE ICE BREAKS AT ALL PERIMETER AREAS OF STANDING SEAM ROOFING
5. PROVIDE 36" WIDE WALK PADS @ SERVICE SIDE OF ALL MECH EQUIPMENT & PROVIDE 36" WIDE WALK PADS AROUND ALL ROOF HATCHES & 72"X72" PADS AT LADDERS
6. ALL EXPOSED METAL FLASHING TRIM PIECES TO BE PRE-FINISHED 24 GA ST U N O PROVIDE PRE-FINISHED OR FIELD PAINT FLASHING ONLY AS NOTED
7. GUTTERS - ALL GUTTERS TO BE PRE-FINISHED 24 GA STEEL PROVIDE PRE-FINISHED GALV T BENT PLATE BRACKETS AND 16 GA 1" GALV STL SPACERS @ 36" MAX - STAGGER EACH OTHER @ 18" O C PROVIDE PREFORMED GUTTER EXPANSION JOINTS @ 40' O C MAX PROVIDE 8 S S SCREENS @ ALL GUTTERS PER SMACNA FIG 1-24
8. ALL DOWNSPOUTS TO BE PRE-FINISHED GA TL PER SMACNA FIG 1-28B DOWNSPOUTS ARE 6"x4" U N O LOCATED AS NOTED ON ROOF PLAN 12 GAGE GALV STL HANGERS @ 6' O C MAX PER SMACNA FIG 1-28B
9. PROVIDE PAINTED 4" CAST ALUM DOWNSPOUT BOOTS @ ALL DOWNSPOUTS TIE INTO SUB-GRADE DRAINAGE RE CIVIL
10. TAPERED INSULATION TO BE 1/4" PER FOOT MIN SLOPE TO DRAIN ROOF PLAN SHOWS TAPERED INSULATION FOR GRAPHIC REPRESENTATION ONLY CONTRACTOR TO VERIFY INSULATION REQUIRED TO SLOPE PRIOR TO MEMBRANE INSTALLATION
11. PROVIDE TAPERED INSULATION CRICKETS 1/4" PER FOOT MIN SLOPE @ HIGH SIDE OF ALL MECHANICAL UNITS AND ROOF HATCHES TO SHED WATER AROUND AND MAINTAIN POSITIVE ROOF DRAINAGE
12. ALL WOOD BLOCKING AT ROOF EDGES RIDGES, ETC TO BE 2x FRAMING BLOCKING
13. VERIFY ELEVATION OF ROOF DRAIN RELATIVE TO OVERFLOW SCUPPER PRIOR TO INSTALLATION OF SCUPPERS
14. ATTIC SHALL HAVE DRAFT STOPS DIVIDING THE ATTIC INTO DISTINCT AREAS NONE OF WHICH SHALL BE OVER 3 000 SQFT IN HORIZONTAL AREA
15. DRAFT STOPPING MATERIALS MAY BE 5/8 INCH GYPSUM BOARD 3/4 INCH PARTICLE BOARD 1 INCH NOMINAL LUMBER CEMENT BOARD BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER OR OTHER APPROVED EQUAL MATERIALS ADEQUATELY SUPPORTED

FLOOR PLAN GENERAL NOTES

1. CONTRACTOR TO COORDINATE AND VERIFY ALL PLUMBING ELECTRICAL AND MECHANICAL ROUGH-IN REQUIREMENTS PRIOR TO INSTALLATION
2. ALL PARTITIONS TO BE TYPE 1A/S U N O REFER TO PARTITION TYPE SCHEDULE FOR WALL ASSEMBLIES
3. REFER TO CODE PLANS FOR ANY RATED PARTITION CLARIFICATIONS
4. SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF LOAD BEARING & SHEAR WALLS
5. REFER TO WALL SECTIONS FOR ALL EXTERIOR WALL ASSEMBLIES TYP
6. PHASING PLANS ARE DIAGRAMATIC IN NATURE AND INDICATE REQUIRED SEPARATION OF THE WORK FROM OCCUPIED AREAS THESE DRAWINGS ARE NOT ALL INCLUSIVE
7. TEMPORARY SEPARATION WALLS & 1 HOUR RATED SEPARATION MUST BE MAINTAINED BETWEEN CONSTRUCTION AREAS AND OCCUPIED SPACES OPENINGS IN TEMPORARY CONSTRUCTION SHALL BE 45-MINUTE RATED
8. DURING UNOCCUPIED TIMES AND AT PERIODS COORDINATED WITH THE OWNER WHEN THE BUILDING IS NOT OCCUPIED WORK MAY BE PERFORMED OUTSIDE OF THE INDICATED PHASING BOUNDARIES AS DETERMINED BY THE CONTRACTOR TO COMPLETE PORTIONS OF THE WORK COORDINATE THIS WORK WITH THE OWNER AND ARCHITECT PRIOR TO COMMENCEMENT
9. PROVIDE TEMPORARY SIGNAGE AS INDICATED
10. TEMPORARY LIGHTING SHALL BE OPERATIONAL AT ALL TIMES WHILE ADJACENT BUILDING IS OCCUPIED
11. PROVIDE STABLE GRAVEL PATHWAY FOR EGRESS FROM TEMPORARY PROTECTION ENCLOSURE LEADING TO BEYOND CONSTRUCTION ZONE OR TO PERMANENT HARD SURFACE PATHWAY SHALL BE MAINTAINED WHILE ADJACENT SPACES ARE OCCUPIED
12. ALL FURNITURE IS PROVIDED BY OWNER



A1 | Window A
A101 | SCALE 1/4" = 1'-0"

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Revision Key

No.	Date	Revision

David Devore, AIA

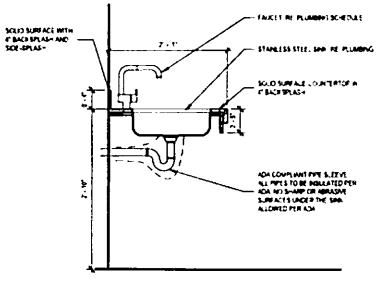
Jarrod Mann, P.E.

20-1416L

12/18/2020

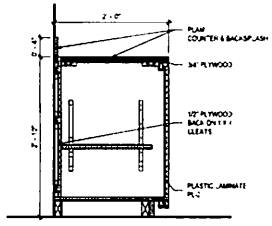
A101

First Floor Plan



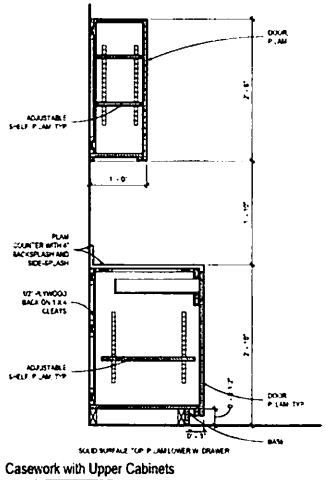
D6 | Accessible Sink with Casework

A121 | SCALE 1" = 1'-0"



D3 | Casework

A121 | SCALE 1" = 1'-0"

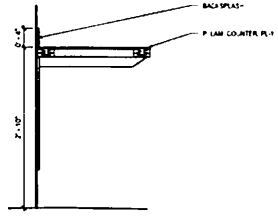


D2 | Casework with Upper Cabinets

A121 | SCALE 1" = 1'-0"

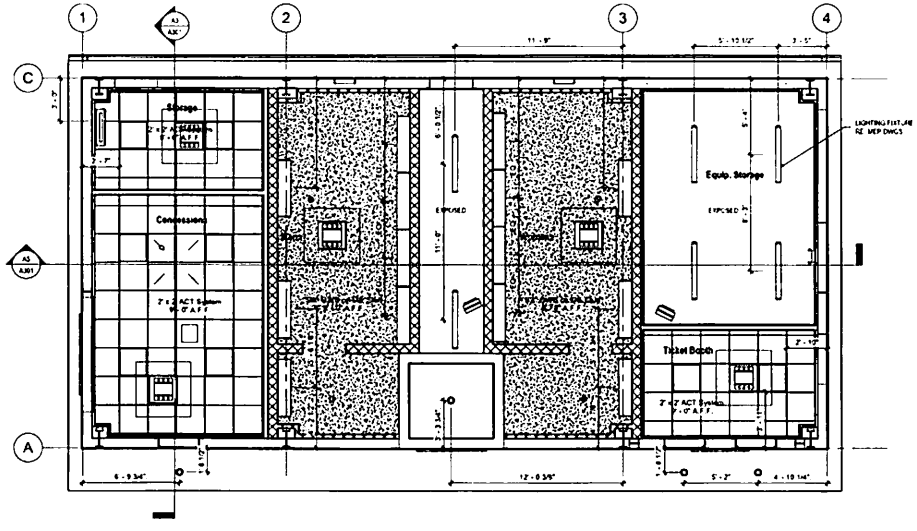
REFLECTED CEILING PLAN GENERAL NOTES

1. CEILING ELEVATIONS ARE FROM FINISH FLOOR AT ELEVATION MARK LOCATION. FLOOR ELEVATIONS VARY. REFER TO FLOOR PLAN FOR FLOOR ELEVATIONS.
2. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM U.N.O.
3. CEILING HEIGHTS ARE AS NOTED IN THE ROOM FINISHES SCHEDULE U.N.O. ON THE REFLECTED CEILING PLAN.
4. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS ETC. SHALL BE CENTERED BETWEEN CEILING GRIDS U.N.O. SPRINKLER HEADS SHALL BE WITHIN A 3" RADIUS CENTERED BETWEEN CEILING GRIDS.
5. IN SUSPENDED ACOUSTICAL CEILINGS PROVIDE EXPOSED TEES AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC.
6. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING:
   A. FACE OF FINISHED WALL
   B. CENTERLINE OF COLUMNS
   C. CENTERLINE OF TEES
7. IN AREAS WITH EXPOSED STRUCTURE, CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH RESPECTIVE CONTRACTOR.
8. PAINT CEILING, STRUCTURE AND EQUIPMENT IN BOTH NEW AND EXISTING SHOP. REFER TO FINISH PLANS.
9. RE: MEP FOR ALL FIXTURES AND DEVICES.



A6 | Typ. Counter

A121 | SCALE 1" = 1'-0"



A3 | First Floor Reflected Ceiling Plan

A121 | SCALE 1/4" = 1'-0"

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Project Manager: David Devore, AIA

Project Engineer:

Checked By: Jarrod Mann, P.E.

Project Number: 20-1416L

Date of Issue: 12/18/2020

Sheet Number

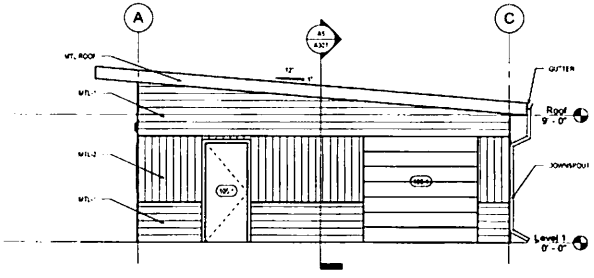
A121

First Floor Reflected Ceiling Plan

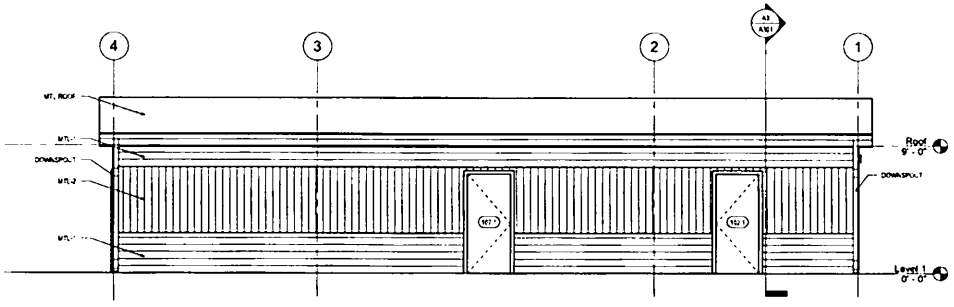
EXTERIOR FINISH LEGEND		
Designation	Manufacturer	Finish Material
MTL-1 (Metal Horizontal Panel)	Centria	BR 536 (Horiz)
MTL-2 (Metal Vertical Panel)	Centria	Econoseam 3/4" (Vert)

ELEVATION / BUILDING NOTES

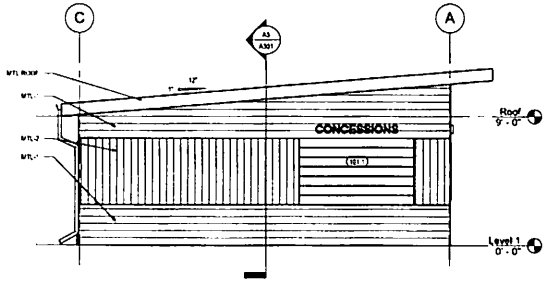
1. ON SYMMETRICAL DRAWINGS ALL NOTES AND DIMENSIONS SHOWN ON ONE-HALF OF DRAWINGS SHALL APPLY TO BOTH HALVES OF DRAWINGS.
2. INTERIOR VIEWS IN BUILDING SECTIONS ARE TYPICALLY SIMPLIFIED FOR CLARITY. REFER TO LARGER SCALED INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.
3. FOOTINGS ARE SHOWN FOR ILLUSTRATIONS ONLY. REFER TO STRUCTURAL DRAWINGS FOR FOOTING DEPTH.
4. NOT ALL INSTANCES OF NEW WORK ARE SHOWN IN ELEVATION BUILDING SECTION FORMAT. REFER TO FLOOR PLANS FOR FULL EXTENT OF NEW WORK.



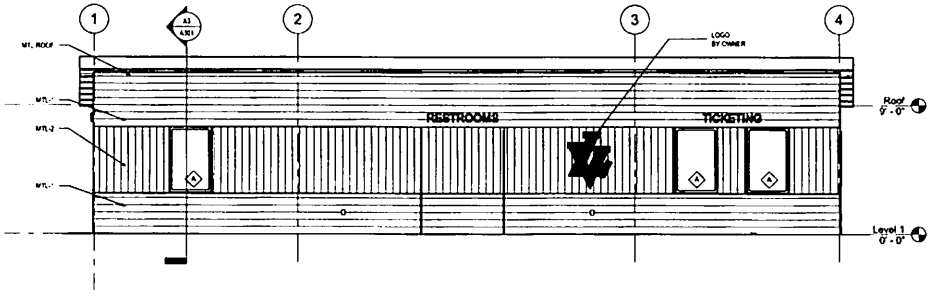
D6 | East Elevation
A201 | SCALE 1/4" = 1'-0"



D3 | North Elevation
A201 | SCALE 1/4" = 1'-0"



A6 | West Elevation
A201 | SCALE 1/4" = 1'-0"



A3 | South Elevation
A201 | SCALE 1/4" = 1'-0"

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USD 453 Sports Complex

New Baseball and Softball Complex

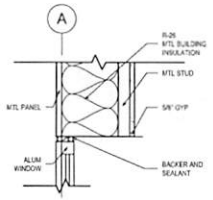
2012 10th Ave
Leavenworth, KS 66048

Revision Key

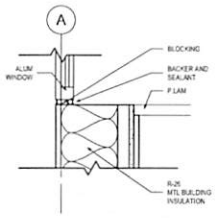
No.	Date	Revision

Project Manager: David Devore AIA
Project Engineer:
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number: A201

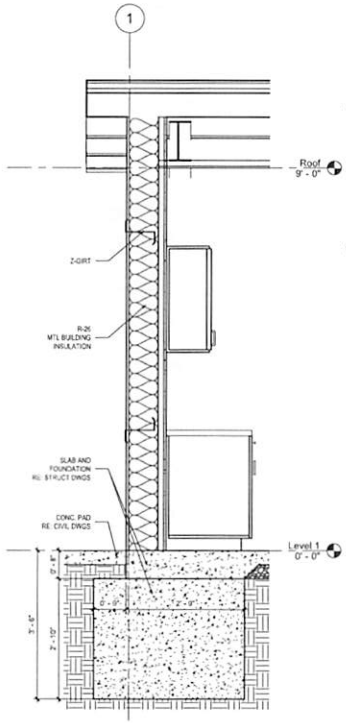
Exterior Elevations



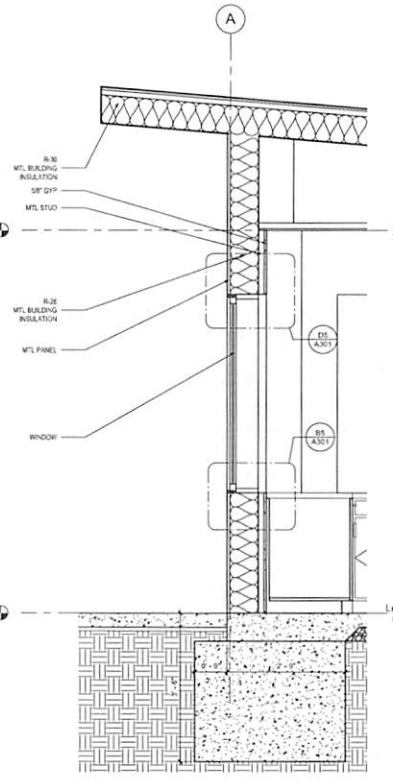
D5 | Head Detail
A301 | SCALE: 1 1/2" = 1'-0"



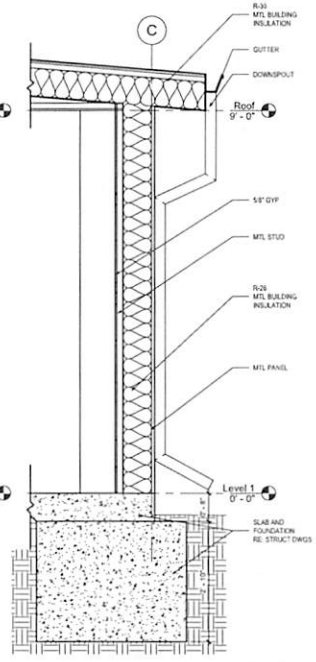
B5 | Sill Detail
A301 | SCALE: 1 1/2" = 1'-0"



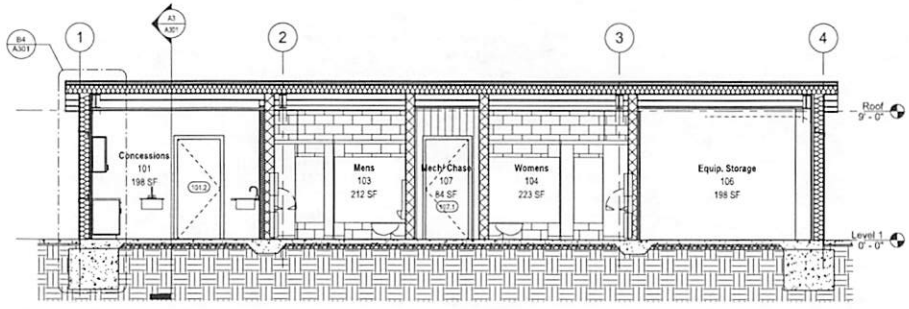
B4 | Wall Section
A301 | SCALE: 3/4" = 1'-0"



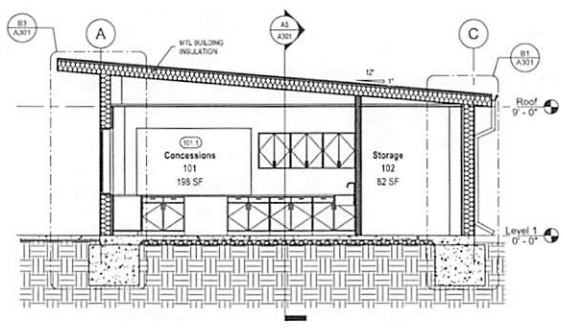
B3 | Wall Section High Eave
A301 | SCALE: 3/4" = 1'-0"



B1 | Wall Section Low Eave
A301 | SCALE: 3/4" = 1'-0"



A5 | Longitudinal Section
A301 | SCALE: 1/4" = 1'-0"



A3 | Section thru Concession
A301 | SCALE: 1/4" = 1'-0"

Bid Documents

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Project Number: 20-1416L
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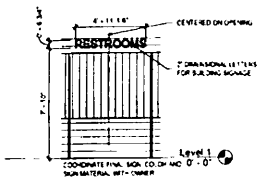
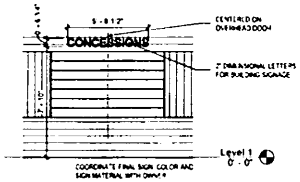
Sheet Number:

A301

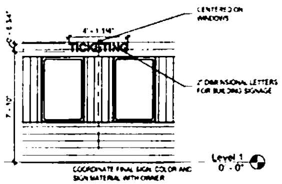
Building Sections



E6 | Restroom Signage
AF101 | SCALE: 1/4" = 1'-0"



E5 | Concessions Signage
AF101 | SCALE: 1/4" = 1'-0"



E4 | Ticketing Signage
AF101 | SCALE: 1/4" = 1'-0"

FIXTURE SCHEDULE (ALL BY OWNER)	
NO	ITEM
1	TOILET PARTITION
2	URINAL PARTITION
3	FEMININE PRODUCT DISPENSER
4	FEMININE NAPKIN DISPOSAL
5	TOILET PAPER DISPENSER
6	PAPER TOWEL DISPENSER AND TRASH RECEPTACLE
7	MIRROR
8	GRAB BARS
9	BABY CHANGING STATION 2'-10" AFF TO WORK SURFACE
10	ADA FOLD-UP SHOWER SEAT
11	SOAP DISPENSER
12	SEAT COVER DISPENSER

Finish Legend		
Designation	Manufacturer	Finish Material
ACT (Acoustical Ceiling Tile)	USG	USG Frost, Color: White, 24"X24", SLB Edge DX DXL
P-1 (Field Paint, Light Grey)	Sherwin Williams	SW 7064, Passive, Eggshell-Satin
P-2 (Ceiling Paint, White)	Sherwin Williams	SW 7006, Alabaster, Eggshell-Flat
P-3 (Doors & Exterior Metal)	Sherwin Williams	SW 6991, Black Magic, Eggshell-Flat
P-4 (Field Walls, Light Beige)	Sherwin Williams	SW 6106, Kilim Beige, Eggshell-Flat
P-5 (Accent Walls, Blue)	Sherwin Williams	SW 6804, Dignity Blue, Eggshell-Flat
PL-1 (P. LAM, Vert. Surfaces)	Wilsonart	Sterling Ash 7995
PL-2 (P. LAM, Horiz. Surfaces)	Wilsonart	Dove Grey, D92-60 Matte
RB-1 (Wall Base)	Tarkett	Charcoal 20, 4" Toe Rubber Wall Base
SC (Sealed Concrete)	Re: Spec	Clear

General Finish Note
1. Colors selected by Architect are for reference only. All colors to be verified by owner during Construction.
2. Remainder of the Building: Pre-catalyst paint
3. All walls should be fully painted before any accessories are attached to wall

FINISH NOTES

1. ALL WALLS TO BE PAINTED FIELD COLOR P-1 EXCEPT WHERE NOTED OTHERWISE AS AN ACCENT COLOR
2. ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER THE BUILDING CODE
3. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL LOCATIONS
4. PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENT, ETC TO MATCH ADJACENT SURFACES
5. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL
6. REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING MATERIALS
7. FLOOR TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER THE DOOR IN THE CLOSED POSITION UNLESS NOTED OTHERWISE
8. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES
9. REFER TO REFLECTED CEILING PLAN FOR CEILING HEIGHTS
10. ALL ELECTRICAL DEVICE COVERS ARE TO BE STAINLESS STEEL UNLESS NOTED OTHERWISE
11. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR UNLESS NOTED OTHERWISE
12. PROVIDE FLOOR TRANSITION AT EVERY CHANGE OF THE FLOORING MATERIAL
13. CEILINGS TO BE PAINTED, PAINT FIELD COLOR P-1
14. CONTRACTOR TO PROVIDE PAINT MOCK-UP (4'-0" X 8'-0" MIN.) OF EACH PAINT COLOR FINISH ON JOB SITE FOR OWNER'S REVIEW & APPROVAL. MOCK-UP TO BE PROVIDED UNDER THE FINAL LIGHTING CONDITIONS OF THE SPACE
15. FINISH PLANS CARPET PATTERNS ARE FOR PLAN REPRESENTATION ONLY. COORDINATE INSTALLATION PATTERN DIRECTION WITH ARCHITECT

FINISH WALL SYMBOLS

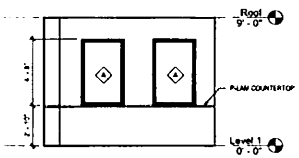
FT1
PT1
CG

FINISH PLAN SYMBOLS

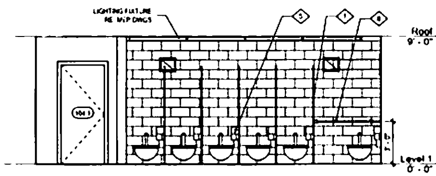
CT-1 — CPT-1 FLOOR FINISH CHANGE

FINISH LEGEND ABBREVIATIONS

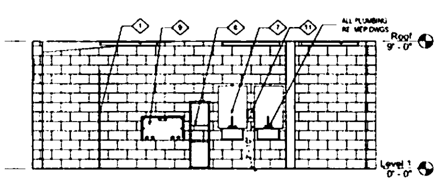
ACT ACOUSTICAL CEILING TILE
CG CORNER GUARD
CPT CARPET TILE
GYP GYPSUM BOARD
FT FLOOR TRANSITION
LVT LUXURY VINYL TILE
P PAINT
PCT PORCELAIN TILE
PL PLASTIC LAMINATE
RB RUBBER WALL BASE
SC SEALED CONCRETE
SS SOLID SURFACING



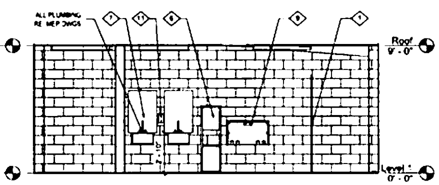
D3 | Ticketing RM South Elevation
AF101 | SCALE: 1/4" = 1'-0"



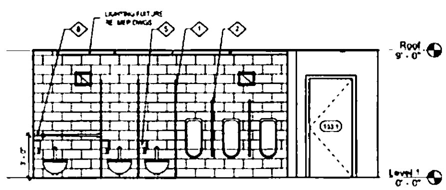
D1 | Womens RR East Elevation
AF101 | SCALE: 1/4" = 1'-0"



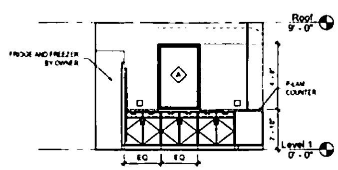
C4 | Womens RR West Elevation
AF101 | SCALE: 1/4" = 1'-0"



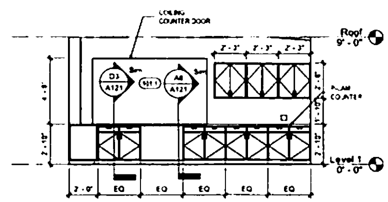
C3 | Mens RR West Elevation
AF101 | SCALE: 1/4" = 1'-0"



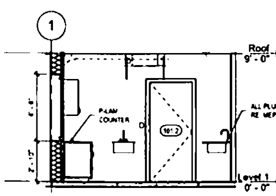
C1 | Mens RR East Elevation
AF101 | SCALE: 1/4" = 1'-0"



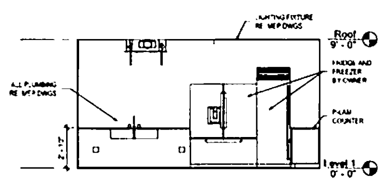
B5 | Concession South Elevation
AF101 | SCALE: 1/4" = 1'-0"



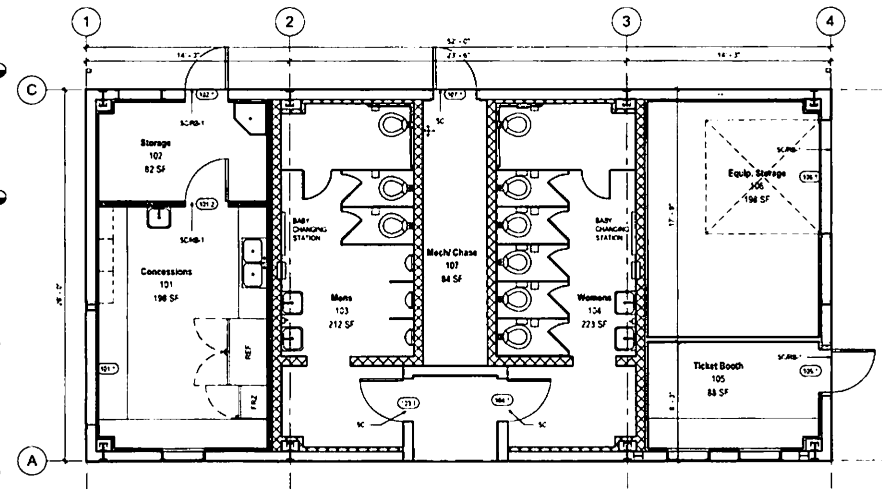
B4 | Concession West Elevation
AF101 | SCALE: 1/4" = 1'-0"



A5 | Concession North Elevation
AF101 | SCALE: 1/4" = 1'-0"



A4 | Concession East Elevation
AF101 | SCALE: 1/4" = 1'-0"



A3 | Restroom/Concession Building- Finish Floor Plan
AF101 | SCALE: 1/4" = 1'-0"

Bid Documents

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Revision Key

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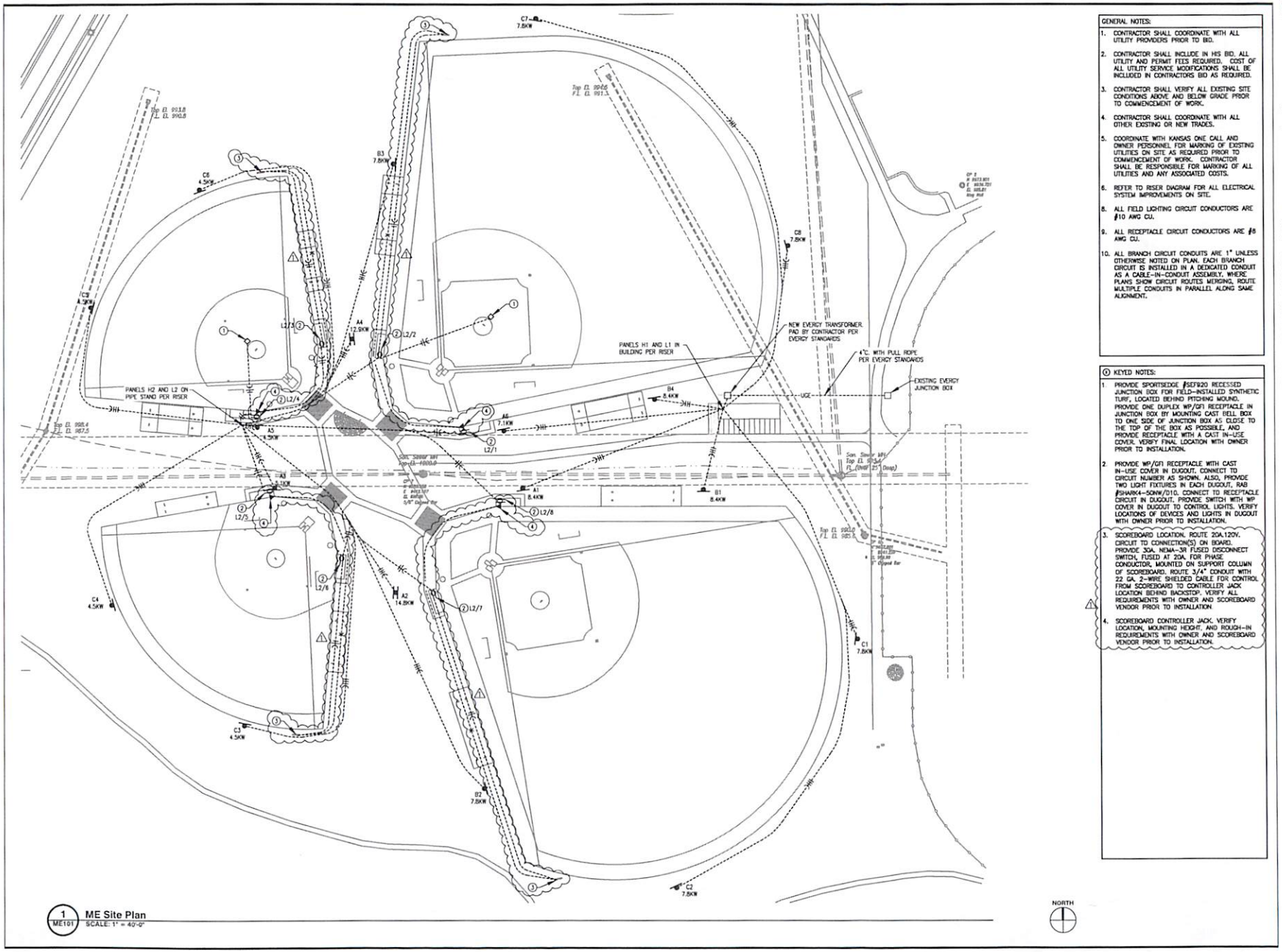
David Devore, AIA
Jarrod Mann, P.E.
20-1416L
12/18/2020

AF101

Floor Finish Plan



1 ME101 **ME Site Plan**
SCALE: 1" = 40'-0"

NORTH

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY PROVIDERS PRIOR TO BID.
2. CONTRACTOR SHALL INCLUDE IN HIS BID, ALL UTILITY AND PERMIT FEES REQUIRED. COST OF ALL UTILITY SERVICE MODIFICATIONS SHALL BE INCLUDED IN CONTRACTORS BID AS REQUIRED.
3. CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS ABOVE AND BELOW GRADE PRIOR TO COMMENCEMENT OF WORK.
4. CONTRACTOR SHALL COORDINATE WITH ALL OTHER EXISTING OR NEW TRADES.
5. COORDINATE WITH KANSAS ONE CALL AND OWNER PERSONNEL FOR MARKING OF EXISTING UTILITIES ON SITE AS REQUIRED PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING OF ALL UTILITIES AND ANY ASSOCIATED COSTS.
6. REFER TO RISER DIAGRAM FOR ALL ELECTRICAL SYSTEM IMPROVEMENTS ON SITE.
8. ALL FIELD LIGHTING CIRCUIT CONDUCTORS ARE #10 AWG CU.
9. ALL RECEPTACLE CIRCUIT CONDUCTORS ARE #8 AWG CU.
10. ALL BRANCH CIRCUIT CONDUITS ARE 1" UNLESS OTHERWISE NOTED ON PLAN. EACH BRANCH CIRCUIT IS INSTALLED IN A DEDICATED CONDUIT AS A CABLE-IN-CONDUIT ASSEMBLY. WHERE PLANS SHOW CIRCUIT ROUTES MERGING, ROUTE MULTIPLE CONDUITS IN PARALLEL ALONG SAME ALIGNMENT.

KEYED NOTES:

1. PROVIDE SPORTSEDGE #SEF920 RECESSED JUNCTION BOX FOR FIELD-INSTALLED SYNTHETIC TURF, LOCATED BEHIND PITCHING MOUND. PROVIDE ONE DUPLEX WP/GFI RECEPTACLE IN JUNCTION BOX BY MOUNTING CAST BELL BOX TO ONE SIDE OF JUNCTION BOX AS CLOSE TO THE TOP OF THE BOX AS POSSIBLE, AND PROVIDE RECEPTACLE WITH A CAST IN-USE COVER. VERIFY FINAL LOCATION WITH OWNER PRIOR TO INSTALLATION.
2. PROVIDE WP/GFI RECEPTACLE WITH CAST IN-USE COVER IN DUGOUT. CONNECT TO CIRCUIT NUMBER AS SHOWN. ALSO, PROVIDE TWO LIGHT FIXTURES IN EACH DUGOUT, RAB #SHARK4-50NW/D10. CONNECT TO RECEPTACLE CIRCUIT IN DUGOUT. PROVIDE SWITCH WITH WP COVER IN DUGOUT TO CONTROL LIGHTS. VERIFY LOCATIONS OF DEVICES AND LIGHTS IN DUGOUT WITH OWNER PRIOR TO INSTALLATION.
3. SCOREBOARD LOCATION. ROUTE 20A,120V, CIRCUIT TO CONNECTION(S) ON BOARD. PROVIDE 30A, NEMA-3R FUSED DISCONNECT SWITCH, FUSED AT 20A. FOR PHASE CONDUCTORS, MOUNTED ON SUPPORT COLUMN OF SCOREBOARD. ROUTE 3/4" CONDUIT WITH 22 GA. 2-WIRE SHIELDED CABLE FOR CONTROL FROM SCOREBOARD TO CONTROLLER JACK. LOCATION BEHIND BACKSTOP. VERIFY ALL REQUIREMENTS WITH OWNER AND SCOREBOARD VENDOR PRIOR TO INSTALLATION.
4. SCOREBOARD CONTROLLER JACK. VERIFY LOCATION, MOUNTING HEIGHT, AND ROUGH-IN REQUIREMENTS WITH OWNER AND SCOREBOARD VENDOR PRIOR TO INSTALLATION.

JARROD E. MANN
17942
12/18/2020
KANSAS
PROFESSIONAL ENGINEER

MAMMOTH
SPORTS CONSTRUCTION

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Revision Key

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1	12/18/2020	ADDED SCOREBOARDS

Project Manager: David Devore, AIA
Project Engineer: Carter Klise, I.E.
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
Date of Issue: 12/03/2020
Sheet Number:

ME101
ME Site Plan

GENERAL SPECIFICATION REQUIREMENTS:

THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL FIELD CONDITIONS PRIOR TO WORK AND DETERMINE TOTAL SCOPE OF WORK REQUIRED.

ALL GENERAL AND SPECIAL CONDITIONS ON THE ARCHITECTURAL/CIVIL DRAWINGS ACCOMPANYING THIS DIVISION ARE A PART OF THIS SPECIFICATION AND SHOULD BE CONSULTED.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR AND MATERIALS REQUIRED TO HAVE COMPLETE AND FUNCTIONING SYSTEMS, TOGETHER WITH ALL ASSOCIATED EQUIPMENT AND APPARATUS AS SHOWN ON THE PLANS. "PROVIDE" MEANS TO FURNISH AND INSTALL.

THE WORK SHALL BE DONE IN ACCORDANCE WITH THE LOCAL BUILDING, MECHANICAL, PLUMBING, NFPA AND ALL OTHER APPLICABLE CODES.

THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED FOR THE EXECUTION OF THIS WORK.

ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE U.L. LABEL WHERE APPLICABLE.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CATALOG DATA ETC. FOR ALL ITEMS AND OBTAIN APPROVAL OF THE SAME PRIOR TO DELIVERY TO JOB SITE.

THE CONTRACTOR SHALL FURNISH ONE SET OF "AS-BUILT" DRAWINGS TO THE OWNER PRIOR TO FINAL ACCEPTANCE BY THE OWNER.

THE CONTRACTOR SHALL GUARANTEE ALL WORK AGAINST DEFECTS DUE TO WORKMANSHIP, DESIGN OR MATERIAL. THE CONTRACTOR SHALL, PROMPTLY REMEDY, AT NO COST TO THE OWNER, ALL DEFECTS OCCURRING WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS SPECIFICALLY INDICATED OTHERWISE.

DIVISION 220000 PLUMBING SYSTEM SPECIFICATIONS:

ESCUTCHEONS - PROVIDE NICKEL-BRASS OR CHROME PLATED ON ALL EXPOSED PIPES WHEN THEY PASS THROUGH A WALL OR CEILING OF FINISHED ROOMS.

WHENEVER EXISTING OR NEW PIPES PASS THROUGH FLOORS, FIRE RATED WALLS OR PARTITIONS, THE SPACE BETWEEN THE PIPES AND SLEEVES SHALL BE FILLED WITH FIRE RATED MATERIAL. THE CONTRACTOR SHALL FURNISH AND INSTALL 3M BRAND FIRE BARRIER PENETRATION SEALING SYSTEM, CP-25 CAULK OR PUTTY 303, AT ALL PENETRATIONS OF RATED CONSTRUCTION. ALL INSTALLATIONS SHALL BE MADE IN COMPLIANCE WITH APPLICABLE LOCAL CODES AND THE TERMS OF THE PRODUCT'S UL LISTING. MATERIAL SHALL BE APPLIED IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTALLATION DETAILS AND WRITTEN INSTRUCTIONS TO A DEPTH OF 1" TO ACHIEVE THE REQUIRED FIRESTOP BARRIER. INSTALL BACKER MATERIAL PER MANUFACTURER'S PRINTED INSTRUCTIONS AS REQUIRED TO PREVENT SAGGING.

ALL PIPING SHALL RUN PARALLEL TO BUILDING LINES UNLESS INDICATED OTHERWISE.

ALL PIPING SHALL BE PROPERLY SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION, CONTRACTION, INSTALLATION REQUIREMENTS AND TO PREVENT THE TRANSMISSION OF NOISE AND VIBRATION. WHERE PLASTIC WATER PIPING IS USED, SUPPORT INTERVALS SHALL BE INCREASED AND PROVIDED AS SUGGESTED BY PIPING MANUFACTURER.

ALL CONDENSATE DRAIN PIPING NOT LOCATED IN RETURN AIR PLENUMS SHALL BE SCHEDULE 40 PVC. WHERE LOCATED IN RETURN AIR PLENUMS, PROVIDE TYPE "L" COPPER.

ALL WASTE AND VENT PIPING SHALL BE NO HUB CAST IRON OR SCHEDULE 40 PVC WHERE NOT LOCATED IN RETURN AIR PLENUMS ABOVE GRADE. CONTRACTOR'S OPTION FOR ABOVE GRADE MATERIALS. SCHEDULE 40 PVC IS ACCEPTABLE BELOW GRADE.

ALL WASTE AND DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, AT 1/4" PER FOOT UNLESS OTHERWISE SHOWN ON THE DRAWINGS. ALL WASTE/VENT PIPE SIZES ARE BASED ON FLOW RATES AND FIXTURE UNITS AND 1/4" SLOPE. IF OTHER SLOPES ARE REQUIRED, ENGINEER SHALL DETERMINE IF PIPE SIZES SHALL CHANGE.

TYPE 1 FLOOR DRAIN SHALL BE WADE W-1100 SERIES, 6" ROUND NICKEL BRONZE STRAINER.

ACCESSIBLE CLEANOUTS SHALL BE INSTALLED IN DRAINAGE SYSTEMS AT THE END OF BRANCH CONNECTIONS AND OFFSETS, AT 40 FOOT INTERVALS ON LONG RUNS, WHEREVER REQUIRED FOR CLEANING OF THE SYSTEM, WITHIN 5' OF BUILDING EXTERIOR (ON EXTERIOR SIDE) AND WHERE SPECIFICALLY REQUIRED BY LOCAL CODE.

ALL DOMESTIC WATER PIPING SHALL BE TYPE "L" HARD COPPER CONFORMING TO ASTM B-88 WITH WROUGHT COPPER FITTING AND SOLDER-JOINT FITTINGS USING 95-5 SOLDER. PROVIDE INSULATION WITH VAPOR BARRIER ON ALL PIPING ABOVE GRADE.

ALL DOMESTIC WATER PIPING SHALL BE FULLY STERILIZED PRIOR TO USE FOR POTABLE WATER.

PIPING IDENTIFICATION: PIPE AND TUBING SHALL BE LABELED TO INDICATE ITS CONTENTS. METAL TAGS, STENCILING OR ADHESIVE MARKERS MAY BE USED IF AFFIXED SO AS NOT TO BE READILY REMOVABLE.

DOMESTIC WATER PIPING SHALL BE ARRANGED SO THAT IT CAN BE DRAINED. PROVIDE A 3/4" DRAIN VALVE WITH HOSE END CONNECTION AT EACH LOW POINT.

AT EACH CONNECTION BETWEEN FERROUS AND NON FERROUS PIPING, AN ISOLATING DIELECTRIC UNION, EPCO OR EQUAL, SHALL BE INSTALLED.

ALL CONNECTIONS TO EQUIPMENT AND ALL VALVES SHALL BE INSTALLED WITH UNIONS OR FLANGED CONNECTIONS TO PROVIDE FOR REMOVAL AND REPLACEMENT OF EQUIPMENT OF VALVES.

INSULATION FOR DOMESTIC COLD WATER, HOT WATER AND HOT WATER RETURN PIPING SHALL BE AS FOLLOWS:

A. FOR COPPER PIPING, USE 1/2" 3.5 POUND DENSITY FLAME RETARDANT FIBERGLASS WITH ALL SERVICE JACKET AND VAPOR BARRIER FOR ALL DOMESTIC COLD WATER. PROVIDE 1" THICK FIBERGLASS FOR ALL DOMESTIC HOT WATER.

NEW SOIL AND WASTE PIPE SHALL BE PRESSURE TESTED TO 10 PSI. THIS TEST SHALL REMAIN 12 HOURS. NEW WATER PIPING SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE OF 150 PSI, WHILE THESE PRESSURES ARE BEING MAINTAINED, A THOROUGH INSPECTION WILL BE MADE AND ANY PART SHOWING LEAKS OF DEFECTS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.

ALL PIPING SHALL BE CONCEALED AND SUPPORTED PROPERLY FROM STRUCTURE PER THE MANUFACTURER. PIPING MAY BE EXPOSED IN MECHANICAL ROOMS OR AS INDICATED ON PLANS. PIPE SLEEVES, HANGERS AND SUPPORTS SHALL BE FURNISHED AND SET, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR PROPER AND PERMANENT LOCATIONS. PIPE SLEEVES IN NEW EXTERIOR WALLS AND BEARING WALLS SHALL BE WROUGHT IRON PIPE. PIPING THRU EXISTING MASONRY OR CONCRETE WALLS ABOVE OR BELOW GRADE SHALL BE INSTALLED WITHIN CORE-DRILLED OPENINGS WITH LINK-SEAL, BASED ON TEMPERATURE AND SERVICE CLASS. EQUIVALENT LINK SEALS BY THUNDERLINE OR METRAFLEX.

PROVIDE PLUMBING FIXTURES, AS SHOWN ON DRAWINGS AND AS SPECIFIED, COMPLETE INCLUDING PIPING AND CONNECTIONS.

ALL WALL-MOUNTED FIXTURES SHALL BE FURNISHED WITH CONCEALED ARM CARRIERS. SET FIXTURES TRUE AND LEVEL WITH ALL NECESSARY SUPPORTS FOR FIXTURES INSTALLED BEFORE PLASTERING IS DONE. NIPPLES THROUGH WALL TO FIXTURE CONNECTIONS SHALL BE CHROME-PLATED BRASS. PROVIDE SILICONE SEALER AROUND PERIMETER OF LAVATORIES, WATER CLOSETS, URINALS, ETC. AND AT CONNECTION TO WALL AND/OR FLOOR. ALL FIXTURES SHALL BE CLEANED AND FREE OF ALL CONSTRUCTION DEBRIS. ANY CHROME TRIM WITH WRENCH MARKS SHALL BE REMOVED AND NEW TRIM INSTALLED.

INSULATE ALL EXPOSED HOT, COLD AND WASTE PIPING ASSOCIATED WITH LAVATORIES AND SINKS WITH FACTORY FABRICATED MATERIALS WHERE REQUIRED BY ADA.

DIVISION 230000 HVAC SYSTEM SPECIFICATIONS:

ALL HEATING AND AIR CONDITIONING SHALL BE DONE IN STRICT ACCORDANCE WITH ALL REQUIREMENTS OF THE LOCAL BUILDING CODE, ASHRAE, SMACNA, NEC, NFPA, AND ALL OTHER APPLICABLE CODES HAVING JURISDICTION. PROVIDE COMPLETE HVAC SYSTEM AS SHOWN ON DRAWINGS INCLUDING EQUIPMENT. PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL EQUIPMENT.

ALL EQUIPMENT SHALL BE SUPPORTED PROPERLY FROM STRUCTURE.

DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED STEEL TO SMACNA STANDARDS FOR PRESSURE CLASS SERVED. A MAXIMUM LENGTH OF FLEXIBLE DUCTWORK SHALL BE 5'-0". ALL DUCTWORK MUST BE SUPPORTED PROPERLY FROM STRUCTURE.

PROVIDE STEEL OR ALUMINUM DIFFUSERS, REGISTERS, GRILLES, LOUVERS, INTAKES OR EXHAUST RELIEF FOR INSTALLATION AS SHOWN ON SCHEDULE OR PLANS.

THERMOSTAT: SHALL BE 7-DAY, 24-HOUR PROGRAMMABLE THERMOSTAT WITH AUTO HEAT/COOL CHANGEOVER. PROVIDE MINIMUM OF (4) TIME SCHEDULES FOR EACH DAY TO ALLOW FOR MORNING WARMUP AND NIGHT SETBACK OPTIONS. MOUNT THERMOSTATS WITH BOTTOM AT 48" AFF.

AIRSIDE TESTING AND BALANCING SHALL BE PERFORMED BY A NEBB OR AABC CERTIFIED TAB CONTRACTOR AND REPORT SUBMITTED TO THE ENGINEER FOR REVIEW. CORRECTIONS TO INSTALLATION AS A RESULT OF FAILED TESTING SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. DUCT AIR LEAKAGE TESTING SHALL NOT BE REQUIRED FOR THIS PROJECT.

PROVIDE ACR TYPE COPPER LIQUID AND SUCTION REFRIGERANT PIPING. PROVIDE WITH SILVER SOLDER CONNECTIONS. PRE-MANUFACTURER LINE SETS MAY BE USED WHERE ALL REFRIGERANT PIPING IS 7/8" OD OR LESS. PROVIDE INSULATION ON REFRIGERANT SUCTION PIPING AND ALL EXTERIOR REFRIGERANT PIPING. PROVIDE MINIMUM 1/2" FIBERGLASS OR 1/2" ARMACELL CLOSED CELL INSULATION WITH GLUED JOINTS. PROVIDE 0.016" THICK SMOOTH ALUMINUM JACKETING AND FITTING COVERS ON ALL EXTERIOR REFRIGERANT PIPING. PROVIDE ALUMINUM BAND CLAMPS TO SECURE JACKETING AND FITTING COVERS IN PLACE FOR EXTERIOR APPLICATIONS.

ALL REFRIGERANT PIPING SHALL BE SUPPORTED ON THE EXTERIOR OF THE PIPING INSULATION. PROVIDE PVC SLEEVE WITH METAL SADDLE AND STRAP SLEEVE TO NEW TRAPEZE SUPPORTS OR STRUCTURE WITH PIPE STRAPS USING SHOULDER SQUEEZE BOLTS. ROUTE PIPING AND INSULATION THRU PVC SLEEVES. INSULATION SHALL BE CONTINUOUS TO FORM A CONTINUOUS VAPOR BARRIER.

ALL PIPING SHALL BE CONCEALED AND SUPPORTED PROPERLY FROM STRUCTURE PER THE MANUFACTURER. PIPING MAY BE EXPOSED IN MECHANICAL ROOMS OR AS INDICATED ON PLANS. PIPE SLEEVES, HANGERS AND SUPPORTS SHALL BE FURNISHED AND SET, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR PROPER AND PERMANENT LOCATIONS. PIPE SLEEVES IN NEW EXTERIOR WALLS AND BEARING WALLS SHALL BE WROUGHT IRON PIPE. PIPING THRU EXISTING MASONRY OR CONCRETE WALLS ABOVE OR BELOW GRADE SHALL BE INSTALLED WITHIN CORE-DRILLED OPENINGS WITH LINK-SEAL, BASED ON TEMPERATURE AND SERVICE CLASS. EQUIVALENT LINK SEALS BY THUNDERLINE OR METRAFLEX.

PROVIDE EXHAUST FANS AND ACCESSORIES AS SCHEDULED ON PLANS.

DIVISION 260000 ELECTRICAL SYSTEM SPECIFICATIONS:

CONTRACTOR SHALL FURNISH AND INSTALL, FOR WORK DESIGNATED AS HIS RESPONSIBILITY, ALL WIRE, WIREWAY, CONDUIT, CONNECTORS, OUTLETS, SWITCHES, DISCONNECT SWITCHES, PANELBOARDS, ETC., NECESSARY TO ACHIEVE A COMPLETE ELECTRICAL INSTALLATION. WHERE AN ELECTRICAL DEVICE IS REQUIRED BY CODE BUT NOT SHOWN, IT SHALL BE FURNISHED AND INSTALLED AS THOUGH FULLY SHOWN AND SPECIFIED.

THE ELECTRICAL SYSTEMS SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND ALL OTHER APPLICABLE CODES.

FOR 240V AND UNDER ELECTRICAL SYSTEMS, PROVIDE GREEN GROUND, WHITE NEUTRAL AND BLACK/RED/BLUE PHASE (A/B/C) WIRES. FOR 480V ELECTRICAL SYSTEMS, PROVIDE GREEN GROUND, GREY NEUTRAL AND BROWN/ORANGE/YELLOW (A/B/C) PHASE WIRES.

FOLLOW CIRCUITING SHOWN ON PLANS. NEUTRALS MAY NOT BE SHARED BETWEEN CIRCUITS. USE NO CONDUCTORS SMALLER THAN #12 GA., UNLESS NOTED OTHERWISE.

INTERIOR CONDUIT SHALL BE EMT WITH COMPRESSION FITTINGS. SET SCREWS ALLOWABLE ON 1" AND LARGER PIPE. MC CABLE MAY BE USED FOR LIGHT FIXTURE WHIPS WHERE CONCEALED. EXTERIOR ABOVE GRADE CONDUIT SHALL BE GALVANIZED RIGID STEEL. BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 PVC WITH LONG SWEEP RIGID ELLS EXCEPT WHERE INDICATED OTHERWISE. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO ALL HVAC EQUIPMENT OR EQUIPMENT WITH THE POTENTIAL FOR MOVEMENT.

CONDUCTORS SHALL BE COPPER, THERMOPLASTIC INSULATED, COLOR-CODED AS DESCRIBED ABOVE OR UNDER APPLICABLE CODES.

LIGHTING FIXTURE WIRE INSULATION SHALL HAVE A TEMPERATURE RATING NOT LESS THAN THE INDIVIDUAL LIGHTING FIXTURE.

ALL JUNCTION BOXES AND OUTLET BOXES FOR LIGHT FIXTURES, RECEPTACLES, AND WALL SWITCHES SHALL BE THE KNOCKOUT TYPE. OTHER JUNCTION BOXES SHALL BE SUITABLE FOR THE INSTALLATION REQUIRED. OUTLETS SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE DRAWINGS. OUTLET BOXES SHALL BE SURFACE MOUNTED FOR EXPOSED WORK OR RECESSED FOR FINISHED WORK. ALL JUNCTION BOXES SHALL BE ACCESSIBLE.

CONVENIENCE OUTLETS SHALL BE SPECIFICATION GRADE, 20 AMP DUPLEX WITH GROUND AND FINISHED STAINLESS STEEL OR ROUGHAN STYLE GALVANIZED STEEL WALL PLATES TO MATCH BACKBOX SIZE AND SPACE FINISH APPLICATION. WALL SWITCHES SHALL BE SPECIFICATION GRADE "SILENT" TYPE, MINIMUM 20A, WITH NUMBER OF POLES REQUIRED. PROVIDE GREY DEVICES FOR OUTLETS AND SWITCHES. PROVIDE WEATHERPROOF, GFI RECEPTACLES FOR ALL EXTERIOR INSTALLATIONS. PROVIDE IN-USE ALUMINUM COVERS FOR ALL EXTERIOR RECEPTACLES. DIMMER SWITCHES SHALL BE LUTRON SLIDE DIMMER OR EQUIVALENT AS REQUIRED BY THE TYPE OF LIGHT FIXTURE WITH THE AVAILABLE CAPACITY FOR THE FIXTURES BEING CONTROLLED.

ALL RECEPTACLE AND TELECOMMUNICATIONS OUTLETS SHALL BE MOUNTED WITH BOTTOM AT 18" AFF/AFG AFF UNLESS NOTED OTHERWISE. DEVICES ABOVE COUNTERTOPS (AC) SHALL BE INSTALLED WITH CENTERLINE NO HIGHER THAN 44" AFF. LIGHT SWITCHES SHALL BE MOUNTED WITH TOP AT 48" AFF.

PROVIDE 240V/600V RATED HEAVY DUTY DISCONNECT SWITCHES. PROVIDE CLASS J FUSES. EQUIVALENTS BY SQUARE D, GE OR OTHERS.

PROVIDE FULLY RATED PANELBOARD WITH LOCKABLE COVER IN SIZE AND BREAKER QUANTITY INDICATED ON THE PLANS. PROVIDE LOCKABLE COVER WITHIN A COVER FOR ACCESS TO WIRING COMPARTMENT. PROVIDE WITH TIN PLATED COPPER BUS. PROVIDE FULLY RATED BUS AND NEUTRAL. PROVIDE MAIN BREAKER OR MAIN LUG ONLY CONNECTION. PROVIDE ARC-FAULT INTERRUPTING CAPACITY AS SCHEDULED FOR SERIES RATED SYSTEM INSTALLATION.

PROVIDE LIGHTING FIXTURES AS LISTED IN LIGHTING FIXTURE SCHEDULE WITH LENSES, BALLASTS/DRIVERS, LAMPS AND OTHER ACCESSORIES LISTED. FIXTURES ARE TO BE LAMPED AT NO GREATER LEVEL THAN SPECIFIED. COORDINATE ALL FIXTURES WITH OWNER PRIOR TO ORDERING OF FIXTURES.

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New Baseball and Softball Complex

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Project Engineer: Carter Klise, I.E.
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
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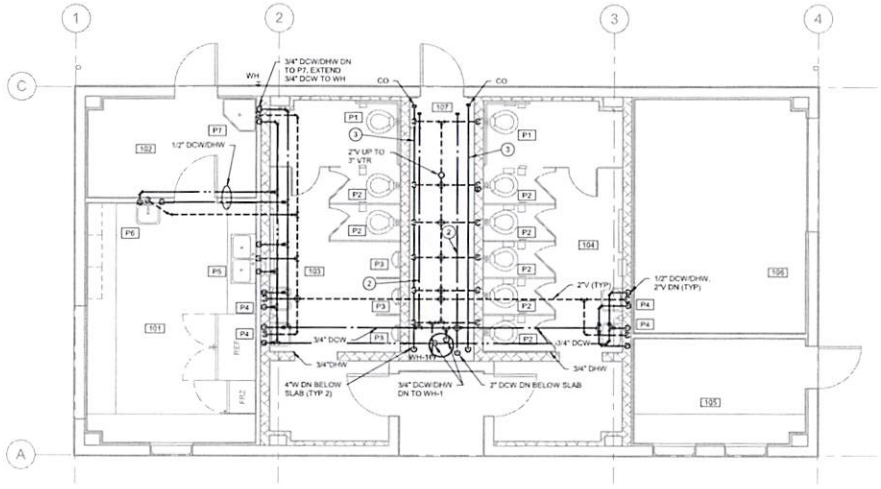
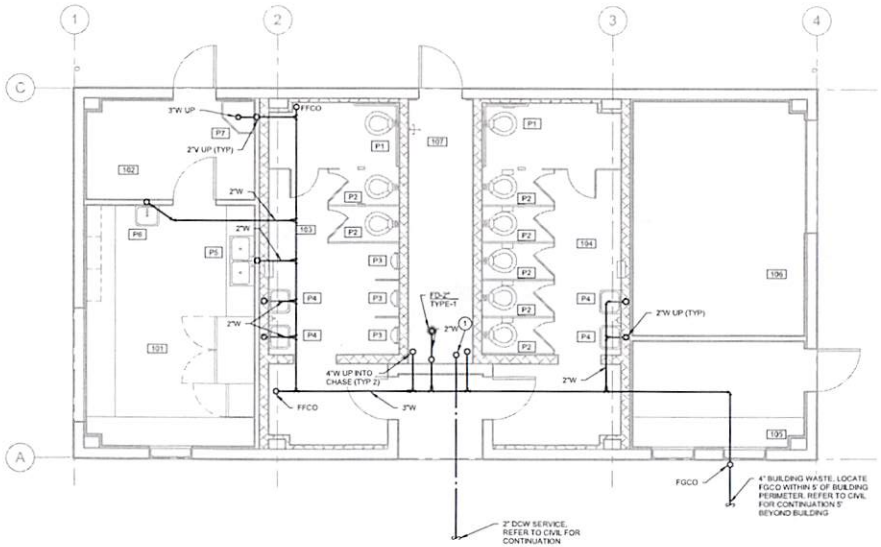
ME501

MEP Specifications



② Floor Plan - Above Slab Plumbing
1/4" = 1'-0"



① Floor Plan - Below Slab Plumbing
1/4" = 1'-0"

PLUMBING GENERAL NOTES

1. COORDINATE ALL WORK WITH ALL OTHER TRADES, EXISTING CONDITIONS, ETC.
2. VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
3. REFERENCE CIVIL DRAWINGS FOR ALL SEWER EXTENSIONS EXTERIOR TO THE BUILDING.
4. SLOPE ALL BELOW GRADE PIPING AT 1/4" PER FOOT.
5. REFER TO SPECIFICATIONS FOR PIPING AND INSULATION REQUIREMENTS.
6. SUPPORT ALL PIPING FROM ROOF STRUCTURE OR WALLS AS APPROPRIATE.
7. MAINTAIN A MINIMUM OF 10' HORIZONTAL CLEARANCE BETWEEN ANY VTR LOCATION AND FRESH AIR INTAKE OR OPENING TO THE BUILDING.

KEYED NOTES

1. 2" DCW SERVICE UP. PROVIDE WITH SHUTOFF VALVE 6" ABOVE FINISHED FLOOR. PROVIDE WATTS LF309 REDUCED PRESSURE ZONE ASSEMBLY IN VERTICAL RISER AFTER SHUTOFF VALVE.
2. PROVIDE 2" DCW HEADER. ROUTE HEADER TIGHT TO WALL. SHOWN OFFSET FOR CLARITY. PROVIDE CONNECTION TO PLUMBING FIXTURES VIA PLUMBING FIXTURE CONNECTION SCHEDULE.
3. ROUTE WASTE PIPING EXPOSED IN CHASE TIGHT TO WALL.

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12/18/2020
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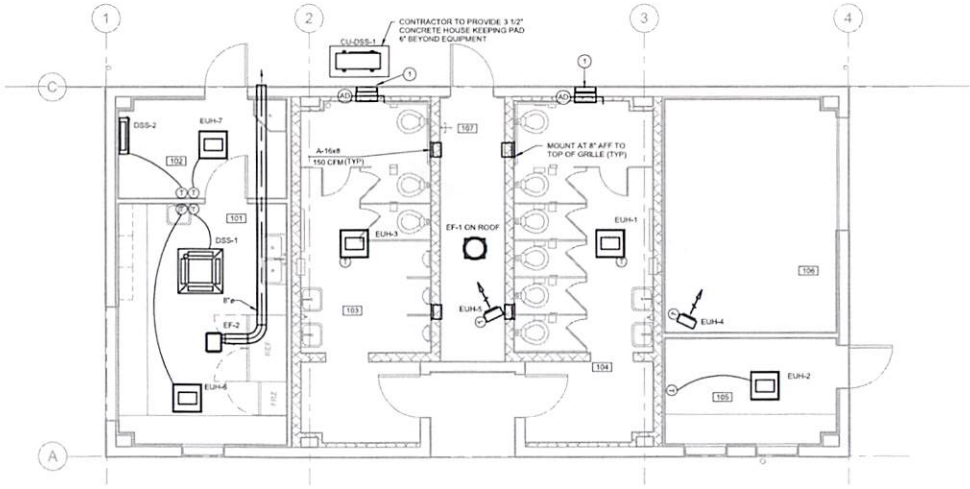
Floor Plan - Plumbing



1 Floor Plan - HVAC
1/4" = 1'-0"

MECHANICAL GENERAL NOTES

1. COORDINATE ALL WORK WITH ALL OTHER TRADES, EXISTING CONDITIONS, ETC.
2. VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
3. REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS.
4. SUPPORT ALL DUCTWORK AND PIPING FROM ROOF STRUCTURE OR WALLS AS APPROPRIATE.

KEYED NOTES

1. PROVIDE 18x18 GREENHECK ESD-435 OA INTAKE LOUVER SIZED FOR 450 CFM AT 300 FPM. PROVIDE WITH AUTOMATIC DAMPER, CD-1 AND CD-2, INTERLOCKED TO EF-1 OPERATION. MOUNT AT 7' AFF TO BOTTOM OF LOUVER.

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Floor Plan - HVAC

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE MANUF	FIXTURE MODEL	FIXTURE TYPE	FIXTURE DESCRIPTION	FITTINGS MANUF	FITTINGS MODEL	FITTINGS DESCRIPTION	REMARKS
P1	ZURN	Z5615-BWL	ADA WATER CLOSET	ADA COMPLIANT, WALL MOUNT, WHITE VITREOUS CHINA, FLUSH VALVE, ELONGATED BOWL, PROVIDE 1.1 GPF HIGH EFFICIENCY SIPHON JET FLUSHING ACTION. PROVIDE WITH TOP SPUD AND REAR OUTLET.	ZURN	ZER5000AV-WH E-CPM Z5955SS-EL	EXPOSED QUIET DIAPHRAGM TYPE CHROME PLATED BATTERY POWERED SENSOR OPERATED FLUSH VALVE, NON-HOLD OPEN WITH HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE FOR TOP SPUD CONNECTION. SOLID INJECTION MOLDED PLASTIC OPEN FRONT, WHITE SEAT FOR ELONGATED BOWL. PROVIDE WITH INTEGRAL BUMPERS AND EXTERNAL CHECK HINGES AND STAINLESS STEEL POSTS. PROVIDE NO LID.	4, 8
P2	ZURN	Z5616-BWL	NON-ADA WATER CLOSET	WALL MOUNT, WHITE VITREOUS CHINA, FLUSH VALVE, ELONGATED BOWL. PROVIDE 1.1 GPF HIGH EFFICIENCY SIPHON JET FLUSHING ACTION. PROVIDE WITH TOP SPUD AND REAR OUTLET.	ZURN	ZER6000AV-WH E-CPM Z5955SS-EL	EXPOSED QUIET DIAPHRAGM TYPE CHROME PLATED BATTERY POWERED SENSOR OPERATED FLUSH VALVE, NON-HOLD OPEN WITH HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE FOR TOP SPUD CONNECTION. SOLID INJECTION MOLDED PLASTIC OPEN FRONT, WHITE SEAT FOR ELONGATED BOWL. PROVIDE WITH INTEGRAL BUMPERS AND EXTERNAL...	4, 8
P3	ZURN	Z5755-U	URINAL	WALL MOUNT, WHITE VITREOUS CHINA, FLUSH VALVE WITH 3/4" TOP SPUD AND CONCEALED HANGERS.	ZURN	ZER6003AV-CP M	EXPOSED QUIET DIAPHRAGM TYPE CHROME PLATED BATTERY POWERED SENSOR OPERATED FLUSH VALVE, NON-HOLD OPEN WITH HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE FOR TOP SPUD CONNECTION.	4, 8
P4	ZURN	Z5114	ADA WALL MOUNT LAVATORY	20"x18" VITREOUS CHINA, WALL HUNG LAVATORY WITH 2 1/2" BACK FOR USE WITH CONCEALED ARM HANGER, 4" CENTER FAUCET HOLES. PROVIDE CONCEALED ARM CARRIER.	ZURN	Z6915-XL-TMV1	ADA BATTERY POWERED SENSOR CONTROL 4" CENTER SET FAUCET WITH CERAMIC DISC CARTRIDGE AND THERMOSTATIC MIXING VALVE - PROVIDE WITH 1.5 GPM AERATOR, FAUCET SHALL BE LEAD FREE BRASS.	1, 2, 3, 5
P5	ELKAY	LR-3321PD	DUAL COMPARTMENT KITCHEN SINK	SEAMLESS #18 GAUGE, TYPE 302 (18-8) NICKEL BEARING STAINLESS STEEL, LK4L-H SATIN FINISH FULLY UNDERCOATED, HOLES AT 4" O.C., 7 1/2" BOWL DEPTH, 1 3/4" RADIUS COVERED CORNERS. SELF RIMMING.	ZURN	Z831C4-XL-HS	POLISHED CHROME LEAD FREE BRASS WIDESPREAD 8" GOOSENECK FAUCET ON 8" CENTERS. PROVIDE WITH CENTERLINE SWING GOOSENECK SPOUT AND QUARTER TURN CERAMIC DISC CARTRIDGES. PROVIDE WITH 2.2 GPM AERATOR. 4" COLOR CODED METAL LEVER HANDLES AND HOSE AND SPRAY.	1, 2, 3, 5, 7
P6	ELKAY	EHS-18X	HAND SINK	18"x14" HAND SINK, 18GA. TYPE 302 NICKELL BEARING STAINLESS STEEL WALL MOUNT WITH BACK FAUCET HOLES ON 4" CENTERS. PROVIDE HANDLE STOP VALVES AND FLEXIBLE METAL WATER RISERS.			GOOSENECK FAUCET INCLUDED WITH FIXTURE. FAUCET SHALL BE 4" CENTER SET, CHROME PLATED LEAD FREE BRASS.	1, 2, 3, 4, 5
P7	HAT	T58C1610	SERVICE SINK	24"x24"x12" MOP SERVICE BASIN. PROVIDE MOLDED HIGH DENSITY CONCRETE BODY WITH PVC DRAIN BODY. STAINLESS STEEL STRAINER AND 3" GASKETED OUTLET CONNECTION.	ZURN	Z843M1-XL / SEE ACCESSORIES	CHROME PLATED CAST BRASS 8" WALL MOUNT FAUCET WITH QUARTER TURN CERAMIC DISC CARTRIDGES. ADJUSTABLE INLETS. INTEGRAL SERVICE STOPS. VACUUM BREAKER, 3/4" HOSE THREADED OUTLET, PAIL HOOK AND ADJUSTABLE WALL BRACE. PROVIDE WITH 12" TALL STAINLESS STEEL WALL COVER FOR 2 SIDES. PROVIDE WITH HOSE BRACKET AND MOP HANGER. FAUCET SHALL BE LEAD FREE BRASS.	

REMARKS:

1. PROVIDE CHROME PLATED BRASS TAILPIECE AND GRID DRAIN.
2. PROVIDE CHROME PLATED BRASS P-TRAP.
3. PROVIDE HANDLE STOPS AND BRAIDED STAINLESS STEEL FLEXIBLE RISERS.
4. PROVIDE CONCEALED ARM TYPE CARRIER WITH SQUARE TUBULAR STEEL UP-RIGHTS AND BLOCK TYPE BASES.
5. INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS. REFER TO SPECIFICATIONS FOR INSULATION METHODS.
6. PROVIDE HANDLE ON WIDE SIDE OF STALL.
7. PROVIDE BASKET STRAINER FOR EACH DRAIN.
8. REFER TO ARCHITECTURAL FOR MOUNTING HEIGHTS.

MECHANICAL ABBREVIATIONS

AD	ACCESS DOOR
AD	AUTOMATIC DAMPER
AFG/AFF	ABOVE FINISHED GRADE/FLOOR
AV	ACID VENT
AVTR	ACID VENT THRU ROOF
BD	BACKDRAFT DAMPER
CPVC	CHLORINATED POLYVINYL CHLORIDE
E	INDICATED EXISTING DEVICE
EA	EXHAUST AIR
FD	FIRE DAMPER
FS	FIRE/SMOKE DAMPER
HOA	HAND/OFF/AUTO SWITCH
OA	OUTSIDE AIR
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
SA	SUPPLY AIR
SD	SMOKE DAMPER
VBS	VENT BELOW SLAB
VCP	VITRIFIED CLAY PIPE
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THRU ROOF

MECHANICAL SYMBOL LEGEND

SUPPLY & RETURN/EXHAUST GRILLE, REGISTER OR DIFFUSER		STOP VALVE / GATE VALVE	
ROUND DUCT UP & DOWN		CHECK VALVE (ARROW INDICATES FLOW DIRECTION	
RETURN OR EXHAUST DUCT UP & DOWN		MANUAL BALANCING VALVE	
SUPPLY OR VENTILATION AIR DUCT UP AND DOWN		PLUG VALVE	
CONCENTRIC REDUCER		2 WAY CONTROL VALVE OR SOLENOID VALVE	
ECCENTRIC REDUCER		3 WAY CONTROL VALVE OR SOLENOID VALVE	
ELBOW WITH SHORT RADIUS OR TURNING VANES		CHILLED WATER RETURN PIPING	CHWR
THERMOSTAT		CHILLED WATER SUPPLY PIPING	CHWS
HUMIDISTAT		HOT WATER RETURN PIPING	HWR
PUSH BUTTON		HOT WATER SUPPLY PIPING	HWS
MANUAL DAMPER		HOT WATER RETURN PIPING	HWR
AUTOMATED DAMPER - REF ABBREVIATIONS FOR TYPE		HOT WATER SUPPLY PIPING	HWS
GRILLE/REGISTER/DIFFUSER TYPE, SIZE & CFM		CONDENSER WATER RETURN PIPING	CWR
FLEXIBLE DUCT		CONDENSER WATER SUPPLY PIPING	CWS
P1 PLUMBING FIXTURE NUMBER		2-PIPE HOT/CHILLED WATER RETURN PIPING	HCR
FIRE DEPARTMENT CONNECTION		2-PIPE HOT/CHILLED WATER SUPPLY PIPING	HCS
PIPE RISE/DROP		ROOF DRAIN PIPING	RD
PIPE REDUCER		DRAIN PIPING	D
PRESSURE GAUGE		NATURAL GAS PIPING	G
TEMPERATURE GAUGE		COMPRESSED AIR PIPING	A
STRAINER WITH CAPPED BLOWDOWN VALVE		FIRE SPRINKLER PIPING	F
PRESSURE REDUCING VALVE		REFRIGERANT PIPING (SUCTION AND LIQUID)	R
FLOOR DRAIN		HIGH PRESSURE STEAM SUPPLY PIPING	HPS
FLOOR DRAIN SIZE AND TYPE		MEDIUM PRESSURE STEAM SUPPLY PIPING	MPS
FIRE SPRINKLER DROP WITH/WITHOUT GUARD		LOW PRESSURE STEAM SUPPLY PIPING	LPS
HOSE BIB		STEAM CONDENSATE RETURN PIPING	SCR
FREEZEPROOF WALL HYDRANT		DOMESTIC COLD WATER SUPPLY PIPING (DCW)	
FINISHED GRADE CLEAN OUT		DOMESTIC HOT WATER SUPPLY PIPING (DHW)	
FINISHED FLOOR CLEAN OUT		DOMESTIC HOW WATER RETURN PIPING (DHWR)	
CONNECT NEW TO EXISTING		VENT PIPING (V.)	
ELEVATION		CENTER LINE	

NOTES: 1. REFER TO PLANS FOR SYMBOLS USED. SOME SYMBOLS MAY APPEAR ON SYMBOLS LEGEND BUT NOT ON PLANS. REFERENCE MECHANICAL SYMBOLS LEGEND FOR ADDITIONAL SYMBOLS.

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	DOW	DHW	WASTE	VENT
P1	1 1/2"	--	4"	2"
P2	1 1/2"	--	4"	2"
P3	3/4"	--	2"	2"
P4	1/2"	1/2"	2"	2"
P5	1/2"	1/2"	2"	2"
P6	1/2"	1/2"	2"	2"
P7	3/4"	3/4"	3"	3"
WH	3/4"	--	--	--

DUCTLESS SPIT SYSTEM SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	O/A CFM	COOLING PERFORMANCE				HEATING PERFORMANCE				VOLTAGE	MOCP	REMARKS
					TOTAL (MBH)	SENS (MBH)	EAT DB/WB	LAT DB/WB	INPUT (MBH)	OUTPUT (MBH)	MIN EAT	MIN LAT			
DSS-1	MITSUBISHI	NTKCKS12A1I2A	400	--	12	11.2	75/50	55/54	13	9.1	68		208V/1PH	20A	2-12
DSS-2	MITSUBISHI	NTXWS706A112A	400	--	6	5.6	75/50	55/54	7.2	5	68		208V/1PH	20A	1-11

REMARKS:

1. WALL MOUNT DUCTLESS SPLIT SYSTEM INDOOR UNIT.
2. ELECTRICAL CONNECTION SHALL BE FED FROM CONDENSING UNIT. PROVIDE (4) WIRE 18 GA TWISTED SHIELDED WIRE, BELDAN OR EQUIVALENT, OR AS RECOMMENDED BY MANUFACTURER.
3. VERIFY REFRIGERANT PIPE SIZING, ROUTING AND REQUIRED ACCESSORIES WITH MANUFACTURER FOR ACTUAL REFRIGERANT PIPE LENGTHS AND ELEVATION DIFFERENCES.
4. PROVIDE UNIT WITH 120V CONDENSATE PUMP. MOUNT INTERNAL TO UNIT. PIPE CONDENSATE TO NEAREST MOP/UTILITY SINK ROOM 102
5. PROVIDE UNIT WITH STANDARD CONTROLS FOR COOLING OPERATION TO 55 DEGREES.
6. CAPACITIES LISTED INDICATE AVAILABLE CAPACITIES OF THE UNIT.
7. AMBIENT CONDITIONS ARE 100/75F SUMMER, 4F WINTER.
8. SPACE TEMPERATURE SETPOINTS ARE 72F SUMMER, 70F WINTER.
9. PROVIDE SPACE MOUNTED HARD-WIRED THERMOSTAT.
10. CONNECT TO CU-DSS-1.
11. PROVIDE UNDER ALTERNATE BID ONLY.
12. 4-WAY RECESSED CEILING DUCTLESS SPLIT SYSTEM INDOOR UNIT.

CONDENSING UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	TOTAL MBH	SENSIBLE MBH	REFRIGERANT PIPE SIZE		ELECTRICAL	MCA	MOCP	REMARKS
					SUCTION	LIQUID				
CU-DSS1	MITSUBISHI	MUZ-FH12NA	19	17.7	3/8	1/4	208V/1PH	11A	20A	1-9

REMARKS:

1. PROVIDE MINIMUM 13 SEER RATING.
2. VERIFY AND PROVIDE AS REQUIRED ALL ACCESSORIES FOR OPERATION TO OF AMBIENT CONDITIONS.
3. VERIFY REFRIGERANT PIPE SIZING, ROUTING AND REQUIRED ACCESSORIES WITH MANUFACTURER FOR ACTUAL REFRIGERANT PIPE LENGTHS AND ELEVATION DIFFERENCES.
4. PROVIDE PROTECTION OF ALL EXPOSED EXTERIOR REFRIGERANT PIPING WITH MINIMUM 0.016" THICK ALUMINUM JACKETING WITH ALUMINUM BAND CLAMPS AND ALUMINUM FITTING COVERS.
5. REFER TO SEPECIFICATIONS FOR REFRIGERANT PIPING INSULATION REQUIREMENTS.
6. PROVIDE POWER CONNECTION FROM CU TO INTERIOR DUCTLESS SPLIT UNITS.
7. PROVIDE WITH HARD-WIRED WALL MOUNT THERMOSTAT.
8. CONNECT TO DSS-1 AND DSS-2.
9. PROVIDE UNDER ALTERNATE BID ONLY.

HOT WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	TANK SIZE	INPUT (KW)	EWT	LWT	TEMP RISE	RECOVERY (GPH)	VOLTAGE	MCA	MOCP	REMARKS
WH-1	A.O. SMITH	DEL-40	40	475	40	120	40	129	208V, 1PH	28.6A	40A	1, 2, 3, 4

REMARKS:

1. PROVIDE NON-SIMULTANEOUS ELECTRIC HEATING ELEMENTS.
2. PROVIDE WITH TEMPERATURE AND PRESSURE RELIEF VENT. PIPE TO FLOOR DRAIN.
3. PROVIDE ISOLATION UNIONS AT EACH PIPING CONNECTION TO UNIT.

ELECTRIC UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	EAT	LAT	INPUT (KW)	OUTPUT (MBH)	ELECTRICAL	MCA	MOCP	REMARKS
EUH-1	QMARK	CDF-548	300	60	95	4	13.7	208V, 1PH	19.2A	25A	1, 2, 3, 4, 6, 7
EUH-2	QMARK	CDF-548	300	60	95	3	10.2	208V, 1PH	14.4A	20A	2, 3, 4, 6, 7, 8
EUH-3	QMARK	CDF-548	300	60	95	4	13.7	208V, 1PH	19.2A	25A	1, 2, 3, 4, 6, 7
EUH-4	QMARK	MUH-05-81	350	60	95	5	17.0	208V, 1PH	24A	30A	1-5
EUH-5	QMARK	MUH-03-81	350	60	95	3	10.2	208V, 1PH	14.5A	20A	1-5
EUH-6	QMARK	CDF-548	300	60	95	4	13.7	208V, 1PH	19.2A	25A	2, 3, 4, 6, 7, 8
EUH-7	QMARK	CDF-458	300	60	95	3	10.2	208V, 1PH	14.4A	20A	2, 3, 4, 6, 7, 8

REMARKS:

1. PROVIDE WITH UNIT MOUNTED DPST THERMOSTAT WITH 40F-85F SETPOINT ADJUSTMENT.
2. THERMOSTAT TO CYCLE FAN UPON A CALL FOR HEATING.
3. PROVIDE WITH FACTORY WALL OR CEILING BRACKET AS REQUIRED FOR INSTALLATION.
4. PROVIDE WITH FACTORY MOUNTED INTEGRAL DISCONNECT SWITCH AND SINGLE POINT POWER CONNECTION.
5. PROVIDE FOR HORIZONTAL DISCHARGE.
6. PROVIDE FOR DOWNFLOW DISCHARGE.
7. PROVIDE FIELD WIRING AS REQUIRED TO OBTAIN REQUIRED INPUT WATTAGE.
8. PROVIDE WITH WALL MOUNTED THERMOSTAT WITH 40F-85F SETPOINT ADJUSTMENT.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	ESP (IN WC)	MOTOR SIZE (HP)	VOLTAGE	MCA	MOCP	REMARKS
EF-1	GREENHECK	CUE-099-VG-1/4	600	0.25	1/4	120V	5.8A	20A	1 - 4
EF-2	GREENHECK	SP-B200	200	0.25	FRACTIONAL	120V	0.6A	20A	1, 5, 6, 7, 8

REMARKS:

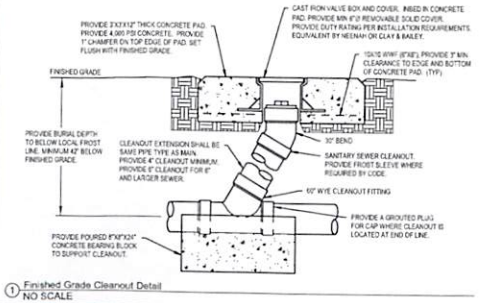
1. PROVIDE WITH UNIT MOUNTED SPEED CONTROL SWITCH.
2. PROVIDE WITH MOTORIZED BACKDRAFT DAMPER. INTERLOCK WITH FAN.
3. PROVIDE WITH 14" ROOF CURB AND CURB CAP. VERIFY SLOPE REQUIRED.
4. INTERCONNECT EF-1 TO EQUIPMENT CONTROL PANEL EC-1 TO OPERATE OF TIME CLOCK AND HOA SWITCH.
5. PROVIDE NEOPRENE ISOLATION KIT FOR SUSPENSION OF UNIT FROM STRUCTURE ABOVE.
6. PROVIDE WITH ALUMINUM HOODED WALL CAP WITH ROUND DUCT CONNECTION. INTERNAL BIRD/SCREEN AND GRAVITY BACKDRAFT DAMPER.
7. PROVIDE WITH ROUND DUCT CONNECTOR, MODEL RDC.
8. PROVIDE UNDER BASE BID ONLY. REMOVE FROM BID/PROJECT IF ALTERNATE BID FOR AIR CONDITIONING IS ACCEPTED.

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE

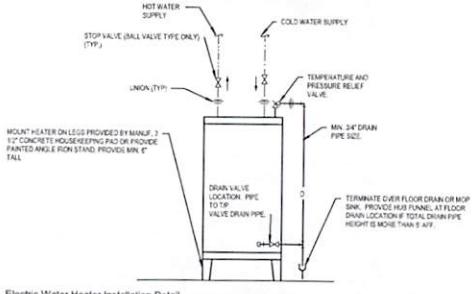
MARK	MANUFACTURER	MODEL	SUPPLY	RETURN	EXHAUST	FINISH	DAMPER	REMARKS
A	PRICE	635FLAB12		X	X	WHITE-812	NO	1 - 4

REMARKS:

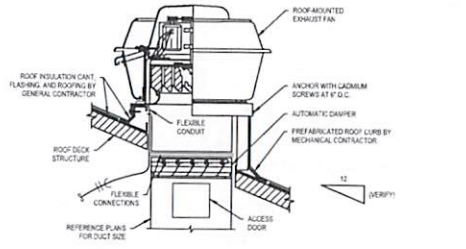
1. PROVIDE WITH COUNTERSUNK SCREW HOLES FOR FLANGE MOUNT.
2. PROVIDE WITH 1/2" OPENINGS.
3. PROVIDE WITH 45 DEGREE DEFLECTION OPENINGS.
4. COORDINATE EXACT SIZE OF OPENING WITH UNIT REQUIREMENT.



1 Finished Grade Cleanout Detail
NO SCALE



2 Electric Water Heater Installation Detail
NO SCALE



3 Roof Mounted Exhaust Fan Detail
NO SCALE

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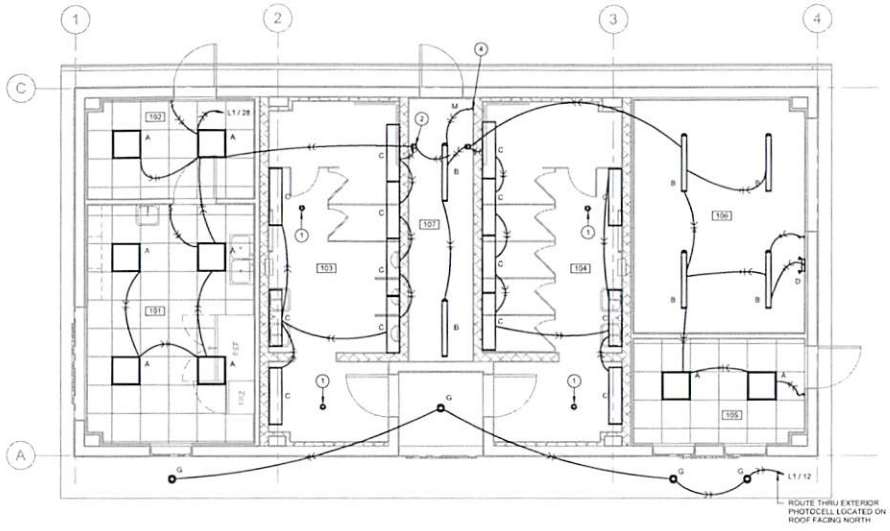
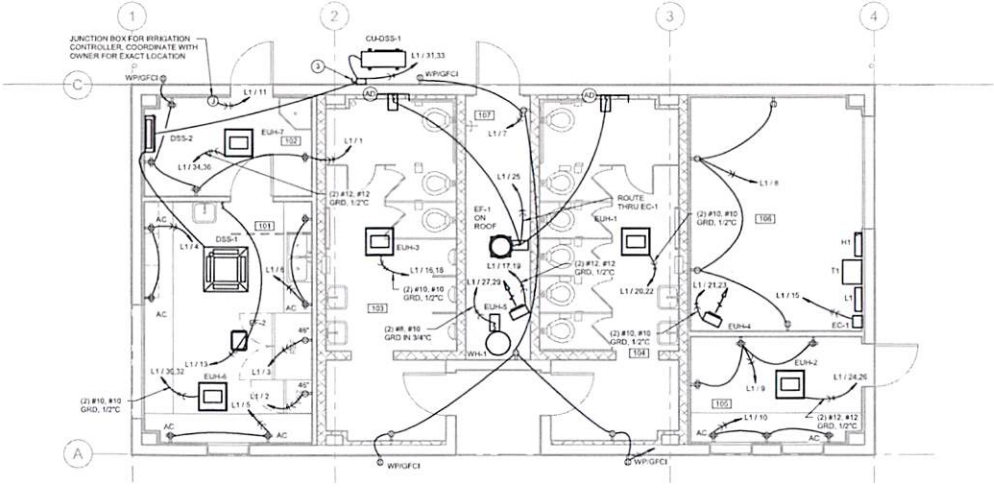
Project Engineer: Carter Klise, I.E.
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number:

M601

Mechanical Details and Schedules



2 Floor Plan - Lighting
1/4" = 1'-0"



1 Floor Plan - Power
1/4" = 1'-0"

ELECTRICAL GENERAL NOTES

1. COORDINATE ALL WORK WITH ALL OTHER TRADES, EXISTING CONDITIONS, ETC.
2. VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
3. COORDINATE EXACT LOCATIONS OF ALL NEW DEVICES INDICATED.
4. PROVIDE BUSSMAN TYPE LPN-RK1 DUAL ELEMENT TIME DELAY FUSES.
5. ALL RECEPTACLES IN BUILDING SHALL BE GFCI EXCEPT FOR THOSE LOCATED IN TICKET BOOTH ROOM 105.

KEYED NOTES

1. PROVIDE WATTSTOPPER MODEL LMDC-100 DUAL TECHNOLOGY - ULTRASONIC AND PASSIVE INFRARED CEILING MOUNT OCCUPANCY SENSOR, INTERCONNECT TO LMRC CONTROLLER.
2. PROVIDE WATTSTOPPER MODEL LMRC-101 DIGITAL ON/OFF ROOM CONTROLLER. PROVIDE (1) RELAY MODEL FOR CONTROL OF LIGHTING INDICATED. CONNECT TO CEILING MOUNT OCCUPANCY SENSOR IN ROOM.
3. PROVIDE 30A 208V, 2P, NEMA-3R DISCONNECT SWITCH FUSED AT 20A. PROVIDE (2) #12, #12 GRD IN 3/4" C.
4. PROVIDE WATTSTOPPER MODEL DSW-100 DUAL TECHNOLOGY, PASSIVE INFRARED AND ULTRASONIC WALL BOX OCCUPANCY SENSOR. PROVIDE 120V WIRING.

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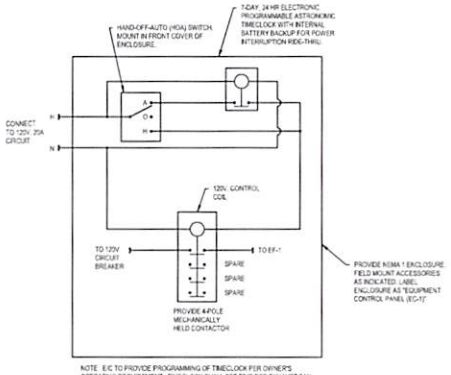
Project Engineer: Carter Klise, I.E.
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number:

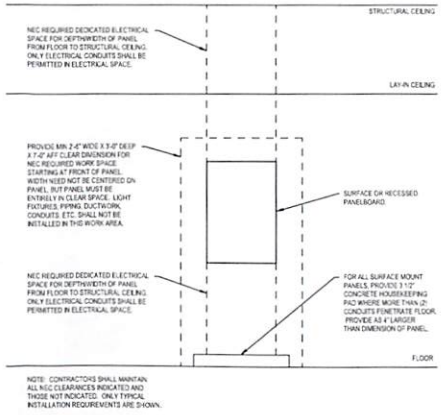
E101

Floor Plan - Electrical



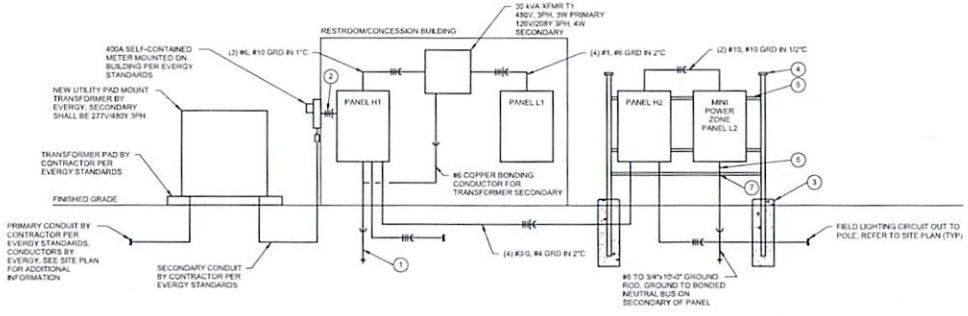
NOTE: E/C TO PROVIDE PROGRAMMING OF TIMECLOCK PER OWNER'S OPERATING REQUIREMENT. TIMECLOCK SHALL SET TIME FOR EXHAUST FAN OPERATION AND SHALL TURN FAN ON/OFF DURING TIMED OPERATION ONLY

③ Equipment Control Panel Detail
1/8" = 1'-0"



NOTE: CONTRACTOR'S SHALL MAINTAIN ALL NEC CLEARANCES INDICATED AND THOSE NOT INDICATED. ONLY TYPICAL INSTALLATION REQUIREMENTS ARE SHOWN.

① Panelboard Installation Detail
NO SCALE



② Electrical Distribution System Riser Diagram
NO SCALE

⑤ KEYED NOTES:

1. PROVIDE #6 GROUNDING ELECTRODE TO A SET OF (3) 3/4"x10'-0" GROUND RODS ARRANGED IN A TRIANGLE WITH A MINIMUM OF 6' SPACING. PROVIDE #1/0 GROUNDING ELECTRODE TO BUILDING STEEL. PROVIDE #4 BARE COPPER WIRE WITH MIN. 2" CONCRETE COVER MINIMUM 20' LENGTH, AND BOND TO REBAR IN FOUNDATION. PROVIDE CAD WELD CONNECTION. REFER TO NATIONAL ELECTRIC CODE ARTICLE 250.50.
2. (4) 500 KCMIL CU IN 4"C.
3. 4000 PSI CONCRETE ANCHOR SUPPORT. PROVIDE 18" ROUND BY 42" DEEP BELOW GRADE PIERS. PROVIDE 6" ABOVE GRADE WITH 1" 45° CHAMFERED TOP. PROVIDE WITH (5) #5 VERTICAL BARS SPACED EQUALLY WITH #4 HOOPS ON 12" CENTERS. PROVIDE MIN. 3" CONCRETE COVER.
4. 4" SCH. 40 GALVANIZED STEEL SUPPORT WITH CAP (TYP.). PROVIDE QUANTITY AS REQUIRED FOR WEIGHT AND SPAN OF UNI-STRUT.
5. GALVANIZED STEEL UNI-STRUT HORIZONTAL SUPPORT (TYP.). PROVIDE QUANTITY AND SIZE AS REQUIRED AND SIZE AS REQUIRED TO ADEQUATELY SUPPORT EQUIPMENT.
6. UTILIZE RMC WHERE CONDUITS ARE ROUTED ABOVE GRADE AND PVC CONDUIT BELOW GRADE WITH LONG SWEEP RIDGID ELLS (TYP.).
7. SUPPORT CONDUITS WITH CONDUIT STRAPS AT EACH UNI-STRUT SUPPORT.

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E501

Electrical Details

PANELBOARD SCHEDULE

PANEL DESIGNATION:	H1	VOLTAGE:	480/277 Wye	MAIN RATING:	400 A
LOCATION:		SERVICE:	3	MOCP RATING/TYPE:	400 A / MCB
ENCLOSURE:	NEMA-1	MOUNTING TYPE:	Surface	AIC RATING:	65 KAIC

CKT	DESCRIPTION	LOAD TYPE	C/B AMP	P	A	B	C	A	B	C	P	C/B AMP	LOAD TYPE	DESCRIPTION	CKT
1	T1	Tran...	50 A	3	0 W			2363...			3	125 A	Tran...	H2	2
3	–	–	–	–		0 W			2363...		–	–	–	–	4
5	–	–	–	–			0 W			2363...	–	–	–	–	6
7	FIELD LIGHTING POLE - A1	Power	20 A	3	2800 W			2800 W			3	20 A	Power	FIELD LIGHTING POLE - B1	8
9	–	–	–	–		2800 W			2800 W		–	–	–	–	10
11	–	–	–	–			2800 W			2800 W	–	–	–	–	12
13	FIELD LIGHTING POLE - C1	Power	20 A	3	2600 W			2600 W			3	20 A	Power	FIELD LIGHTING POLE - C2	14
15	–	–	–	–		2600 W			2600 W		–	–	–	–	16
17	–	–	–	–			2600 W			2600 W	–	–	–	–	18
19	FIELD LIGHTING POLE - A6	Power	20 A	3	2367 W			2800 W			3	20 A	Power	FIELD LIGHTING POLE - B4	20
21	–	–	–	–		2367 W			2800 W		–	–	–	–	22
23	–	–	–	–			2367 W			2800 W	–	–	–	–	24
25	FIELD LIGHTING POLE - C8	Power	20 A	3	2600 W			2600 W			3	20 A	Power	FIELD LIGHTING POLE - C7	26
27	–	–	–	–		2600 W			2600 W		–	–	–	–	28
29	–	–	–	–			2600 W			2600 W	–	–	–	–	30
31	Space	–	–	–	0 W			0 W			–	–	–	Space	32
33	Space	–	–	–		0 W			0 W		–	–	–	Space	34
35	Space	–	–	–			0 W			0 W	–	–	–	Space	36
37	Space	–	–	–	0 W			0 W			–	–	–	Space	38
39	Space	–	–	–		0 W			0 W		–	–	–	Space	40
41	Space	–	–	–			0 W			0 W	–	–	–	Space	42
			TOTAL LOAD:		44800 VA		44800 VA		44800 VA						
			TOTAL AMPS:		162 A		162 A		162 A						

Notes:
1.
2.

PANELBOARD SCHEDULE

PANEL DESIGNATION:	H2	VOLTAGE:	480/277 Wye	MAIN RATING:	225 A
LOCATION:		SERVICE:	3	MOCP RATING/TYPE:	225 A / MLO
ENCLOSURE:	NEMA-3R	MOUNTING TYPE:	Surface	AIC RATING:	25 KAIC

CKT	DESCRIPTION	LOAD TYPE	C/B AMP	P	A	B	C	A	B	C	P	C/B AMP	LOAD TYPE	DESCRIPTION	CKT
1	L2	Tran...	30 A	2	0 W			4300 W			3	20 A	Power	FIELD LIGHTING POLE - A4	2
3	–	–	–	–		0 W			4300 W		–	–	–	–	4
5	FIELD LIGHTING POLE - B3	Power	20 A	3			2600 W			4300 W	–	–	–	–	6
7	–	–	–	–	2600 W			1500 W			3	20 A	Power	FIELD LIGHTING POLE - C6	8
9	–	–	–	–		2600 W			1500 W		–	–	–	–	10
11	FIELD LIGHTING POLE - A5	Power	20 A	3			1500 W			1500 W	–	–	–	–	12
13	–	–	–	–	1500 W			1500 W			3	20 A	Power	FIELD LIGHTING POLE - C5	14
15	–	–	–	–		1500 W			1500 W		–	–	–	–	16
17	FIELD LIGHTING POLE - A3	Power	20 A	3			1700 W			1500 W	–	–	–	–	18
19	–	–	–	–	1700 W			1500 W			3	20 A	Power	FIELD LIGHTING POLE - C4	20
21	–	–	–	–		1700 W			1500 W		–	–	–	–	22
23	FIELD LIGHTING POLE - A2	Power	20 A	3			4933 W			1500 W	–	–	–	–	24
25	–	–	–	–	4933 W			1500 W			3	20 A	Power	FIELD LIGHTING POLE - C3	26
27	–	–	–	–		4933 W			1500 W		–	–	–	–	28
29	FIELD LIGHTING POLE - B2	Power	20 A	3			2600 W			1500 W	–	–	–	–	30
31	–	–	–	–	2600 W			0 W			–	–	–	Space	32
33	–	–	–	–		2600 W			0 W		–	–	–	Space	34
35	Space	–	–	–			0 W			0 W	–	–	–	Space	36
37	Space	–	–	–	0 W			0 W			–	–	–	Space	38
39	Space	–	–	–		0 W			0 W		–	–	–	Space	40
41	Space	–	–	–			0 W			0 W	–	–	–	Space	42
			TOTAL LOAD:		23633 VA		23633 VA		23633 VA						
			TOTAL AMPS:		85 A		85 A		85 A						

Notes:
1.
2.

PANELBOARD SCHEDULE

PANEL DESIGNATION:	L2 MINI POWER ZONE	VOLTAGE:	120/240 Single	MAIN RATING:	30 A
LOCATION:		SERVICE:	1	MOCP RATING/TYPE:	30 A / 30A PRIMARY BREAKER
ENCLOSURE:	NEMA-3R	MOUNTING TYPE:	Surface	AIC RATING:	25 KAIC

CKT	DESCRIPTION	LOAD TYPE	C/B AMP	P	A	B	A	B	P	C/B AMP	LOAD TYPE	DESCRIPTION	CKT
1	DUGOUT RECEPTACLE	Recep...	20 A	1	180 W		180 W		1	20 A	Recep...	DUGOUT RECEPTACLE	2
3	DUGOUT RECEPTACLE	Recep...	20 A	1		180 W		180 W	1	20 A	Recep...	DUGOUT RECEPTACLE	4
5	DUGOUT RECEPTACLE	Recep...	20 A	1	180 W		180 W		1	20 A	Recep...	DUGOUT RECEPTACLE	6
7	DUGOUT RECEPTACLE	Recep...	20 A	1		180 W		180 W	1	20 A	Recep...	DUGOUT RECEPTACLE	8
9	Spare	–	20 A	1	0 W		0 W		1	20 A	–	Spare	10
			TOTAL LOAD:		720 VA			0 VA					
			TOTAL AMPS:		6 A			0 A					

Notes:
1.
2.

ELECTRICAL ABBREVIATIONS	
AC	DEVICE LOCATED ABOVE COUNTER
AFG/AFF	ABOVE FINISHED GRADE / FLOOR
AFI	ARC-FAULT CIRCUIT INTERRUPTER
AIC	AMPERE INTERRUPTER CAPACITY
BFG/BFF	BELOW FINISHED GRADE / FLOOR
C	MOUNTED IN CEILING
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CMS	COMBINATION MOTOR STARTER
CT	CURRENT TRANSFORMER
D	DIMMER
DF	DRINKING FOUNTAIN
DS	DISCONNECT SWITCH
E	INDICATED EXISTING DEVICE
G	WITH GUARD
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRD	GROUND
HOA	HAND/OFF/AUTO SWITCH
IG	ISOLATED GROUND
JB	JUNCTION BOX
K	KEY OPERATED
M	MOTION SENSING
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION
MMS	MAGNETIC MOTOR STARTER
N	NARROW SWITCH PLATE
NAC	NOTIFICATION APPLIANCE CIRCUIT
NF	NON-FUSED
NL	NIGHTLIGHT FIXTURE, WIRED HOT
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELECOMMUNICATIONS
P	WITH PILOT LAMP
PC	PULL CHAIN
S/S	START / STOP
SS	SURGE SUPPRESSION
SWBD	SWITCHBOARD
TP	TAMPER PROOF
TTC	TELEPHONE TERMINAL CABINET
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELECOMMUNICATIONS
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFMR	TRANSFORMER

ELECTRICAL SYMBOL LEGEND			
	DUPLEX RECEPTACLE (20 AMP UNLESS NOTED OTHERWISE)	$	SWITCH - SINGLE POLE
	SIMPLEX RECEPTACLE (20 AMP UNLESS NOTHED OTHERWISE)	$D	SWITCH - DIMMING TYPE
	QUAD RECEPTACLE (20 AMP UNLESS NOTHED OTHERWISE)	$P	SWITCH - PILOT LAMP TYPE
	SPECIALTY RECEPTACLE	$3	SWITCH - 3-WAY TYPE
	GROUND, NEUTRAL, HOT/TRACER WIRE (2) #12, #12 GRD IN 1/2"C	$4	SWITCH - 4-WAY TYPE
	PANELBOARD	$M	SWITCH - MOTION ACTIVATED WITH MANUAL OVERRIDE
	THERMOSTAT		RECESSED DOWNLIGHT LIGHT FIXTURE
	TELE/DATA OUTLET (SEE NOTE #2)		SITE LIGHTING (POLE MOUNT)
	FLOOR TELE/DATA OUTLET (SEE NOTE #2)		EMERGENCY EGRESS FIXTURE
	DISCONNECT SWITCH		LIGHT FIXTURE AND TYPE
	MOTOR	CR	CARD READER
	JUNCTION BOX		CCTV CAMERA (FIXED IRIS)
	PUSH BUTTON		FIRE ALARM STROBE
	FIRE DAMPER		HEAT DETECTOR
	FLOW DETECTOR/SWITCH		FIRE ALARM HORN/SPEAKER
	DUCT DETECTOR (HEAT OR SMOKE)		FIRE ALARM HORN/STOBE
	CONNECT NEW TO EXISTING		MANUAL PULL STATION
	ELEVATION		SMOKE DETECTOR
	CENTER LINE		

NOTES:
1. REFER TO PLANS FOR SYMBOLS USED. SOME SYMBOLS MAY APPEAR ON SYMBOLS LEGEND BUT NOT ON PLANS. REFERENCE MECHANICAL SYMBOLS LEGEND FOR ADDITIONAL SYMBOLS.
2. PROVIDE 4-11/16" SQUARE, 2-1/8" DEEP BACKBOX. PROVIDE WITH A SINGLE GANG PLASTER RING AND BLANK TEMPORARY FACEPLATE FOR WALL MOUNT TELE/DATA OUTLETS. PROVIDE 1" CONDUIT FROM BACKBOX TO ABOVE ACCESSIBLE CEILING LOCATION. FINAL FACEPLATE, CABLING AND TELE/DATA CONNECTIONS BY OTHERS

LIGHT FIXTURE SCHEDULE

MARK	MANUFACTURER	MODEL	FIXTURE TYPE	LAMPING	VOLTAGE	FINISH	REMARKS
A	DAY-BRITE	2SBP3040L8CS-2-UNV-DIM	2x2 FLAT PANEL TROFFER	LED / 3,819 LUMENS / 32W / 4000K	UNV	WHITE	1
B	UTOPIA	SS-4FT-L27-40K-SC-UNV	4' STRIP	LED / 3,950 LUMENS / 30W / 4000K	UNV	WHITE	6
C	ECLIPSE	575-4'-SPL-LED40-4K-80CRI-UNV-WH-9002	4' VANDAL CORNER MOUNT	LED / 3,023 LUMENS / 24.9W / 4000K	UNV	WHITE	1, 3
D	EMERGI-LITE	EL-2LED	EMERGENCY BUGEYE	LED	UNV	WHITE	2, 5
F	UTOPIA	DW-4-22LED-35K-HE-PCS-UNV-GR-TA1F-TRDT	4' INDUSTRIAL GASKETED	LED / 3,152 LUMENS / 22W / 3500K	UNV	WHITE	3, 4, 6
G	LIGHTOLIER	3R-N-C3L-10-940-W-Z10-U-C3R-DL-WH	3" DOWNLIGHT	LED / 1,000 LUMENS / 13W / 4000K	UNV	WHITE	1, 7

REMARKS:
1. PROVIDE WITH MOUNTING ACCESSORIES AS REQUIRED FOR INSTALLATION IN CEILING TYPE AS REQUIRED. REFER TO PLANS.
2. PROVIDE WITH 90 MINUTE EMERGENCY BATTERY PACK.
3. PROVIDE WITH TAMPER PROOF ACCESSORIES AND TOOL FOR MAINTENANCE. PROVIDE TOOL TO OWNER.
4. PROVIDE WET LOCATION LISTED UNIT WITH DROP DOWN HIGH IMPACT ACRYLIC LENS.
5. PROVIDE WALL MOUNT. COORDINATE WITH ARCHITECT FOR FINAL LOCATIONS.
6. MOUNT AS REQUIRED IN SPACE TO OVERHEAD STRUCTURE OR UNISTRUT. COORDINATE WITH OTHER TRADES.
7. PROVIDE WET LOCATION UNDER COVER LISTED UNIT.

PANELBOARD SCHEDULE

PANEL DESIGNATION:	L1	VOLTAGE:	120/208 Wye	MAIN RATING:	100 A
LOCATION:		SERVICE:	3	MOCP RATING/TYPE:	100 A / MCB
ENCLOSURE:	NEMA-1	MOUNTING TYPE:	Surface	AIC RATING:	10 KAIC

CKT	DESCRIPTION	LOAD TYPE	C/B AMP	P	A	B	C	A	B	C	P	C/B AMP	LOAD TYPE	DESCRIPTION	CKT
1	102 RECEPTACLE	Rece...	20 A	1	1620 W			180 W			1	20 A	Rece...	101 FREEZER	2
3	101 FRIDGE	Rece...	20 A	1		180 W			720 W		1	20 A	Rece...	101 RECEPTACLE	4
5	101 RECEPTACLE	Rece...	20 A	1			720 W			720 W	1	20 A	Rece...	101 RECEPTACLE	6
7	103, 104, 107 RECEPTACLE	Rece...	20 A	1	1260 W			720 W			1	20 A	Rece...	106 RECEPTACLE	8
9	105 RECEPTACLE	Rece...	20 A	1		1080 W			1080 W		1	20 A	Rece...	105 RECEPTACLE	10
11	IRRIGATION CONTROLLER	Power	20 A	1			300 W			240 W	1	20 A	Light...	EXTERIOR LIGHTING	12
13	EF-2	HVA...	20 A	1	200 W			0 W			1	20 A	–	Spare	14
15	EC-1	Other	20 A	1		500 W			2000 W		2	25 A	HVAC	EUH-5	16
17	EUH-7	Heati...	20 A	2			1500 W			2000 W	–	–	–	–	18
19	–	–	–	–	1500 W			2000 W			2	20 A	HVAC	EUH-1	20
21	EUH-6	Heati...	30 A	2		1500 W			2000 W		–	–	–	–	22
23	–	–	–	–			1500 W			2000 W	2	20 A	HVAC	EUH-2	24
25	EF-1	HVAC	20 A	1	500 W			2000 W			–	–	–	–	26
27	WH-1	Appli...	20 A	2		2250 W			1667 W		1	20 A	Other...	LIGHTING	28
29	–	–	–	–			2250 W			2000 W	2	25 A	HVAC	EUH-6	30
31	CU-DSS-1/DSS-1/DSS-2	Other...	20 A	2	2280 W			2000 W			–	–	–	–	32
33	–	–	–	–		2280 W			2000 W		2	20 A	HVAC	EUH-7	34
35	Spare	–	20 A	1			0 W			2000 W	–	–	–	–	36
37	Spare	–	20 A	1	0 W			0 W			1	20 A	–	Spare	38
39	Spare	–	20 A	1		0 W			0 W		1	20 A	–	Spare	40
41	Spare	–	20 A	1			0 W			0 W	1	20 A	–	Spare	42
			TOTAL LOAD:		13989 VA		16664 VA		14530 VA						
			TOTAL AMPS:		117 A		140 A		122 A						

Notes:
1.
2.

MAMMOTH
SPORTS CONSTRUCTION

BG CONSULTANTS
ENGINEERS · ARCHITECTS · SURVEYORS

Manhattan Lawrence Emporia

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USD 453 Sports Complex

New Baseball and Softball Complex

2012 S 10th Ave
Levenworth, KS 66048

Revision Key

No.	Date	Revision

Project Manager: David Devore, AIA
Project Engineer: Carter Klise, I.E.
Checked By: Jarrod Mann, P.E.
Project Number: 20-1416L
Date of Issue: 12/18/2020
Sheet Number:

E601

Electrical Schedules

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District USD 453
Leavenworth, Kansas

INDEX OF DRAWINGS

UTILITY NOTES

VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSERS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES:
CALL 811 or
1.800.DIG.SAFE

NOTES

1. THE CONTRACTOR, PRIOR TO ANY EXCAVATION, SHALL HAVE ALL UTILITIES FIELD LOCATED BY THE APPROPRIATE UTILITY COMPANY.

2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF THE CONSTRUCTION WORKERS AND THE PUBLIC. THE CONTRACTOR SHALL INCLUDE ADEQUATE SIGNS, BARRICADES AND MARKINGS TO IDENTIFY WORK AREAS FOR THE PROTECTION OF THE PUBLIC.

AREA MAP

PROJECT TEAM

OWNER:
Leavenworth School District
200 N. 4th Street
Leavenworth, Kansas 66048
Contact: Mike Roth
Email: mike.roth@lvpioneers.org
Phone: 913.684.1400

LANDSCAPE ARCHITECT:
CE Golf Design
3250 Brinkerhoff Road
Kansas City, KS 66115
Contact: Todd Clark, RLA
Email: todd@cegolfdesign.com
Phone: 913.233.9279

CIVIL ENGINEER:
Phelps Engineering, Inc.
1270 N. Winchester
Olathe, KS 66061
Contact: Judd Claussen
Email: jclaussen@phelpsengineering.com
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CONTRACTOR:
Mammoth Sports Construction
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Contact: Connor Harris
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Phone: 816.352.1993

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

TODD J. CLARK
LICENSED
754
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

COVER SHEET

SHEET:
L100

Notes:

1. Field markings shown for reference only. Refer to detail sheet and NFHS Rules for final field markings and dimensions.
2. Color shown for illustrative purposes only, refer to shop drawings for final colors and logo design.
3. Concrete curb 12" deep x 6" wide will need to be poured at all synthetic turf edges.

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

SITE PLAN

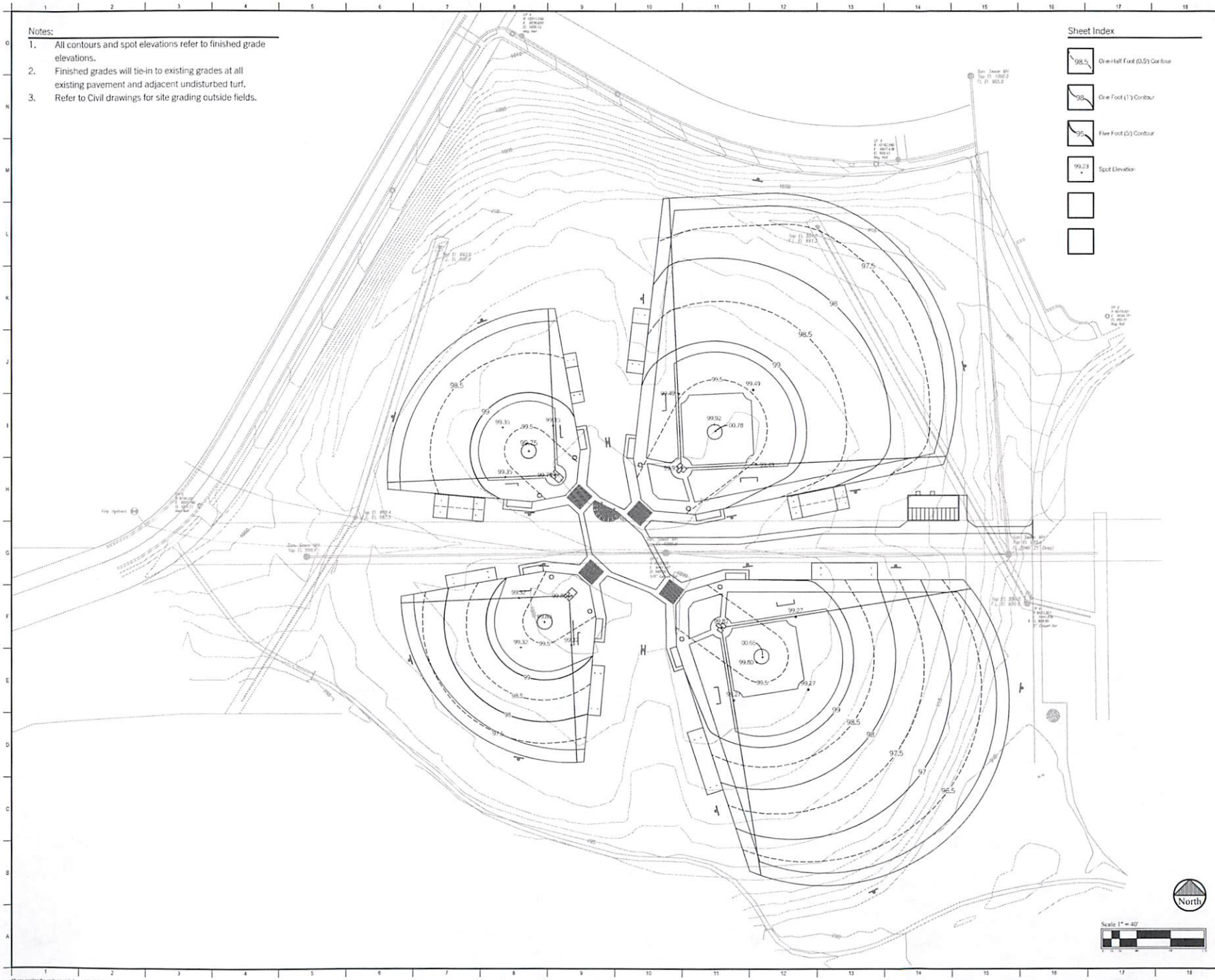
SHEET:
L101

Notes:

1. All contours and spot elevations refer to finished grade elevations.
2. Finished grades will tie-in to existing grades at all existing pavement and adjacent undisturbed turf.
3. Refer to Civil drawings for site grading outside fields.

Sheet Index

- 98.5 One-Half Foot (0.5') Contour
- 98 One Foot (1') Contour
- 95 Five Foot (5') Contour
- 99.23 Spot Elevation



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NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
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TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

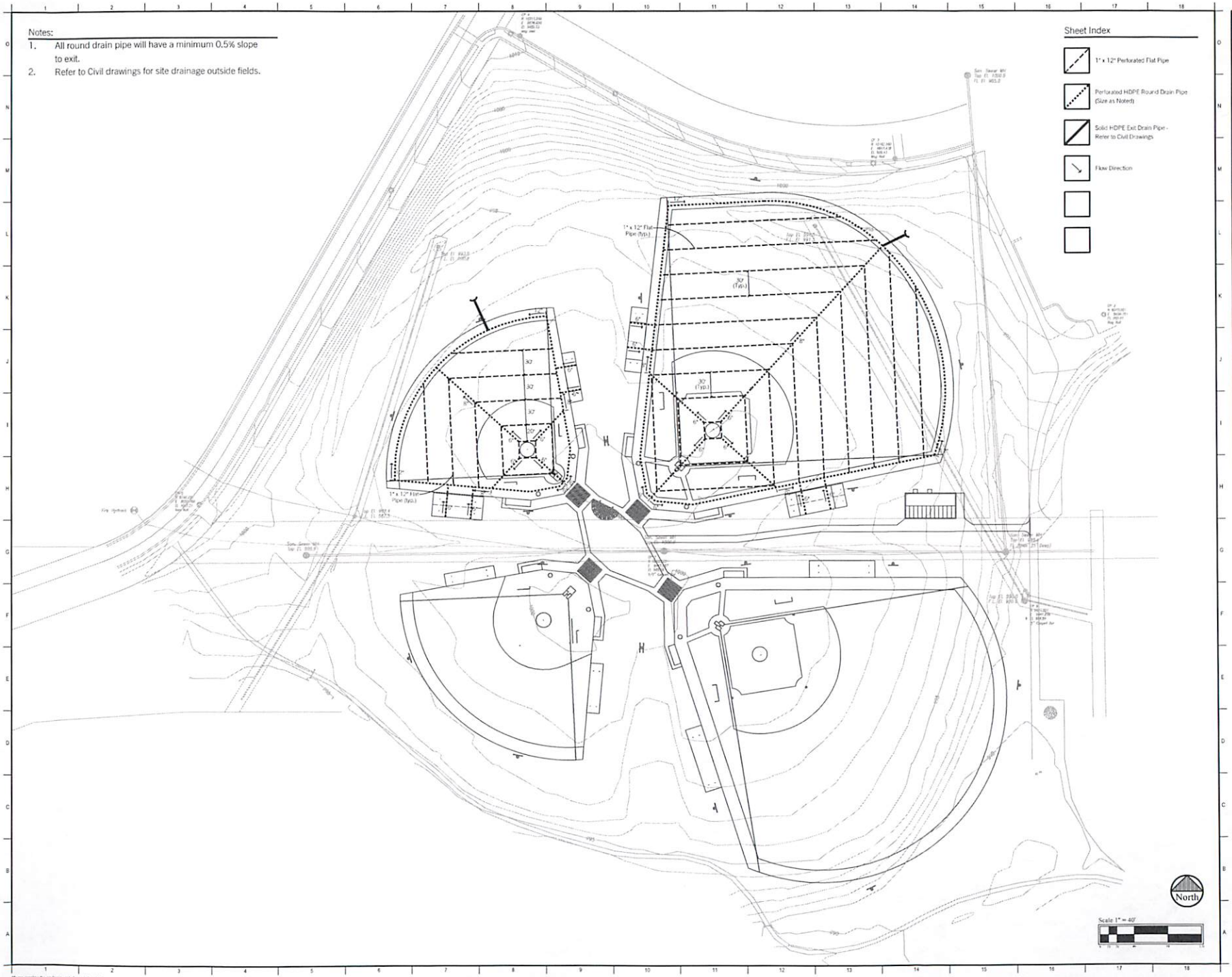
FIELD GRADING PLAN

SHEET:

L102

Notes:

1. All round drain pipe will have a minimum 0.5% slope to exit.
2. Refer to Civil drawings for site drainage outside fields.



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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
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TODD J. CLARK
LICENSED
754
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

FIELD DRAINAGE PLAN

SHEET:
L103

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Notes:

1. Refer to shop drawings for final turf colors and logo placement.
2. All field marking shall conform to NFHS guidelines.

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LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

TURF & GRASSING PLAN

SHEET:
L104

Please consider the environment before printing this document.

SECTION 1 - SYNTHETIC TURF FIELDS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Prior to ordering materials:
1. Submit samples and test results of base stone layers, geotextile fabric and drain pipe prior to ordering any material for base construction.
2. Dimensions: Re-check field size and marking measurements and dimensions to verify conformity to specifications and NFHS guidelines.

B. Prior to Final Acceptance, submit to Owner and Landscape Architect:
1. Warranty: Submit Contractors Warranty which includes Third Party Warranty and Manufacturer Warranty to ensure that all of the necessary forms have been completed in the Owner's name and registered with manufacturer.

1.2 STANDARDS

A. NFHS: The synthetic turf fields shall meet the NFHS standards for field markings and dimensions.

1.3 QUALITY ASSURANCE

A. Contractor's Quality Assurance Responsibilities: Contractor is solely responsible for the quality control of their work, their subcontractors work, and vendor's products.

B. Safety Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

1.4 DELIVERY, STORAGE AND HANDLING

A. During loading, transportation and unloading, every precaution shall be taken to prevent damage to any materials delivered to the site. The Contractor is responsible for securing all materials on the job site. The Contractor is responsible for replacing any stolen or damaged material that occurs with this project. The Owner will accept a finished installed product in accordance with the specifications.

1.5 SEQUENCE AND SCHEDULING

A. The Contractor shall be responsible for coordinating, sequencing and scheduling all work related to the entire synthetic turf field construction.

1.6 WARRANTIES

A. Products shall be constructed to meet or exceed the minimum standards set herein during the entire length of the warranty period.
1. Base Work: All base work, stone, synthetic nailer board, and drainage under the turf shall have an eight (8) year guarantee against soft spots, low spots or drainage problems.

PART 2 - PRODUCTS

2.1 GEOTEXTILE FABRIC

A. Geotextile fabric shall be mirafi 140N nonwoven geotextile fabric or approved equal.

2.2 DRAINAGE SYSTEM PRODUCTS

A. Basis of design Products:
1. Advanced Drainage Systems, Inc. or approved equal by Landscape Architect.

B. Pipe and fittings:
1. All perimeter drain pipes shall be HDPE corrugated ADS N-12 dual wall with smooth interior, perforated class II, polyethylene pipe of the size as shown on the drawings. Furnish complete with bends, adapters, couplings, fittings and joint materials.
2. All field drain pipes shall be ADS AdvanEDGE or equivalent, perforated HDPE pipe, twelve inches (12") wide.

3. Pipe and fittings shall meet AASHTO M 252M, Type C for coupling joints and these joints shall be soil-tight.

C. Catch basins, drain inlets and grates:
1. PVC inlets shall be of the catch basin and inline drain type.
2. Cast iron or Ductile iron grates for these inlets shall be furnished by the same manufacturer.
3. Catch basins shall be manufactured by thermo-molding process to comply with specified configuration. Pipe connection stubs shall be manufactured from PVC pipe and formed to provide a watertight connection with the pipe system.
4. Material used shall conform to ASTM D3034 and ASTM F1336.

2.3 AGGREGATE STONE BASE

A. All aggregate stone base (wet layer and top) stone layer shall be subject to the approval of the Landscape Architect at all times. The base stone shall be 4" deep and the top stone layer shall be 2" deep totaling a minimum compacted thickness of 6" in all areas to receive synthetic turf.

B. The Contractor will submit samples of stone for construction to a certified testing agency with test results approved by Landscape Architect. The Contractor will pay for all testing cost. The approved testing agency shall be Turf and Soil Diagnostics with the contact person being Mr. Sam Ferris at (855) 769 4731.

C. Below are minimum standards for the washed stone:
1. Install 3/4" to 1 1/4" base stone of clean washed rock with 1% or less fines to a depth of 4.0"
2. Install 3/8" top stone of clean washed rock with 3% or less fines to a depth of 2.0".
3. Stone shall meet Micro-Deval (ASTM D6928) loss of less than or equal to 18% for top stone and less than or equal to 25% for base stone.
4. Stone Size Guidelines ASTM C136:

Sieve Size		Base Stone	Top Stone
2"	50.0 mm	100	
1.5"	37.5 mm	90-100	
1"	25.0 mm	75-100	
3/4"	19.0 mm	45-85	
1/2"	12.5 mm	15-85	100
3/8"	9.5 mm	10-75	85-100
1/4"	6.3 mm	29-65	75-100
No. 4	4.75 mm	15-60	
No. 8	2.36 mm	0-40	35-75
No. 16	1.18 mm	0-20	10-55
No. 30	0.60 mm	0-7	0-40
No. 50	0.25 mm	0-5	0-15
No. 100	0.15 mm	0-3	0-8
No. 200	0.75 mm	0-2	0-5

2.4 CONCRETE PRODUCTS

A. The contractor shall provide a poured in place concrete curb at the perimeter of the synthetic turf field as shown on the drawings.

B. Proportion structural concrete mixture as follows:
a. Minimum Compressive Strength: 3500 psi at 28 days.
b. Slump Limit: 4 inches, plus or minus 1 inch.
c. Air Content: 6 percent, plus or minus 2 percent at point of delivery for nominal aggregate size greater than 3/8 inch.
d. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. Yd.

2.5 SYNTHETIC NAILER BOARD

A. A 2" x 4" synthetic board shall be securely attached to the curb at the proper depth as specified in the detail. The synthetic turf will be nailed, glued or combination of both to be board to ensure that the turf is properly anchored.

PART 3 - EXECUTION

3.1 SURVEYING AND LAYOUT

A. Provide survey for each of the following:
1. All final subgrade, finish grades, drainage structures, and field markings as necessary to build the field as indicated on the Drawings.
2. As-built drawing of the Finished field including elevations.

3.2 SITE PREPARATION

A. Contractor shall provide all survey work required to locate lines and grades for the construction of this project as herein specified and shown on the drawings.

B. The Contractor upon entering the site and before any other work is underway, shall establish and set control points and verify all finish grades.

C. Protect all existing items (i.e. backstop, dugouts, fences, concrete slabs, exit drainage, etc.) from damage during construction activities.

3.3 EARTHWORK

A. The Earthwork Contractor will have the sub-grade of the field plus or minus 1" of the sub-grade elevation. Sub-grade elevation will be 8" (as per manufacturer's specifications) below finish elevation as shown on the Drawings. The Contractor shall provide labor, materials, equipment, transportation, and services required to complete the field as indicated on the drawings and specifications herein.

B. The Contractor shall perform all work so as to permit the site to be free drawing at all times and to prevent water collection. Contractor shall provide positive drainage for the entire site during the course of construction to eliminate standing water in excavated areas. Use of reinforced silt fence is required to keep silt from exiting the site during excavation.

C. Excavation:
1. Excavation consists of removal of material encountered to obtain required sub-grade elevations.
2. Excavate and remove unsatisfactory soil materials encountered that extend below required elevations to additional depth as directed by Landscape Architect and third party testing service.

D. Compaction Requirements:
1. Compaction: Perform compaction of soil materials for fills and backfills using suitable soil compaction equipment for materials to be compacted and work area locations. Control soil compaction during construction for compliance with percentages of maximum density specified for each classification. Air Compaction tests shall be in accordance with third party compaction test data taken from soil samples previously submitted.
2. Placement and Compaction: Place backfill materials in layers not more than eight (8") in loose depth. Before compaction, moisten or aerate each layer, as necessary, to provide the optimum moisture content. Compact each layer to required percentage of maximum density for each area classification. Do not place backfill or fill material on surfaces that are muddy. Thoroughly compact all fill and backfill by rolling each layer, following spreading, as close as possible. Roll the areas in equal amounts in two directions. Provide compaction equipment or base land suited to achieve the desired results with the type of soil. In general, use sheep's foot and/or tamping type rollers on soils of a cohesive type; pneumatic-wheeled or vibrating rollers on granular fill material, all as approved by the Architect. Operate compacting equipment on each level until the entire area has been thoroughly and uniformly compacted to the required density.
3. Maximum Density Requirements. Provide not less than 95% compaction of maximum density of the same soil material compacted at optimum moisture content, for the actual density of each layer of soil material in place. Any soils found unsuitable for specified compaction requirements shall be removed as directed by Landscape Architect.

E. Fine grade sub-grade systematically to eliminate uneven areas and low spots. Remove debris, roots branches, stones, etc., in excess of one inch (1") in size. Remove soil which has been contaminated with petroleum products.

3.4 SOIL STABILIZATION

A. General: The determination as to whether soil stabilization will be required shall be made by a third party testing agency. If soil stabilization is necessary, contractor will work with the owner to determine the methods and getting in coordination with the geotechnical firm.

3.5 GEOTEXTILE FABRIC

A. Geotextile fabric shall be mirafi 140N nonwoven geotextile fabric or approved equal.

3.6 DRAINAGE SYSTEM

A. All work under this section of specifications shall include the furnishing of all labor, materials and equipment necessary to install, connect, set and finish to proper elevation for the drainage system as shown on the Drawings and as specified herein.

B. All round drain pipe shall be HDPE corrugated ADS N-12 (dual wall with smooth interior, perforated class II, polyethylene pipe of the size as shown on the drawings. Furnish complete with bends, adapters, couplings, fittings and joint materials. All field pipe shall be spaced and sloped as indicated on the drawings. All drain pipe shall be sloped a minimum of 0.5% percent.

C. All flat drain pipe shall be ADS AdvanEDGE or equivalent, perforated HDPE, twelve inches (12") wide. All field pipe shall be spaced and sloped as indicated on the drawings.

3.7 AGGREGATE STONE BASE.

A. The work under this section of the specifications shall consist of furnishing all labor, materials and adjustment to produce, place, spread, compact and finish to proper grade and cross section all aggregate rock base courses according to the drawings and specifications.

B. Minimum compacted thickness of 6" in all areas to receive new synthetic turf.

C. Stone base shall be per specification and approved by Landscape Architect prior to installing. Stone base shall be laser graded and installed in lifts as needed to achieve final grades within 1/8". Aggregate Stone Base. Stone material shall conform to specifications for 1305 crushed stone and shall be "washed", free from fines and debris. Stone shall be angular and not rounded. Base stone shall be washed stone with permeability greater than 40" per hour. Top stone shall be washed with permeability greater than 10" per hour. Stone base shall be compacted to maximum ASTM c 15% for the type of rock specified. All rock shall be clean rock allowing proper flow of moisture to the under drain system (no fines allowed).
1. All dimensions to thickness are compacted thickness.
2. Sub-grade shall be compacted to not less than ninety-five (95%) of maximum density at no less than seventy-five (75%) of optimum moisture content.
3. The finished surface of any aggregate base course shall not vary more than 1/4" over 10' from the elevations, grades and cross sections on the drawings. Maximum density shall be determined in accordance with AASHO Modified Method of Test for the Compaction and Density of Soil, Designation T 180, and the optimum moisture content shall be that corresponding to the maximum density in the above test.
4. Smooth steel-wheeled rollers shall be self-propelled and have a total weight not less than 8 tons. The compression (driving) roller shall exert a pressure of not less than 250 lb. per inch width of the roller.
5. Pneumatic-tire rollers are not allowed.

3.8 CONCRETE CURB INSTALLATION

A. Formwork: Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

C. Concrete Placement:
1. Before placing concrete, verify that installation of formwork, reinforcement and embedded items is complete.
2. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness.

D. Concrete Protecting and Curing:
3. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold weather protection and ACI 301 for hot weather protection during curing.
4. Cure concrete according to ACI 308.1.

3.9 SYNTHETIC TURF INSTALLATION

E. Installation:
1. The installation shall be performed in full compliance as specified by the product manufacturer.

2. All synthetic, artificial turf installation shall be performed by experienced technicians who are certified by the turf manufacturer as being competent in the installation of synthetic turf systems. The Contractor is responsible for managing all turf installation procedures.
3. All materials shall be delivered, checked and inspected by project superintendent for conformance with the specifications prior to performance of work.
4. All synthetic, artificial turf seams shall be sewn as specified by the product manufacturer. Installation crew shall train the Owner's representative on all aspects of maintenance including seeding fiber and insert repairs.
5. The outer edges of synthetic turf shall be fastened in such a manner as to meet or exceed the warranty period as specified by the product manufacturer.
6. No work under this section will proceed when weather is not suitable as specified by the product manufacturer.

3.9 CLEANING

A. The Contractor shall protect installed turf from subsequent construction activities and not permit any traffic over final surface.

B. The Contractor shall provide a final cleaning of surface and installed items. All remnants of new material shall become property of the Owner or removed at the discretion of the Landscape Architect.

END OF SECTION

SECTION 2 - NATURAL GRASS FIELDS & SITE GRADING

PART 1 - GENERAL

1.1 SUBMITTALS

A. Prior to ordering materials:
1. Submit sod, seed and skinned infield materials varieties and suppliers for approval by landscape architect.
2. Dimensions: Re-check field size and marking measurements and dimensions to verify conformity to specifications and NFHS guidelines.

1.2 STANDARDS

A. NFHS: The natural grass fields shall meet the NFHS standards for field markings and dimensions.

1.3 QUALITY ASSURANCE

A. Contractor's Quality Assurance Responsibilities: Contractor is solely responsible for the quality control of their work, their subcontractors work, and vendor's products.

B. Safety Codes and Standards: Perform excavation work or compliance with applicable requirements of governing authorities having jurisdiction.

1.4 DELIVERY, STORAGE AND HANDLING

A. During loading, transportation and unloading, every precaution shall be taken to prevent damage to any materials delivered to the site. The Contractor is responsible for securing all materials on the job site. The Contractor is responsible for replacing any stolen or damaged material that occurs with this project. The Owner will accept a finished installed product in accordance with the specifications.

1.5 SEQUENCE AND SCHEDULING

A. The Contractor shall be responsible for coordinating, sequencing and scheduling all work related to the entire natural grass field construction.

1.6 WARRANTIES

A. Products shall be constructed to meet or exceed the minimum standards set herein during the entire length of the warranty period.
1. Base Work: All earthwork, and skinned infield shall have a one (1) year guarantee against soft spots, low spots or drainage problems. Sod shall be in a good growing condition when installed and shall be maintained in growing condition until such time as given over to the school district for ownership.

PART 2 - EARTHWORK

2.1 TOPSOIL

A. The Contractor shall remove all grass or vegetation over the areas before stripping topsoil.

B. Topsoil shall be removed from all areas to be graded to a depth of at least eight inches (8") and shall be re-spread to a depth of six inches (6") over the subgrade of all areas where grade is altered.

C. The stockpiles of topsoil shall be made in such a manner to build the fields while remaining with the limits of disturbance.

2.2 EARTHWORK

A. Suitable fill material is any soil that is non-compressible and tends itself to the raising of subgrade to specified level. Fill material should be reasonably free of organic matter and have a moisture content that lends itself to compaction.

B. Fill material will be placed in layers not to exceed eight inches (8") and each layer will be compacted by tracking each layer with this the dozer before the next fill layer is laid upon it. All fill areas should be compacted and approved prior to spreading topsoil.

2.3 FINISH GRADING

A. Finish grading before planting shall be done when the condition of the soil is not too wet so as to allow tracking or too dry so that the seedbed is "fluffy" and not reasonably compacted. Any areas on the property that have been compacted by construction equipment, trucks, tractors, or storage of materials shall be tilled, fine graded and planted in accordance with the Specifications for the area within which it is located.

B. All areas to be planted shall be smoothed prior to seeding or sodding. Any debris, sticks, roots or stones one inch (1") or more in diameter, or any other things material coming within the boundaries of the disturbed area shall be removed from the soil surface to a burial site designated by the Landscape Architect.

PART 3 - GRASSING

3.1 SOD AND SEED

A. Grass Seed: All seed shall conform to Federal Specification JJJ-S-181d. Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by Official Seed Analysis of North America. Furnish seed on sealed standard containers, labeled in accordance with U.S. Department of Agriculture Rules and Regulations under current Federal Seed Act.
1. Seed which has become wet, mouldy or otherwise damaged in transit or storage will not be acceptable.

B. Lawn Seed Mix: Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination and maximum percentage of weed seed as follows for each seed mix:

1. Seed	LBS/ Acre	% Purity	% Germ
a. Turf Type Tall Fescue	300	98	85

C. Native Seed Mix: Provide PLS (Pure Live Seed) seed mixture composed of grass species, proportions and maximum percentages of purity, germination and maximum percentage of weed seed as follows for each seed mix:

1. Seed	LBS/ Acre	% Purity	% Germ
a. Dry Prairie Seed Mix	25	98	85
b. All native seed will be planted between April 1st and June 15th.			

D. Bio-Retention Area: Provide Deep Cell Plugs spaced 18" on center for the following grasses:

1. Deep Cell Plug	Spacing
a. Sideoats Grama	18"
b. Fox Sedge	18"
c. Palm Sedge	18"
d. Buffalo Grass Seed	10 lbs. per acre
e. All deep cell plugs will be planted between April 1st and June 15th.	

E. Sod: Provide strong rooting sod, not less than 2 years old, free of weeds and undesirable native grasses, and machine cut to pad thickness of 3/4" plus or minus 1/4", excluding top growth and thatch. Provide only quality sod capable of vigorous growth and development when planted (viable, not dormant).
1. Provide sod of uniform pad sizes with maximum 5 percent deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10 percent of pad will be rejected.
2. Provide sod composed principally of following:
a. Turf Type Tall Fescue Blend. The sod shall contain a growth of not more than 5 percent of grasses and clovers, shall be free from all prohibited and noxious weeds, and shall be 3/4" to 1 1/4" each strip containing at least one square yard. Sod shall be cut in strips not less than 18" wide.

3.2 EROSION CONTROL BLANKET

A. Bio-Retention Area will be protected with erosion control blanket. Erosion control blanket shall be a Single Net Straw Blanket secured with metal stakes per manufactures recommendations.

3.3 HYDROMULCH

A. All seeded areas shall be hydro mulched within 24 hours of seeding operations.
1. Fiber Mulch shall be biodegradable plant wood cellulose fiber mulch, nontoxic, free of plant growth or germination inhibitors, with maximum moisture content of 15 percent and a PH range of 4.5 to 6.5.
2. Nonasphaltic Tackifier shall be colloidal tackifier recommended by fiber mulch manufacturer for slurry application, nontoxic and free of plant growth or germination inhibitors or equal to the slurry mix listed below:

Material Description	Application Rate
Conser Fiber 70/30 Wood Blend Mulch	2,000# / Acre

Fiber - HPN Soluble Fertilizer (22-44-6) 7.5# / Acre

PART 4 - SKINNED INFIELD & WARNING TRACK

4.1 MATERIAL

A. Skinned infield and warning track material is to be determined and will be approved by both the Landscape Architect and Owner before any material is delivered to the site.

END OF SECTION

Please complete the endorsement before printing this document.

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NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

FIELD & TURF SPECIFICATIONS

SHEET:
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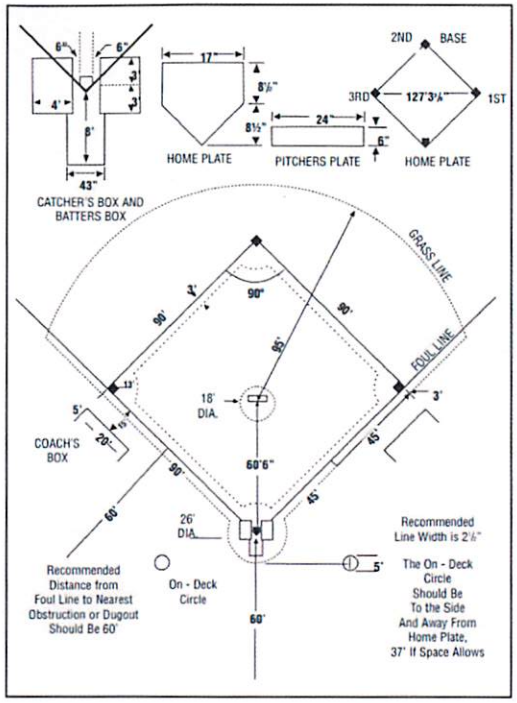
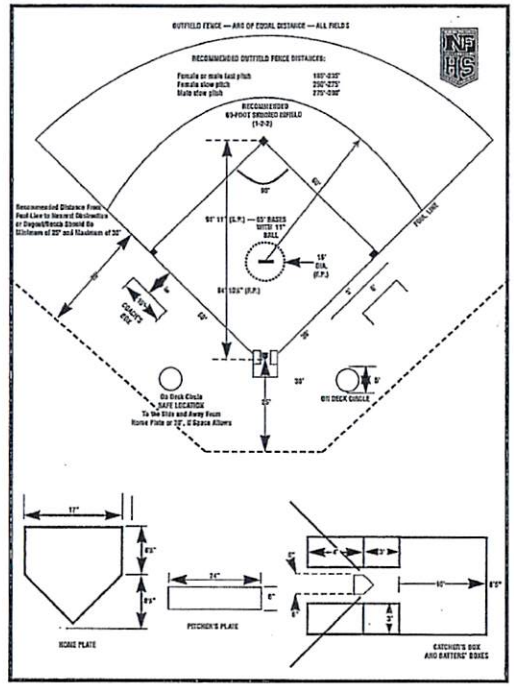


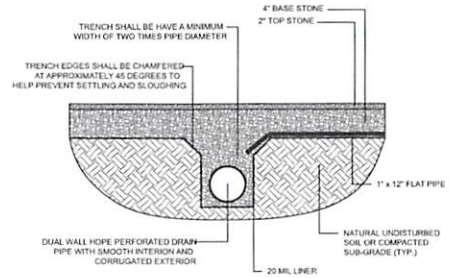
Diagram 2
OFFICIAL MEASUREMENTS . . . for laying out baseball field

Baseball Field Dimensions | SCALE: No Scale

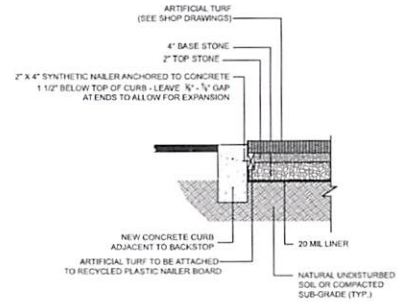


When laying out the softball diamond, it is recommended that the line from home plate through the pitcher's plate to second base run east-northeast.
If a skinned infield is used, the area is determined by measuring a 60-foot arc from the front center of the 46-foot pitcher's plate, even if other pitching distances are used.

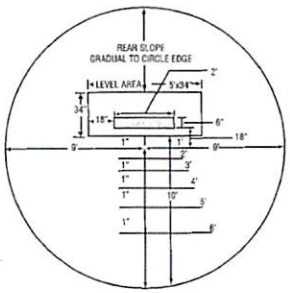
Softball Field Dimensions | SCALE: No Scale



Drain Pipe Trench Detail - Typical Cross Section | SCALE: No Scale



Turf Attachment to Curb Detail - Typical Cross Section | SCALE: No Scale



Pitcher's Mound Dimensions | SCALE: No Scale

SCALE: No Scale

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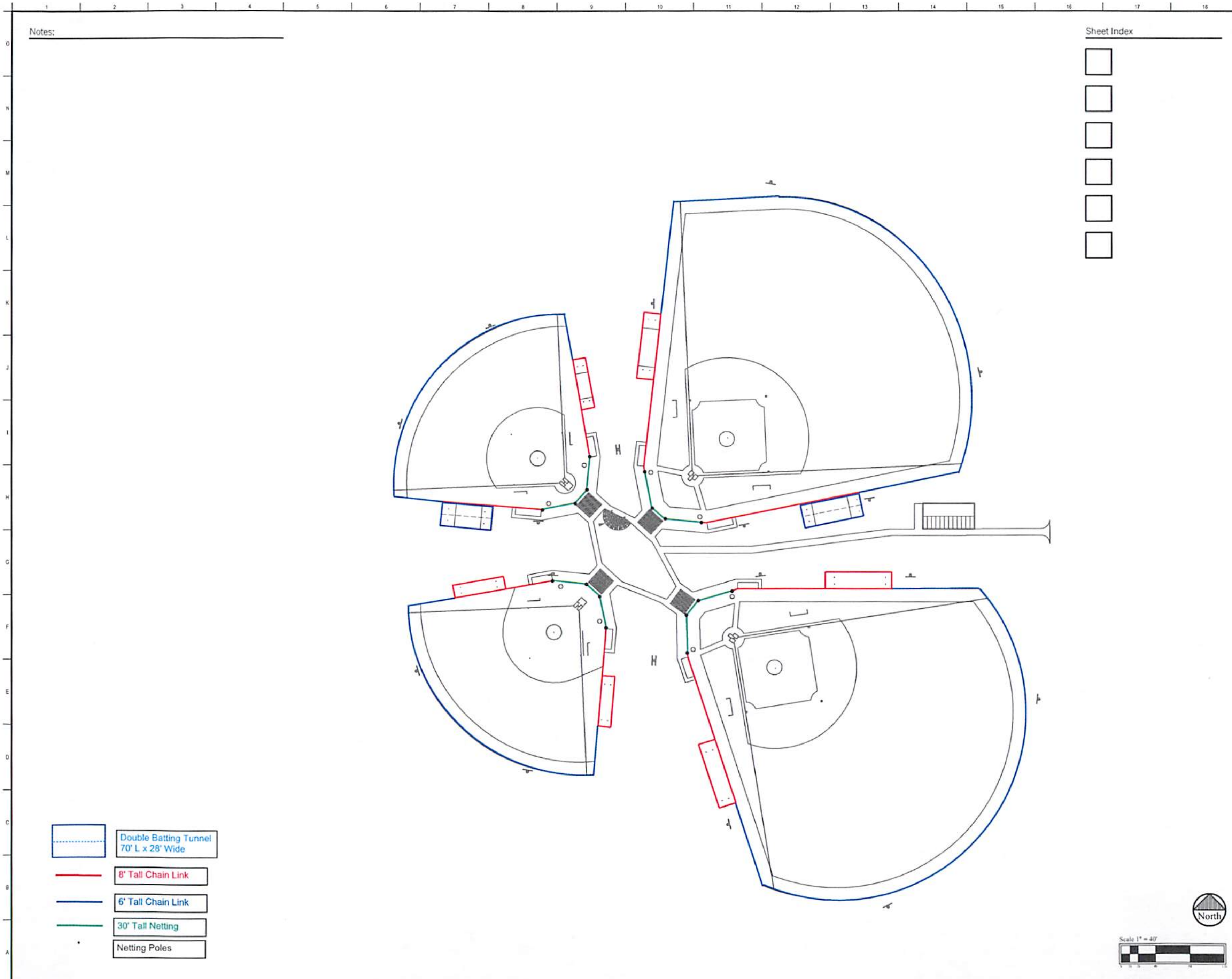

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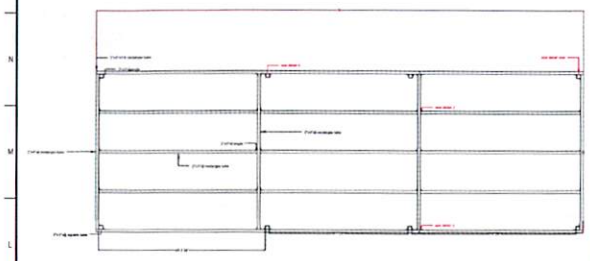
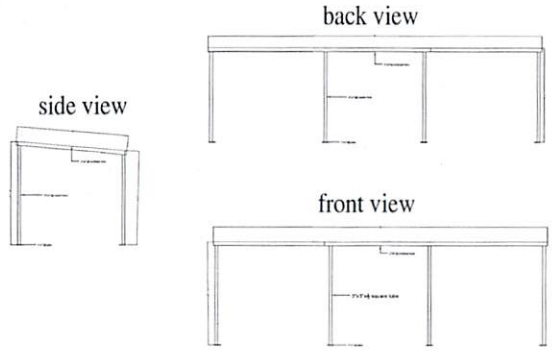
SHEET:
EF-01



10 x 30 Dugout Detail | SCALE: No Scale



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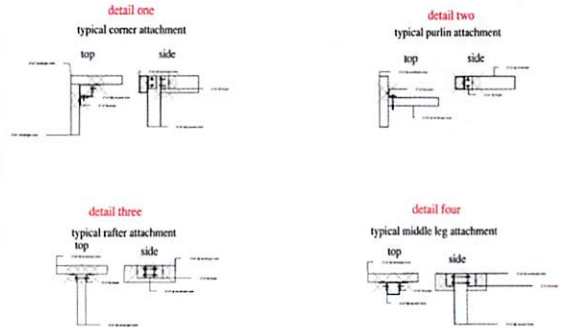

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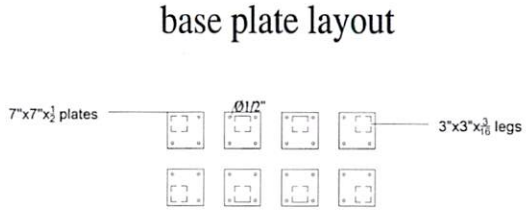

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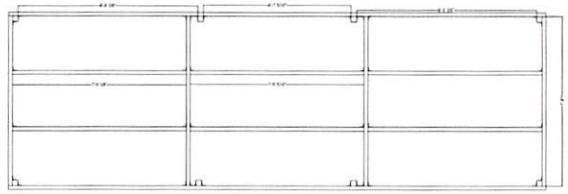
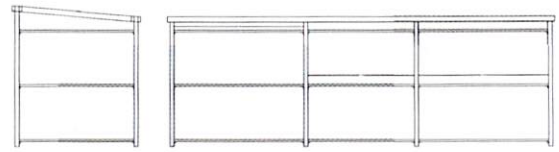


10 x 24 Dugout Detail | SCALE: No Scale



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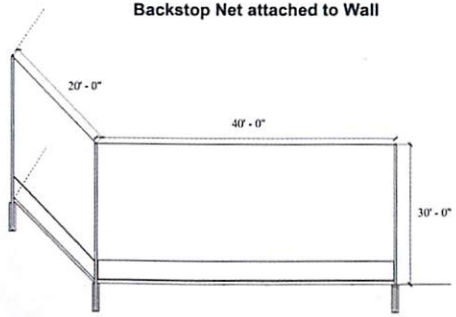
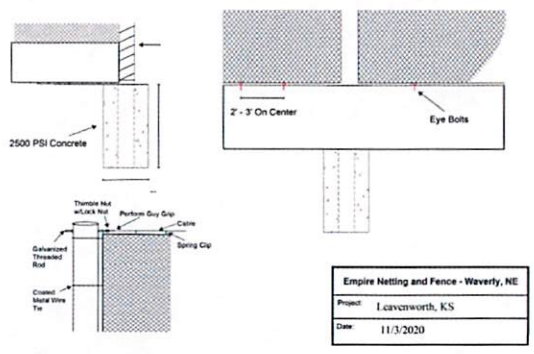


Backstop Net Detail | SCALE: No Scale



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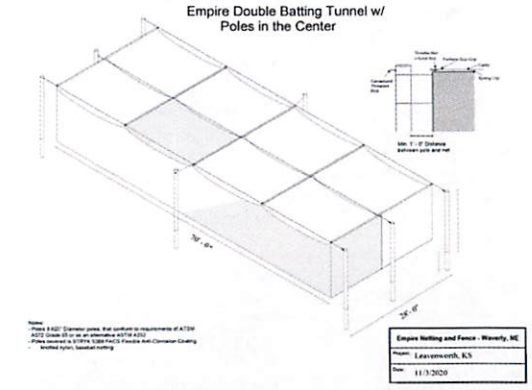

Batting Tunnel Detail | SCALE: No Scale

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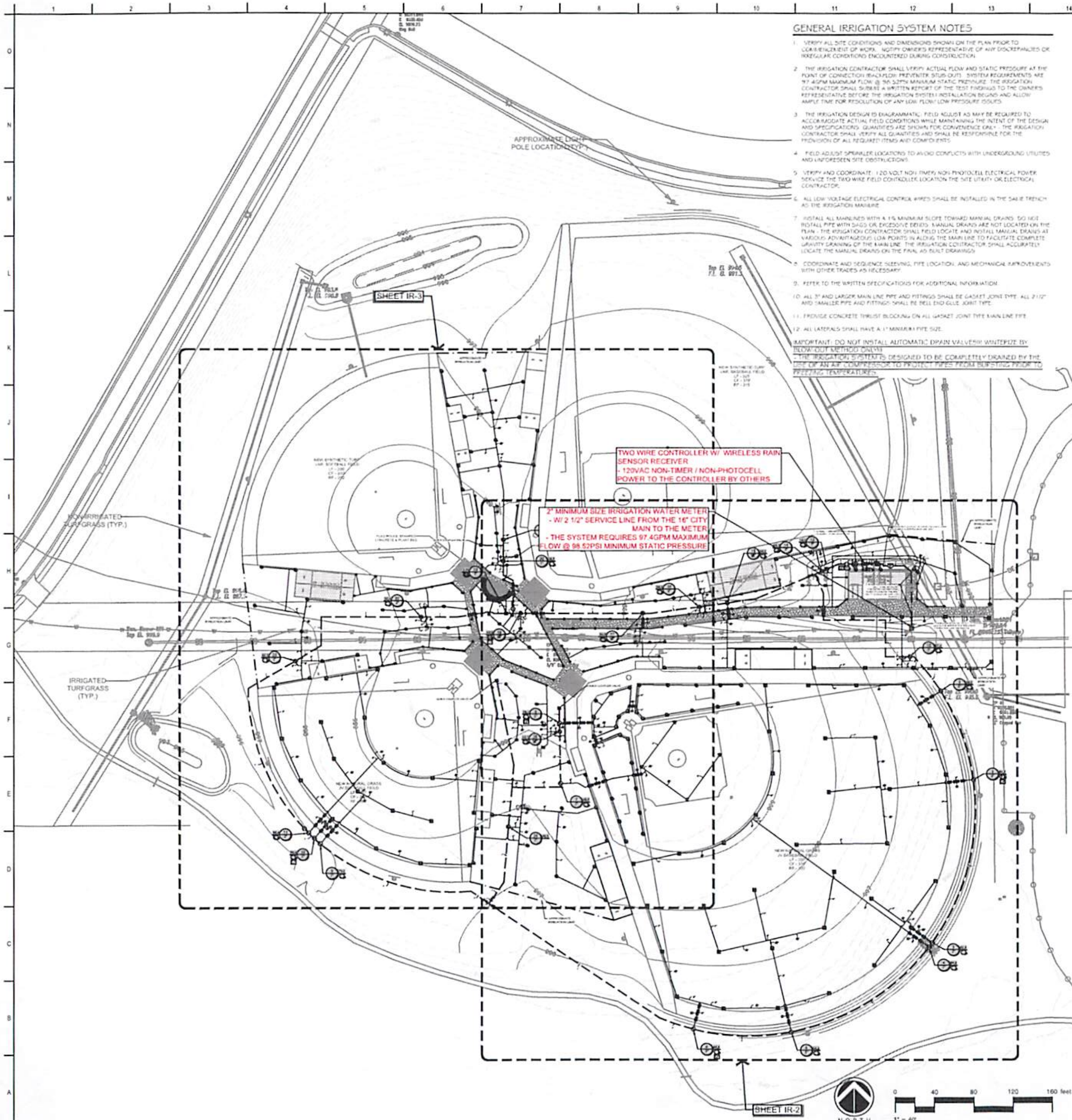

GENERAL IRRIGATION SYSTEM NOTES

1. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
2. THE IRRIGATION CONTRACTOR SHALL VERIFY ACTUAL FLOW AND STATIC PRESSURE AT THE POINT OF CONNECTION (BACKFLOW PREVENTER STUB-OUT). SYSTEM REQUIREMENTS ARE 97.4GPM MAXIMUM FLOW @ 98.52PSI MINIMUM STATIC PRESSURE. THE IRRIGATION CONTRACTOR SHALL SUBMIT A WRITTEN REPORT OF THE TEST FINDINGS TO THE OWNER'S REPRESENTATIVE BEFORE THE IRRIGATION SYSTEM INSTALLATION BEGINS AND ALLOW AMPLE TIME FOR RESOLUTION OF ANY LOW FLOW/ LOW PRESSURE ISSUES.
3. THE IRRIGATION DESIGN IS DIAGRAMMATIC. FIELD ADJUST AS MAY BE REQUIRED TO ACCOMMODATE ACTUAL FIELD CONDITIONS WHILE MAINTAINING THE INTENT OF THE DESIGN AND SPECIFICATIONS. QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY - THE IRRIGATION CONTRACTOR SHALL VERIFY ALL QUANTITIES AND SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL REQUIRED ITEMS AND COMPONENTS.
4. FIELD ADJUST SPRINKLER LOCATIONS TO AVOID CONFLICTS WITH UNDERGROUND UTILITIES AND UNFORESEEN SITE OBSTRUCTIONS.
5. VERIFY AND COORDINATE 120 VOLT NON-TIMER/ NON-PHOTOCELL ELECTRICAL POWER SERVICE THE TWO WIRE FIELD CONTROLLER LOCATION THE SITE UTILITY OR ELECTRICAL CONTRACTOR.
6. ALL LOW VOLTAGE ELECTRICAL CONTROL WIRES SHALL BE INSTALLED IN THE SAME TRENCH AS THE IRRIGATION MAINLINE.
7. INSTALL ALL MAINLINES WITH A 1% MINIMUM SLOPE TOWARD MANUAL DRAINS. DO NOT INSTALL PIPE WITH SAGS OR EXCESSIVE BENDS. MANUAL DRAINS ARE NOT LOCATED ON THE PLAN - THE IRRIGATION CONTRACTOR SHALL FIELD LOCATE AND INSTALL MANUAL DRAINS AT VARIOUS ADVANTAGEOUS LOW POINTS IN ALONG THE MAIN LINE TO FACILITATE COMPLETE GRAVITY DRAINING OF THE MAIN LINE. THE IRRIGATION CONTRACTOR SHALL ACCURATELY LOCATE THE MANUAL DRAINS ON THE FINAL AS BUILT DRAWINGS.
8. COORDINATE AND SEQUENCE SLEEVING, PIPE LOCATION, AND MECHANICAL IMPROVEMENTS WITH OTHER TRADES AS NECESSARY.
9. REFER TO THE WRITTEN SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10. ALL 3" AND LARGER MAIN LINE PIPE AND FITTINGS SHALL BE GASKET JOINT TYPE. ALL 2 1/2" AND SMALLER PIPE AND FITTINGS SHALL BE BELL END GLUE JOINT TYPE.
11. PROVIDE CONCRETE THRUST BLOCKING ON ALL GASKET JOINT TYPE MAIN LINE PIPE.
12. ALL LATERALS SHALL HAVE A 1" MINIMUM PIPE SIZE.

IMPORTANT: DO NOT INSTALL AUTOMATIC DRAIN VALVES!!! WINTERIZE BY BLOW-OUT METHOD ONLY!!!
- THE IRRIGATION SYSTEM IS DESIGNED TO BE COMPLETELY DRAINED BY THE USE OF AN AIR COMPRESSOR TO PROTECT PIPES FROM BURSTING PRIOR TO FREEZING TEMPERATURES.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
R-VAN14 / R-VAN14-360	RAIN BIRD R-VAN14 1804-SAM-P45	20	45
R-VAN18 / R-VAN18-360	RAIN BIRD R-VAN18 1804-SAM-P45	36	45
R-VAN24 / R-VAN24-360	RAIN BIRD R-VAN24 1804-SAM-P45	105	45

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD 3504-PC	4	45
	RAIN BIRD 3504-PC	2	45
	RAIN BIRD 3504-PC	1	45
	RAIN BIRD 3504-PC	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	19	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	1	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	37	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	12	45
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	6	60
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	7	60
	RAIN BIRD F4-PC, PC	15	60
	RAIN BIRD F4-PC, PC	31	60
	RAIN BIRD F4-PC, PC-SS HS	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT. 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239 SOLENOID FOR TWO WIRE APPLICATION	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	282.6 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500 'S, FALCON 6504 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
	MATCO NORCA 514TR BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS.	1
	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX	2
	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS. UV-RESISTANT, OUTDOOR-RATED, PLASTIC LOCKING WALL-MOUNT CASE.	1
	RAIN BIRD WR2 RFC WIRELESS RAIN AND FREEZE SENSOR	1
	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
	RAIN BIRD FD-101 DECODER	24
	RAIN BIRD LSP-1 SURGE PROTECTOR	7
	RAIN BIRD SD-210 SENSOR DECODER	1
	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,553 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.3 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2 1/2"	165.1 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 3"	607.6 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	2,172 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.9 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	81.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2 1/2"	156.9 L.F.
	IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	88.2 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	65.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	212.3 L.F.

Valve Callout: Valve Number, Valve Flow, Valve Size

Construction Documents

CE Golf Design
Golf Course Design & Landscape Architecture
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Kansas City, Kansas 66115
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www.cegolfdesign.com

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TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO: 2017
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CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

IRRIGATION PLAN

SHEET:
IR-1

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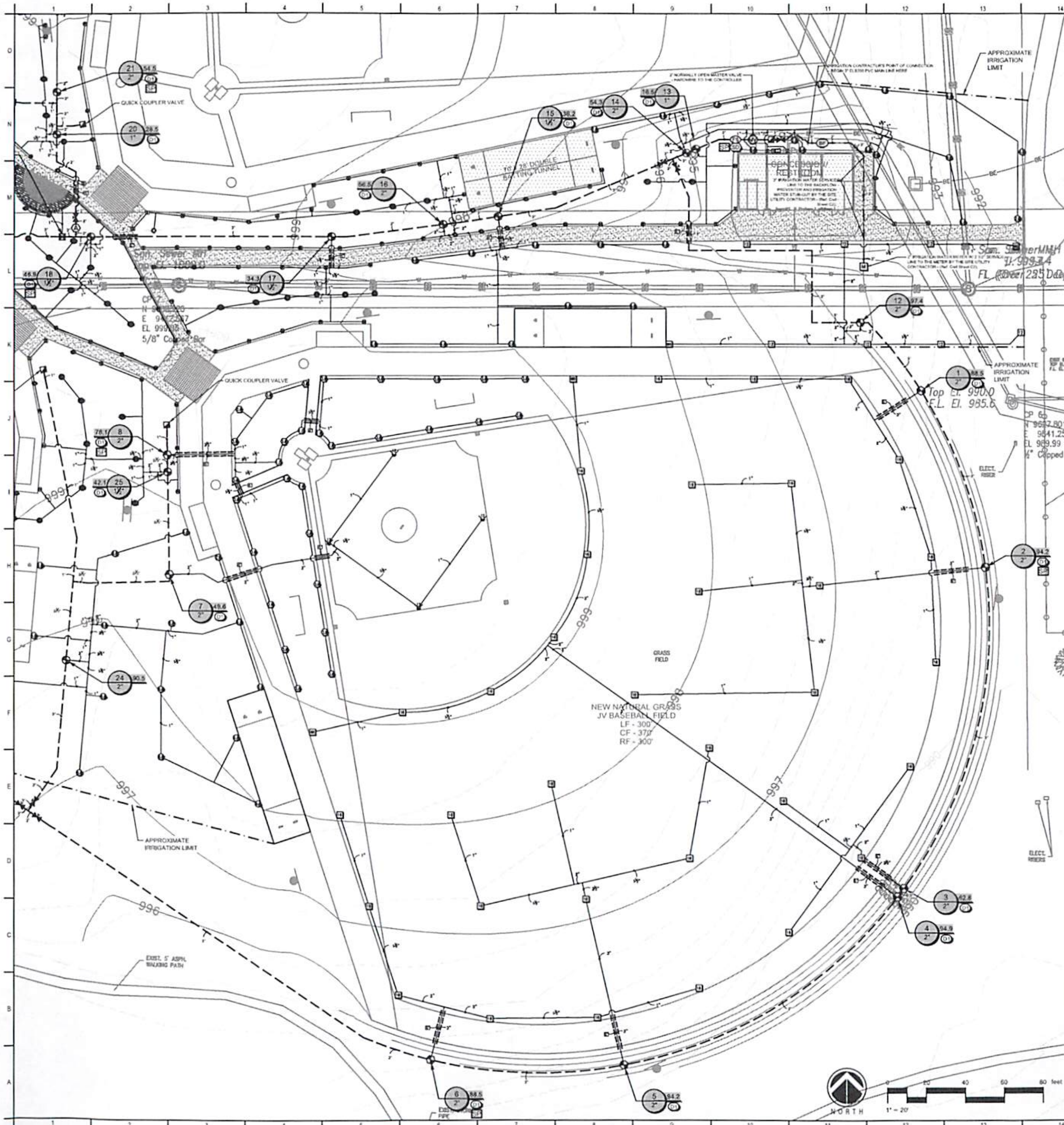

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
R-VAN14 / R-VAN14-360	RAIN BIRD R-VAN14 1804-SAM-P45	20	45
R-VAN18 / R-VAN18-360	RAIN BIRD R-VAN18 1804-SAM-P45	36	45
R-VAN24 / R-VAN24-360	RAIN BIRD R-VAN24 1804-SAM-P45	105	45

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD 3504-PC	4	45
	RAIN BIRD 3504-PC	2	45
	RAIN BIRD 3504-PC	1	45
	RAIN BIRD 3504-PC	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	15	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	1	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	37	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	12	45
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	6	60
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	7	60
	RAIN BIRD F4-PC, PC	15	60
	RAIN BIRD F4-PC, PC	31	60
	RAIN BIRD F4-PC, PC-SS-HS	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
H	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT. 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 234239 SOLENOID FOR TWO WIRE APPLICATION	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS	232.8 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
	MATCO NORCA 514TF BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS	1
A	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX	2
BF	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
C	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS, UV-RESISTANT, OUTDOOR RATED, PLASTIC LOCKING WALL MOUNT CASE	1
R	RAIN BIRD WR2 RFC WIRELESS RAIN AND FREEZE SENSOR	1
FS	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
D1	RAIN BIRD FD-101 DECODER	24
	RAIN BIRD LSP-1 SURGE PROTECTOR	7
SD	RAIN BIRD SD-210 SENSOR DECODER	1
M	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2-1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,553 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1-1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2-1/2"	168.1 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 3"	607.6 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	2,172 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.8 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	31.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2-1/2"	156.9 L.F.
	IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	89.2 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	65.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	212.3 L.F.

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IRRIGATION PLAN

SHEET
IR-2

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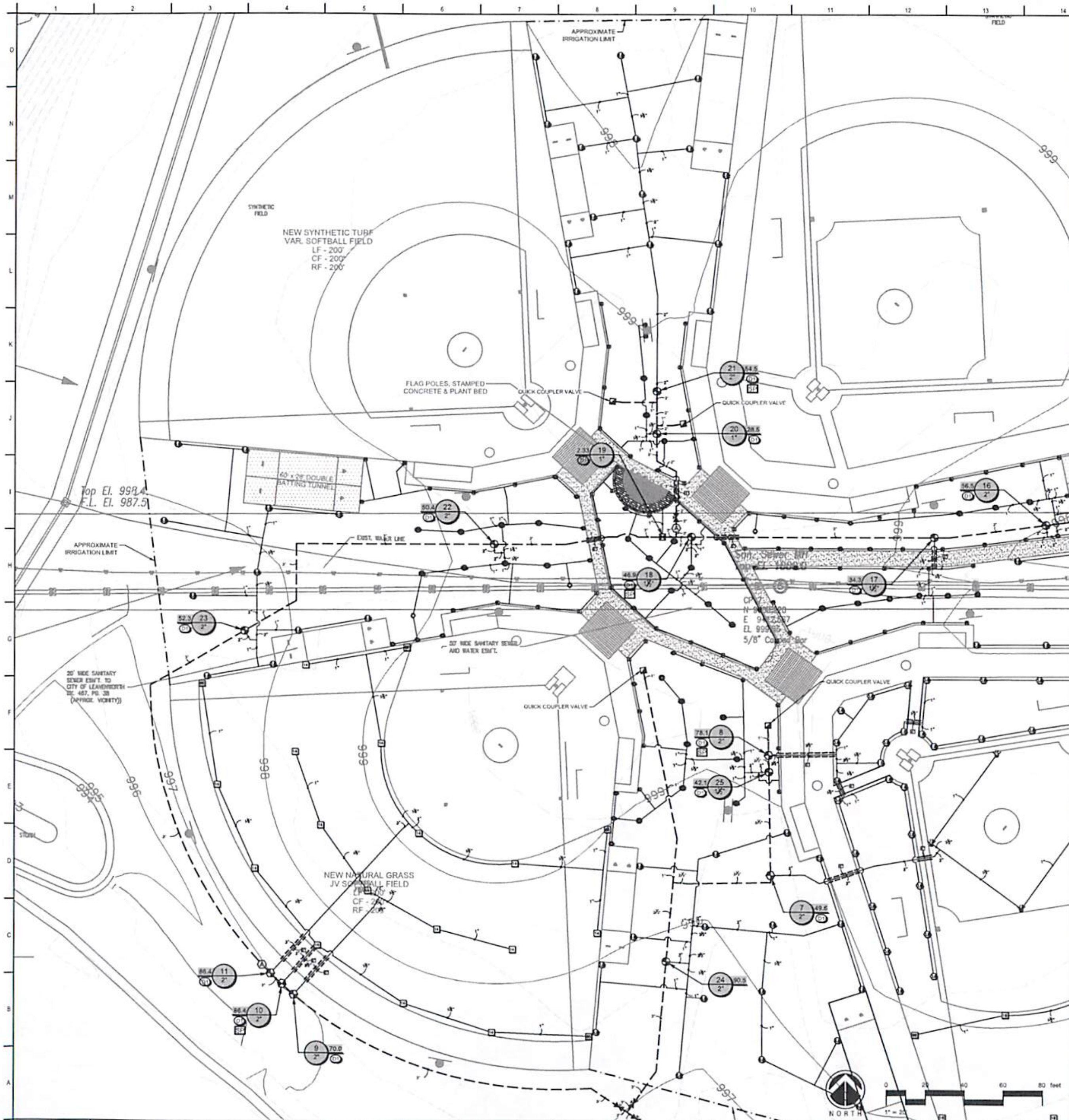

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD R-VAN14 1804-SAM-P45	20	45
	RAIN BIRD R-VAN18 1804-SAM-P45	36	45
	RAIN BIRD R-VAN24 1804-SAM-P45	105	45

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD 3504-PC	4	45
	RAIN BIRD 3504-PC	2	45
	RAIN BIRD 3504-PC	1	45
	RAIN BIRD 3504-PC	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	15	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	1	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	37	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	12	45
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	6	60
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	7	60
	RAIN BIRD F4-PC, PC	15	60
	RAIN BIRD F4-PC, PC	31	60
	RAIN BIRD F4-PC, PC-SS-HS	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT, 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239 SOLENOID FOR TWO-WIRE APPLICATION.	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.6 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX.	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX.	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX.	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX.	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX.	5
	MATCO-NORCA 514TX BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX.	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS.	1
	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX.	2
	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2).	1
	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS. UV-RESISTANT, OUTDOOR RATED, PLASTIC LOCKING WALL-MOUNT CASE.	1
	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR.	1
	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
	RAIN BIRD FD-101 DECODER	24
	RAIN BIRD LSP-1 SURGE PROTECTOR	7
	RAIN BIRD SD-210 SENSOR DECODER	1
	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,583 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
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	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	81.7 L.F.
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	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	65.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	212.3 L.F.

Valve Callout: Valve Number, Valve Flow, Valve Size

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IRRIGATION PLAN

SHEET:

IR-3

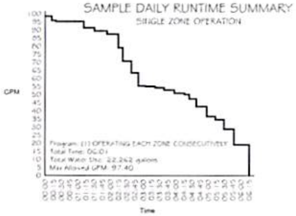
VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	HEADS	PIPE 1"	PIPE 1 1/2"	PIPE 2"	PIPE 2 1/2"	PIPE 3"	WIRE	DESIGN PSI	FRICTION LOSS	VALVE LOSS	PSI	PSI @ POC	HEAD ELEV	VALVE ELEV	PRECIP
1	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	88.50	6	104.1	103.5	51.0		25.6	345.2	60	3.43	4.85	70.04	93.92	4.00 ft	0.00 ft	1.00 in/h
2	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.20	6	196.9	105.8	3.6	8.7	86.0	443.4	60	4.94	5.04	72.57	96.83	6.00 ft	-3.00 ft	0.46 in/h
3	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	62.80	4	147.0	3.0	10.9	24.5		619.7	60	2.23	4.65	66.60	86.36	4.00 ft	-4.00 ft	0.93 in/h
4	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.90	7	99.1	94.6	94.5		222.3	625.2	60	3.42	5.06	71.94	96.38	6.00 ft	-4.00 ft	1.30 in/h
5	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.20	6	160.8	106.2	4.2	8.6	88.0	794.2	60	3.85	5.04	71.49	96.36	6.00 ft	-3.00 ft	0.44 in/h
6	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	88.50	6	104.1	105.5	50.2		25.3	894.7	60	3.47	4.88	69.65	94.41	3.00 ft	0.00 ft	0.99 in/h
7	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	49.60	4	118.8	59.5	91.9			1,239	60	3.42	4.80	68.22	88.33	0.00 ft	4.00 ft	1.17 in/h
8	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	78.13	30	562.3	87.1		39.7		1,302	45	3.63	4.59	53.84	80.68	1.00 ft	4.00 ft	1.40 in/h
9	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	70.00	5	60.6	75.1	7.1	67.0		873.9	60	2.61	4.56	67.60	69.74	1.00 ft	3.00 ft	0.71 in/h
10	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	86.40	7	107.4	202.4			24.9	865.7	60	2.58	4.82	67.54	93.43	1.00 ft	3.00 ft	1.13 in/h
11	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	86.40	7	110.4	194.7	8.4		105.1	857.6	60	3.61	4.82	69.30	94.89	2.00 ft	3.00 ft	1.08 in/h
12	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	97.40	9	195.2	120.3	65.8		12.7	296.2	60	1.75	5.13	68.18	93.92	3.00 ft	0.00 ft	1.01 in/h
13	RAIN BIRD PEB	1"	TURF ROTARY	16.83	14	366.6	4.0				99.4	45	0.67	2.77	46.64	64.41	0.00 ft	2.00 ft	0.40 in/h
14	RAIN BIRD PEB	2"	TURF ROTOR	53.68	16	230.2	88.6	136.0			104.3	45	3.94	4.76	54.12	72.53	1.00 ft	2.00 ft	0.68 in/h
15	RAIN BIRD PEB	1-1/2"	TURF ROTOR	36.22	10	318.7	20.3				158.6	45	1.33	3.54	50.90	68.09	1.00 ft	3.00 ft	0.71 in/h
16	RAIN BIRD PEB	2"	TURF ROTARY	54.84	37	585.1	32.2	11.5			188.3	45	2.61	4.74	52.78	72.23	1.00 ft	4.00 ft	0.81 in/h
17	RAIN BIRD PEB	1-1/2"	TURF ROTARY	34.33	19	324.7	34.2				246.1	45	1.47	3.56	50.47	68.02	1.00 ft	4.00 ft	0.73 in/h
18	RAIN BIRD PEB	1-1/2"	TURF ROTARY	46.92	26	410.0	12.1	15.9			371.2	45	1.32	3.57	49.69	69.15	0.00 ft	5.00 ft	0.90 in/h
19	RAIN BIRD XCZ-LF-100-PRF	1"	AREA FOR DRIPLINE	2.33	232.6 L.F.	61.4					366.0	30	0.02	7.56	37.59	54.54	0.00 ft	5.00 ft	0.96 in/h
20	RAIN BIRD PEB	1"	TURF ROTARY	28.52	17	299.4	9.3				435.6	45	0.48	5.20	50.69	68.70	0.00 ft	5.00 ft	0.61 in/h
21	RAIN BIRD PEB	2"	TURF ROTOR	54.47	15	406.7	58.9	95.4			460.7	45	2.79	4.75	52.54	74.19	0.00 ft	5.00 ft	0.65 in/h
22	RAIN BIRD PEB	2"	TURF ROTARY	50.44	28	531.0	20.1	9.5			472.9	45	0.97	4.79	51.20	70.49	1.00 ft	4.00 ft	0.60 in/h
23	RAIN BIRD PEB	2"	TURF ROTOR	52.29	11	327.2	30.4	32.0			635.6	45	1.68	4.77	51.45	71.12	0.00 ft	4.00 ft	0.59 in/h
24	RAIN BIRD PEB	2"	TURF ROTOR	90.49	17	517.2	43.9	36.4	19.7	11.8	1,145	45	2.67	4.93	52.61	80.07	0.00 ft	4.00 ft	0.58 in/h
25	RAIN BIRD PEB	1-1/2"	TURF ROTARY	42.13	23	397.9	36.9	12.6			1,292	45	0.93	3.52	49.33	69.24	1.00 ft	4.00 ft	0.58 in/h
	Common Wire						2,694												

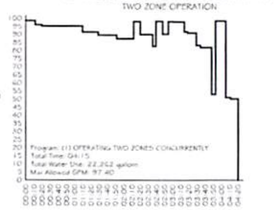
SAMPLE WEEKLY WATERING SCHEDULE - TYPICAL WORSE CASE JULY/ AUGUST @ 1.25"/ WEEK

NUMBER	MODEL	TYPE	PRECIP	SUN	MON	TUE	WED	THU	FRI	SAT	IN/WEEK	MIN/WEEK	GAL/WEEK	GAL/DAY
1	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.00 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	76	6,726	960.9
2	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.46 in/h	24 min	24 min	24 min	24 min	24 min	24 min	24 min	1.25	164	15,449	2,207
3	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.93 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	61	5,067	726.1
4	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.30 in/h	9 min	9 min	9 min	9 min	9 min	9 min	9 min	1.25	58	5,504	786.3
5	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.44 in/h	25 min	25 min	25 min	25 min	25 min	25 min	25 min	1.25	171	16,108	2,301
6	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.99 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	76	6,726	960.9
7	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.17 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	64	3,174	453.5
8	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.40 in/h	8 min	8 min	8 min	8 min	8 min	8 min	8 min	1.25	54	4,219	602.7
9	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.71 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	106	7,420	1,060
10	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.13 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	67	5,789	827.0
11	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.08 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	70	6,048	864
12	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.01 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	75	7,305	1,044
13	RAIN BIRD PEB	TURF ROTARY	0.40 in/h	28 min	28 min	28 min	28 min	28 min	28 min	28 min	1.25	190	3,577	511.1
14	RAIN BIRD PEB	TURF ROTOR	0.68 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	111	5,958	851.2
15	RAIN BIRD PEB	TURF ROTOR	0.71 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	107	3,876	553.6
16	RAIN BIRD PEB	TURF ROTARY	0.81 in/h	14 min	14 min	14 min	14 min	14 min	14 min	14 min	1.25	93	5,100	728.5
17	RAIN BIRD PEB	TURF ROTARY	0.73 in/h	15 min	15 min	15 min	15 min	15 min	15 min	15 min	1.25	103	3,536	505.1
18	RAIN BIRD PEB	TURF ROTARY	0.90 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	84	3,941	563.0
19	RAIN BIRD XCZ-LF-100-PRF	AREA FOR DRIPLINE	0.96 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	78	181.7	26.0
20	RAIN BIRD PEB	TURF ROTARY	0.61 in/h	18 min	18 min	18 min	18 min	18 min	18 min	18 min	1.25	123	3,508	501.1
21	RAIN BIRD PEB	TURF ROTOR	0.65 in/h	17 min	17 min	17 min	17 min	17 min	17 min	17 min	1.25	117	6,373	910.4
22	RAIN BIRD PEB	TURF ROTARY	0.60 in/h	18 min	18 min	18 min	18 min	18 min	18 min	18 min	1.25	125	6,305	900.7
23	RAIN BIRD PEB	TURF ROTOR	0.59 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	127	6,641	948.7
24	RAIN BIRD PEB	TURF ROTOR	0.58 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	130	11,764	1,681
25	RAIN BIRD PEB	TURF ROTARY	0.58 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	131	5,520	788.5
		TOTALS:		380	380	380	380	380	380	380		2,551	155,835	22,262

SAMPLE DAILY RUNTIME SUMMARY
SINGLE ZONE OPERATION



SAMPLE DAILY RUNTIME SUMMARY
TWO ZONE OPERATION



WATER SCHEDULING NOTES:

- SAMPLE WATER SCHEDULE CALCULATIONS ARE BASED ON A FLAT 1.25" PER WEEK MAXIMUM WATER REQUIREMENT (INCLUDES AN ADDITIONAL 25% FOR ET LOSS).
  - 1" OF IRRIGATION WATER PER WEEK (PLUS 25% FOR ET LOSS) WILL ALLOW ALL IRRIGATION TURF AREAS TO BE MAINTAINED AT OPTIMUM HEALTH AND APPEARANCE LEVELS DURING THE DRIEST SUMMER MONTHS (TYPICALLY JULY / AUGUST).
  - TURF GRASS REQUIRES SPECIFIC AMOUNTS OF WATER TO REMAIN LUSH AND "GOLF COURSE" GREEN DURING DROUGHT CONDITIONS (TYPICALLY JULY / AUGUST). IF THE TURF DOES NOT RECEIVE THE AMOUNT OF WATER IT NEEDS IT WILL BEGIN TO GO DORMANT. DORMANCY BEGINS WITH A VISIBLE LIGHT GREEN, GRAYISH GRASS COLOR. DORMANCY WILL THEN PROCEED TO COLOR SHADES OF BROWN AS THE GRASS MOVES TOWARDS FULL DORMANCY. AT FULL DORMANCY THE GRASS WILL HAVE A "DEAD" APPEARANCE THAT WILL PERSIST UNTIL EITHER NORMAL RAINFALL OR SUPPLEMENTAL IRRIGATION WATER IS RECEIVED. AT THIS POINT THE GRASS IS NOT ACTUALLY DEAD, BUT JUST TEMPORARILY DORMANT. ONCE A CERTAIN LEVEL OF WATER HAS BEEN RECEIVED, THE DORMANT GRASS WILL BEGIN TO "GREEN UP" AND, IF SUFFICIENT WATER IS APPLIED, WILL EVENTUALLY RETURN TO A "GOLF COURSE" GREEN APPEARANCE.
  - IF LESS TOTAL WATER USE IS DESIRED, SET LESS TIME ON THE LESS VISIBLE TURF ZONE AREAS AND ALLOW THEM TO GO SEMI-DORMANT TO ENTIRELY DORMANT DURING THE DRIEST MONTHS.
- THE SAMPLE WEEKLY WATERING SCHEDULE IS PROJECTED FOR A 7 DAY PER WEEK X 1 OCCURRENCE PER DAY WATERING SCHEDULE DURING A WORST CASE DROUGHT SCENARIO (TYPICAL JULY / AUGUST) AND DURING THE LANDSCAPE ESTABLISHMENT PERIOD. ALL USAGE FIGURES ARE ESTIMATES ONLY.
  - ACTUAL WATER USAGE REQUIREMENTS WILL VARY FROM TIME TO TIME DEPENDING ON ACTUAL SITE AND WEATHER CONDITIONS.
  - ACTUAL WATERING REQUIREMENTS WILL VARY DUE TO SOIL COMPOSITION AND DAILY EVAPOTRANSPIRATION CONDITIONS AND SHOULD BE CLOSELY MONITORED AND ADJUSTED AS REQUIRED TO PROMOTE THE ESTABLISHMENT AND SURVIVAL OF THE PLANT MATERIALS COVERED.
  - WEEKLY (AND DAILY WHEN REQUIRED DURING DROUGHT CONDITIONS) MONITORING AND WATERING SCHEDULE ADJUSTMENTS WILL BE REQUIRED DURING THE FIRST FULL GROWING SEASON UNTIL THE LANDSCAPE IS ESTABLISHED. AFTER THE FIRST YEAR ESTABLISHMENT PERIOD, ACTUAL WATER USAGE, MONITORING AND WATER SCHEDULE ADJUSTMENT REQUIREMENTS CAN BE EXPECTED TO BE SUBSTANTIALLY LESS THAN AS REQUIRED FOR THE FIRST YEAR.
- INCREASE STATION RUNTIMES AND SET MULTIPLE START TIMES AND/OR OPERATE ADDITIONAL ZONES CONCURRENTLY (NOT TO EXCEED MAXIMUM SYSTEM FLOW OF 100 GPM) PER DESIRED WATERING DAYS IF AN OFF DAY WATERING SCHEDULE IS DESIRED.

ESTIMATED MAXIMUM PROJECTED RUNTIME = +/-6.00 HOURS PER DAY IF OPERATING 1 ZONE AT A TIME IN SEQUENCE
= OPERATE TWO ZONES CONCURRENTLY TO REDUCE DAILY RUNTIME TO +/-4.15 HOURS PER DAY
= OPERATE THREE ZONES CONCURRENTLY TO REDUCE DAILY RUNTIME TO +/-XX.XX HOURS PER DAY
= (OPERATING MORE THAN 2 ZONES CONCURRENTLY ACHIEVES NO APPRECIABLE GAIN AND MAY CAUSE LOW OPERATING PRESSURE ISSUES)

- THESE CALCULATIONS ARE PROVIDED ONLY TO DEMONSTRATE THAT 1.25" OF WATER PER WEEK CAN BE APPLIED WITHIN AN ALLOWED WATERING WINDOW OF 8 HOURS OR LESS PER EACH DAY.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
R-VAN14 / R-VAN14-360	RAIN BIRD R-VAN14 1804-SAM-P45 TURF ROTARY, 8'-14' 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	20	45
R-VAN18 / R-VAN18-360	RAIN BIRD R-VAN18 1804-SAM-P45 TURF ROTARY, 13'-18' 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	36	45
R-VAN24 / R-VAN24-360	RAIN BIRD R-VAN24 1804-SAM-P45 TURF ROTARY, 17'-24' 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	108	45

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	4	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	2	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	1	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	19	45
	RAIN BIRD 5004-PL-PC, PC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	1	45
	RAIN BIRD 5004-PL-PC, PC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	37	45
	RAIN BIRD 5004-PL-PC, PC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	12	45
	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	2	60
	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	6	60
10	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	2	60
12	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	7	60
14	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	15	60
16	RAIN BIRD F4-PC, PC TURF ROTOR, 4.0" POP-UP, PLASTIC RISER, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	31	60
	RAIN BIRD F4-PC, PC-SS-HS TURF ROTOR, 4.0" POP-UP, STAINLESS STEEL RISER, HIGH SPEED ROTATION, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT, 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239 SOLENOID FOR TWO WIRE APPLICATION.	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.6 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
	MATCO-NORCA 514TX BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS	1
A	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX	2
BF	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
C	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS. UV-RESISTANT, OUTDOOR-RATED, PLASTIC LOCKING WALL-MOUNT CASE	1
R	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR	1
FS	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE	1
D1	RAIN BIRD FD-101 DECODER	24
SP	RAIN BIRD LSP-1 SURGE PROTECTOR	7
SD	RAIN BIRD SD-210 SENSOR DECODER	1
M	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN. SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,853 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2 1/2"	168.1 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 3"	607.6 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	2,172 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.9 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	81.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2 1/2"	156.9 L.F.
	IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	89.2 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	68.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	212.3 L.F.

Valve Callout
- Valve Number
- Valve Flow
- Valve Size

CRITICAL ANALYSIS

Generated:	2020-11-20 13:28
P.O.C. NUMBER: 01	
Water Source Information:	2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN. SIZE SERVICE LINE
FLOW AVAILABLE	
Water Meter Size:	2"
Flow Available:	108.99 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	115.00 psi
Elevation Change:	5.00 ft
Service Line Size:	2 1/2"
Length of Service Line:	5.00 ft
Pressure Available:	113.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	97.40 gpm
Flow Available at POC:	108.99 gpm
Residual Flow Available:	11.59 gpm
Critical Station:	2
Design Pressure:	60.00 psi
Friction Loss:	4.49 psi
Fittings Loss:	0.45 psi
Elevation Loss:	2.60 psi
Loss through Valve:	5.04 psi
Pressure Req. at Critical Station:	72.58 psi
Loss for Fittings:	0.32 psi
Loss for Main Line:	3.24 psi
Loss for POC to Valve Elevation:	-1.30 psi
Loss for Backflow:	12.45 psi
Loss for Master Valve:	2.38 psi
Loss for Water Meter:	6.87 psi
Critical Station Pressure at POC:	96.52 psi
Pressure Available:	113.00 psi
Residual Pressure Available:	16.48 psi

ECOSYSTEMS
IRRIGATION DESIGN AND CONSULTING
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PHONE: 816-249-1062 EMAIL: Ecosystems@kc.rr.com

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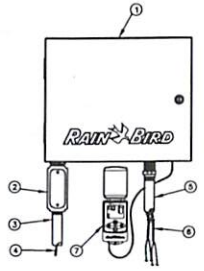
TODD J. CLARK — LICENSED LANDSCAPE ARCHITECT — 754 — KANSAS

JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

IRRIGATION PLAN

SHEET: IR-4

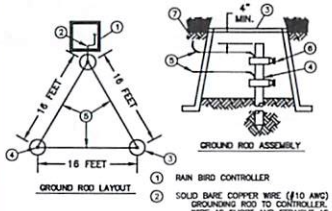
Please consider the environment before printing this document.



1. TWO-WIRE DECODER CONTROLLER: RAIN BIRD ESP-LXD TWO-WIRE DECODER WALL MOUNTED CONTROLLER. INSTALL CONTROLLER AND CABINET AT EYE LEVEL ON THE EXTERIOR BUILDING WALL AS PER MANUFACTURER'S RECOMMENDATIONS.
2. JUNCTION BOX
3. 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY
4. POWER SUPPLY WIRE
5. 1-INCH CONDUIT AND FITTINGS FOR TWO-WIRE CABLE
6. TWO-WIRE PATH TO DECODERS – USE A DIFFERENT CABLE JACKET COLOR FOR EACH PATH.
7. RAINBIRD WR2-RFC WIRELESS RAIN/ FREEZE SENSOR RECEIVER – MOUNT RECEIVER ON EXTERIOR BUILDING WALL AS SHOWN.

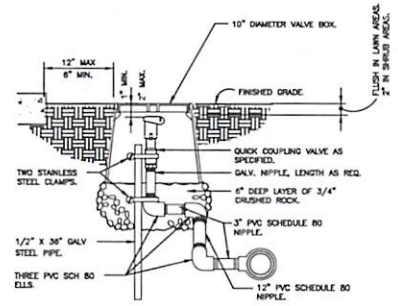
NOTES:
1. ESP-LXD CONTROLLER COMES WITH 50 STATIONS AVAILABLE. TWO ADDITIONAL 75 STATION ESPLXD-SM75 MODULES MAY BE ADDED TO EXPAND THE CONTROLLER UP TO 200 TOTAL STATIONS.
2. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.
3. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

1 RAIN BIRD LXD TWO WIRE CONTROLLER
AND WIRELESS RAIN/ FREEZE SENSOR

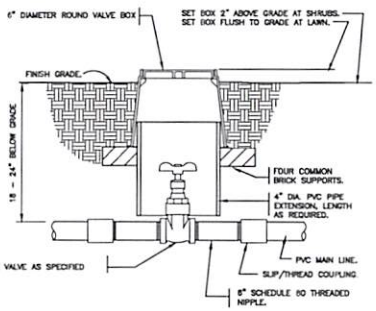


1. RAIN BIRD CONTROLLER
2. SOLID BARE COPPER WIRE (#10 AWG) FROM GROUNDING ROD TO CONTROLLER. MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE
3. COVER GROUNDING ROD WITH 10-INCH ROUND VALVE BOX AS SHOWN
4. 5/8-INCH X 8 FT COPPER CLAD GROUNDING ROD OR GROUNDING PLATE. INSTALL RODS IN SOIL IN A TRIANGULAR PATTERN SPACED A MINIMUM OF 16 FT APART FROM EACH OTHER. GROUNDING GRID TO HAVE A RESISTANCE OF TEN (10) OHMS OR LESS
5. BARE COPPER WIRE (#10 AWG MIN.) BETWEEN GROUNDING RODS
6. GROUND ROD CLAMP OR WELDS
7. FINISH GRADE

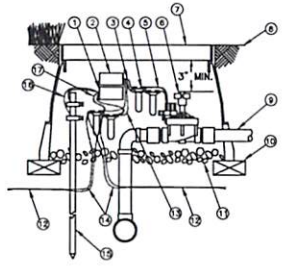
1.5 CONTROLLER GROUNDING GRID



4 QUICK COUPLER VALVE
- FOR WINTERIZATION BLOW-OUT AND WASH-DOWN



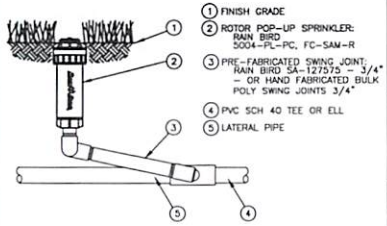
2 SHUT-OFF / ISOLATION GATE VALVE



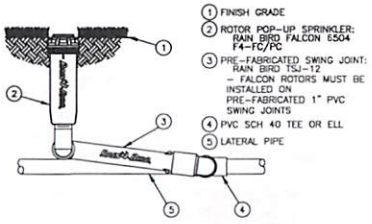
1. LINE SURGE PROTECTOR: RAIN BIRD LSP-1 – WHEN REQUIRED – SEE PLAN
2. FIELD DECODER (RAIN BIRD FD-101)
3. WIRE FROM FIELD DECODER (1 OF 2)
4. DBR SERIES WIRE CONNECTOR
5. SOLENOID WIRE (1 OF 2)
6. RAIN BIRD PEB REMOTE CONTROL VALVE
7. 12-INCH RECTANGULAR VALVE BOX
8. FINISH GRADE OR TOP OF MULCH
9. PVC MAINLINE PIPE
10. BRICK (1 OF 4)
11. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
12. TWO-WIRE CABLE TO NEXT DEVICE (FIELD DECODER, OR WEATHERMATIC CONTROLLER)
13. WIRE FROM FIELD DECODER
14. COMMUNICATION WIRE TO NEXT DEVICE (FIELD DECODER, LINE SURGE PROTECTOR OR WEATHERMATIC CONTROLLER)
15. GROUNDING ROD: 10 OHMS OR LESS
16. GREEN/YELLOW WIRE FROM LSP-1TURF TO BRASS CLAMPS ON GROUNDING ROD (1 OF 2)
17. WIRE FROM LSP-1 WHEN REQUIRED

NOTES:
1. A RAIN BIRD LSP-1 SURGE PROTECTION DEVICE SHALL BE INSTALLED EVERY 500-FEET OR FOR EVERY EIGHT DECODERS ON TWO-WIRE PATH AND AT THE ENDS OF THE TWO-WIRE PATH.
2. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM DECODER TO SOLENOID IS 500 FEET.
3. PLACE 3 FEET OF EXTRA WIRE IN EVERY VALVE BOX FOR EASIER SERVICING.
4. INSTALL PRS-D DEVICE ON ALL CONTROL VALVES OPERATING NON-INTERNALLY PRESSURE REGULATED HEADS.

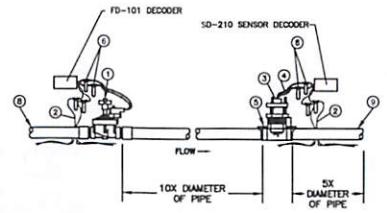
5 RAIN BIRD PEB CONTROL VALVE WITH RAIN BIRD DECODER
- AND LINE SURGE PROTECTION AND PRS-D PRESSURE REGULATING DEVICES WHERE REQUIRED/ AS APPLICABLE



7 RB 5004 TURF ROTOR



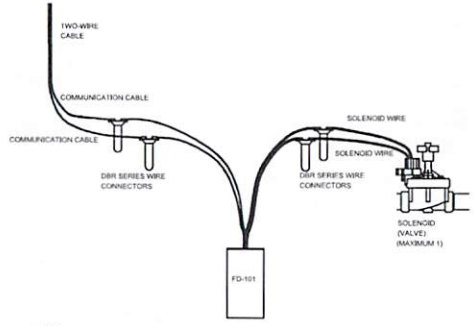
8 RB 6504 FALCON TURF ROTOR



1. NORMALLY CLOSED MASTER VALVE: RAIN BIRD PEB
2. WIRE TO TWO WIRE PATH
3. FLOW SENSOR: RAIN BIRD FS-200P SERIES
4. FLOW SENSOR WIRES
5. DOUBLE-STRAP SADDLE
6. WIRE SPLICE: 3M-DBR
7. CONCENTRIC REDUCER
8. IRRIGATION WATER SUPPLY LINE
9. IRRIGATION WATER SUPPLY LINE TO SYSTEM

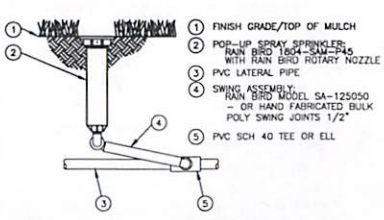
NOTES:
1. REFER TO RAIN BIRD TECHNICAL DATA FOR FLOW SENSOR INSTALLATION BASED ON PIPE SIZING PARAMETERS.
2. MASTER VALVE(S) AND FLOW SENSOR(S) SHALL BE INSTALLED WHERE SHOWN ON THE PLANS.

3 MASTER VALVE AND FLOW SENSOR



NOTE:
1. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM DECODER TO SOLENOID IS 500 FEET.

6 RAIN BIRD FD-101 DECODER WIRING



9 RB TURF ROTARY HEAD
- 12" SHRUB SPRAY HEADS INSTALL WITH THIS TYPE SWING JOINT

CE Golf Design
Golf Course Design & Landscape Architecture
3250 Binkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.5763
www.cegolfdesign.com

PHELPS ENGINEERING, INC
1270 N. Winchester
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JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

IRRIGATION PLAN

SHEET:
IR-5

Please consider the environment before printing this document.

SECTION 329200 – LANDSCAPE IRRIGATION WORK

PART 1 - GENERAL

1.1 RELATED SPECIFICATION SECTIONS

A. Landscape Work – Section 329300

1.2 SUMMARY

A. The prospective bidder must be licensed to practice in the State and City in which the Project is located. Bidders may be required to submit proof of licensing and other qualifications prior to the award of the bid. If requested, the prospective Irrigation Contractor shall provide a record of previous similar experience and a list of at least (5) projects of similar size and scope completed within the last (5) years.

B. The Irrigation Contractor shall furnish all materials, tools, equipment and labor to install a complete and operable automatically controlled Landscape Irrigation System as indicated on the drawings, as specified and as necessary to complete the contract, including, but not limited to, these major items:
1. Submittal of required material data
2. Pre-installation Flow and Pressure tests and the submittal of a Report of the findings prior to beginning the actual installation work. The Irrigation Contractor shall submit this Report in a timely fashion and allow ample time for resolution if the reported flow and pressure are below the system design parameters. *Failure of the Irrigation Contractor to follow and adhere to the specified testing and reporting process will not relieve him of his responsibility to provide a functional system as per the spirit and intent of the plans and contract documents. Any additional work arising from said failure to comply with the specifications will be the sole responsibility of the Irrigation Contractor.*
3. Utility Locates
4. Installation of the Irrigation System and all related appurtenances as per the plans and specifications.
5. Irrigation System cleaning and *for* tuning as noted on the drawings or as may be required to complete the installation. This includes scheduling coordination with other trades and minor field adjustment that may be required due to actual site conditions. The Contractor shall bore any scissor crossings or crossing unable to be sleeved due to scheduling issues.
6. Excavation and backfill of pipe trenches
7. Record drawings and guarantees
8. Permits and licenses
9. Post installation testing of supplies and systems
10. Clean up

C. Water for the irrigation System will be sourced from new 2" dedicated irrigation water meter with a 2 ½" service line from the existing 16" City Water main and 2" service line from the water meter to the 2" RPZ Backflow Preventer as noted and shown on the drawings.

D. The irrigation System is will utilize potable water.

E. 120volt non-timed/ non-photocell (Clamp circuit) power shall be provided to the building exterior wall mounted Two –Wire Controller Location by the Electrical/ Mechanical Contractor. The Irrigation Contractor shall coordinate the power supply with the General Contractor and the Electrical/ Mechanical Contractor.

1.3 DEFINITIONS

A. Circuit Piping: Lateral pipe downstream from solenoid control valves to sprinklers and specialties. Pipe is under pressure during scheduled flow.

B. Drain Piping: Downstream from main line manual drain valves. Pipe is not under pressure.

C. Main Line Piping: Downstream from POC to solenoid control valves and specialties. Pipe is under pressure when the solenoid master control valve is operational.

D. Matched Precipitation (Compatible Heads): Heads delivering an equal amount of water over and equivalent surface area.

E. Diameter of Coverage: Diameter of the surface area receiving water (pertains to full or part circle).

F. Fill in Heads: heads not located on a basic symmetrical pattern and/ or which may not have the same coverage or application rate as the heads in the pattern.

G. Last Head: Head located on a zone usually the farthest from the zone valve and having the least amount of pressure for operation.

H. Pop-Up Head: Spray or rotary head installed flush with grade containing a nozzle that rises above grade when operating.

I. Emitter Tube: special tubing for low volume emission to individual plants or beds.

J. Header: Water line feeding off from a zone valve; subject to pressure only when zone is operating.

K. Lateral: Pipe downstream from a solenoid control valve to a head or specialty.

L. Solenoid Control Valve: Low voltage solenoid valve used to activate/ terminate flow to a zone.

M. Zone: Section of heads or other distribution devices controlled by one solenoid control valve.

N. Industry Abbreviations for plastic materials:
1. ABS: Acrylonitrile butadiene styrene plastic.
2. FRP: Fiberglass-reinforced plastic.
3. PA: Polyamide (nylon) plastic.
4. PE: Polyethylene plastic.
5. PP: Polypropylene plastic.
6. PTFE: Polytetrafluoroethylene plastic.
7. PVC: Polyvinyl chloride plastic.
8. TFE: Tetrafluoroethylene plastic.

1.4 SUBMITTALS

A. General: As soon as practical after notice to proceed and before procurement of any products, the Irrigation Contractor shall submit a complete list of products to be incorporated in the work. List shall include catalog numbers, cut sheets, diagrams, and such other descriptive data as may be required by the Landscape Architect and/ or Irrigation Design professional. Approval of products under this provision shall not be construed as authorizing any deviation from the specification unless attention has been directed in writing to the specific deviation. No consideration will be given to partial lists submitted from time to time. Approval of products will be based on manufacturer's published ratings. Products submitted that are not in accordance with the specification requirements will be rejected and resubmitted. Submitted Cut Sheet pages with multiple models, products and options shall be noted to clearly indicate the actual item intended for submittal and installation. Submitted Cut Sheet pages without such delineation will be rejected and resubmitted.

B. Product Data: Include pressure ratings, rated capacities, and recommended settings of selected models for the following as applies to the project:
1. General-duty valves
2. Specialty valves
3. Control valve boxes
4. Irrigation heads and nozzles
5. Irrigation specialties
6. Controller and accessories - include wiring diagrams
7. Control wire and cable - include wire splice kits and conduit as applicable

C. Changes: Once the Contractor's submittal has been approved by the Irrigation Design Professional, if there are any deviations from the approved submittal deemed necessary by the Contractor, details of such deviations and reasons therefore shall be submitted in writing to the Irrigation Design Professional for review and approval prior to implementation.

D. Quality Assurance Submittals:
1. Qualification Data: Installer shall have 5 years of experience in irrigation installation on projects of similar scope and scale.
2. Coordination Drawings – at may be required to effectively communicate questions and field conditions: Since piping and major system components indicate interface and spatial relationship between piping, system components, adjacent util-

ities, and groundwork structures.
3. Field quality-control test reports shall include written documentation of pressure tests and findings.

E. Closeout Submittals:
1. Operation and Maintenance Data: For irrigation systems, to include emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Closeout Procedures":
2. As-Built Drawings: Subsequent to completing construction and receiving final approval by Landscape Architect and Irrigation Design Professional, provide an As-Built drawing of the entire irrigation System showing the installed locations and types of all irrigation heads, valve boxes, lateral and main piping with sizes, sleeves with sizes, quick couplers, valves, controller and specialties. All As-Built zone numbering shall accurately correspond to those on controller. All calculations per zone shall be included if changed from the original installation plan. Recommended run times by season and condition shall be included. Decoder Addresses shall be entered on the appropriate lines in the Control Valve Schedule on the drawings. The As-Built drawings shall be competed in Auto CAD (v.2018 minimum), burned to CD/DVD and submitted with the above text documents in the quantities determined by the General Conditions. The Irrigation Contractor shall also provide the completed As Built Drawing CAD files to the Irrigation Design professional by email and/ or CD. Upon request, the Irrigation Design Professional will supply CAD files of the Irrigation System for the Irrigation Contractor to use in preparation of the As-Built drawings.

1.5 QUALITY ASSURANCE

A. Contractor's Quality Assurance Responsibilities: Contractor is solely responsible for quality control of the Work

B. The publications and standards listed below form a part of this specification to the extent referenced. The publications and standards are referred to in the text by the basic designation only.

C. American Society for Testing and Materials (ASTM):
1. ASTM D 1598-00 – Standard Specifications for Pipe Resin Materials
2. ASTM D 2737 – Standard Specifications for Pipe Manufacturing
3. ASTM F 714 – Standard Specifications for Pipe Manufacturing
4. AWWA C 901 – Standard Specifications for Pipe Pressure Classifications
5. AWWA C 906 – Standard Specifications for Pipe Pressure Classifications
6. NSF 61 – Standard Specifications for Pipe Agency Listing of Pipes Suitable as a Pressure Conduit
7. ASTM D 3261 – Standard Specifications for Manufacturing of Butt Fusion Fittings
8. ASTM D 2855 – Standard Specifications for Manufacturing of Electro-fusion Fittings
9. ASTM F 1168 – Field Leak Testing of Polyethylene Pressure Piping Systems Using Hydrostatic Pressure
10. ASTM B 62-85 – Standard Specifications for Composition Bronze or Ounce Metal Castings
11. ASTM D 1784-82 – Standard Specifications for Rigid (PVC) Compounds and Chlorinated Polyvinyl Chlorides (CPVC) Compounds
12. ASTM D 1785-86 – Standard Specifications for (PVC) Plastic Pipe, Schedules 40 and 80
13. ASTM D 2241-84 – Standard Specifications for (PVC) Pressure Rated Pipe (SDR Series)
14. ASTM D 2564 – Standard Specifications for Solvent Cements for (PVC) Plastic Pipe and Fittings
15. ASTM F 477 – Specification for Electrometric Seals (Gaskets) for Joining Plastic Pipe

D. Standards: Comply with of applicable provisions of the latest edition of the following codes:
1. UPC Uniform Plumbing Code
2. BOCA Building Officials and Codes Administrators
3. UBC Uniform Building Code
4. NEC National Electric Code
5. Institute of Electrical and Electronics Engineers – IEEE 1100-1999 Recommended Practice for Powering and Grounding Electronic Equipment
6. Plastics Pipe Institute (PPI) – Polyethylene Joining Procedures
7. Plastics Pipe Institute (PPI) – recommendations for hydrostatic design stresses for PVC Pipe
8. Local codes and jurisdiction requirements for the City of Kansas City, Missouri

E. Permits, Fees and Licenses: The Irrigation Contractor is responsible to obtain all required permits and pay all associated fees as may be required to complete the Project.

F. Provide isolated equipment certifying approval, as hereinafter specified, by the following organizations:
1. NSF National Sanitation Foundation
2. UL Underwriters Laboratories

1.6 DELIVERY, STORAGE AND HANDLING

A. During hauling, transportation and unloading, every precaution shall be taken to prevent injury to the pipe. No pipe shall be dropped from cars or trucks or allowed to roll down skids without proper retaining ropes. During transportation, each pipe shall rest on suitable pads, skids, dials or blocks securely wedged or tied in place. Any pipe damaged shall be replaced.

B. Pipe and Large Fitting Handling: A nylon fabric choker sling capable of safely handling the weight of the pipe or fitting shall be used to lift, place, and move pipe and fittings.

C. Store PVC pipe in a neat and orderly manner fully supported and protected from sunlight.

D. All equipment shall be delivered, unloaded, and handled so as to protect from damage at all times.

1.7 PROJECT SITE CONDITIONS

A. Trench excavation and backfilling shall not be performed during excessively wet conditions.

B. PVC shall not be cemented during excessively wet conditions.

1.8 SEQUENCE AND SCHEDULING

A. The Contractor shall be responsible for coordinating, sequencing, and scheduling all work relevant to the irrigation system.

1.9 INSPECTIONS

A. The Landscape Architect and/or Irrigation Design Professional shall inspect all work. If the work is not being performed in a workmanlike manner as specified, and within construction standards, or not operating under 100% or Owner's safety policies, the Landscape Architect shall and/or Irrigation Design Professional shall recommend to the Client to halt construction. Construction shall be halted until the portion of the specification or standard is corrected. There will be a written notice of the violation, a copy of which shall be filed with the Contractor's licensure application for future review. If the deficiencies are not corrected, the Irrigation Contractor's surety shall be resolved to correct the work.

1.10 WARRANTY

A. Conform to all applicable technical specifications.

B. The Irrigation Contractor shall provide a written warranty covering the entire system against defects in installation, workmanship and equipment for a period of one year from date of First Acceptance.

C. After the system is installed and approved, the Irrigation Contractor shall facilitate a meeting(s) to instruct the irrigation manager, groundskeeper personnel and maintenance staff in the complete operation, winterization, and maintenance of the system.
1. The Irrigation Contractor shall provide a minimum of 8 hours on-site training to the Owner's landscape management company after acceptance of the project.

1.11 MANUFACTURER'S WARRANTY

A. The Irrigation Contractor shall provide the Owner with a warranty transfer that shall confer all applicable product warrantees and replacement benefits to the Owner upon final acceptance.

B. Provide this warranty transfer for each manufacturer whose products have been installed on the project.

1.12 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months full maintenance service by skilled employees of the Irrigation Contractor. Include backfill due to settling trenches and re-tamping and filling around heads, raising and lowering of

heads, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper irrigation system operation. Provide parts and supplies as used in the manufacture and installation of original equipment. The Irrigation Contractor shall drain the irrigation system in the fall of the first year and re-start system in the following spring. Perform maintenance during normal working hours and respond within one day or less from the time of service requests. After Owner Training has been completed the Owner will assume responsibility for the scheduling and operation of the Irrigation System – the Irrigation Contractor will be responsible for any warranty or physical adjustments that may be required during the specified maintenance period.

PART 2 - PRODUCTS

2.1 GENERAL

A. Manufacturer: Subject to compliance with requirements, provide products of the following:
1. Rain Bird
2. Approved equal components

B. Install only new materials of brands specified herein or as acceptable to the Landscape Architect and Irrigation Design Professional.

2.2 PIPE MATERIALS

A. PVC Pipe:
1. Mainline 2 1/2" or smaller: Schedule 21 Class 200, Type 1120 12.20 polyvinyl chloride (PVC), ASTM D 1784 and D 1785; uniformly white in color. Gluk Joint Type
2. Mainline 3" and greater: Schedule 11 Class 200, Type 1120 12.20 polyvinyl chloride (PVC), ASTM D 1784 and D 1785; uniformly white in color. Gasket joint Type
3. Laterals: Schedule 21 Class 200. Type 1120 12.20 polyvinyl chloride (PVC); ASTM D 1784 and D 1785; uniformly white in color. Glue Joint Type

B. Copper Pipe (If used): Seamless Copper Pipe; ASTM B88, Type K.
1. Copper Unions: ASME B16. 18, cast copper alloy body, hexagonal stock, with ball-and-socket joint, metal-to-metal seating surfaces, and solder joint, threaded or solder-joint, and Threaded ends.
2. Threaded Ends: Threads conforming to ASME B1.20.1.

C. Sleeves: All sleeves shall be new sections of PVC Schedule 40 SE pipe, install sleeves as necessary and at the minimum depths required for laterals (12 – 18" depth) and mainlines (18 – 24" depth).
1. Sleeve depths shall be greater under major drive entries and road surfaces. Install sleeves under major drive entries at a depth of 24- 30" below final pavement grade.
2. In the event that the hard surface layout precludes the installation of relatively straight PVC sleeve runs, it is acceptable to use solid, un-jointed sections of HDPE solid pipe; SIDR DR9 (200psi rated); ASTM D 3035, to accomplish a required bend or curve in the pipe sleeve.
3. Sleeves shall be twice the size of the passing pipe to allow for bolt ends and conical wire fitment.
4. Sleeves shall extend a minimum of 18" into the green space area beyond the edge of the hard surface crossing. Sleeve ends shall be capped or otherwise securely closed upon installation to prevent backfill from entering the sleeves prior to final installation.
5. Sleeve trenches crossing entry drives and right of way areas shall be backfilled with flowable concrete fill (common) or as per required local code, whichever has the greater requirement.

D. Swing Joints: All heads shall be installed with swing joints.
1. The installed swing joint size shall be the same as the head or device inlet size.
2. Large Turf Rotor Heads shall be installed with prefabricated PVC triple swing joints – 1" for 6504 Falcon Rotors.
3. Mainline and Small Turf Rotors and Shrub Spray Heads shall be installed with ½" or ¾" poly swing joints as per the inlet size. Hand fabricated built poly swing joints are also acceptable, Do not install on swing joints that are smaller than the head inlet size.

E. Thrust Blocks:
1. Install Concrete thrust blocks for pipe fittings on pipe equal to 3" diameter and greater (at gasket type pipe).
2. Use 3000 psi concrete.
3. Thrust blocks shall be installed at all tees, bends, reducer fittings and ends of gasket joint pipelines. Thrust blocks will be poured in place between undisturbed soil and the fitting to be thrust blocked.
4. Install a minimum of 4CF concrete per each thrust block required.

2.3 FITTINGS

A. Flanged and Mechanical Joint Adapters – Flanged and Mechanical Joint Adapters shall be PE 3408 HDPE. Cell Classification of 345464C as determined by ASTM D3350-02. Flanged and Mechanical Joint Adapters shall have a manufacturing standard of ASTM D3261. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans.

B. Metallic: Cast bronze with standard iron pipe thread, 125 lb. class rating in conformance with ANSI B16.15.
1. Dielectric Fittings: Assembly or fitting with insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion. These devices are a combination of copper alloy and ferrous metal; threaded- and solder- end types, matching piping system materials.
2. Dielectric Unions: Factory-fabricated, union assembly, designed for 250 psig minimum working pressure at 180 degrees F (82 degrees C); include insulating material isolating dissimilar metals and ends with inside threads according to ASME B 1.20.1.
3. Dielectric Flanges: Factory-fabricated, companion-flange assembly for 150 psig or 300 psig minimum pressure to suit system pressures.
4. Copper-PVC Transition Fittings: Manufactured assembly or fitting, with pressure rating at least equal to that or system and with end connection compatible to piping where fitting is to be installed.

C. Copper: ANSI B16.22 wrought copper or cast brass, recessed solder-joint type fittings.

D. PVC:
1. Maximum three-inch (3") or smaller: Same as lateral line fittings.
2. Laterals Four: ASTM D 2467; Schedule 80, socket-type, Type 1 Grade 1 polyvinyl chloride (PVC) with solvent weld or threaded connections in conformance with ASTM D 1784 and D 2466; uniformly white in color.

E. Nipples:
1. Metallic: Schedule 40 red brass (85% bronze; 15% zinc) pipe; threaded both ends. Pipe shall be in accordance with ASTM B43.
2. Plastic: Factory-fit-treaded Schedule 80, Type 1, Grade 1 polyvinyl chloride (PVC) pipe, threaded both ends. Pipe shall be in conformance with ASTM D 1784 and D 1785. Color: grey.

2.4 JOINING METHODS AND MATERIALS

A. PVC Pipe and Fittings:
1. Solvent Cements: ASTM F 656 primer and ASTM D 2564 solvent cement in color other than orange, compatible with PVC pipe and of proper consistency.
2. Cement: IPS Corporation Weld-on 4705 for Class 200 P.V.C. IPS Corporation Weld-on 4795 for flexible P.V. C. connections.
3. Primer: IPS Corporation Weld-on IP-70.

B. Copper Pipe and Fittings:
1. Solder: ASTM B 32, Alloy Sn95 and E.

C. Miscellaneous Pipe and Fittings
1. Gaskets and Fasteners for Metal and Metal-to-Plastic Flanged Joints: ASME B16.21, nonmetallic, asbestos-free, flat, 1/8-inch thickness gaskets and ASME B18.2.1, carbon steel bolts, nuts, and washers.
2. Gaskets for Plastic Flanged Joints: Materials recommended by plastic pipe and fittings manufacturer.

2.5 VALVES

A. Manual Isolation Valves:
1. Isolation Valves shall be the same size as the adjacent pipe.
2. Brass Gate Valves 3" and smaller.
3. Cast Iron Push-on Gate Valves 4" and greater
4. Manual Drain Valves: All manual drain valves shall be ¾" (19 mm) Mueller Ohioseal or approved equal and installed at low points in the mainline to accommodate a minimum mainline slope of 2%. Manual Drain Valves are to be field located, installed at mainline only with a cross handle and a 2 ½" diameter sleeve to allow for above grade manual key operation.

B. Electric Solenoid Remote Control Valves:
1. Remote Control Valves: Rain Bird PEB Series Valves.

a. Install a Rain Bird PRS-D pressure regulating module on all Rain Bird 6500 Falcon and 5000 Series turf rotor head solenoid control valves.
2. Master Control Valve: Buckner Superior 3300 series Normally Open brass solenoid valve.
a. Hard wire to the Irrigation Controller.
3. Flow Sensor: Rain Bird PS-200 w/ 10 Sensor Decoder

C. Quick Coupler Valves: All quick coupler valves shall be Rain Bird 44RC

D. Valve Boxes: Valve boxes shall be of a variety as produced by Armor Access Boxes, Carson, or acceptable equal.
1. Manual Isolation and Manual Drain Valve boxes: All valve boxes for manual isolation and manual drain valves shall be round boxes 36"L (Green Lids)
2. Remote Control Solenoid Valve boxes: All valve boxes for remote control solenoid valves shall be rectangular boxes (12") with vandal-resistant, locking lids. (Green Lids)
3. Quick Coupler and Air Relief Valve boxes: All valve boxes for Quick Coupler and Air Relief valves shall be 10" round boxes with vandal-resistant, locking lids. (Green Lids)

2.6 SPRINKLER HEADS

A. All heads shall be as specified or an approved equal. If necessary, the Irrigation Contractor shall adjust patterns shown on approved Contractor's plans to provide adequate coverage. Sprinkler heads shall be:
1. Pruning Beds: Rain Bird 12" Pop-Up Shrub Spray Heads (1812-SAM-PRS).
2. Small Turf Areas: Rain Bird Rotary nozzle on a Rain Bird 4" Pop-Up Spray-head body (1804-SAM-PVC).
3. Large Turf Areas: Rain Bird Series 6504 and 6505 Falcon Turf Rotors as shown on the Plans.

2.8 IRRIGATION AUTOMATIC CONTROL SYSTEM

A. General: The automatic controller shall be a commercial type controller manufactured expressly for control of automatic circuit valves of landscape irrigation system using low voltage Two Wire control. The controller shall have factory installed lightning and surge protectors for both input/output protections. UL listed.
1. Controller: Rain Bird ESP-LXD Two Wire, plastic cabinet automatic irrigation controller. Mount the Controller on the building exterior wall where shown on the plans. Irrigation Contractor shall verify and confirm final Controller Location with the Owner and General Contractor.

B. Station Control: The controller shall be capable of Two-Wire control of up to 200 stations via plug-in modules. Each station shall be capable of operation from zero (0) to two (2) hours in one (1) minute increments, and from two (2) to twelve (12) hours in ten-minute increments.

C. Programs: The controller shall have four (4) separate irrigation programs (A, B, C, D) which can have different start times, watering days, day cycles, and station timing. Each program shall have up to eight start times per day.

D. Calendar: The controller shall have a 365-day calendar with day-of-the-month off feature. Programs will run on an ODD / EVEN day cycle, day-of the week ON / OFF cycle.

E. Memory: The controller shall have an internal non-volatile memory which will retain the irrigation program and the programmed date and time in the event of a power outage.

F. Field Control Wire (for the Two Wire Path): 14-2 Communication Wire made specifically for Two-Wire Control applications.

G. Wire Splices:
1. 3M-DBR for Two-Wire Path connections.

2.9 RAIN SENSOR

A. Rain Bird WR2 RFC wireless Rain/ Freeze Sensor. Install as per manufacturers recommended instruction.

B. The location shown on the plan is diagram matic. Final location shall be field determined. Accurately note the final device location on the as built drawing.

C. Final location shall be at an orientation so as to best maximize the devices exposure to weather conditions. Final location must not be under any eaves or overhangs.

2.10 GROUNDING

A. It is the responsibility of the Irrigation Contractor to provide proper and adequate grounding to the building for all electrical equipment installed in relation to the irrigation control system. The grounding shall include but not be limited to the items described in the following paragraphs.

B. Components: The Contractor shall use UL listed grounding electrodes or those that meet the minimum requirements of the National Electrical Code (NEC) at each controller location. At the very minimum, the Contractor shall connect a solid bare copper wire to the building for grounding systems, as defined herewith.
1. Connections: All ground circuit connections shall be made using an exothermic welding process by utilizing products such as the Cadweld "One Shot" kits. Solder shall not be allowed to make connections. The wires are to be installed in as straight a line as possible and if is necessary to make a turn or a bend it shall be done in a sweeping curve with a minimum radius of 8" and a minimum included angle of 90 degrees. Mechanical clamps shall be permitted temporarily during the resistance test process but shall be replaced with Cadweld "One Shot" kits immediately thereafter.
2. Bonding: The bonding requirements for wires and cables shall consist of the installation of a network of solid bare copper wire, per manufacturer's recommendations, over the main bundles of wires and cables. The acid bare copper wire shall be installed 8" below finished grade. This bare conductor shall be placed above all other valve / power / communication wires and cables. The conductor shall be laid in as straight a line as possible, and where necessary to make bends, they shall be made in a sweep style. It is not necessary to install this conductor into short wire runs (less than 100 feet) wires from the main bundles. This solid bare copper wire shed network shall be connected to all controllers ground lug, which in turn are connected to grounding electrodes.
3. Bonding: All supplementary grounds for each controller will be bonded to the service entrance ground, per the requirements of the NEC and IEEE standards. The shield wire network as described above shall be used to bond each supplementary ground to the service entrance ground.
4. Bare Copper Wire Connections (Shield and Bonding Wires): When joining bare copper wires, it shall be done using an UNICO PG115 exothermic welding kit or approved equal. Wire connectors, terminal ends, lugs or other types of connectors are not acceptable alternatives.

2.11 SUPPORTING DEVICES

A. Provide all necessary universal, inserts, fasteners, clamp rods, hangers, saddles, supports, anchor bolts, nuts, washers, and steel plates and shapes as required to properly support all piping and equipment included under this section.

2.12 MISCELLANEOUS TOOLS AND EQUIPMENT

A. Communication Wire Splices:
1. All wire connections shall be absolutely watertight with no leakage to ground or shorting from one conductor to another. Epoxy-type wire connector such as 3M-DBR or approved equal. Follow the manufacturer's instructions on the package

B. Pipe Detection Tape: "Sentry Line" three (3) inch wide, detectable, "Caution Water Line Buried Below" tape as available from Terra Tape Inc. Houston Texas, (800) 351-0614 or acceptable equal. Install 12" above all Main Line Pipe.

C. Valve Tags: Provide identification tag on flow control handle shaft, aluminum, plastic or other durable material, with valve station and controller number identified in 3/8" minimum letters. Color shall be purple "Non-Potable"

D. Drainage Backfill: Cleaned gravel or crushed stone; graded from three (3) inches maximum to ¼ inch minimum

E. Pressure Gauges: ASME B40.1Gne, 4-½" (115 mm) diameter dial, with dial range of two (2) times system operating pressure and bottom outlet. Furnish with an adapter so that the gauge can be used on a quick coupler valve.

F. Flow Labels: Self-adhesive labels indicating flow direction, with "IRRIGATION" lettering. Install within at appropriate intervals on all exposed supply piping upstream and downstream of the POC (if any).

Please consider the environment before printing this document.

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO. 2017
DRAWN BY: BRG
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

IRRIGATION PLAN

SHEET:
IR-6

PART 3 - EXECUTION

3.1 GENERAL

A. Verification of Conditions: Examine the areas to receive the Work and the conditions under which the Work would be performed. Remedy conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

B. The Irrigation Contractor shall install all irrigation system components in accordance with the Contractor's approved submittals, the Plans, and these Specifications. The workmanship of the entire job must in every way be first class and only experienced and competent persons shall work on the project.

C. Supervision: The Irrigation Contractor shall supervise the work constantly while his work is underway and shall keep the same foremen and workmen of the job from commencement to completion.

D. Schedule of Work: The Irrigation Contractor shall be responsible for the installation of the piping and equipment in a manner that will affect the earliest completion of the work in conformance with the construction progress schedules of other Contractors and Trades, and these Specifications.

E. Installation Observation and Inspection: In addition to normal progress inspection, the Irrigation Contractor shall give at least 72 hours notice to the Landscape Architect and Irrigation Design Professional for observation of the work as follows:
1. Layout of the system
2. Observation of trenches, backfilling and equipment installation
3. Pressure tests and flushing operations
4. Coverage adjustment
5. Demonstration of final automatic operation and Final Walkthrough
6. The Irrigation Contractor shall produce and maintain written documentation of all the items above and include copies with the Final Closeout Documents.

3.2 PROTECTION

A. The Irrigation Contractor shall be responsible for the storage of materials and any theft or damage to the work covered by these Specifications before the final acceptance of the work.

B. Pipe and fittings shall be packaged in a manner suitable for shipment by a commercial carrier. Upon receipt at job site, a receiving inspection shall be prepared. The quantity shall be verified, and any shipping damage shall be reported to the supplier within seven (7) days.

C. Protect work and materials from damage during construction: Storage of polyvinyl chloride (PVC) pipe and fittings shall be protected from direct sunlight. Beds on which materials are stored must be the full length of the pipe to avoid damage. Any pipe that has been damaged or dented shall not be used in the work.

D. Any existing structures, equipment, utilities, pavement, landscaping, etc., damaged by Irrigation Contractor during the course of the work, including any damage caused by leakage or settling of piping systems being or having been installed by them, shall be restored at Irrigation Contractor's expense and to the Owner's satisfaction.

E. Securely cover openings into the system and cover apparatus, equipment, and appliances, both before and after being set in place to prevent obstruction in the pipes and the breakage, misuse or disfigurement of the apparatus, equipment, or appliances.

3.3 LAYOUT AND VERIFICATION

A. The Irrigation Contractor shall stake the locations of all pipe circuits, quick coupling valves, and irrigation heads in accordance with the Project drawings. The Irrigation Contractor shall check and verify dimensions of layout and report variations to the Landscape Architect and Irrigation Design Professional. Layout the work as accurately as possible to the drawings.

B. Minor changes in locations to the above from locations shown shall be made as necessary to avoid existing or proposed planting, piping, utilities, structures, etc., at the Irrigation Contractor's expense or when directed by the Owner's Representative, providing such

change is ordered before such items or work directly connected to same are installed, and providing no extensive additional materials are required.

C. The Irrigation Contractor will be held responsible for the relocating of any items without first obtaining the Owner's Representative approval. The Irrigation Contractor shall remove and relocate such items, at his expense, if so directed by Owner's Representative.

D. Before staking work on irrigation system, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths.

E. No fittings shall be installed on pipe underneath pavement or walls, if such a need should occur, the Contractor shall bring it to the attention of Landscape Architect and Irrigation Design Professional.

F. Exact drip line and sprinkler head placement is based on and shall be coordinated with actual planting layout and shall be verified by Landscape Architect and Irrigation Design Professional.

3.4 TRENCHING, BORING AND ENCASEMENT

A. Excavation: Trenches shall be excavated in accordance with the plans and specifications, OSHA standards or Owner safety policies regarding safety shall be followed regarding trench safety. If groundwater is encountered, it shall be removed by the Contractor. Shoring of the trench, where required, is the responsibility of the Contractor.

B. Make trenches for main and laterals straight and true with the bottoms graded on uniform slopes to low points. Excavate trenches wide enough to allow a minimum of four inches (4") (100 mm) between parallel pipelines, eight inches (8") (200 mm) from lines of other trades. Do not install lines parallel and directly over one another. Maintain two inches (2") (50 mm) vertical clearance between irrigation lines; minimum transverse angle is 45 degrees. There shall be a maximum of two lines per trench. No irrigation lines shall extend above subgrade.

C. Trench Depths:
1. Main Line
   a. 18 – 24" below final grade in green space areas.
   b. 30" below top of hard surface under hard surface areas within sleeves
2. Laterals
   a. 12 – 18" below final grade in green space areas
   b. 30" below top of hard surface under hard surface areas within sleeves

3.5 PIPE ASSEMBLY

A. General:
1. Provide flanges or unions as indicated and as necessary to allow removal and reinstallation of any item of equipment or accessory without cutting, welding, or soldering.
2. Provide discharge piping of proper size for all air vent, solenoid, and relief valves. Extend to nearest drain.
3. Provide 1" manual drain gate valves with hose connection at all low points in the system and immediately upstream of check valves as necessary to allow the system to be completely drained. Accurately locate manual drain valves on the As-Built drawings.
4. Cut pipe to measurements established at the site. Work into place without springing or forcing.
5. Protect all openings in piping during construction to prevent entrance of foreign matter.
6. Cut pipe and tubing ends square. Remove rough edges and burrs so that a smooth and unobstructed flow will be obtained.
7. Cross or short nipples shall only be used where shown on the irrigation drawing, or absolutely necessary to satisfy dimensional constraints.
8. Make changes in pipe size using reducing fittings.
9. Wherever two or more pipes are installed parallel, allow sufficient space for required welding, soldering, painting, and/or the application of insulation.

B. Installation of all pipes and fittings shall be in strict accordance with the manufacturer's written specifications. Deviations from these specifications shall be permitted only with the written approval of Owner's Representative.

C. PVC pipe and fittings:

1. Plastic pipe and fittings shall be solvent welded using solvents and methods as recommended by manufacturer of the pipe, except where screwed connections are required. Pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before applying solvent with a non-synthetic bristle brush.
2. Install PVC pipe in dry weather when temperature is above 40 degrees Fahrenheit in strict accordance with manufacturer's instructions.
3. Pipe may be assembled and welded on the surface. Snake pipe from side to side of trench bottom to allow for expansion and contraction.

D. Connections between plastic pipe and metal valves shall be made using plastic male adapters and applying the recommended threaded joint compound. Do not use pipe dope.

E. All metal screwed joints shall be tightened with tongs or wrenches and unless the specified joint compound. Caulking of any kind will not be permitted.

F. All lines to be installed under hard surfaces shall be installed in a PVC Schedule 40 sleeve. Depth of sleeves to be determined by the final top elevation of the hard surface above sleeve. All sleeves hall be placed at a minimum 30" depth below the final top elevation of the hard surface above the sleeve crossing. All sleeves are to be placed prior to the installation of any hard surface. Each end of all sleeve locations shall be marked with a brass marker placed below grade such of curb or wall.

G. Core drilling for irrigation piping penetrations shall be accomplished in a manner approved by the Owner. Provide metal sleeves for all irrigation lines wherever passing though a concrete wall or floor. Provide a water stop or membrane clamp for every pipe or sleeve penetrating an exterior concrete wall or floor, whichever is appropriate to the waterproofing method.

H. Install drip weather line and related equipment under the mulch and as per manufacturer's recommendations and written instructions. Do not install emitter line in direct sunlight. Maintain consistent spacing of drip line within planter beds to provide even distribution throughout the area.

I. Pipe Detection Tape: Install 12" above main line pipe only.

3.6 AUTOMATIC CONTROLLER

A. The automatic controller shall be provided with direct surge protection. The Irrigation Contractor shall verify power location and type, as well as power connection requirements to the Controller Location indicated on the Plan. The Irrigation Contractor shall connect the power to the controller. The location of the controller shall be as shown and noted on the drawings and as directed by the Owner's Representative.

B. The controller shall be grounded to the building grounding systems per manufacturer's recommendations.

3.7 ELECTRICAL CONTROL WIRES

A. Electrical control wires shall be installed in the same trench as the main line wherever possible. Wires shall be laid alongside the pipe by "snaking" into the trench to allow as much slack as possible for contraction and expansion of the wire. All wire connections at remote control valves and at all wire splices will be left with two feet of wire so that the splice or the valve manifold can be brought to the surface for repairs without disconnecting the wires.

B. Wire splices shall be absolutely waterproof so that there is no chance for leakage of water and corrosion build-up on the connection. All wiring shall be accomplished with as few splices as possible.

C. Install all wire splices in a 10" round valve box and accurately note their locations on the As-Built drawings.

3.9 FIELD QUALITY CONTROL

A. The Irrigation Contractor shall notify the Landscape Architect and Irrigation Design Professional for the following reviews, with three (3) working days minimum notice:
1. Pressure testing mains and laterals
2. Observation of trenches, backfilling and equipment installation
3. Pressure tests and flushing operations
4. Coverage adjustment

5. Demonstration of final automatic operation and Final Walkthrough

B. Provide equipment and / or personnel required to conduct tests.

C. Provide up-to-date Progress Drawings at each review.

3.10 CLOSING OF PIPE AND FLUSHING OF LINES

A. Closing: Openings in laterals and main shall be capped or plugged, leaving care and steps in place until removal is necessary for completion of installation. Contractor shall take other precautions as necessary to prevent dirt and debris from entering pipe or equipment.

B. Flushing: Lines shall be thoroughly flushed out before installing quick coupling valves, sprinklers, or emitters. After flushing, main line pipe may be partially backfilled, but joints, fittings and connections shall remain free and visible.

C. Test in accordance with paragraph on Hydrostatic Test. Upon completion of the testing the Contractor shall complete assembly and adjust sprinkler heads for proper distribution.

3.11 PURGING

A. Immediately prior to hydrostatic testing, all irrigation lines shall be thoroughly purged of all entrapped air. Introduce water into lines to be tested at full operating head. Observe water flow at end of discharge point until determination is made that all air and residual debris has been expelled from the line.

3.12 HYDROSTATIC TESTING

A. Where the necessary piping system components are exposed, all mainline piping is to be subjected to a hydrostatic test. The Landscape Architect and/or the Irrigation Design Professional should be on premises for this testing.

B. The Irrigation Contractor is responsible to keep logs and written documentation of all testing activities. The Irrigation Contractor shall summarize and distribute this documentation as a part of the close out submittal package.

C. Do not install remote control valves, quick couplers, or any other valve assembly until Landscape Architect and/or Irrigation Design Professional assists testing of pressure main lines.

D. Testing shall occur with pipe joints exposed. Small amounts of backfill between fittings shall be allowed to prevent pipe displacements and flowing. All fittings shall be visible prior to testing.

E. Pressure gauges shall be read in PSI. Calibration shall be such that accurate determination of potential pressure loss can be ascertained.

F. For PVC pipe:
1. Test pressure supply lines under hydrostatic pressure of 125 psi minimum. Pipe shall hold pressure for a period of one (1) hour with no more than five (5) psi loss in order to pass test.
2. Re-test as required until the system meets the requirements. During the tests, regardless of the amount of leakage, all detectable leaks are to be stopped and all defects corrected. Note such activities and locations in the written log documentation as mentioned in Item B of this section.

3.13 BACKFILLING AND COMPACTING

A. Backfilling of PVC pipe:
1. Rock free backfill material for mainline pipe is to be tamped in four-inch (4") (100 mm) layers under the pipe and uniformly on both sides of the full width of the trench or as shown, and the full length of the pipe. Materials are to be sufficiently damp to permit thorough compaction under and on each side of pipe, to provide support free voids. PVC pipe shall not rest on concrete, rock wood blocks, or similar items.

B. All pipe is to be immediately backfilled with preliminary backfill sufficient to prevent arching or slipping under pressure.

PART 3 - EXECUTION (continued)

C. Other than for preliminary backfill over pipe, do not allow or cause any of the work to be covered before it has been inspected, tested, and approved by the Landscape Architect and/or Irrigation Design Professional.

D. Upon approval, proceed to place remaining (final) backfill. Final backfill material shall be clear of all debris (i.e. roots, limbs, large rocks, boulders, chunks, or frozen clods) larger than two-inch (2") (50 mm) in diameter, or any object that could damage the pipe. Finish grade of all trenches must conform to adjacent grades without dips, sunken areas, humps, or other irregularities. Dispose of any excess debris.

E. Restore all surfaces, existing underground installations, damaged or cut as a result of the excavations to their original condition.

3.14 ADJUSTING THE SYSTEM

A. Adjust alignment and coverage of all heads. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, make all necessary changes, or make arrangements to have adjustments made, prior to any planting. These changes or adjustments shall be made without additional cost and noted on the As-Built Drawings.

B. If any heads require different nozzles other than those specifically noted per each head on the plan, note the new nozzle size/ type and include the revised calculations on the As-Built drawings.

C. If any heads are added or subtracted from the current plan, due to actual site layout conditions, accurately note such heads and include revised zone calculations on the As-Built drawings.

D. Adjust and balance the system to eliminate over spray and fogging and as directed by Landscape Architect and/or Irrigation Design Professional.

3.15 TURN-OVER MATERIALS

A. Final Record As-Built Drawings:
1. A minimum of two physical sets of these shall be produced, one half sized plastic laminated paper set for placement in close proximity to irrigation controller cabinet location and one full size paper set for storage at another location desired by the Owner's Representative.
   a. Both sets shall have the irrigation valve zone lateral lines color-coded so as to readily distinguish between adjacent zones. The valve size, station number and gallons per minute shall be legible at each valve and shall match how the controller is wired. Additionally, each valve shall be annotated to describe which type of irrigation it is, i.e.: spray, rotor, bubbler, etc. Color-coded copies shall then be professionally laminated in 5 mil clear plastic.
2. The As-Built drawings shall be performed in Auto-CAD as per paragraph 1.6, subsection E of this specification.

B. Operational and Maintenance Data: Submit four copies of manufacturer's data, maintenance schedule and operational schedule in a three-ring binder, labeled and indexed. Include written Observation and Testing log records.

C. Equipment: Provide the following to the Owner's Representative:
1. One (1) Quick Coupler key equipped with swivel 90 (standard thread hose bib) per (5) Quick Couplers installed on the project.
2. Two (2) valve stem keys (48").
3. Four (4) spare heads of each series specified
4. A total of One (1) remote control solenoid valve/ kits of each type and size installed

D. Provide Owner's Representative with all Record Drawing submittals, turnover materials, salvaged items and warranty requirements prior to Final Walkthrough and Review.

END OF SECTION 328000

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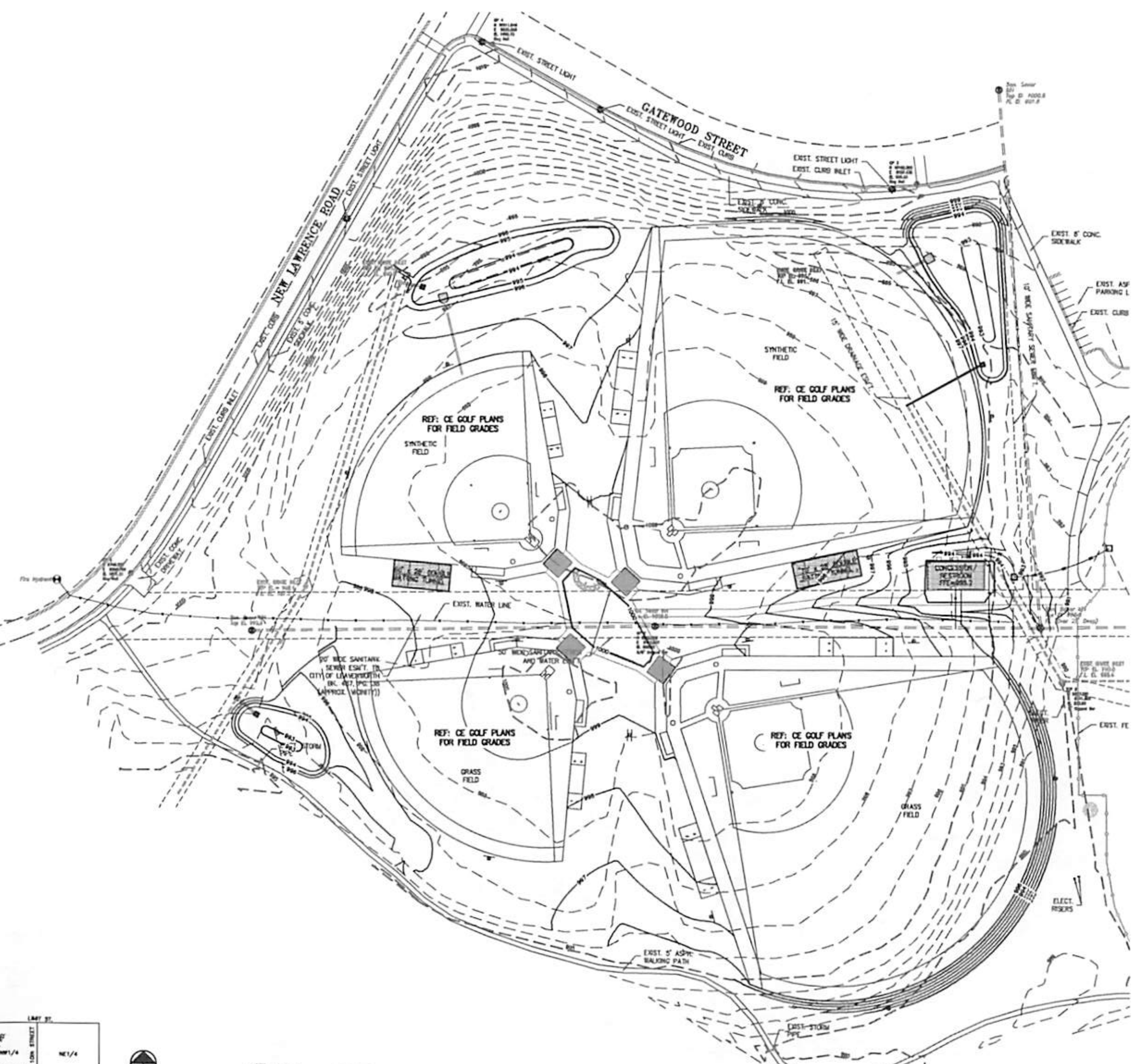
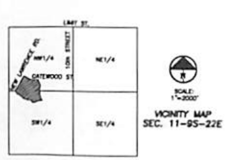
JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:

IRRIGATION PLAN

SHEET:
IR-7





811
Know what's below.
Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SITE GRADING NOTES:

1. CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted. proposed contours and elevations shown represent approximate finish grade. Contractor shall hold down subgrades to allow for pavement and sub-base thicknesses.
2. If the contractor does not accept existing topography as shown on the plans, without exception, he shall have made at his expense, a topographic survey by a registered land surveyor and submit it to the owner for review.
3. CLEARING AND GRUBBING: Prior to beginning preparation of subgrade, all areas under pavements or building shall be stripped of all topsoil, vegetation, large rock fragments (greater than 6 inches in any dimension) and any other deleterious material. The actual stripping depth should be based on visual examination during construction and the results of proof-rolling operations. The root systems of all trees (not designated to remain) shall be removed in their entirety. Stripping materials shall not be incorporated into structural fills.
4. TOPSOIL STRIPPING: Prior to the start of site grading, the contractor shall strip all topsoil from areas to be graded, and stockpiled at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping. At that time, and prior to the installation of landscaping or irrigation, all topsoil graded areas shall be visually inspected and accepted by the owner and ITL.
5. Contractor shall adjust and/or cut existing pavement as necessary to assure a smooth fit and continuous grade. Contractor shall assure positive drainage away from buildings for all natural and paved areas.
6. SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
7. PROOFROLLING: Subsequent to completion of stripping and over-excavation, all building and pavement areas to receive engineered fill should be systematically proof-rolled using a tandem axle dump truck loaded to approximately 20,000 pounds per axle. Also, any finished subgrade areas to receive paving shall be proof-rolled within 48 hours of paving. Unsuitable soils that are detected and that can not be recompacted should be over-excavated and replaced with controlled structural fill.
8. EARTHWORK:

   A) GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report. Said report and its recommendations are herein incorporated into the project requirements by reference. Prior to beginning construction, the contractor shall obtain a copy of and become familiar with the geotechnical report. Unless specifically noted on the plans, the recommendations in the geotechnical report are hereby incorporated into the project requirements and specifications.

   B) SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.

   C) FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil and debris. In areas where the thickness of the engineered fill is greater than five, feet building and pavement construction should not commence until as authorized by the on-site geotechnical engineer to allow for consolidation.

   D) BUILDING SUBGRADE: As specified in the Geotechnical Engineering Report, the upper section of building subgrade shall consist of Low Volume Change (LVC) material defined as approved, compacted granular fill or low to moderate plasticity cohesive soil materials stabilized with Class C Flyash. Granular fill shall consist of compacted granular materials with a maximum particle size of two (2) inches or less, such as limestone screenings. Refer to geotechnical report for complete requirements.

   E) EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 3:1 (horizontal to vertical), existing slope shall be benched providing a minimum vertical face of twelve inches (12"). The benches should be cut wide enough to accommodate the compaction equipment. Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose lift measurement), unless otherwise approved by the Geotechnical Engineer.

   F) COMPACTION REQUIREMENTS: The upper 9 inches of pavement subgrade areas shall be compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall within a range of 0% below to 4% above optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.

9. All cut or fill slopes shall be 3:1 or flatter. All asphalt parking areas shall be a minimum of 1% slope but not more than 3% slope unless otherwise noted. All pavements within ADA parking areas shall not exceed 2% total slope. All grades around building shall be held down 6" from finish floor and slope away another 6" in 10 feet. Contractor shall notify engineer prior to final subgrade construction of any areas not within this slope requirement.
10. TESTING AND INSPECTION: Owner's Independent Testing Laboratory (ITL) shall make tests of earthwork during construction and observe the placement of fills and other work performed on this project to verify that work has been completed in accordance with Geotechnical Engineering Report, Project Specifications and within industry standards. The ITL will be selected by the owner and the cost of testing will be the owner's responsibility.
11. CLASSIFICATION: All excavation shall be considered unclassified. No separate or additional payments shall be made for rock excavation.
12. PERMANENT RESTORATION: All areas disturbed by earthwork operations shall be seeded, unless shown otherwise by the landscaping plan or erosion control plan.
13. UTILITIES: The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.
14. LAND DISTURBANCE: The contractor shall adhere to all terms & conditions as outlined in the EPA or applicable state N.P.D.E.S. permit for storm water discharge associated with construction activities. Refer to project S.W.P.P.P. requirements.

ADA PATH NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE THAT THE SIDEWALK/CROSSWALK SHALL NOT EXCEED 2% CROSS SLOPE OR 5% RUNNING SLOPE (IN THE DIRECTION OF TRAVEL, EXCEPT AT RAMP LOCATIONS).

FLOOD NOTE:

THIS PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOOD PLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF OLATHE, JOHNSON COUNTY, KANSAS, COMMUNITY NO. 200106, 200108, & 200190, PANEL NO. 0143 G, AND DATED JULY 16, 2015.

CONTROL POINTS:

C.P. NO. 3
MAG NAIL IN WEST SIDE OF CONCRETE SIDEWALK RAMP LOCATED ON THE CURB ON THE SOUTH SIDE OF GATEWOOD ST.
TOP ELEV = 1001.21

C.P. NO. 5
MAG NAIL IN CENTER OF CONCRETE DRIVEWAY LOCATED ON THE CURB ON THE EAST SIDE OF NEW LAWRENCE ROAD.
TOP ELEV = 1001.21

C.P. NO. 8
S.E. CORNER GRATE INLET LOCATED BEHIND TRACK BLEACHERS AT RICHARD WARREN MIDDLE SCHOOL.
TOP ELEV = 988.88

LEGEND

—PL—	PROPERTY LINE
— —LL— —	LOT LINE
— —R/W— —	RIGHT-OF-WAY
— —920— — / — —918— —	EXISTING CONTOURS
—920— / —918—	PROPOSED CONTOURS
1068.00 SW	PROPOSED SPOT ELEVATION
LG	LIP OF GUTTER
TC	TOP OF CURB
SW	SIDEWALK
ME	MATCH EXISTING
HP	HIGH POINT
LP	LOW POINT
P	TOP OF PAVEMENT
TE	TOP OF STRUCTURE
GR	GROUND ELEVATION
BS	BOTTOM OF STEPS
TS	TOP OF STEPS
BW	BOTTOM OF WALL
TW	TOP OF WALL
═══	EXISTING STORM SEWER
═══	PROPOSED STORM PIPE

N

SCALE: 1"=50'
0' 50' 100'

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200 N. 4th Street
Leavenworth, Kansas 66048

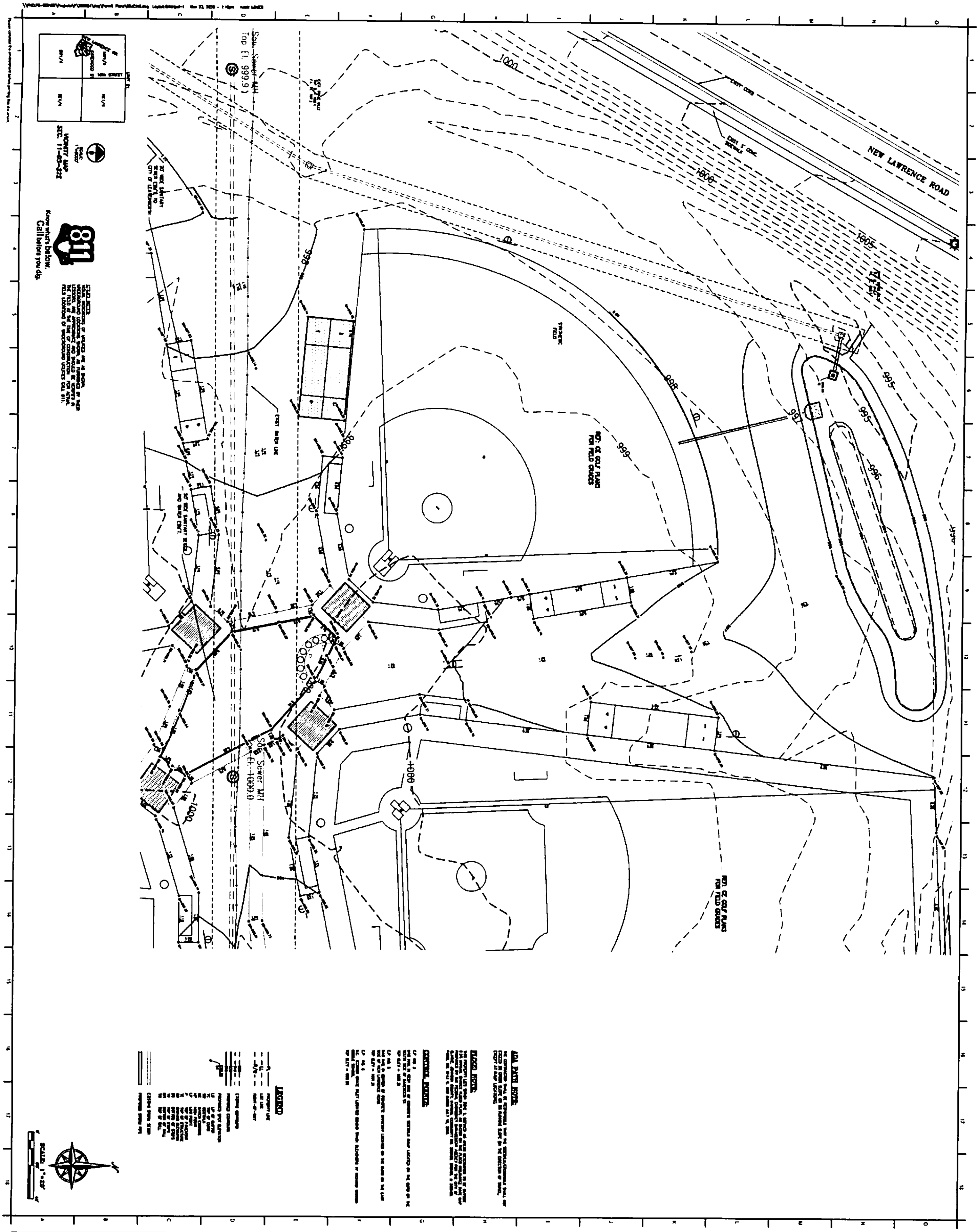
20960
11/23/2020
KANSAS
PROFESSIONAL ENGINEER

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

GRADING PLAN

SHEET:
C1

Please consider the environment before printing this document.



NEW BASEBALL & SOFTBALL COMPLEX

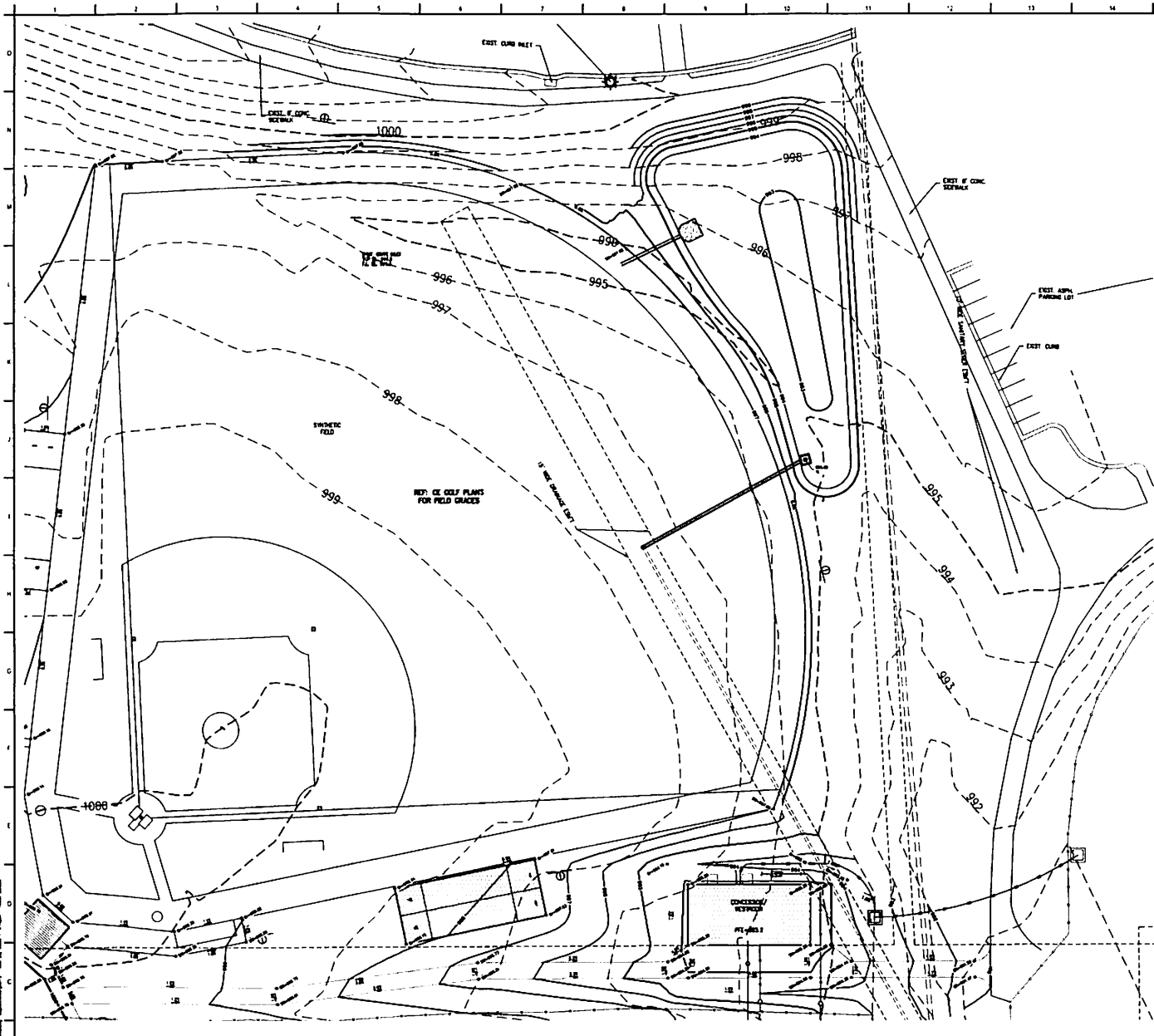
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

Construction Documents

ENLARGED GRADING PLAN

C1.1

CE Golf Design
MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
www.kansasturf.com
1270 N. Winchester
Olathe, Kansas 66061



ADA PAVE NOTE:

FLOOD NOTE:

CONTROL POINTS:

LEGEND

VICINITY MAP
SEC. 11-9S-22E

811
Know what's below.
Call before you dig.

UTILITY NOTES:

SCALE: 1" = 20'

CE Golf Design
3250 Brookhaluff Road
Kansas City, Kansas 66111
Phone 913.621.1214
Fax 913.621.0760
www.cegolfdesign.com

1270 N. Winchester
Olathe, Kansas 66061
Phone 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

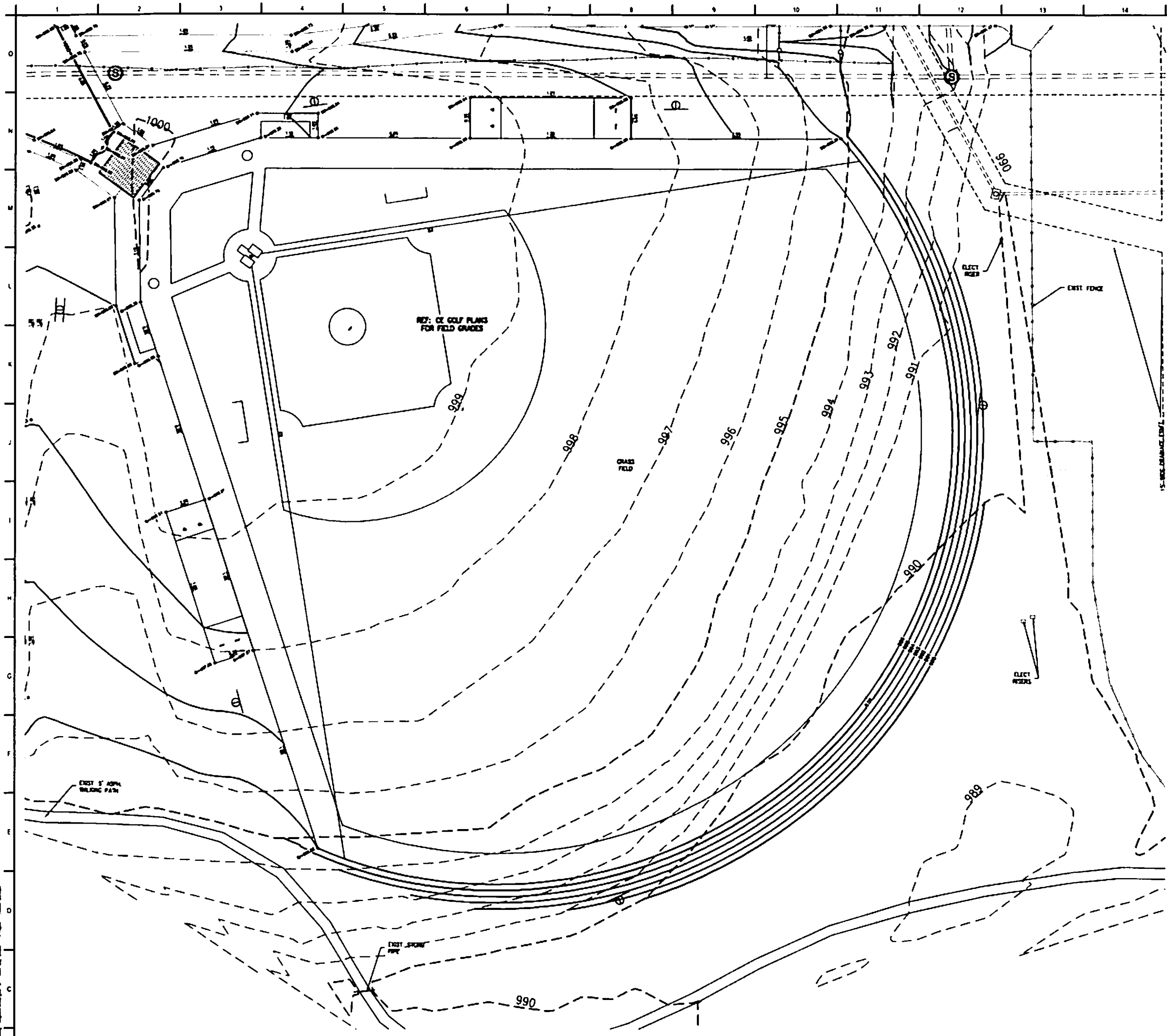
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

BIDDED 11/23/2020

JOB NO 20062#
DRAWN BY MRR
CHK'D BY DEU
DATE 11.23.20
REVISIONS

ENLARGED GRADING PLAN

SHT'T
C1.2



ADA PATH NOTE:

[illegible]

FLOOD NOTE:

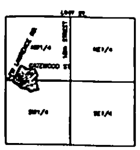
[illegible]

CONTROL POINTS:

[illegible]

LEGEND

[illegible]



811

Know what's below.
Call before you dig.

SCALE: 1"=20'

CE Golf Design
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.8760
www.cegolfdesign.com

1273 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

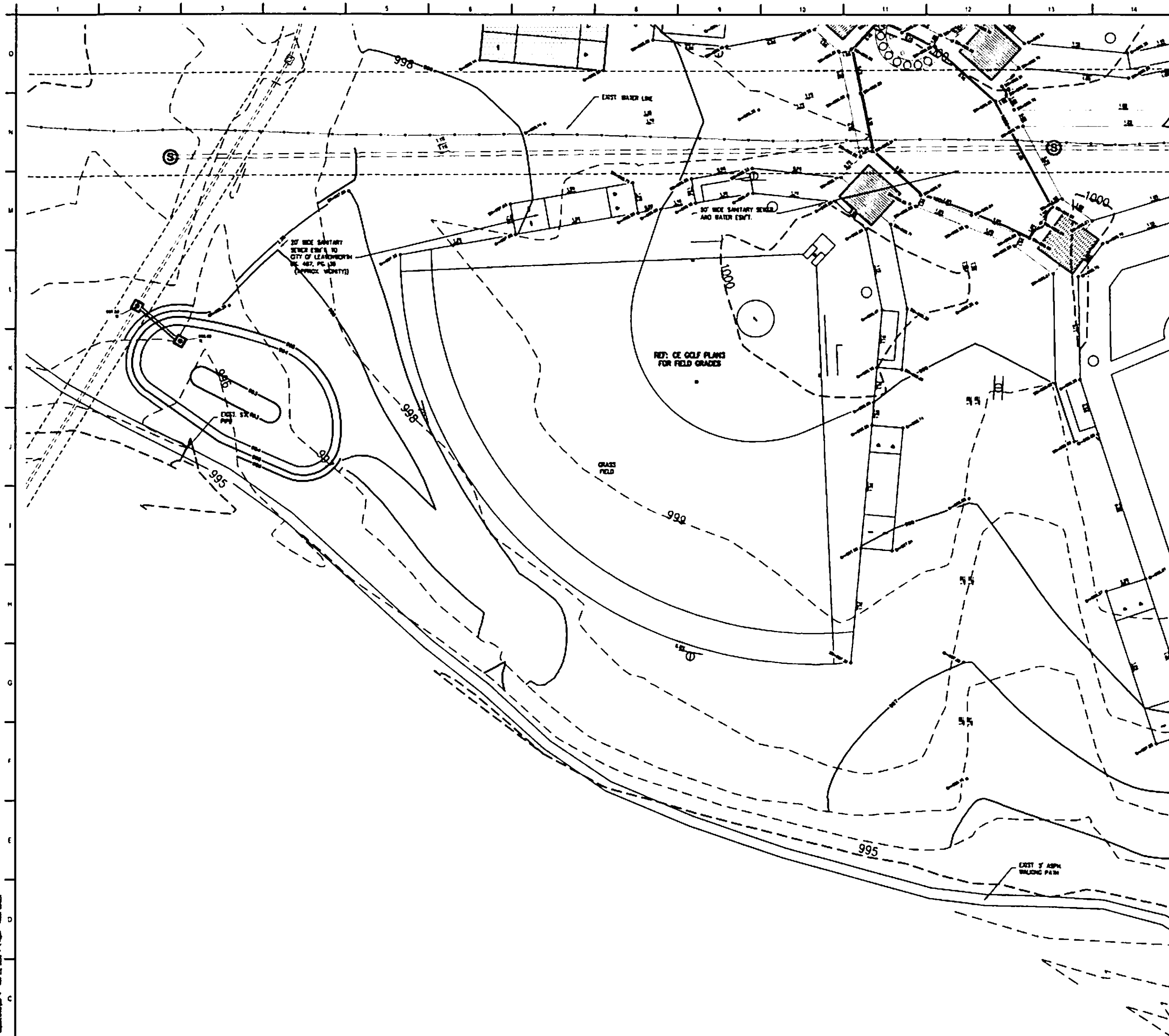
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO. 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS

ENLARGED GRADING PLAN

SHEET

C1.3



ADA PATH NOTE:

FLOOD NOTE:

CONTROL POINTS:

LEGEND

VICINITY MAP
SEC. 11-03-22E

811
Know what's below.
Call before you dig.

SCALE: 1"=20'

CE Golf Design
3250 Brookshire Road
Kansas City, Kansas 66115
Phone 913.621.5214
Fax 913.621.0760
www.cegolfdesign.com

1270 N. Winchester
Olathe, Kansas 66061
Phone 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
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Phone 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

11/23/2020

JOB NO. 200824
DATE 11.23.20
REVISIONS

ENLARGED GRADING PLAN

SHEET
C1.4

UTILITY COMPANIES:

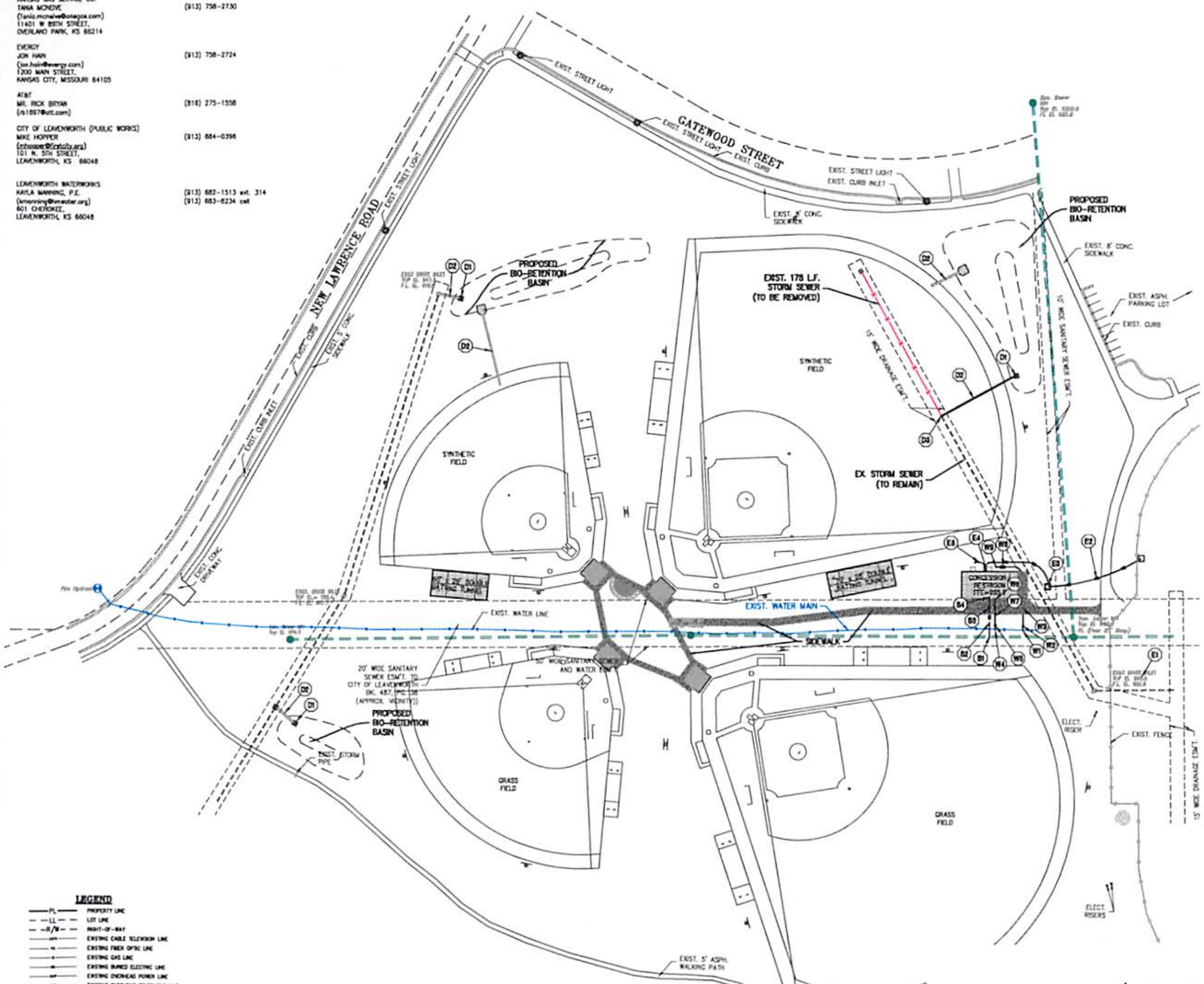
KANSAS GAS SERVICE CO.
TANIA MCNEIVE
(Tania.mcneive@onegas.com)
11401 W 89TH STREET,
OVERLAND PARK, KS 66214
(913) 758-2730

EVERGY
JON HAIN
(jon.hain@evergy.com)
1200 MAIN STREET,
KANSAS CITY, MISSOURI 64105
(913) 758-2724

AT&T
MR. RICK BRYAN
(rb1897@att.com)
(816) 275-1558

CITY OF LEAVENWORTH (PUBLIC WORKS)
MIKE HOPPER
(mhopper@firstcity.org)
101 N. 5TH STREET,
LEAVENWORTH, KS 66048
(913) 684-0398

LEAVENWORTH WATERWORKS
KAYLA MANNING, P.E.
(kmanning@lvnwater.org)
601 CHEROKEE,
LEAVENWORTH, KS 66048
(913) 682-1513 ext. 314
(913) 683-8234 cell



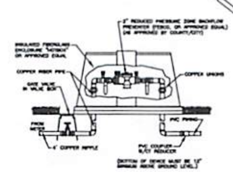
LEGEND

— PL —	PROPERTY LINE
— LL —	LOT LINE
— R/W —	RIGHT-OF-WAY
	EXISTING CABLE TELEVISION LINE
	EXISTING FIBER OPTIC LINE
	EXISTING GAS LINE
	EXISTING BURIED ELECTRIC LINE
	EXISTING OVERHEAD POWER LINE
	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING SANITARY SEWER LINE
24"HDPE	EXISTING STORM SEWER LINE (& SIZE)
	EXISTING BURIED TELEPHONE LINE
	EXISTING WATER LINE (& SIZE)
CATV	PROPOSED CABLE TELEVISION LINE
FO	PROPOSED FIBER OPTIC LINE
	PROPOSED GAS LINE
	PROPOSED BURIED ELECTRIC LINE
SS	PROPOSED SANITARY SEWER LINE
OHP	PROPOSED OVERHEAD POWER LINE
	PROPOSED STORM SEWER LINE (& SIZE)
BT	PROPOSED BURIED TELEPHONE LINE
	PROPOSED WATER LINE (& SIZE)
— ST —	PROPOSED ROOF DRAIN (& SIZE)

SCALE:
LEAVENWORTH
VICINITY MAP
SEC. 11-9S-22E

811
Know what's below.
Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.



IRRIGATION BACKFLOW PREVENTOR
N.T.S.

UTILITY NOTES:

1. The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
2. The construction of storm sewers on this project shall conform to the requirements of the City's Technical Specifications and Design Criteria.
3. The contractor shall field verify the exact location and elevation of the existing storm sewer lines and the existing elevation at locations where the proposed storm sewer outlets or releases to existing ground. If discrepancies are encountered from the information shown on the plans, the contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.
4. It will be the contractors responsibility to field adjust the top of all manholes and boxes as necessary to match the grade of the adjacent area. Tops of existing manholes shall be raised as necessary to be flush with proposed pavement elevations, and to be 6-inches above finished ground elevations in non-paved areas. No separate or additional compensation will be made to the contractor for making final adjustments to the manholes and boxes.
5. Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. Spacing and at all bend points. Do not connect roof drains directly to storm sewer pipe.
6. The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, backflow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system. All costs associated with the complete water system for the buildings shall be the responsibility of the contractor. All work shall conform to the requirements of City.

The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the buildings to the public line. All work shall conform to the requirements of the City.

7. The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.
8. By the use of these construction documents the contractor hereby agrees that he/she shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses or damages related to the project.
9. The Contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structures. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact tie-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
10. All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
11. Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
12. Water lines shall be as follows (unless otherwise shown on plans):
   A. Pipe sizes less than 3-inches that are installed below grade and outside building shall comply with the following:
      1. Seamless Copper Tubing: Type "K" soft copper, ASTM B88.
      2. Fittings: Wrought copper (93_3 Tin Antimony solder joint), ASME B 16.22.
   B. Pipe sizes 3-inches Through 48-inches that are installed below grade and outside building shall comply with one of the following:
      1. Gray Cast Iron Water Pipe: ANSI A21.6, thickness class 52.
         a. Fittings: Either mechanical joint or push_on joint, AWWA C110 or AWWA C111.
         b. Elastomeric gaskets and lubricant: ASTM F477.
         c. Cement Mortar Lining, AWWA C104.
      2. Ductile Iron Water Pipe: AWWA C151, thickness class 50.
         a. Fittings: Either mechanical joint or push_on joint, AWWA C110 or AWWA C111.
         b. Elastomeric gaskets and lubricant: ASTM F477.
         c. Cement Mortar Lining, AWWA C104.
      3. Polyvinyl Chloride (PVC) Water Pipe: Pipe, AWWA C900, rated DR 18 (Class 150), continually marked as required.
         a. Elastomeric gaskets and lubricant: ASTM F477 for smaller pipes.
         b. Pipe joints: Integrally molded bell ends, ASTM D3139.
         c. Trace wire: Magnetic detectable conductor, (#12 Copper) brightly colored plastic covering imprinted with "Water Service" in large letters.
14. Minimum trench width shall be 2 feet.
15. Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to waterworks's specifications for commercial services.
16. All waterlines shall be kept min. ten (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, an 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.
17. All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
18. All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
19. Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.
20. When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
21. Refer to the building plans for site lighting electrical requirements, including conduits, pole bases, pull boxes, etc.

UTILITY KEY NOTES:

(D1) INSTALL OUTLET CONTROL STRUCTURE (SEE SHEET C7.3 FOR DETAIL)

(D2) INSTALL PRIVATE HDPE STORM SEWER. SEE STORMWATER PLAN & PROFILES FOR INVERT ELEVATIONS.

(D3) INSTALL 90° BEND. CONNECT TO EXISTING STORM LINE. (SEE SHEET C3)

(S1) CONNECT TO EXISTING 24" PVC SANITARY SEWER MAIN 90' DOWNSTREAM OF EXIST M.H.

(S2) INSTALL 20 L.F. 6" PVC SANITARY SEWER SERVICE LINE (SDR-35) (1.00% MIN SLOPE)

(S3) INSTALL 6" SANITARY SEWER CLEANOUT 10' FROM BLDG. (SEE DETAIL SHEET C7.2). TE=893.10

(S4) CONNECT TO BLDG. INTERIOR PLUMBING

(W1) CONTRACTOR TO PERFORM AND COORDINATE 16"x3-1/2" TAP ON EXISTING DIP MAIN FOR PROPOSED 3-1/2" DOMESTIC SERVICE LINE TO METER. CONTACT LEAVENWORTH WATER FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP. OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY LEAVENWORTH WATER.

(W2) PROVIDE AND INSTALL 2" PRIMARY WATER METER PIT PER LEAVENWORTH WATER REQUIREMENTS. CONTRACTOR TO COORDINATE AND PAY ALL FEES. ALL LABOR AND MATERIALS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR'S PLUMBER IN ACCORDANCE WITH CITY STANDARDS.

(W3) INSTALL DOMESTIC 3" WATERLINE SERVICE LINE FROM METER. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO BUILDING ENTRY.

(W4) CONTRACTOR TO PERFORM AND COORDINATE 16"x2" TAP ON EXISTING DIP MAIN FOR PROPOSED 2" DOMESTIC SERVICE LINE TO METER. CONTACT LEAVENWORTH WATER FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP. OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY LEAVENWORTH WATER.

(W5) PROVIDE AND INSTALL 1-1/2" PRIMARY WATER METER PIT PER LEAVENWORTH WATER REQUIREMENTS. CONTRACTOR TO COORDINATE AND PAY ALL FEES. ALL LABOR AND MATERIALS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR'S PLUMBER IN ACCORDANCE WITH CITY STANDARDS.

(W6) INSTALL 2" DOMESTIC WATERLINE ENTRY TO BUILDING. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO THE BUILDING ENTRY. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES (RE: BUILDING PLANS), GATE VALVES, REDUCERS, BENDS, TEES, ETC., WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH WATER UTILITY.

(W7) INSTALL DOMESTIC 2" WATERLINE SERVICE LINE FROM METER. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO BUILDING ENTRY.

(W8) INSTALL 2" IRRIGATION BACKFLOW.

(W9) STUBOUT FOR IRRIGATION CONTRACTOR TO CONNECT TO.

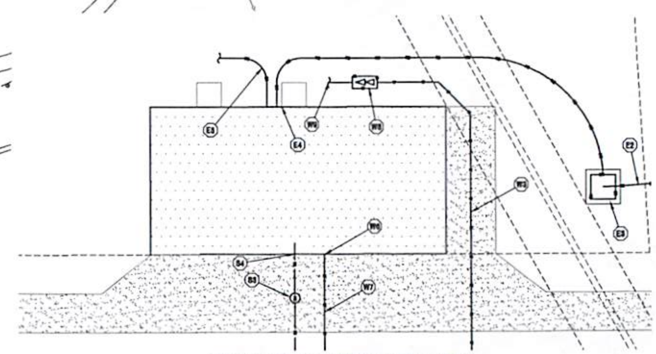
(E1) EXISTING ELECTRIC SECTIONALIZER (CONTRACTOR TO FIELD VERIFY LOCATION)

(E2) PROPOSED PRIMARY PVC ELECTRICAL CONDUIT. CONTRACTOR TO VERIFY CONDUIT SIZE WITH EVERGY.

(E3) PROPOSED ELECTRICAL TRANSFORMER

(E4) PROPOSED SECONDARY ELECTRICAL ENTRY INTO BUILDING

(E5) PROPOSED SECONDARY ELECTRICAL EXIT FROM BUILDING TO SUPPLY POWER TO THE FIELDS. REF METER FOR ROUTING OF THIS CONDUIT.



CONCESSION/RESTROOM BUILDING BLOWUP

SCALE: 1"=50'

CE Golf Design
Golf Course Design & Landscape Architecture
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.0760
www.cegolfdesign.com

PEI
PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.phelpsengineering.com

MAMMOTH
SPORTS CONSTRUCTION
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

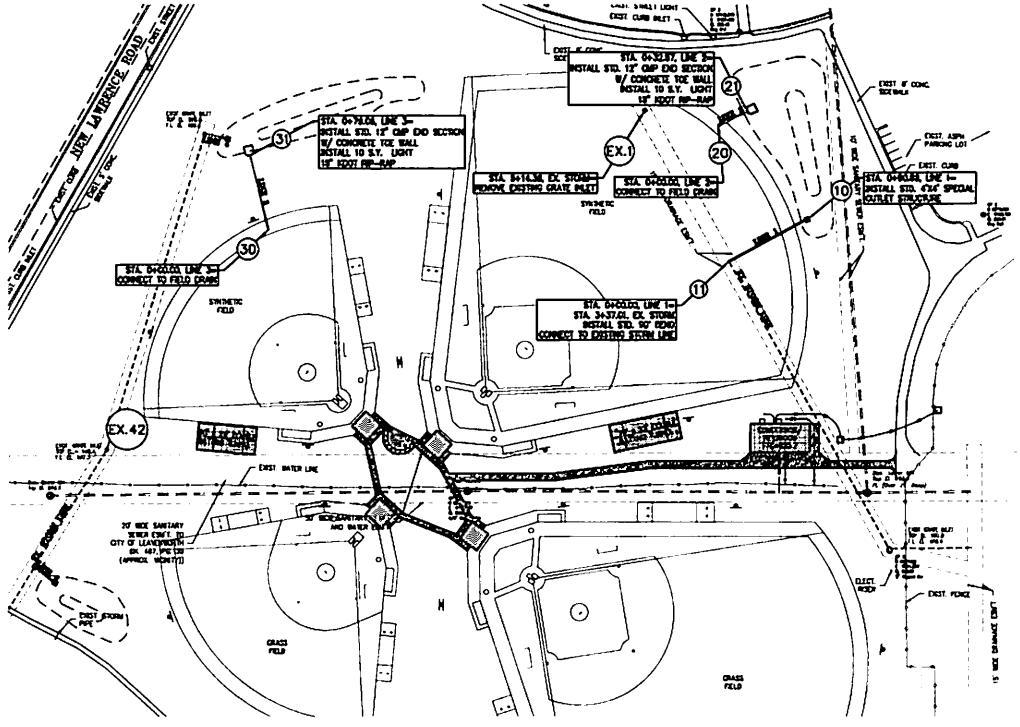
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

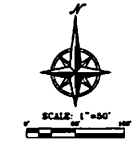
DOUGLAS EUGENE UHRIG JR.
20990
11/23/2020
KANSAS
PROFESSIONAL ENGINEER

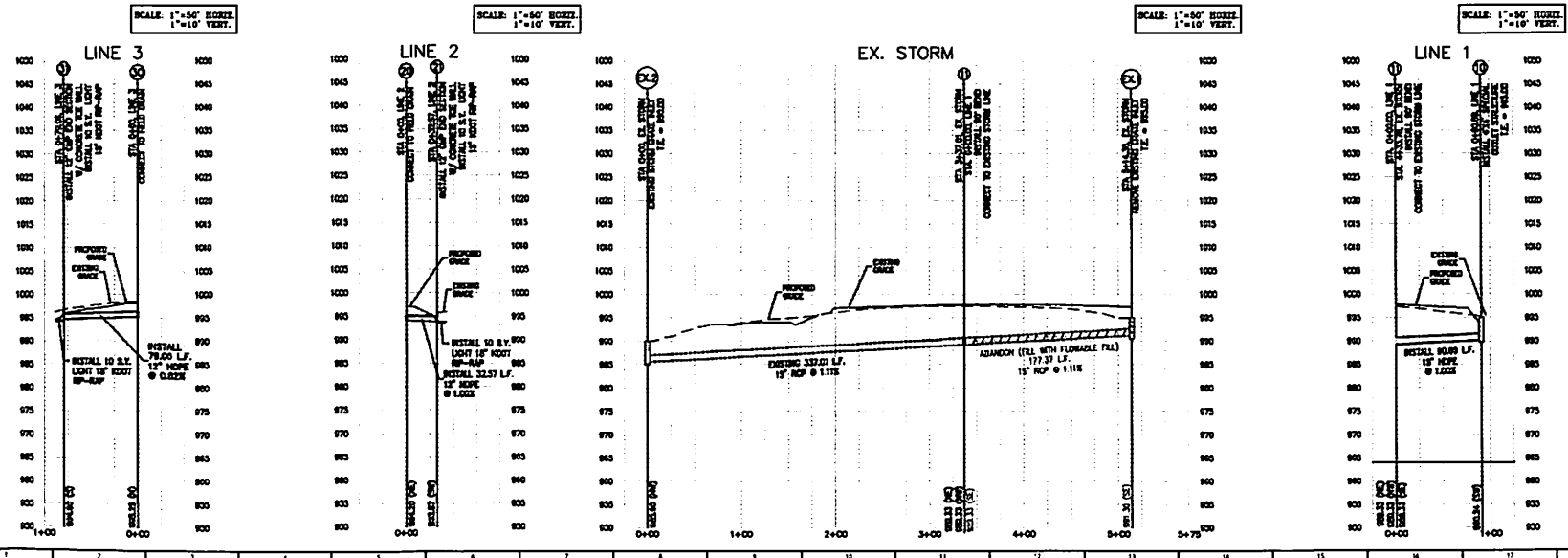
JOB NO: 200624
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

UTILITY PLAN

SHEET
C2







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Minden, Kansas 66512
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www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

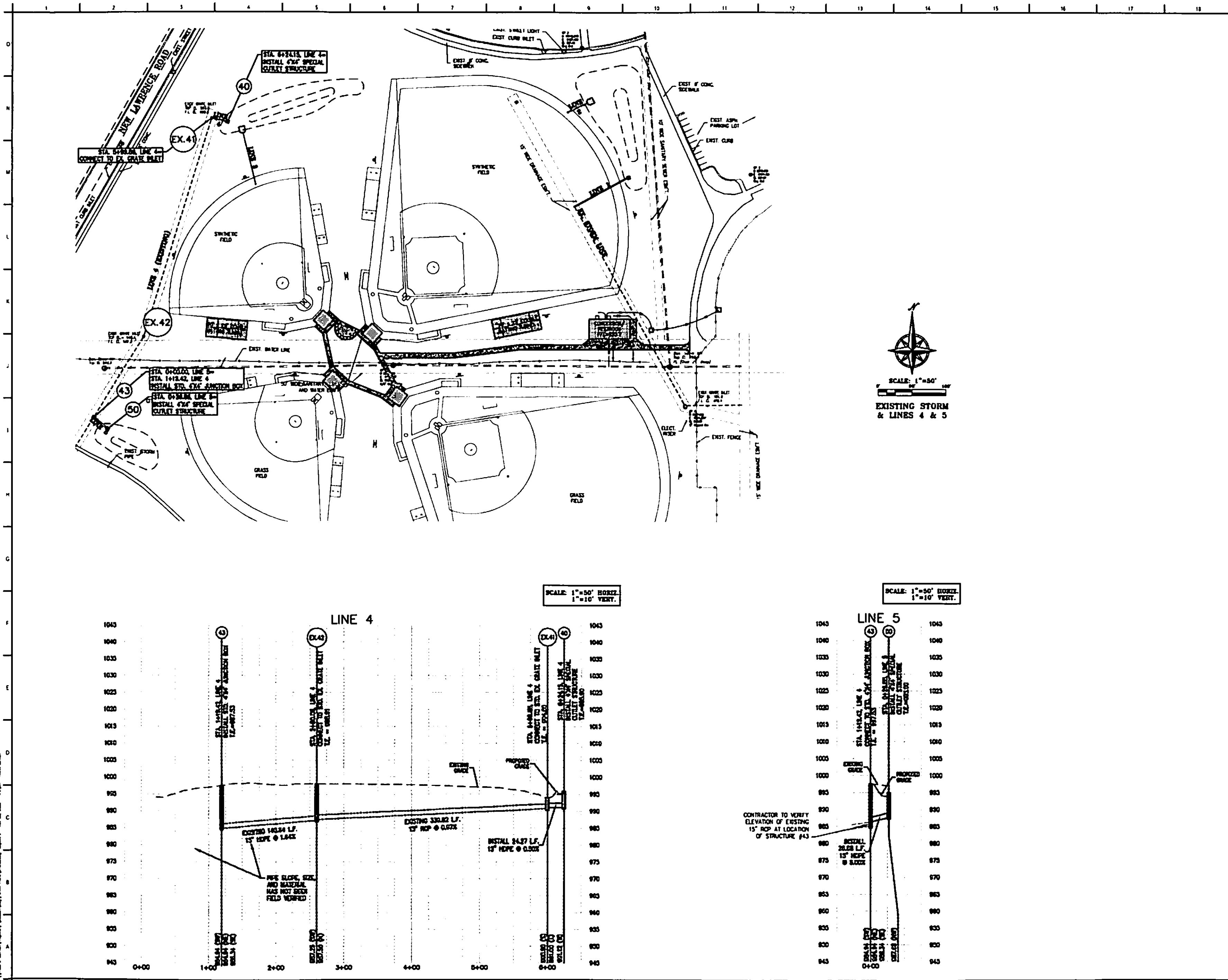
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

BOND 11/23/2020

JOB NO. 220824
DRAWN BY MRR
CHK'D BY DEU
DATE 11.23.21
REVISIONS

STORM PLAN & PROFILE

SHEET
C3



NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

Construction Documents

CE Golf Design
3250 Brinkerhoff Road
Kansas City, Kansas 66115

1270 N. Winchester
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www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

JOB NO: 230824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS

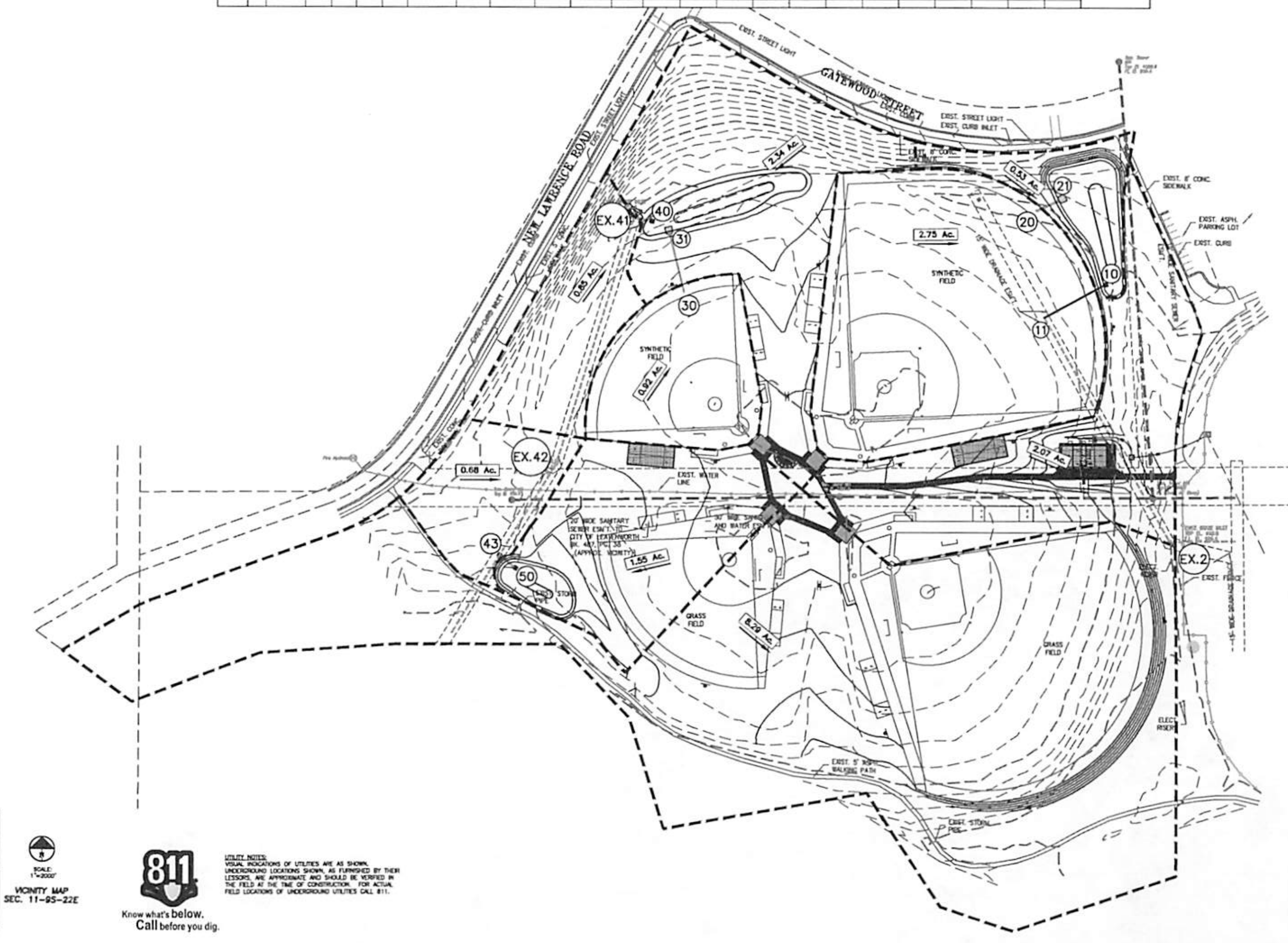
STORM PLAN & PROFILE

SHEET
C3.1

STORM DRAINAGE CALCULATIONS

DESIGN CRITERIA: K_{10} = 1.0, K_{100} = 1.25; n = 0.013 (RCP); STORM FREQUENCY = 10 YEAR; A.I = AREA INLET; J.B. = JUNCTION BOX; C.I. = CURB INLET; C.C. = CURB OUT; G.I. = GRATE INLET; HEIGHT OF STRUCTURE=RIM ELEV MINUS FLOWLINE OUT.

		I. RUNOFF									II. PIPE DESIGN															REMARKS
		INCREMENTAL			CUMULATIVE						STRUCTURE				PIPE											
LINE NUMBER	STRUCTURE	RUNOFF COEFFICIENT "C"	AREA "A" (ACRES)	C x A	AREA "A" (ACRES)	C x A	SYSTEM TIME OF CONCENTRATION "Tc" AT STRUCTURE (MIN)	RAINFALL INTENSITY (IN/HR)	ANTECEDENT PRECIPITATION FACTOR	RUNOFF (CFS)	Upstream Structure Number	Downstream Structure Number	Upstream Structure Rim Elevation	Height of Structure (FT)	Diameter "D" (IN)	Length "L" (FT)	Upstream Invert Elevation	Downstream Invert Elevation	Slope "S" (FT/FT)	Travel Time in Pipe "Tt" (MIN)	Velocity Full V (FPS)	Runoff Q_{10} (CFS)	Runoff Q_{100} (CFS)	Full Flow Q_f (CFS)		
1	10	0.30	0.53	0.16	3.29	1.73	5.00	7.35	1.00	12.7	10	11	995.00	4.76	15	90.69	990.24	989.33	0.0100	0.28	5.3	12.7	22.3	6.5	
								10.32	1.25	22.3															
	EX.11	0.30	0.00	0.00	3.29	1.73	5.28	7.27	1.00	12.6	11	12	997.74	8.41	15	337.01	989.33	985.60	0.0111	1.03	5.6	12.6	22.1	6.8	
								10.21	1.25	22.1															
	EX.12	0.44	2.07	0.83	5.35	2.56	6.29	6.97	1.00	17.9	11	13													
								9.81	1.25	31.4															
2	20	0.57	2.75	1.57	2.75	1.57	5.00	7.35	1.00	11.5	20	21	997.09	2.89	12	32.57	994.20	993.87	0.0101	0.12	4.6	11.5	20.3	3.6	
								10.32	1.25	20.3															
	21																								
3	30	0.68	0.93	0.63	0.93	0.63	5.00	7.35	1.00	4.6	30	31	998.12	2.87	12	79.06	995.25	994.60	0.0082	0.32	4.2	4.6	8.1	3.2	
								10.32	1.25	8.1															
	31																								
4	40	0.30	2.34	0.70	3.27	1.31	5.00	7.35	1.00	9.8	40	41	995.90	4.78	15	24.27	991.12	991.00	0.0049	0.11	3.7	9.8	17.2	4.5	
								10.32	1.25	17.2															
	EX.41	0.30	0.85	0.26	4.12	1.59	5.11	7.32	1.00	11.6	41	42	994.09	3.29	15	339.82	990.80	987.50	0.0097	1.08	5.2	11.6	20.4	6.4	
								10.28	1.25	20.4															
	EX.42	0.40	0.68	0.27	4.80	1.86	6.19	7.00	1.00	13.0	42	43	998.01	10.76	15	140.64	987.25	985.84	0.0100	0.44	5.3	13.0	22.9	6.5	
								9.85	1.25	22.9															
	43	0.30	0.00	0.00	6.35	2.31	6.63	6.88	1.00	16.0	43	44	997.33	11.73	15	119.42	985.80	984.61	0.0100	0.38	5.3	16.0	28.2	6.4	
								9.68	1.25	28.2															
	EX.44																								
5	50	0.30	1.55	0.47	1.55	0.47	5.00	7.35	1.00	3.5	10	11	995.00	7.32	15	26.89	997.68	996.34	0.0499	0.04	11.9	3.5	6.1	14.4	
								10.32	1.25	6.1															
	43																								



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- DENOTES DRAINAGE AREA
- DENOTES FLOW DIRECTION
- X.XX Ac. — DENOTES DRAINAGE AREA TO STRUCTURE
- DENOTES STRUCTURE NUMBER

SCALE: 1"=60'

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

811 Know what's below. Call before you dig.

VICINITY MAP
SEC. 11-9S-22E
SCALE: 1"=2000'

CE Golf Design
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.0760
www.cegolfdesign.com

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PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

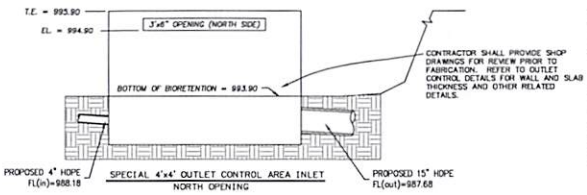
DRAINAGE MAP & CALCULATIONS

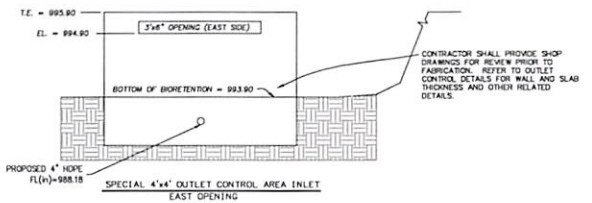
SHEET: C4

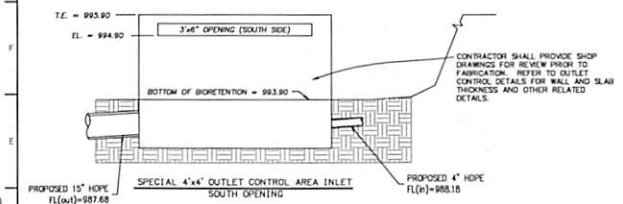
Bioretention Basin Maintenance and Inspections

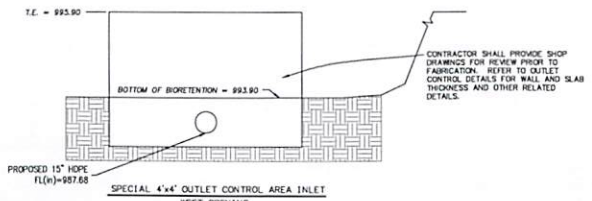
Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

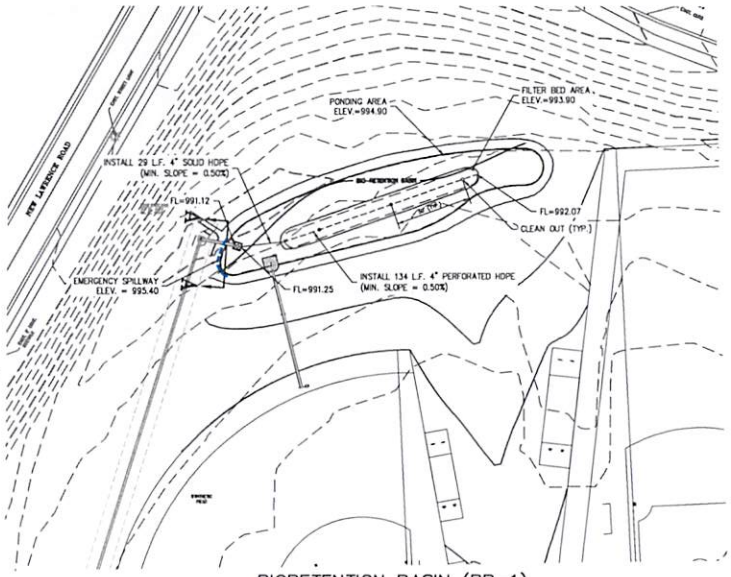
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year an application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).











BIORETENTION BASIN (BR-1)

TREATMENT AREA=3.26 ACRES

FILTER BED ELEVATION=993.90
FILTER BED AREA 1,450 S.F.

PONDING ELEVATION=994.90
PONDING AREA=7,793 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

3.26 Acres	Treatment Area
40%	% Impervious to Basin
0.15 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,230 Sq. Ft.	Minimum Required Filter Bed Area
6,647 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{100} = 20.61 CFS

Emergency Spillway Elevation = 995.40'
Emergency Spillway Width = 38'

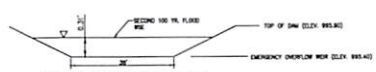
100-Year Emergency Spillway Flow Depth, H = 0.31'
$Q = CLH^{3/2}$ 20.61 = (3.1)(38)(.31)$^{3/2}$

Bioretention Basin Berm Elevation = 995.90'

LEGEND

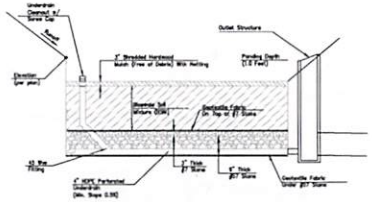
- WATER SURFACE ELEVATION
- 990 / 992 PROPOSED CONTOURS
- 990 / 992 EXISTING CONTOURS
- EMERGENCY SPILLWAY

SCALE: 1"=20'

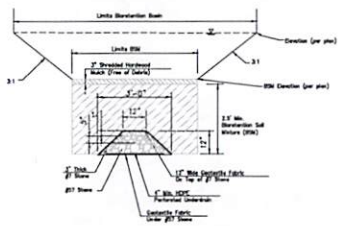


EMERGENCY OVERFLOW A-A

Q100 (INFLOW) = 20.61 cfs
$Q = CLH^{3/2}$
C_d = 2.1



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture: The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below.
Organic Compost	20%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil: The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or fumigated. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 - 0.050 mm)	50 -85%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 30%	AASHTO T88
Clay (less than 0.002 mm)	3 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
3 in.	100
No. 4	95
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No Sims exterations will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost: Compost is a homogeneous and stable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. Compost is deemed acceptable if it meets 3 of the following requirements:

1. C/N ratio <= 25.
2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour, and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from bioretention and leaving organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding stones, woody material and rocks.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P205)	not to exceed 80 ppm plant available phosphorus	*
Potassium (K20)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*See authorized soil test procedures

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no materials shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials:

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2x Shredded Hardwood Bark	See below.
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (30/50) from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provides a uniform texture free from woodchips, stray sod, foreign materials, and any artificially introduced chemical compounds that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substances that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesian) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	95
No. 100	50

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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www.pheilpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MKR
CHECKED BY: DEU
DATE: 11.23.22
REVISIONS:

BIO-RETENTION PLAN

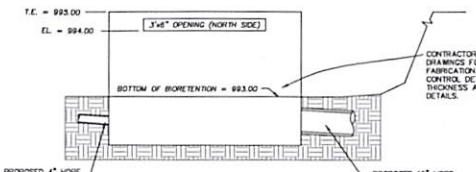
SHEET:
C5

Please consider the environment before printing this document.

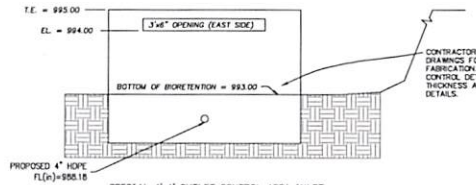
Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

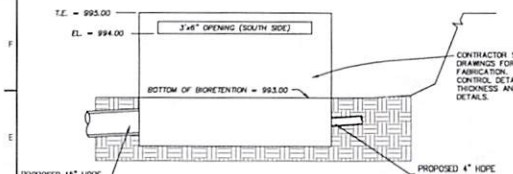
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year an application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).



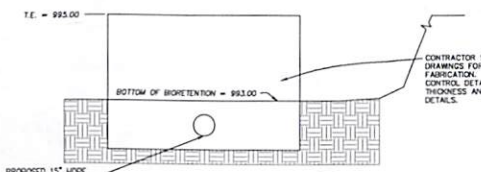
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



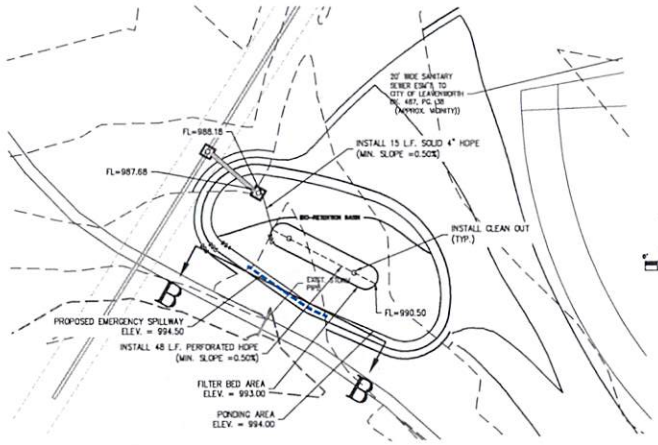
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN (BR-2)

TREATMENT AREA=1.55 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 457 S.F.

PONDING ELEVATION=994.00
PONDING AREA=4,024 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

1.55 Acres	Treatment Area
25.00%	% Impervious to Basin
0.03 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
392 Sq. Ft.	Minimum Required Filter Bed Area
2,120 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{in} =7.44 CFS

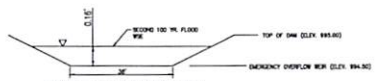
Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 38'

100-Year Emergency Spillway Flow Depth, H = 0.16'
$Q = CLH^{1.5}$ 7.44 = (3.1)(38)(.16)$^{1.5}$

Bioretention Basin Berm Elevation = 995.00'

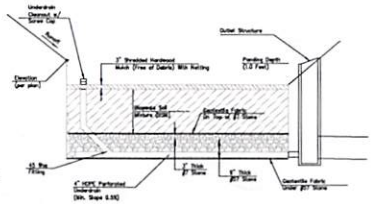
LEGEND

- WATER SURFACE ELEVATION
- 960 962 PROPOSED CONTOURS
- 960 962 EXISTING CONTOURS
- EMERGENCY SPILLWAY

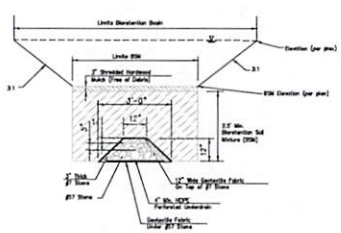


EMERGENCY OVERFLOW B-B

Q100 (INFLOW) = 7.44 cfs
$Q = CLH^{1.5}$
C_d = 3.1



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture. The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below.
Organic Compost	20%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil. The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 - 0.050 mm)	50 - 85%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 30%	AASHTO T88
Clay (less than 0.002 mm)	5 - 15%	AASHTO T88
Organic Matter	2 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
3 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No bins substances will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost. Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. Compost is deemed acceptable if it meets 3 of the following requirements:

1. C/N ratio => 25:
2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any substance over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding mineral soils, woody material and roots.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar debris larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P_2O_5)	not to exceed 80 ppm plant available phosphorus	*
Potassium (K_2O)	Minimum 75 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedure

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.
3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.
4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.
5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
6-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2in Shredded Hardwood Bark	See below
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provide a uniform texture free from snowball, stick, and, foreign materials, and any artificially introduced chemical compounds that would be detrimental to plant or animal life.
2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and sediment. For dewatering, the aggregate shall be placed as shown in the Contract Drawings.
3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.
4. Lime: Lime shall contain not less than 80 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 80 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	98
No. 100	90

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.
6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.
7. Potash: Potash (potassium

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

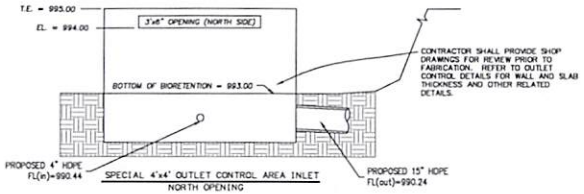
BIO-RETENTION PLAN

SHEET:
C5.1

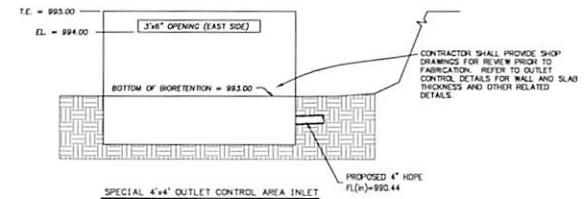
Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

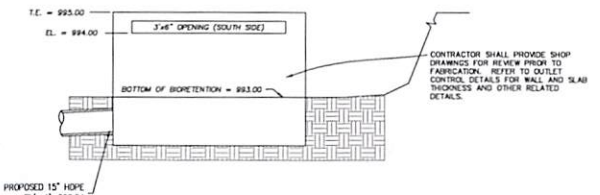
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary
- Once to twice per year on application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).



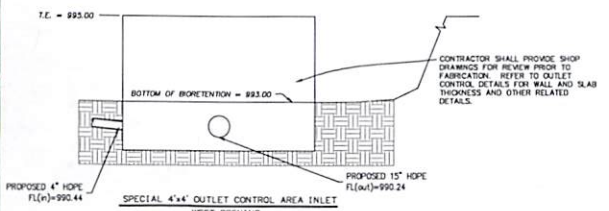
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



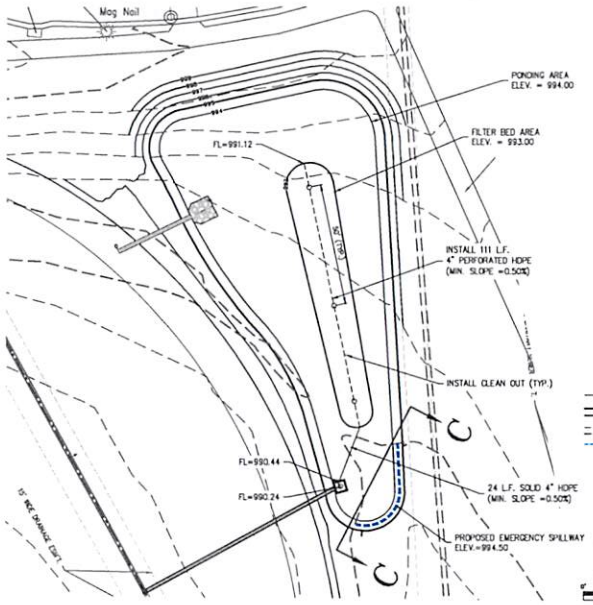
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN (BR-3)

TREATMENT AREA=3.28 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 1,772 S.F.

PONDING ELEVATION=994.00
PONDING AREA=9,335 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

3.28 Acres	Treatment Area
57%	% Impervious to Basin
0.21 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,701 Sq. Ft.	Minimum Required Filter Bed Area
9,183 Sq. Ft.	Minimum Required Ponding Area

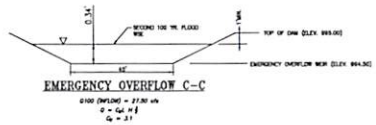
100-YEAR OVERFLOW

100-Year Inflow Q_{in} =27.50 CFS

Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 45'

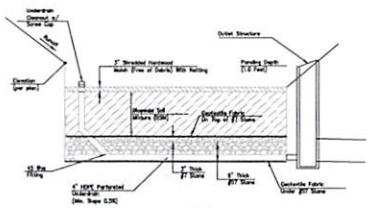
100-Year Emergency Spillway Flow Depth, H = 0.34'
$Q = CLH^{1.5}$ $27.50 = (3.1)(45)(.34)^{1.5}$

Bioretention Basin Berm Elevation = 995.00'



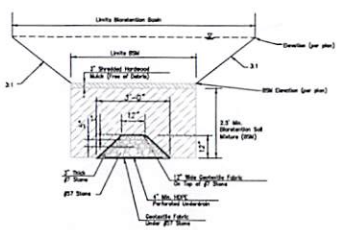
EMERGENCY OVERFLOW C-C

Q100 (INFLOW) = 27.50 cfs
Q = Cpt. H 1
Cp = 3.1



BIORETENTION BASIN TYPICAL SECTION 1

NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION

SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture. The Bioretention Soil Mixture (BSM) is a mixture of planting soil, sand, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below.
Organic Compost		
Sand	30%	ASTM C33 Fine Aggregate

B. Planting Soil. The USDA textural classification of the Planting Soil for this BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 - 0.050 mm)	50 - 80%	AASHTO T88
Silt (0.050 - 0.002 mm)	5 - 30%	AASHTO T88
Clay (Less than 0.002 mm)	2 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the laboratory testing results of the Planting Soil for this BSM to the Engineer for approval. No Sites substitutions will be granted should the proposed Planting Soil fail to meet the requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost. Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid, biodegradable organic substrate produced by thermophilic phase.
Compost is deemed acceptable if it meets 2 of the following requirements:

1. C/N ratio <= 25;

2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour; and

3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: any matter over a 2 mm dimension that results from human intervention and having organic or inorganic, manufactures such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in this material but excluding mineral soils, woody material and rocks.

4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	6.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P2O5)	Not to exceed 80 ppm plant available phosphorus	*
Potassium (K2O)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedure

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Sinking of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Type 2x Shredded Hardwood Bark Mulch	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 1 in. particle size and provide a uniform texture free from sawdust, inks, ash, foreign materials, and any artificially introduced chemical components that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent oxides and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	95
No. 100	50

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

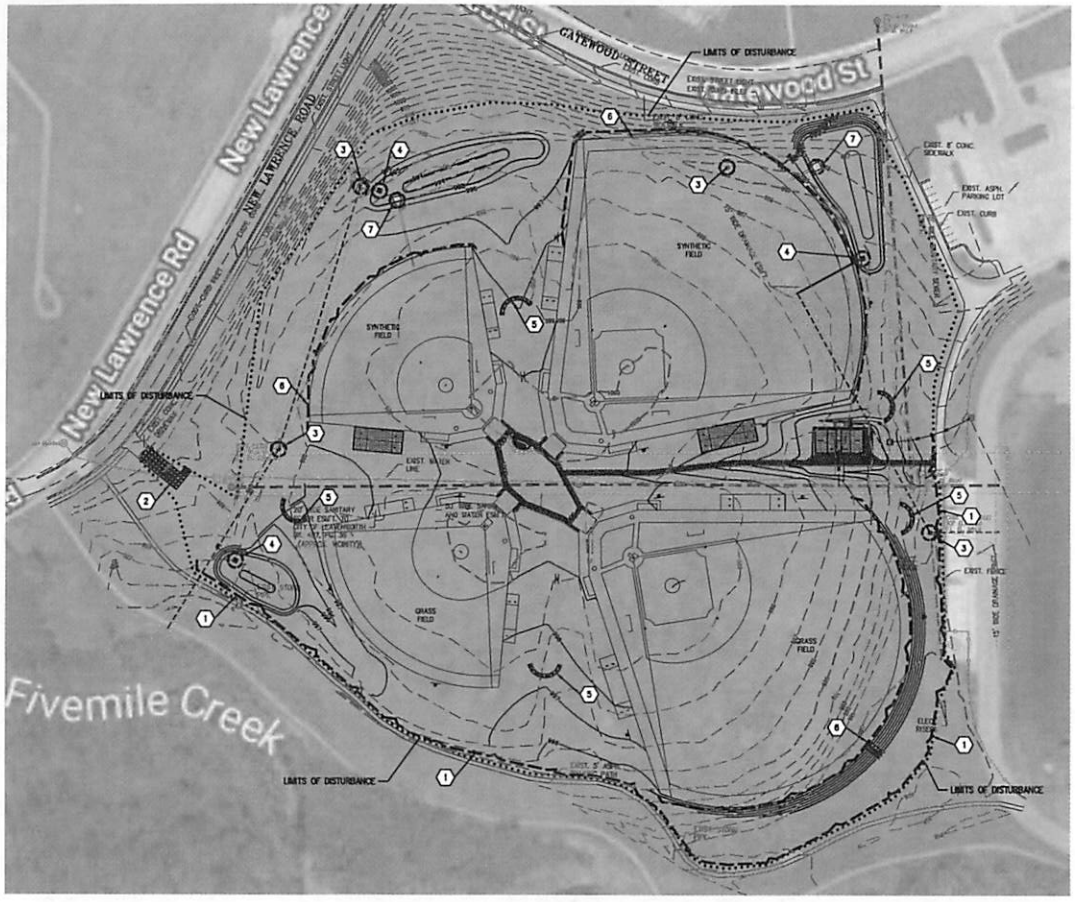
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.22
REVISIONS:

BIO-RETENTION PLAN

SHEET:
C5.2



EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. Prior to Land Disturbance activities, the contractor shall:
   - Delineate the outer limits of any tree or stream preservation designated to remain with construction fencing.
   - Construct a stabilized entrance/parking/delivery area and install all perimeter sediment controls on the site.
   - Install and request the inspection of the preconstruction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until t here is a satisfactory inspection.
   - Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing, placement of physical barriers or other means acceptable to the contractor and the City Inspector.
2. Erosion and sediment control devices protecting the public right-of-way shall be installed as soon as the right-of-way has been backfilled and graded.
3. The contractor shall comply with all requirements of City Ordinances or State permit requirements, such as:
   - The contractor shall seed, mulch, or otherwise stabilize any disturbed area where the land disturbance activity has ceased for more than 14 days.
   - The contractor shall perform inspections of erosion and sediment control measures at least once a every 14 days and within 24 hours following each rainfall event of ½" or more within any 24-hour period
   - The contractor shall maintain an inspection log including the inspector's name, date of inspection, observations as to the effectiveness of the erosion and sediment control measures, actions necessary to correct deficiencies, when the deficiencies were corrected, and the signature of the person performing the inspection. The log shall be available for review by the City, the State of Kansas, or other authorities having jurisdiction.
4. The contractor shall maintain installed erosion and sediment control devices on a manner that preserves their effectiveness for preventing sediment from leaving the site or entering a sensitive area such as a natural stream corridor, tree preservation areas of the site intended to be left undisturbed, a storm sewer, or an on-site drainage channel. Failure to do so is a violation of the provisions of City Ordinances and State permit requirements.
5. The contractor is responsible for providing erosion and sediment control for the duration of a project. If the City determines that the BMP's in place do not provide adequate erosion and sediment control at any time during the project, the contractor shall install additional or alternate measures that provide effective control.
6. Concrete wash or rinsewater from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., may not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place and excess water evaporated or infiltrated into the ground.
7. Chemicals or materials capable of causing pollution may only be stored onsite in their original container. Materials store outside must be in closed and sealed water-proof containers and located outside of drainageways or areas subject to flooding. Locks and other means to prevent or reduce vandalism shall be used. Spills will be reported as required by law and immediate actions taken to contain them.

MAINTENANCE: ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLANATION, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-THIRD THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

LEGEND

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM

STAGING CHART

Project Stage	BMP Plan Ref. No.	BMP Description	Remove after Stage	Notes:
A. Prior to Land Disturbance/ Sanitary Sewer Installation	①	Sediment Fence	C	Place downstream project site perimeter.
	②	Const. Entrance & Staging Area	C	Include concrete washout pit.
	③	Inlet Protection	C	Install Inlet Protection before and after grading
B. Mass Grading & Storm Sewer Installation	③	Inlet Protection	C	Install Inlet Protection before and after grading
	④	Rock Ditch Check	C	Install rock ditch check.
	⑤	Sediment Fence	C	Place downstream belt field perimeter.
	⑦	Outlet Protection	C	Install Rip-Rap at end section
C. During Field Construction Until Closure of Land Disturbance Permit		Seed/Sod & Landscape	NA	Install Sod/Seed and Landscaping.

DISTURBED AREA = 15.44± ACRES

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
ROUGH GRADE / SEDIMENT CONTROL																		
TEMPORARY CONTROL MEASURES																		
STRIP & STOCKPILE TOPSOIL																		
STORM FACILITIES																		
TEMPORARY CONSTRUCTION ROADS																		
FOUNDATION / BUILDING CONSTRUCTION																		
SITE CONSTRUCTION																		
PERMANENT CONTROL STRUCTURES																		
FINISH GRADING																		
LANDSCAPING/SEED/FINAL STABILIZATION																		

SCALE: 1"=2000'

VICINITY MAP
SEC. 11-9S-22E

811 Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCALE: 1"=50'

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Construction Documents

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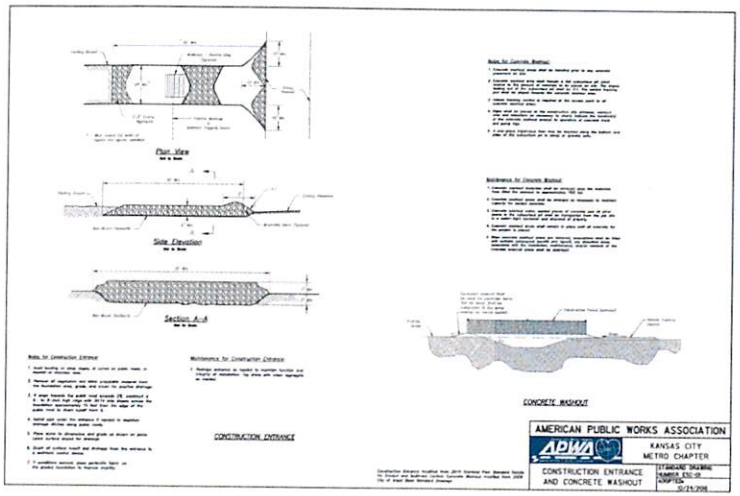
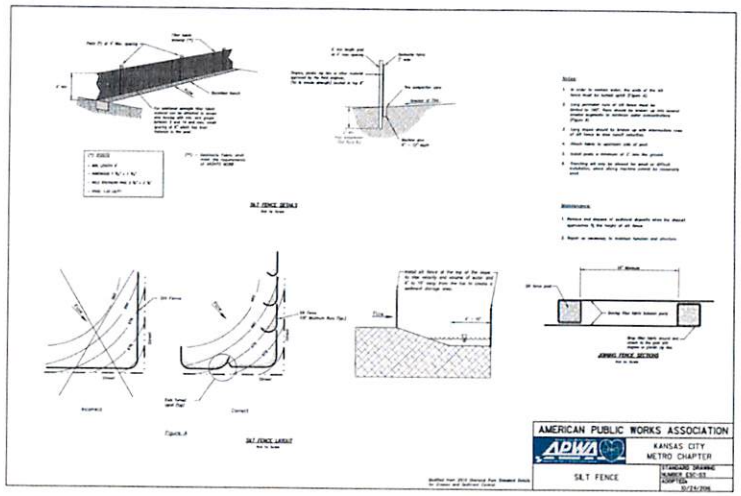
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

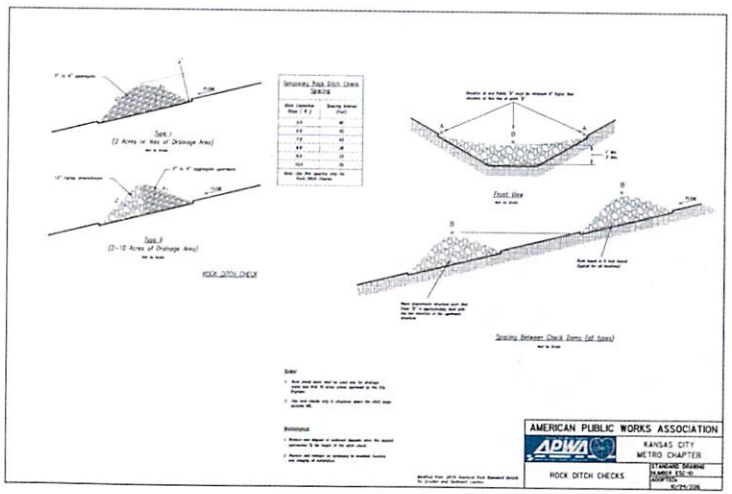
JOB NO: 220824
DRAWN BY: MKR
CHECKED BY: DEU
DATE: 11.23.22
REVISIONS:

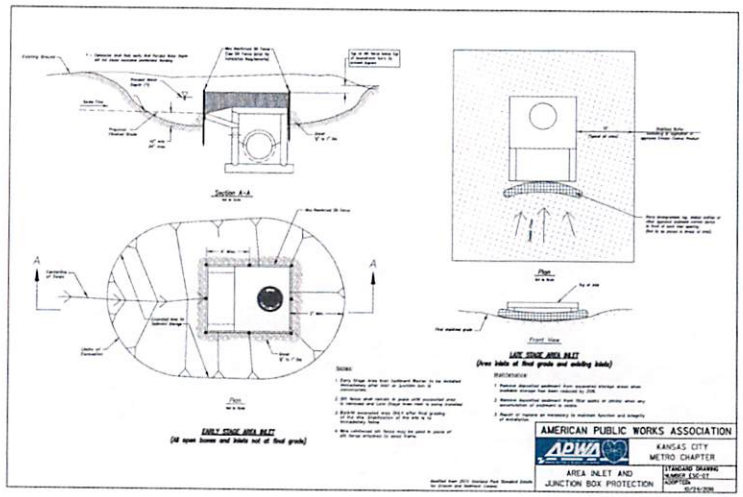
EROSION CONTROL PLAN

SHEET: C6









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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

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Leavenworth, Kansas 66048

JOB NO. 220024
DRAWN BY: MDS
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

EROSION CONTROL DETAILS

SHEET
C6.1

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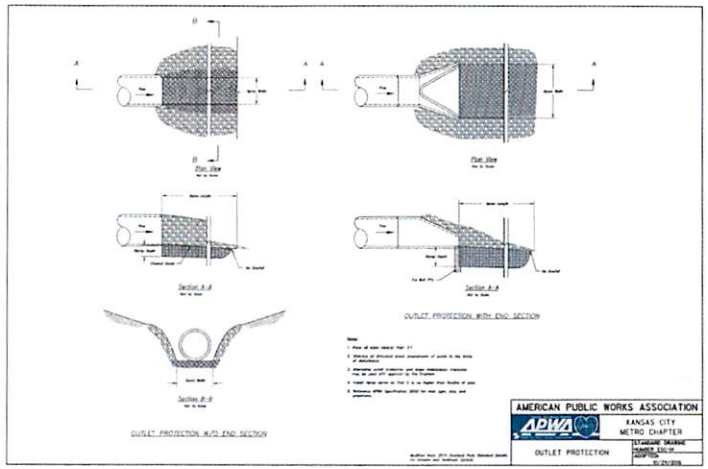

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PROFESSIONAL ENGINEER
20990
11/23/2020

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

EROSION CONTROL DETAILS

SHEET:
C6.2

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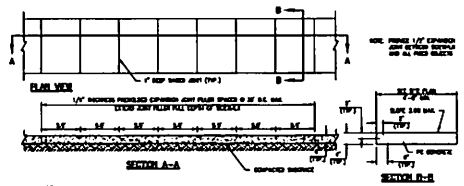
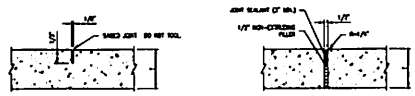


PRIVATE CONCRETE SIDEWALKS (NON REINFORCED)



NOTE: TYPE A JOINTS SHALL NOT EXCEED 30 TIMES THE PAVEMENT THICKNESS (T).

CONCRETE SIDEWALK JOINT DETAILS

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Construction Documents

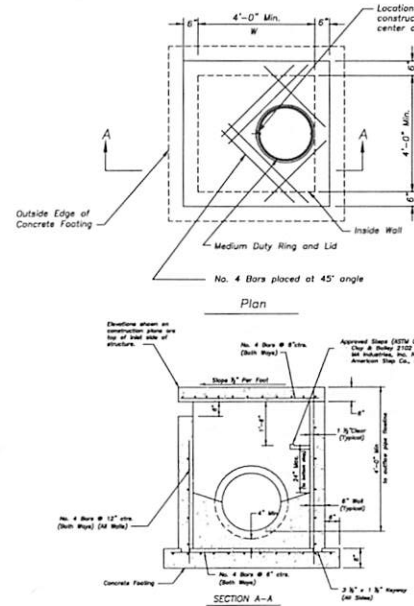
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO 230824
DRAWN BY MRR
CHECKED BY DEU
DATE 11.23.23
REVISIONS

STANDARD DETAILS

SHEET
C7



OUTLET CONTROL DETAIL

SCALE: N.T.S.

Outlet Control Structure Notes

General

1. All storm sewer structures shall be pre-cast or poured in place. If pre-cast structures are used for publicly financed, maintained or administered construction, the tops shall be poured in place and the wall steel shall be left exposed to a height 2" below the finish top elevation, or as directed by the City Engineer.
2. Pre-cast shop drawings are to be approved by the City Engineer for publicly financed or administered projects. Pre-cast shop drawings for privately financed projects are to be submitted to the Engineering Services Division of the Planning and Development Services Department.
3. Do not scale these drawings for dimensions or clearances. Any questions regarding dimensions shall be brought to the attention of the City Engineer prior to construction.
4. The first dimension listed in the construction notes is the "L" dimension. The second dimension is the "W" dimension. The concrete thickness and reinforcement shown is for boxes with ("L"+"H") and ("W"+"H") less than or equal to 20. For boxes with either of these calculations greater than 20, a special design is required.

Concrete

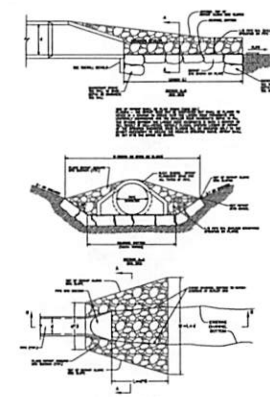
5. Concrete used in this work shall be KCMMB4K, as approved by the Kansas City Metropolitan Materials Board, and shall meet the requirements of the [illegible] Municipal Code.
6. Concrete construction shall meet the applicable requirements of Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation, latest edition, except as modified in the [illegible] Municipal Code.
7. Inlet floors shall be shaped with non-reinforced concrete inverts to provide smooth flow.
8. Bevel all exposed edges with ¾" triangular molding.

Reinforcing Steel

9. Reinforcing steel shall be new billet, minimum Grade 60 as per ASTM A615, and shall be bent cold.
10. All dimensions relative to reinforcing steel are to centerline of bars. 2" clearance shall be provided throughout unless noted otherwise. Tolerance of +/- ⅛" shall be permitted.
11. All lap splices not shown shall be a minimum of 40 bar diameters in length.
12. All reinforcing steel shall be supported on fabricated steel bar supports @ 3'-0" maximum spacing.
13. All dowels shall be accurately placed and securely tied in place prior to placement of bottom slab concrete. Sticking of dowels into fresh or partially hardened concrete will not be acceptable.

Construction

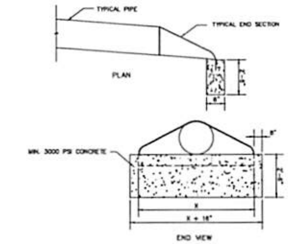
14. The bottom slab shall be at least 24 hours old before placing sidewall concrete. All sidewall forms shall remain in place a minimum of 24 hours after sidewalls are poured before removal, and after removal shall be immediately treated with membrane curing compound.
15. Pipe connections to pre-cast structures shall have a minimum of 6" of concrete around the entire pipe within 2' of the structure.
16. Material selection and compaction requirements for backfill around structures shall be as specified in the Manual of Infrastructure Standards, as promulgated by the City Engineer.



PLAN VIEW

RIPRAP INSTALLATION DETAIL

SCALE: N.T.S.



TYPICAL END SECTION DETAIL

SCALE: N.T.S.

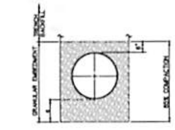


TABLE OF EMBEDMENT DEPTH BELOW PIPE		
D	B MIN. SOIL	B MIN. ROCK
LESS THAN 60"	4"	6"
60" OR LARGER	6"	12"

LEGEND

D NOMINAL PIPE SIZE
B EMBEDMENT BELOW PIPE
GRANULAR EMBEDMENT

TRENCH BEDDING

1. GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1100, PB-2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

SIEVE SIZE	PERCENT RETAINED
1-INCH	0
[illegible]-INCH	0-20
[illegible]-INCH	40-70
No. 8	85-100

GRANULAR EMBEDMENT FROM THE TOP OF PIPE DOWN SHALL BE COMPACTED TO 85% MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.

GRANULAR EMBEDMENT ABOVE TOP OF PIPE SHALL BE AN UN-COMPACTED LAYER FOR ALL INSTALLATIONS.

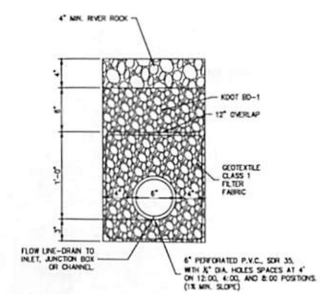
2. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.
3. TRENCH WIDTHS SHALL BE LIMITED BELOW AN ELEVATION OF ONE (1) FOOT ABOVE THE TOP OF THE INSTALLED PIPE AS FOLLOWS: NOT LESS THAN FIFTEEN (15) INCHES NOR MORE THAN TWENTY-FOUR (24) INCHES GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE PIPE.

BACKFILL

1. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321-89.
2. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
3. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 2".
4. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

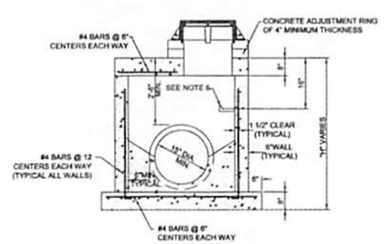
EMBEDMENTS FOR STORM SEWER PIPE

SCALE: N.T.S.



UNDERDRAIN DETAIL

SCALE: N.T.S.



SECTION A-A

JUNCTION BOX

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Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

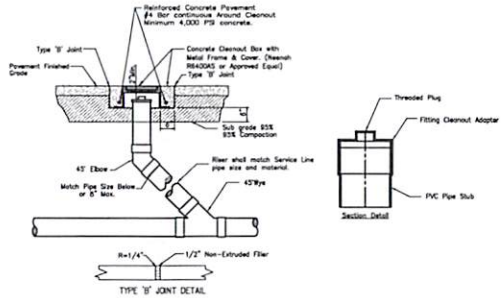
20950
11/23/2020
KANSAS
PROFESSIONAL ENGINEER

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

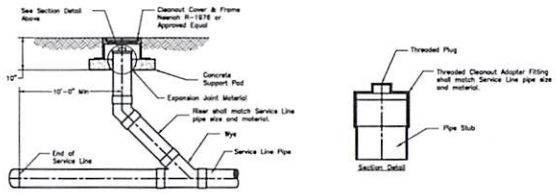
STORM SEWER DETAILS

SHEET

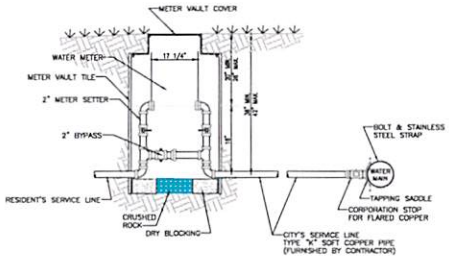
C7.1



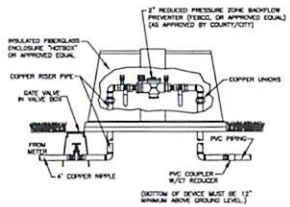
CLEANOUT IN PAVED AREAS DETAIL
SCALE: N.T.S.



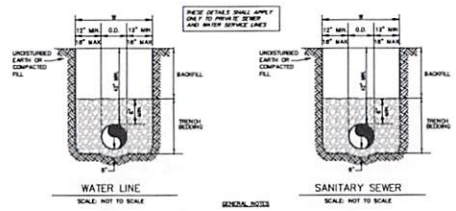
CLEANOUT DETAIL (NON-PAVED AREAS)
SCALE: N.T.S.



2" SINGLE WATER SERVICE DETAIL
SCALE: N.T.S.



IRRIGATION BACKFLOW PREVENTOR
N.T.S.



GENERAL NOTES

TRENCH BEDDING

1. GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1109, MD-2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

SIEVE SIZE	PERCENT RETAINED
1-INCH	0
¾-INCH	0-30
½-INCH	40-70
No. 8	95-100

GRANULAR EMBEDMENT FROM THE TOP OF PIPE DOWN SHALL BE COMPACTED TO 85% MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.

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2. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

BACKFILL

1. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321-89.
2. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698, CLASS B AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
3. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
4. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHAPED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

UTILITY TRENCH AND BEDDING

CE Golf Design
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Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MKR
CHECKED BY: DEV
DATE: 11.23.22
REVISIONS:

STORM SEWER DETAILS

SHEET:
C7.2

PLANNING
ENGINEERING
IMPLEMENTATION

Date: January 28, 2021

To: Justin Stewart, City of Leavenworth

From: Doug Ubben, Jr., P.E., Phelps Engineering, Inc.

Re: Responses to City Comments
Leavenworth Baseball/Softball Fields
PEI # 200824

Justin, we have received your comments and have addressed each with the enclosed plans and comment responses in *red italics* below. Please let us know if you have any questions during your review.
Thank you,
Doug

1. Note S1 show hooking up to the 24" trunk sewer. We would prefer hooking up to the 8 inch main on the east side of the building.
Response: Acknowledged. Sanitary connection has been moved to the 8" main.

2. What is the waterline separation from the sanitary service line to the Sanitary Sewer main if we need to hook to the 24" trunk sewer?
Response: Sanitary service has been moved. There is no intersection now.

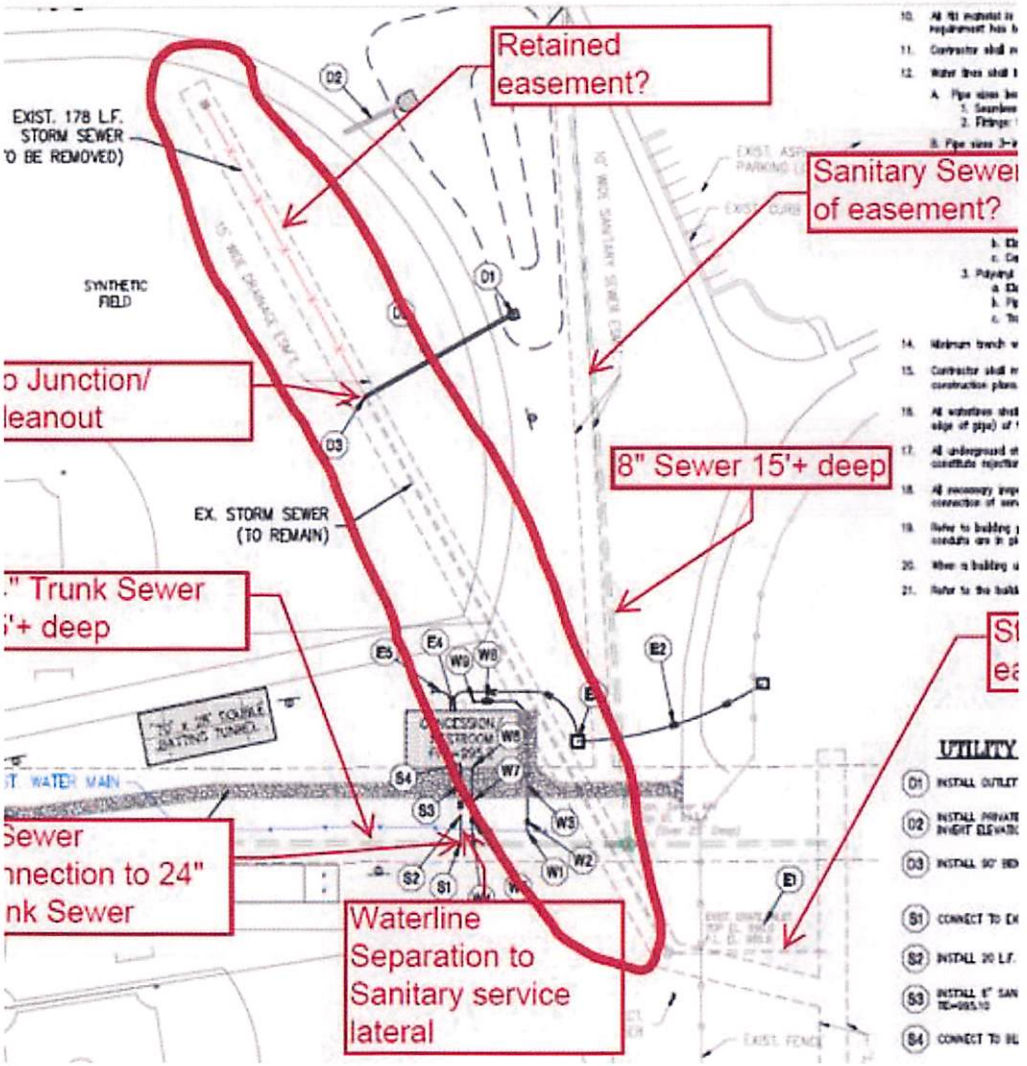
3. On the east side of the project at Note E1, is the sewer out of the Easement?
Response: We have verified with the surveyor that the existing sewer and sewer easement are both plotted correctly.

4. On the north east side of the project, next to the detention area, Is the sanitary sewer out of the easement.
Response: Pipe location has been adjusted so that the pipe is centered on the easement.

5. Note D3, there is no junction at the change of direction in the storm sewer.
Response: Having a manhole top in the middle of the field would be a safety issue. Therefore, a direct pipe to pipe connection with a fitting is to be used. Additionally, this storm sewer is being turned over to the school district and will be private.

6. On the north side of project, are we retaining the easement for the abandoned 178LF of storm sewer.
Response: No, the easement will be vacated.

7. USD should ask for city to transfer ownership of the ***stormwater system*** and easement to them from the Red Circled area.



Response: Acknowledged

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Leavenworth School District USD 453
Leavenworth, Kansas

INDEX OF DRAWINGS

UTILITY NOTES

VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSERS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES:
CALL 811 or
1.800.DIG.SAFE

NOTES

1. THE CONTRACTOR, PRIOR TO ANY EXCAVATION, SHALL HAVE ALL UTILITIES FIELD LOCATED BY THE APPROPRIATE UTILITY COMPANY.

2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY OF THE CONSTRUCTION WORKERS AND THE PUBLIC. THE CONTRACTOR SHALL INCLUDE ADEQUATE SIGNS, BARRICADES AND MARKINGS TO IDENTIFY WORK AREAS FOR THE PROTECTION OF THE PUBLIC.

AREA MAP

PROJECT TEAM

OWNER:
Leavenworth School District
200 N. 4th Street
Leavenworth, Kansas 66048
Contact: Mike Roth
Email: mike.roth@lvpioneers.org
Phone: 913.684.1400

LANDSCAPE ARCHITECT:
CE Golf Design
3250 Brinkerhoff Road
Kansas City, KS 66115
Contact: Todd Clark, RLA
Email: todd@cegolfdesign.com
Phone: 913.233.9279

CIVIL ENGINEER:
Phelps Engineering, Inc.
1270 N. Winchester
Olathe, KS 66061
Contact: Judd Claussen
Email: jclaussen@phelpsengineering.com
Phone: 913.393.1155

CONTRACTOR:
Mammoth Sports Construction
601 E. Wyandotte Street
Meriden, KS 66512
Contact: Connor Harris
Email: connor@mammothturf.com
Phone: 816.352.1993

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Leavenworth School District - USD 453
200 N. 4th Street
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TODD J. CLARK LICENSED 754 KANSAS LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.29.2021

COVER SHEET

SHEET:
L100

Please consider the environment before printing this document.

Notes:

1. Field markings shown for reference only. Refer to detail sheet and NFHS Rules for final field markings and dimensions.
2. Color shown for illustrative purposes only, refer to shop drawings for final colors and logo design.
3. Concrete curb 12" deep x 6" wide will need to be poured at all synthetic turf edges.

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TODD J. CLARK
LICENSED
754
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 12.18.20

SITE PLAN

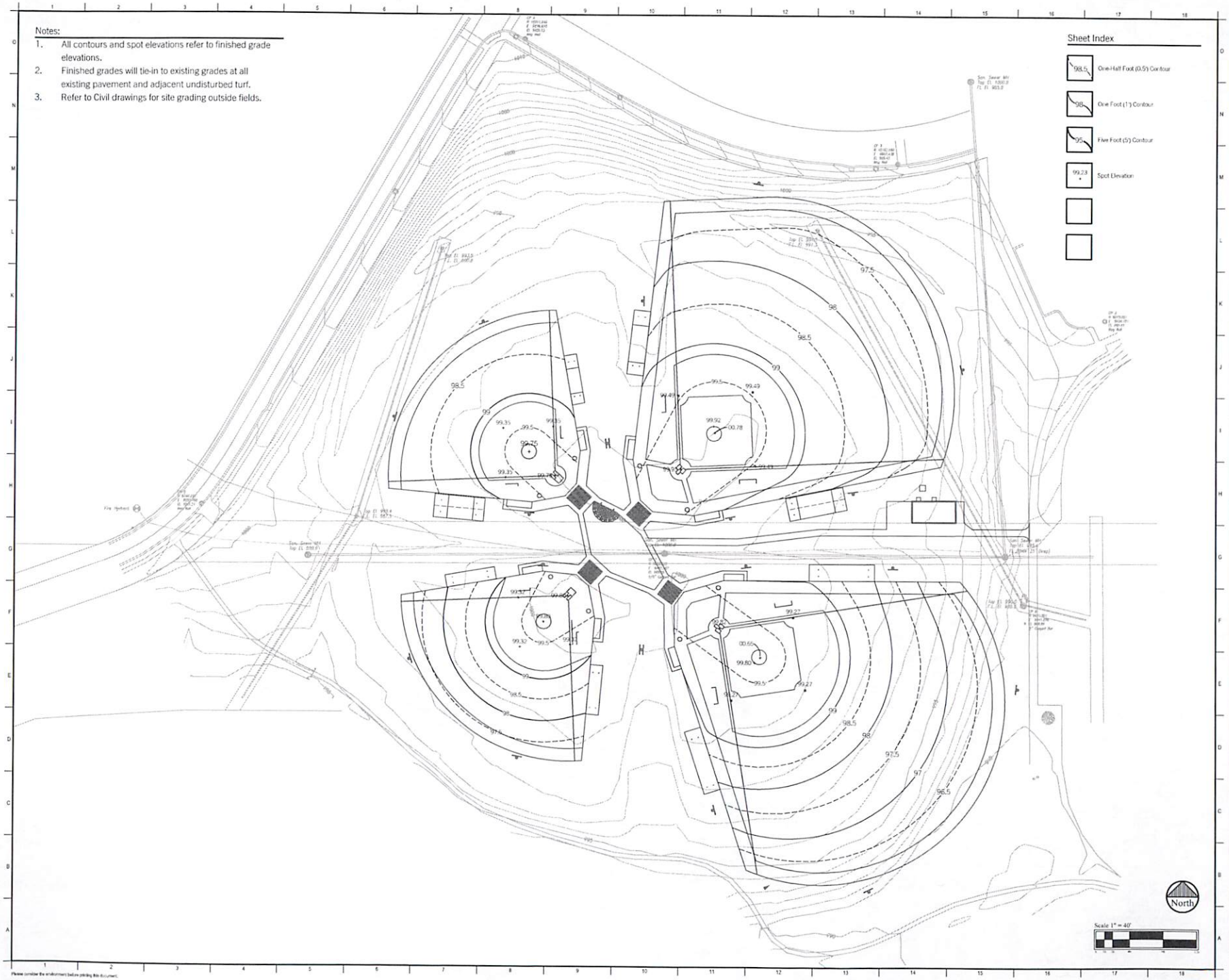
SHEET:
L101

Notes:

1. All contours and spot elevations refer to finished grade elevations.
2. Finished grades will tie-in to existing grades at all existing pavement and adjacent undisturbed turf.
3. Refer to Civil drawings for site grading outside fields.

Sheet Index

- 98.5 One-Half Foot (0.5') Contour
- 98 One Foot (1') Contour
- 95 Five Foot (5') Contour
- 99.23 Spot Elevation



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KANSAS
LANDSCAPE ARCHITECT

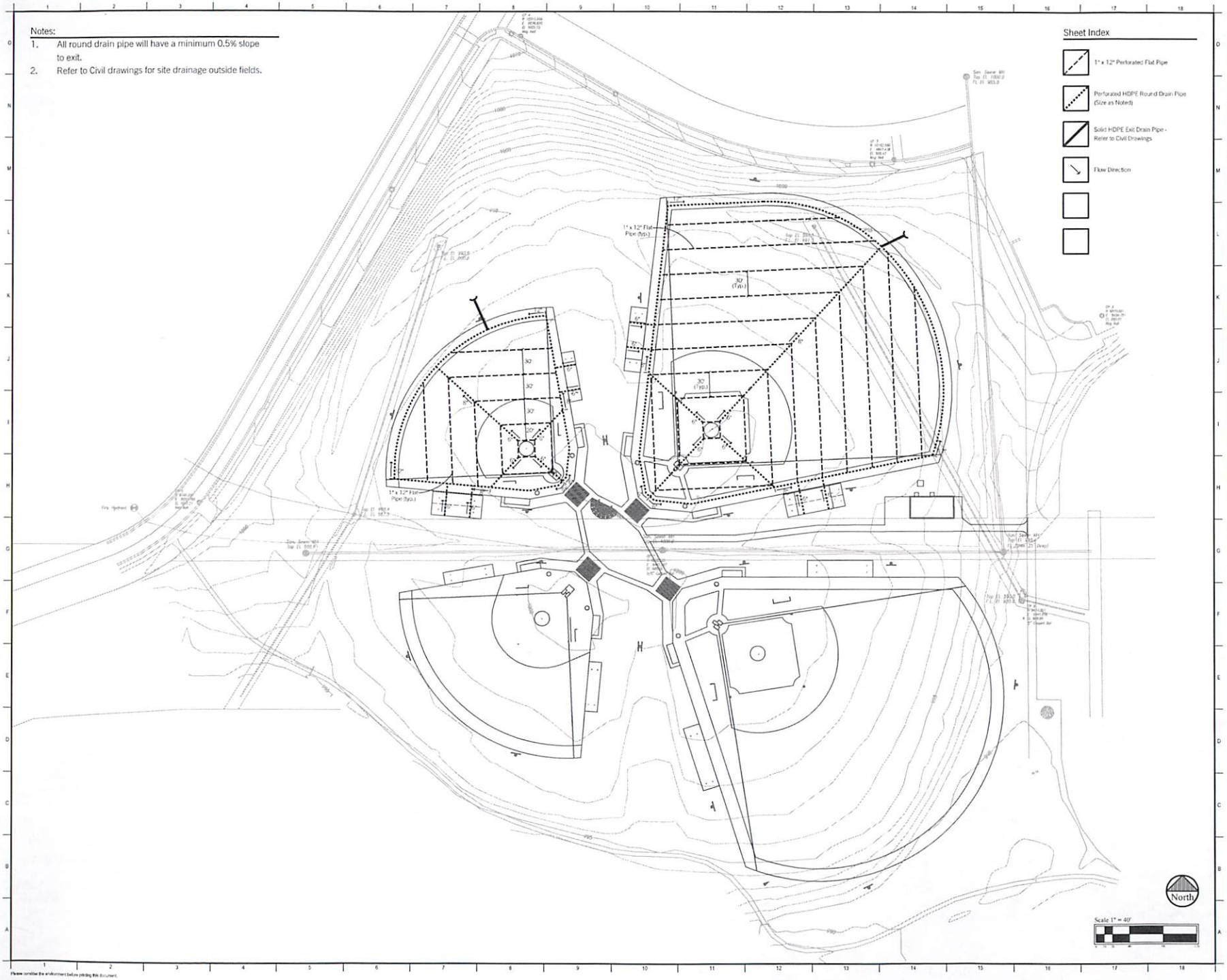
JOB NO: 2017
DRAWN BY: SJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.26.2021

FIELD GRADING PLAN

SHEET:
L102

Notes:

1. All round drain pipe will have a minimum 0.5% slope to exit.
2. Refer to Civil drawings for site drainage outside fields.



Sheet Index

- 1" x 12" Perforated Flat Pipe
- Perforated HDPE Round Drain Pipe (Size as Noted)
- Solid HDPE Exit Drain Pipe - Refer to Civil Drawings
- Flow Direction

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TODD J. CLARK
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754
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.29.2021

FIELD DRAINAGE PLAN

SHEET:

L103

Notes:

1. Refer to shop drawings for final turf colors and logo placement.
2. All field marking shall conform to NFHS guidelines.

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TODD J. CLARK
LICENSED
754
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.26.2021

TURF & GRASSING PLAN

SHEET:
L104

SECTION 1 - SYNTHETIC TURF FIELDS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Prior to ordering materials:
1. Submit samples and test results of base stone layers, geotextile fabric and their pipe prior to ordering any material for base construction.
2. Dimensions: Re-check field size and marking measurements and dimensions to verify conformity to specifications and NFHS guidelines.

B. Prior to Final Acceptance, submit to Owner and Landscape Architect:
1. Warranty: Submit Contractors Warranty which includes Third Party Warranty and Manufacturer Warranty to ensure that all of the necessary forms have been completed in the Owner's name and registered with manufacturer.

1.2 STANDARDS

A. NFHS: The synthetic turf fields shall meet the NFHS standards for field markings and dimensions.

1.3 QUALITY ASSURANCE

A. Contractor's Quality Assurance Responsibilities: Contractor is solely responsible for the quality control of their work, their subcontractors work, and vendor's products.

B. Safety Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

1.4 DELIVERY, STORAGE AND HANDLING

A. During loading, transportation and unloading, every precaution shall be taken to prevent damage to any materials delivered to the site. The Contractor is responsible for securing all materials on the job site. The Contractor is responsible for replacing any stolen or damaged material that occurs with this project. The Owner will accept a finished installed product in accordance with the specifications.

1.5 SEQUENCE AND SCHEDULING

A. The Contractor shall be responsible for coordinating, sequencing and scheduling all work related to the entire synthetic turf field construction.

1.6 WARRANTIES

A. Products shall be constructed to meet or exceed the minimum standards set forth during the entire length of the warranty period.
1. Base Work: All base work, stone, synthetic nailer board, and drainage under the turf shall have an eight (8) year guarantee against soft spots, low spots or drainage problems.

PART 2 - PRODUCTS

2.1 GEOTEXTILE FABRIC

A. Geotextile fabric shall be mirafi 140N nonwoven geotextile fabric or approved equal.

2.2 DRAINAGE SYSTEM PRODUCTS

A. Basis of design Products:
1. Advanced Drainage Systems, Inc. or approved equal by Landscape Architect.

B. Pipe and fittings:
1. All perimeter drain pipes shall be HDPE corrugated ADS N-12 dual wall with smooth interior, perforated class II, polyethylene pipe of the size as shown on the drawings. Furnish complete with bends, adapters, couplings, fittings and joint materials.
2. All field drain pipes shall be ADS AdvanEDGE or equivalent, perforated HDPE pipe, twelve inches (12") wide.

3. Pipe and fittings shall meet AASHTO M 252M, Type C for coupling joints and these joints shall be soil tight.

C. Catch basins, drain inlets and grates:
1. PVC inlets shall be of the catch basin and inline drain type.
2. Cast iron or Ductile iron grates for these inlets shall be furnished by the same manufacturer.
3. Catch basins shall be manufactured by thermo-molding process to comply with specified configuration. Pipe connection stubs shall be manufactured from PVC pipe and formed to provide a watertight connection with the pipe system.
4. Material used shall conform to ASTM D3034 and ASTM F1336.

2.3 AGGREGATE STONE BASE

A. All aggregate stone Base layer and top stone layer shall be subject to the approval of the Landscape Architect at all times. The base stone shall be 4" deep and the top stone layer shall be 2" deep totaling a minimum compacted thickness of 6" at all areas to receive synthetic turf.

B. The Contractor will submit samples of stone for construction to a certified testing agency with test results approved by Landscape Architect. The Contractor will pay for all testing cost. The approved testing agency shall be Turf and Soil Diagnostics with the contact person being Mr. Sam Ferris at (855) 783-4251.

C. Below are minimum standards for the washed stone:
1. Install 3/4" to 1 1/4" base stone of clean washed rock with 1% or less fines to a depth of 4.0"
2. Install 3/8" top stone of clean washed rock with 3% or less fines to a depth of 2.0"
3. Stone shall meet Moist Bevel (ASTM D692B) loss of less than or equal to 18% for top stone and less than or equal to 27% for base stone.
4. Stone Size Guidelines ASTM C136:

Sieve Size		Base Stone	Top Stone
2"	50.0 mm	100	
1.5"	37.5 mm	90-100	
1"	25.0 mm	75-100	
3/4"	19.0 mm	65-95	
1/2"	12.5 mm	55-85	100
3/8"	9.5 mm	40-75	85-100
1/4"	6.3 mm	25-65	75-100
No. 4	4.75 mm	15-60	
No. 8	2.36 mm	0-40	35-75
No. 16	1.18 mm	0-30	10-55
No. 30	0.60 mm	0-7	0-40
No. 50	0.25 mm	0-5	0-15
No. 100	0.15 mm	0-3	0-8
No. 200	0.75 mm	0-2	0-5

2.4 CONCRETE PRODUCTS

A. The contractor shall provide a poured in place concrete curb at the perimeter of the synthetic turf field as shown on the drawings.

B. Provide structural concrete mixture as follows:
a. Minimum Compressive Strength: 3500 psi at 28 days.
b. Slump Limit: 4 inches, plus or minus 1 inch.
c. Air Content: 6 percent, plus or minus 2 percent at point of delivery for nominal aggregate size greater than 3/8 inch.
d. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. Yd.

2.5 SYNTHETIC NAILER BOARD

A. 4.5" x 4" synthetic board shall be securely attached to the curb at the proper depth as specified in the detail. The synthetic turf will be nailed, glued or combination of both to the board to ensure that the turf is properly anchored.

PART 3 - EXECUTION

3.1 SURVEYING AND LAYOUT

A. Provide survey for each of the following:
1. All final sub-grade, finish grades, drainage structures, and field markings as necessary to build the field as indicated on the Drawings.
2. As-built drawing of the finished field including elevations.

3.2 SITE PREPARATION

A. Contractor shall provide all survey work required to locate lines and grades for the construction of this project as herein specified and shown on the drawings.

B. The Contractor upon entering the site and before any other work is underway, shall establish and set control points and verify all finish grades.

C. Protect all existing items (i.e. backstop, dugouts, fences, concrete slabs, exit drainage, etc.) from damage during construction activities.

3.3 EARTHWORK

A. The Earthwork Contractor will have the sub-grade of the field plus or minus 1" of the sub-grade elevation. Sub-grade elevation will be 8" (or per manufacturer's specifications) below finish elevation as shown on the Drawings. The Contractor shall provide labor, materials, equipment, transportation, and services required to complete the field as indicated on the drawings and specifications herein.

B. The Contractor shall perform all work so as to permit the site to be free draining at all times and to prevent water collection. Contractor shall provide positive drainage for the entire site during the course of construction to eliminate standing water in excavated areas. Use of reinforced silt fence is required to keep silt from exiting the site during excavation.

C. Excavation:
1. Excavation consists of removal of material encountered to obtain required sub-grade elevations.
2. Excavate and remove unsatisfactory soil materials encountered that extend below required elevations to additional depth as directed by Landscape Architect and third party testing service.

D. Compaction Requirements:
1. Compaction: Perform compaction of soil materials for fills and backfills using suitable soil compaction equipment for materials to be compacted and work area locations. Control soil compaction during construction for compliance with percentages of maximum density specified for each classification. All Compaction tests shall be in accordance with third party compaction test data taken from soil samples previously submitted.
2. Placement and Compaction: Place backfill materials in layers not more than eight (8") in loose depth. Before compaction, moisten or aerate each layer, as necessary, to provide the optimum moisture content. Compact each layer to required percentage of maximum density for each area classification. Do not place backfill or fill material on surfaces that are muddy, thoroughly compact all fill and backfill by rolling each layer, following spreading, as close as possible. Roll the areas in equal amounts in two directions. Provide compaction equipment or type best suited to achieve the desired results with the type of soil. In general, use sheep's foot and/or tamping type rollers on soils of a cohesive type, pneumatic wheeled or vibrating rollers on granular fill material, all as approved by the Architect. Operate compacting equipment on each layer until the entire area has been thoroughly and uniformly compacted to the required density.
3. Maximum Density Requirements: Provide not less than 95% compaction of maximum density of the same soil material compacted at optimum moisture content, for actual density of each layer of soil material in place. Any soils found unsuitable for specified compaction requirements shall be removed as directed by Landscape Architect.

E. Fine grade sub-grade systematically to eliminate uneven areas and low spots. Remove debris, roots branches, stones, etc., in excess of one inch (1") in size. Remove soil which has been contaminated with petroleum products.

3.4 SOIL STABILIZATION

A. General: The determination as to whether soil stabilization will be required shall be made by a third party testing agency. If soil stabilization is necessary, contractor will work with the owner to determine the methods and pricing in coordination with the geotechnical firm.

3.5 GEOTEXTILE FABRIC

A. Geotextile fabric shall be mirafi 140N nonwoven geotextile fabric or approved equal.

3.6 DRAINAGE SYSTEM

A. All work under this section of specifications shall include the furnishing of all labor, materials and equipment necessary to install, connect, set and finish to proper elevation for the drainage system as shown on the Drawings and as specified herein.

B. All round drain pipe shall be HDPE corrugated ADS N-12 dual wall with smooth interior, perforated class II, polyethylene pipe of the size as shown on the drawings. Furnish complete with bends, adapters, couplings, fittings and joint materials. All field pipe shall be spaced and sloped as indicated on the drawings. All drain pipe shall be sloped a minimum of 0.5% percent.

C. All flat drain pipe shall be ADS AdvanEDGE or equivalent, perforated HDPE, twelve inches (12") wide. All field pipe shall be spaced and sloped as indicated on the drawings.

3.7 AGGREGATE STONE BASE

A. The work under this section of the specifications shall consist of furnishing all labor, materials and equipment to produce, place, spread, compact and finish to proper grade and cross section all aggregate rock base courses according to the drawings and specifications.

B. Minimum compacted thickness of 6" in all areas to receive new synthetic turf.

C. Stone base shall be per specification and approved by Landscape Architect prior to installing. Stone base shall be laser graded and installed in lifts as needed to achieve final grades within 1/8". Aggregate Stone Base: Stone material shall conform to specifications for 100% crushed stone and shall be "washed", free from fines and debris. Stone shall be angular and not rounded. Base stone shall be washed stone with permeability greater than 40" per hour. The stone shall be washed with permeability greater than 10" per hour. Stone base shall be compacted to maximum ASTM = 5% for the type of rock specified. All rock shall be clean rock allowing proper flow of moisture to the under drain system (no fines allowed).
1. Base thicknesses to thickness are compacted thickness.
2. Sub-grade shall be compacted to not less than ninety-five (95%) of maximum density at no less than twenty five (+/-) % of optimum moisture content.
3. The finished surface of any aggregate base course shall not vary more than 1/4" over 10' from the elevations, grades and cross sections on the drawings. Maximum density shall be determined in accordance with AASHTO Modified Method of Test for the Compaction and Density of Soil, Designation T-180, and the optimum moisture content shall be that corresponding to the maximum density in the above test.
4. Smooth steel-wheeled rollers shall be self-propelled and have a total weight not less than 8 tons. The compression (driving) roller shall exert a pressure of not less than 250 lb. per inch width of the roller.
5. Pneumatic-tire rollers are not allowed.

3.8 CONCRETE CURB INSTALLATION

A. Formwork- Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

C. Concrete Placement:
1. Before placing concrete, verify that installation of formwork, reinforcement and embedded items is complete.
2. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness.

D. Concrete Protecting and Curing:
3. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold weather protection and ACI 301 for hot weather protection during curing.
4. Cure concrete according to ACI 308.1.

3.9 SYNTHETIC TURF INSTALLATION

E. Installation:
1. The installation shall be performed in full compliance as specified by the product manufacturer.

2. All synthetic, artificial turf installation shall be performed by experienced technicians who are certified by the turf manufacturer as being competent in the installation of synthetic turf systems. The Contractor is responsible for managing all turf installation procedures.
3. All materials shall be delivered, checked and inspected by project superintendent for conformance with the specifications prior to performance of work.
4. All synthetic, artificial turf seams shall be sewn as specified by the product manufacturer. Installation crew shall have the Owner's representative on all aspects of maintenance including combing, fiber and minor repairs.
5. The outer edges of synthetic turf shall be fastened in such a manner as to meet or exceed the warranty period as specified by the product manufacturer.
6. No work under this section will proceed when weather is not suitable as specified by the product manufacturer.

3.9 CLEANING

A. The Contractor shall protect installed turf from subsequent construction activities and not permit any traffic over final surface.

B. The Contractor shall provide a final cleaning of surface and installed items. All remnants of new material shall become property of the Owner or removed at the discretion of the Landscape Architect.

END OF SECTION

SECTION 2 - NATURAL GRASS FIELDS & SITE GRASSING

PART 1 - GENERAL

1.1 SUBMITTALS

A. Prior to ordering materials:
1. Submit sod, seed and skinned infield materials samples and suppliers for approval by landscape architect.
2. Dimensions: Re-check field size and marking measurements and dimensions to verify conformity to specifications and NFHS guidelines.

1.2 STANDARDS

A. NFHS: The natural grass fields shall meet the NFHS standards for field markings and dimensions.

1.3 QUALITY ASSURANCE

A. Contractor's Quality Assurance Responsibilities: Contractor is solely responsible for the quality control of their work, their subcontractors work, and vendor's products.

B. Safety Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

1.4 DELIVERY, STORAGE AND HANDLING

A. During loading, transportation and unloading, every precaution shall be taken to prevent damage to any materials delivered to the site. The Contractor is responsible for securing all materials on the job site. The Contractor is responsible for replacing any stolen or damaged material that occurs with this project. The Owner will accept a finished installed product in accordance with the specifications.

1.5 SEQUENCE AND SCHEDULING

A. The Contractor shall be responsible for coordinating, sequencing and scheduling all work related to the entire natural grass field construction.

1.6 WARRANTIES

A. Products shall be constructed to meet or exceed the minimum standards set forth during the entire length of the warranty period.
1. Base Work: All earthwork, and skinned infield shall have a one (1) year guarantee against soft spots, low spots or drainage problems. Sod shall be in a good growing condition when installed and shall be maintained in growing condition until such time as given over to the school district for ownership.

PART 2 - EARTHWORK

2.1 TOPSOIL

A. The Contractor shall remove all grass or vegetation over the areas before stripping topsoil.

B. Topsoil shall be removed from all areas to be graded to a depth of at least eight inches (8") and shall be re-spread to a depth of six inches (6") over the subgrade of all areas where grade is altered.

C. The stockpiles of topsoil shall be made in such a manner to build the fields while remaining with the limits of disturbance.

2.2 EARTHWORK

A. Suitable fill material is any soil that is non-compressible and lends itself to the raising of subgrade to specified level. Fill material should be reasonably free of organic matter and have a moisture content that lends itself to compaction.

B. Fill material will be placed in layers not to exceed eight inches (8") and each layer will be compacted by tracking each layer with Dozer the dozer before the next fill layer is laid over it. All fill areas should be compacted and approved prior to spreading topsoil.

2.3 FINISH GRADING

A. Fine-tish grading before planting shall be done when the condition of the soil is not too wet so as to allow tracking or too dry so that the seedbed is "fluffy" and not reasonably compacted. Any areas on the property that have been compacted by construction equipment, trucks, tractors, or storage of materials shall be tilled, fine graded and planted in accordance with the Specifications for the area within which it is located.

B. All areas to be planted shall be smoothed prior to seeding or sodding. Any debris, sticks, roots or stones one inch (1") or more in diameter, or any other foreign material coming within the boundaries of the disturbed area shall be removed from the soil surface to a burial site designated by the Landscape Architect.

PART 3 - GRASSING

3.1 SOD AND SEED

A. Grass Seed: All seed shall conform to Federal Specification LJ-S-181E. Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysis of North America. Furnish seed on sealed standard containers, labeled in accordance with U.S. Department of Agriculture Rules and Regulations under current Federal Seed Act.
1. Seed which has become wet, moldy or otherwise damaged in transit or storage will not be acceptable.

B. Lawn Seed Mix: Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination and maximum percentage of weed seed as follows for each seed mix:

1. Seed	LBS/Acre	% Purity	% Germ
a. Turf-Type Tall Fescue	300	98	90

C. Native Seed Mix: Provide PLS (Pure Live Seed) seed mixture composed of grass species, proportions and minimum percentages of purity, germination and maximum percentage of weed seed as follows for each seed mix:

1. Seed	LBS/Acre	% Purity	% Germ
a. Sky Prairie Seed Mix	20	98	80
b. All native seed will be planted between April 1st and June 15th.			

D. Bio-Retention Area: Provide Deep Cell Plugs spaced 18" on center for the following grasses:

1. Deep Cell Plug	Spacing
a. Sideoats Grama	18"
b. Fox Sedge	18"
c. Palm Sedge	18"
d. Buffalo Grass Seed	10 lbs. per acre
e. All deep cell plugs will be planted between April 1st and June 15th.	

E. Sod: Provide strongly rooted sod, not less than 2 years old, free of weeds and undesirable native grasses, and mow free cut to past thickness of 3/4" (plus or minus 1/4"), excluding top growth and thatch. Provide only quality and capable of vigorous growth and development when planted (viable, not dormant).
1. Provide sod of uniform pad sizes with maximum 5 percent deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10 percent of pad will be rejected.
2. Provide sod composed principally of following:
a. Turf Type Tall Fescue Blend. The sod shall contain a growth of not more than 5 percent of grasses and clovers, shall be free from all perennial and noxious weeds, and shall be 3/4" to 1-1/4" each strip conforming at least one square yard. Sod shall be cut in strips not less than 18" wide.

3.2 EROSION CONTROL BLANKET

A. Bio-Retention Area will be protected with erosion control blanket. Erosion control blanket shall be a Single Net Straw Blanket secured with metal stakes per manufactures recommendations.

3.3 HYDROMULCH

A. All seeded areas shall be hydro-mulched within 24 hours of seeding operations.
1. Fiber Mulch shall be biodegradable dyed wood cellulose fiber mulch, nontoxic, free of plant growth or germination inhibitors, with maximum moisture content of 15 percent and a PH range of 4.5 to 6.5. Nonasphaltic Tackifier shall be colloidal tackifier recommended by fiber mulch manufacturer for sturdy application, nontoxic and free of plant growth or germination inhibitors or equal by the slurry mix listed below:

Native Revegetation	Application Rate
Central Fiber 70/30 Wood Blend Mulch	2,000# / Acre

Fine – NFH Sensible Fertilizer (10-44-6) 7.5# / Acre

PART 4 - SKINNED INFIELD & WARNING TRACK

4.1 MATERIAL

A. Skinned infield and warning track material is to be determined and will be approved by both the Landscape Architect and Owner before any material is delivered to the site.

END OF SECTION

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784
KANSAS
LANDSCAPE ARCHITECT

JOB NO: 2017
DRAWN BY: BJH
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.29.2021

FIELD & TURF SPECIFICATIONS

SHEET:
L105

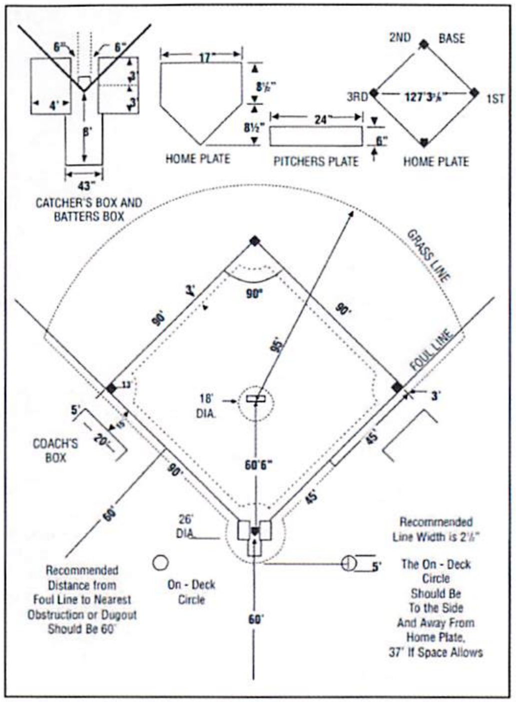

Diagram 2
OFFICIAL MEASUREMENTS . . . for laying out baseball field

Baseball Field Dimensions

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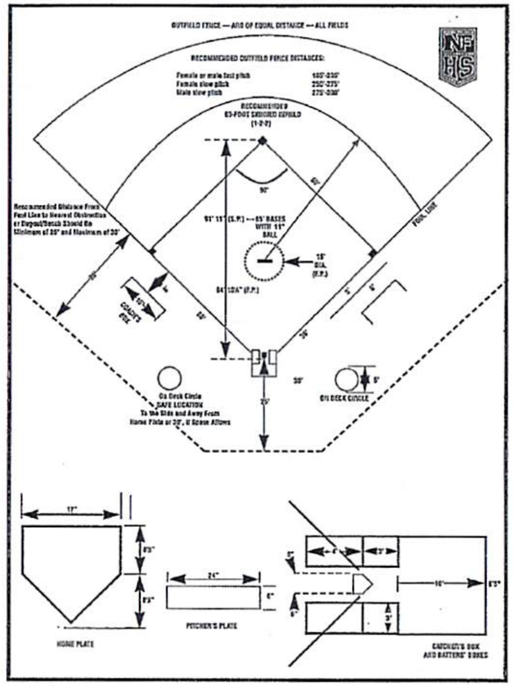

When laying out the softball diamond, it is recommended that the line from home plate through the pitcher's plate to second base run east-northeast.
If a skinned infield is used, the area is determined by measuring a 60-foot arc from the front center of the 46-foot pitcher's plate, even if other pitching distances are used.

Softball Field Dimensions

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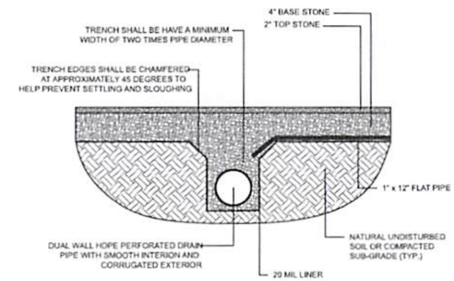

Drain Pipe Trench Detail - Typical Cross Section

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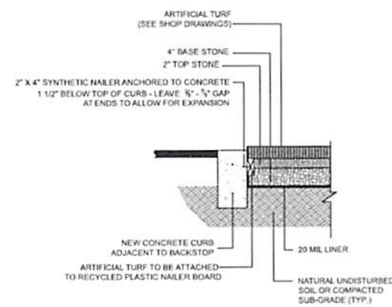

Turf Attachment to Curb Detail - Typical Cross Section

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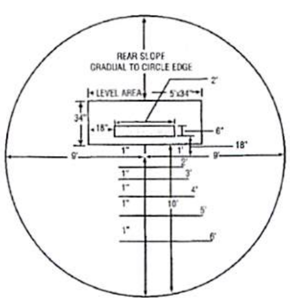

Pitcher's Mound Dimensions

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SCALE: No Scale

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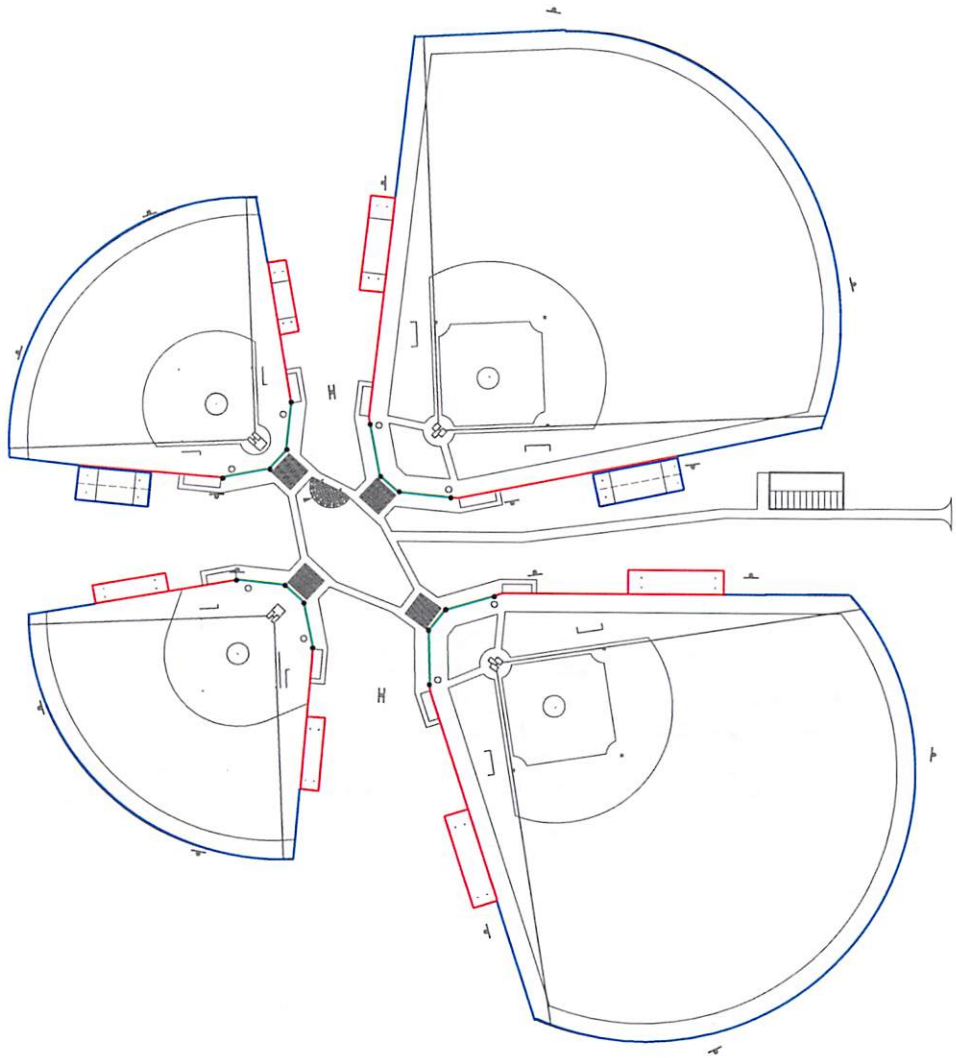
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS: 01.26.2021

CONSTRUCTION DETAILS

SHEET: L106

Notes:

Sheet Index



Double Batting Tunnel
70' L x 28' Wide

8' Tall Chain Link

6' Tall Chain Link

30' Tall Netting

Netting Poles

North

Scale 1" = 40'

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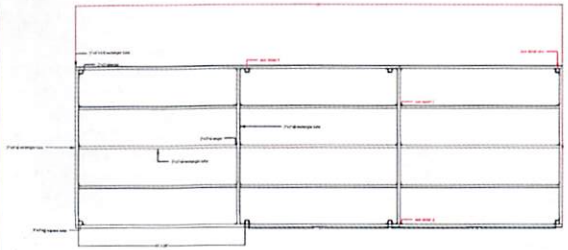
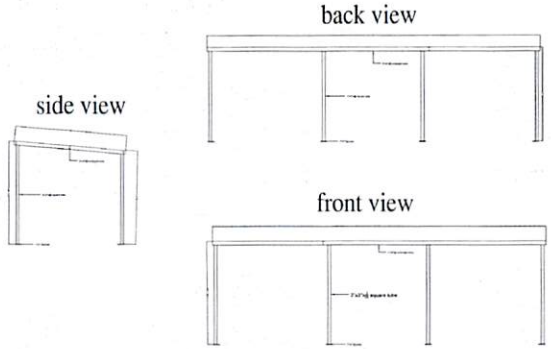
FENCE & NETTING PLAN

SHEET:

EF-01



10 x 30 Dugout Detail | SCALE: No Scale



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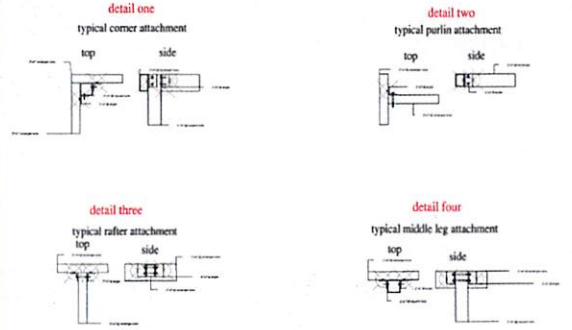

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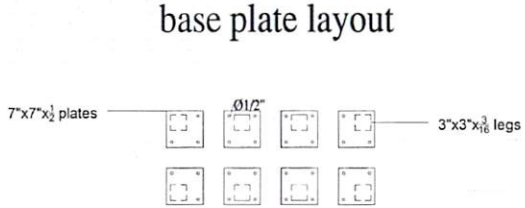

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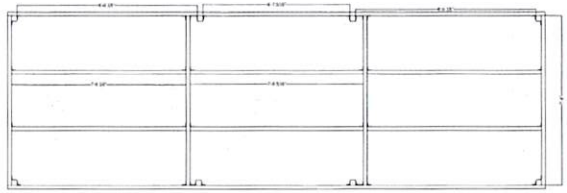

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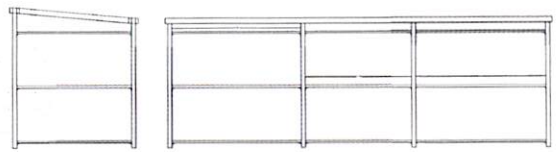

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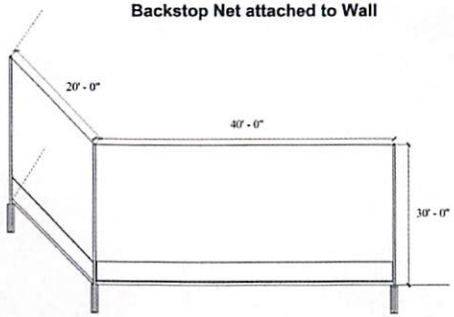
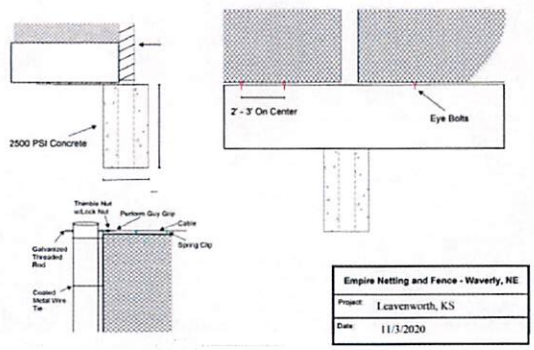


Backstop Net Detail | SCALE: No Scale



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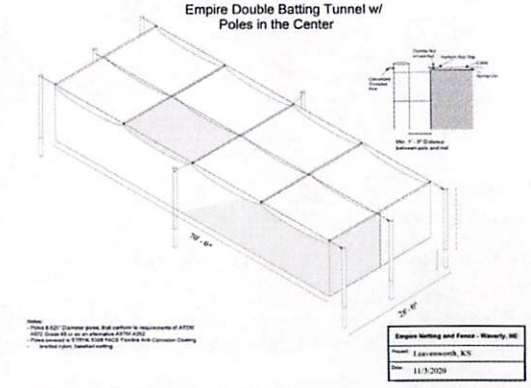

Batting Tunnel Detail | SCALE: No Scale

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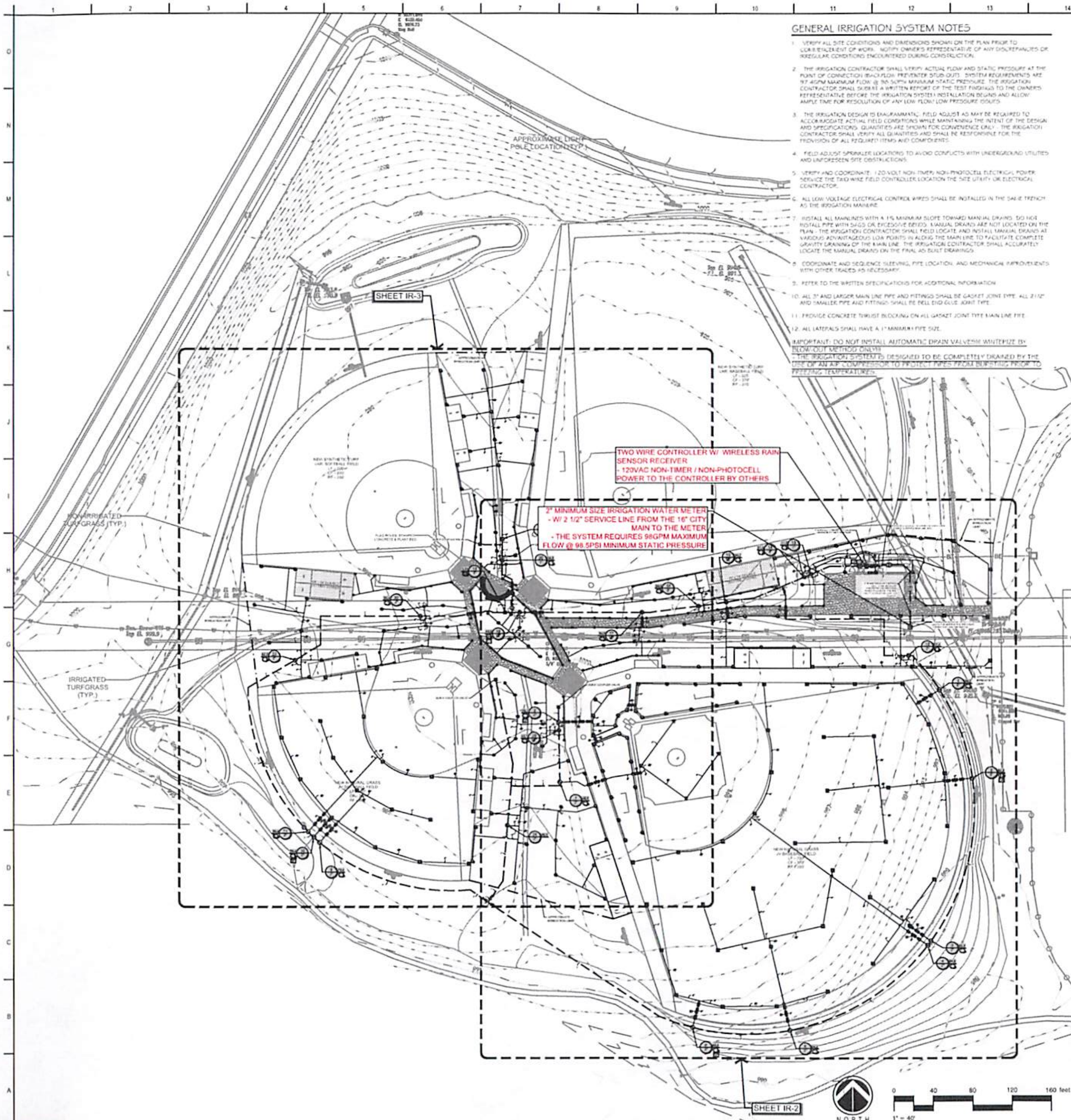
FENCE & NETTING DETAILS

SHEET:
EF-02



GENERAL IRRIGATION SYSTEM NOTES

1. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
2. THE IRRIGATION CONTRACTOR SHALL VERIFY ACTUAL FLOW AND STATIC PRESSURE AT THE POINT OF CONNECTION (BACKFLOW PREVENTER STUB-OUT). SYSTEM REQUIREMENTS ARE 97.4GPM MAXIMUM FLOW @ 98.5OPSI MINIMUM STATIC PRESSURE. THE IRRIGATION CONTRACTOR SHALL SUBMIT A WRITTEN REPORT OF THE TEST FINDINGS TO THE OWNER'S REPRESENTATIVE BEFORE THE IRRIGATION SYSTEM INSTALLATION BEGINS AND ALLOW AMPLE TIME FOR RESOLUTION OF ANY LOW FLOW/ LOW PRESSURE ISSUES.
3. THE IRRIGATION DESIGN IS DIAGRAMMATIC. FIELD ADJUST AS MAY BE REQUIRED TO ACCOMMODATE ACTUAL FIELD CONDITIONS WHILE MAINTAINING THE INTENT OF THE DESIGN AND SPECIFICATIONS. QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY - THE IRRIGATION CONTRACTOR SHALL VERIFY ALL QUANTITIES AND SHALL BE RESPONSIBLE FOR THE PROVISION OF ALL REQUIRED ITEMS AND COMPONENTS.
4. FIELD ADJUST SPRINKLER LOCATIONS TO AVOID CONFLICTS WITH UNDERGROUND UTILITIES AND UNFORESEEN SITE OBSTRUCTIONS.
5. VERIFY AND COORDINATE: 120-VOLT NON-TIMER/ NON-PHOTOCELL ELECTRICAL POWER SERVICE THE TWO WIRE FIELD CONTROLLER LOCATION THE SITE UTILITY OR ELECTRICAL CONTRACTOR.
6. ALL LOW VOLTAGE ELECTRICAL CONTROL WIRES SHALL BE INSTALLED IN THE SAME TRENCH AS THE IRRIGATION MAINLINE.
7. INSTALL ALL MAINLINES WITH A 1% MINIMUM SLOPE TOWARD MANUAL DRAINS. DO NOT INSTALL PIPE WITH SAGS OR EXCESSIVE BENDS. MANUAL DRAINS ARE NOT LOCATED ON THE PLAN - THE IRRIGATION CONTRACTOR SHALL FIELD LOCATE AND INSTALL MANUAL DRAINS AT VARIOUS ADVANTAGEOUS LOW POINTS IN ALONG THE MAIN LINE TO FACILITATE COMPLETE GRAVITY DRAINING OF THE MAIN LINE. THE IRRIGATION CONTRACTOR SHALL ACCURATELY LOCATE THE MANUAL DRAINS ON THE FINAL AS BUILT DRAWINGS.
8. COORDINATE AND SEQUENCE SLEEVING, PIPE LOCATION, AND MECHANICAL IMPROVEMENTS WITH OTHER TRADES AS NECESSARY.
9. REFER TO THE WRITTEN SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10. ALL 3" AND LARGER MAIN LINE PIPE AND FITTINGS SHALL BE GASKET JOINT TYPE. ALL 2 1/2" AND SMALLER PIPE AND FITTINGS SHALL BE BELL END GLUE JOINT TYPE.
11. PROVIDE CONCRETE THRUST BLOCKING ON ALL GASKET JOINT TYPE MAIN LINE PIPE.
12. ALL LATERALS SHALL HAVE A 1" MINIMUM PIPE SIZE.

IMPORTANT: DO NOT INSTALL AUTOMATIC DRAIN VALVES!!! WINTERIZE BY BLOW-OUT METHOD ONLY!!!
- THE IRRIGATION SYSTEM IS DESIGNED TO BE COMPLETELY DRAINED BY THE USE OF AN AIR COMPRESSOR TO PROTECT PIPES FROM BURSTING PRIOR TO FREEZING TEMPERATURES.

IRRIGATION SCHEDULE

MANUFACTURER/MODEL	QTY	PSI
RAIN BIRD R-VAN14 1804-SAM-P45	16	45
RAIN BIRD R-VAN18 1804-SAM-P45	36	45
RAIN BIRD R-VAN24 1804-SAM-P45	107	45

MANUFACTURER/MODEL	QTY	PSI
RAIN BIRD 3504-PC	4	45
RAIN BIRD 3504-PC	2	45
RAIN BIRD 3504-PC	1	45
RAIN BIRD 3504-PC	23	45
RAIN BIRD 5004-PL-PC, FC-SAM-R	16	45
RAIN BIRD 5004-PL-PC, FC-SAM-R	1	45
RAIN BIRD 5004-PL-PC, FC-SAM-R	38	45
RAIN BIRD 5004-PL-PC, FC-SAM-R	12	45
RAIN BIRD F4-PC, FC	2	60
RAIN BIRD F4-PC, FC	6	60
RAIN BIRD F4-PC, FC	2	60
RAIN BIRD F4-PC, FC	7	60
RAIN BIRD F4-PC, FC	15	60
RAIN BIRD F4-PC, FC	31	60
RAIN BIRD F4-PC, FC-SS-HS	4	60

MANUFACTURER/MODEL/DESCRIPTION	QTY
RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT, 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239 SOLENOID FOR TWO WIRE APPLICATION	1
AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.6 L.F.

MANUFACTURER/MODEL/DESCRIPTION	QTY
RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
RAIN BIRD PEB 1 1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
MATCO NORCA 514TX BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
DUCKBILL/SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS	1
AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX	2
WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS. UV-RESISTANT, OUTDOOR RATED, PLASTIC LOCKING WALL-MOUNT CASE.	1
RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR	1
RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
RAIN BIRD FD-101 DECODER	24
RAIN BIRD LSP-1 SURGE PROTECTOR	7
RAIN BIRD SD-210 SENSOR DECODER	1
WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,542 L.F.
IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2 1/2"	165.1 L.F.
IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 3"	607.8 L.F.
IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	2,194 L.F.
IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.9 L.F.
IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	81.7 L.F.
IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2 1/2"	8.7 L.F.
IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	145.1 L.F.
IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	59.2 L.F.
PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	65.0 L.F.
PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	212.3 L.F.

Valve Callout: Valve Number, Valve Flow, Valve Size

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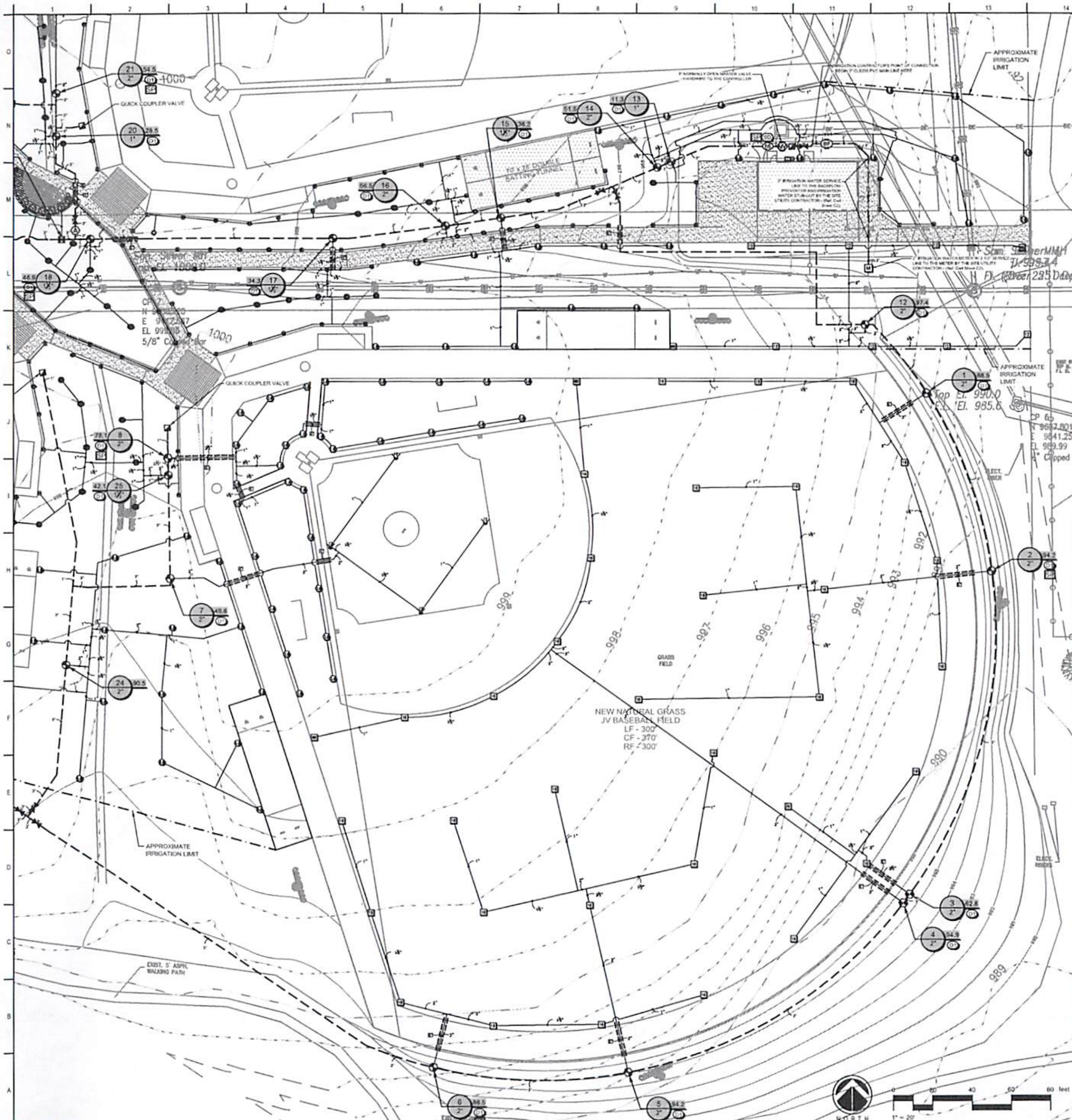
IRRIGATION PLAN

SHEET:

IR-1

Please consider the environment before printing this document.



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD R-VAN14 1804-SAM-P45	16	45
	RAIN BIRD R-VAN18 1804-SAM-P45	36	45
	RAIN BIRD R-VAN24 1804-SAM-P45	107	45

SYMBOL	MANUFACTURER/MODEL	QTY	PSI
	RAIN BIRD 3504-PC	4	45
	RAIN BIRD 3504-PC	2	45
	RAIN BIRD 3504-PC	1	45
	RAIN BIRD 3504-PC	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	16	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	1	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	38	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	12	45
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	6	60
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	7	60
	RAIN BIRD F4-PC, PC	15	60
	RAIN BIRD F4-PC, PC	31	60
	RAIN BIRD F4-PC, PC-33-HS	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT. 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239. SOLENOID FOR TWO WIRE APPLICATION	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.6 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
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	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800 'S, 5004 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800 'S, 5004 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500 'S, FALCON 6504 'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
	MATCO NORCA 514TF BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPT, CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS	1
	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX.	2
	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF. CIVIL SHEET C2)	1
	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS, UV-RESISTANT, OUTDOOR-RATED, PLASTIC LOCKING WALL-MOUNT CASE.	1
	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR.	1
	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
	RAIN BIRD FD-101 DECODER	24
	RAIN BIRD LSP-1 SURGE PROTECTOR	7
	RAIN BIRD SD-210 SENSOR DECODER	1
	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,542 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
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	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	145.1 L.F.
	IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF. CIVIL SHEET C2)	89.2 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	62.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE	212.3 L.F.

Valve Callout: Valve Number, Valve Flow, Valve Size

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
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Leavenworth, Kansas 66048

JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJC
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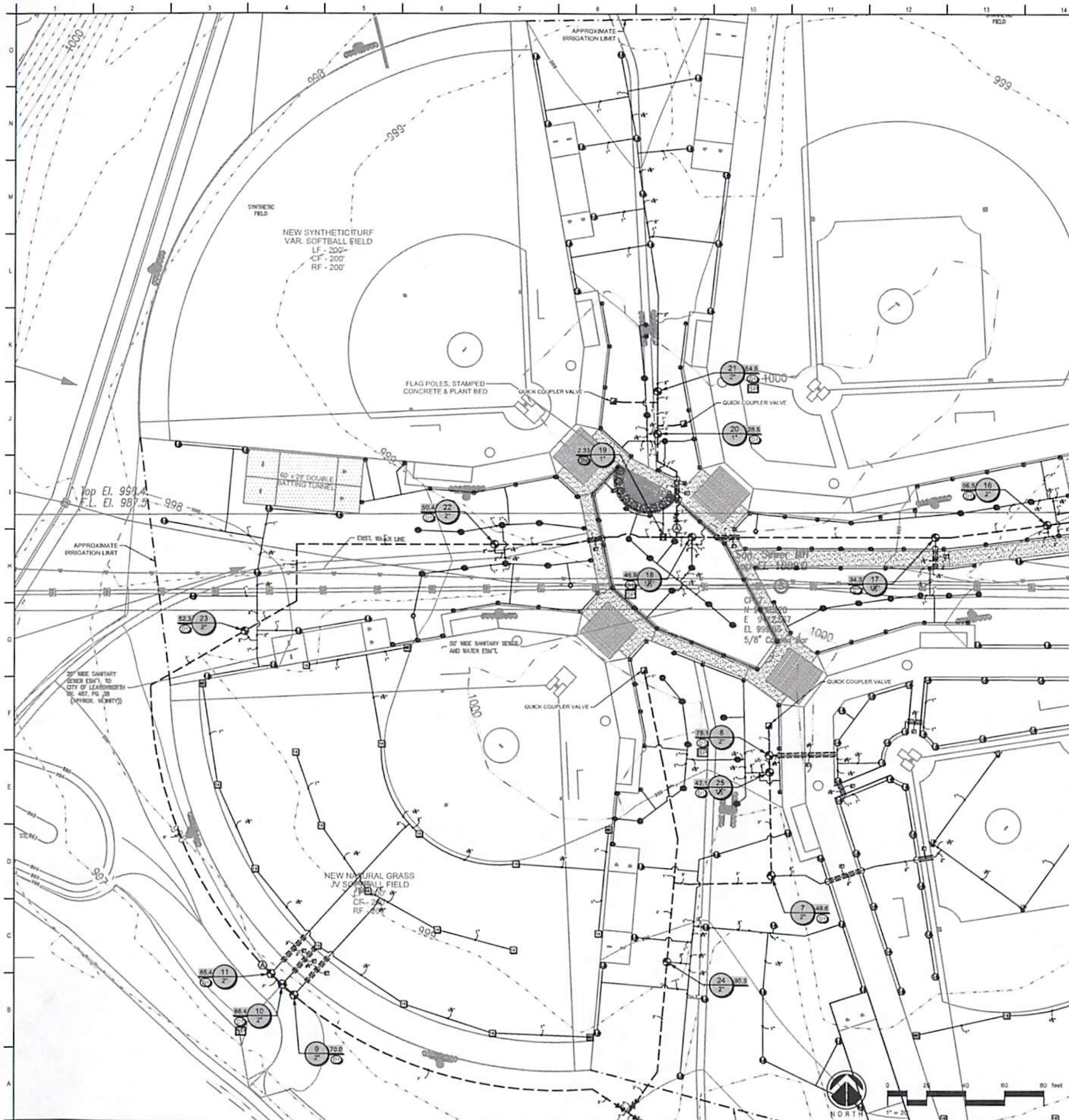
1. 11.23.20 - CIVIL BASE FILE UPDATE

IRRIGATION PLAN

SHEET
IR-2



IRRIGATION SCHEDULE

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	RAIN BIRD R-VAN14 1804-SAM-P45	16	45
	RAIN BIRD R-VAN18 1804-SAM-P45	36	45
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SYMBOL	MANUFACTURER/MODEL	QTY	PSI
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	RAIN BIRD 3504-PC	2	45
	RAIN BIRD 3504-PC	1	45
	RAIN BIRD 3504-PC	23	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	16	45
	RAIN BIRD 5004-PL-PC, PC-SAM-R	1	45
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	RAIN BIRD 5004-PL-PC, PC-SAM-R	12	45
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	6	60
	RAIN BIRD F4-PC, PC	2	60
	RAIN BIRD F4-PC, PC	7	60
	RAIN BIRD F4-PC, PC	15	60
	RAIN BIRD F4-PC, PC	31	60
	RAIN BIRD F4-PC, PC-33-HS	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT. 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 234239 SOLENOID FOR TWO WIRE APPLICATION	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.8 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX.	5
	MATCO-NORCA 514TX BRASS GATE VALVE, FULL PORT, WITH SOLID WEDGE, IPS, CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE, NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS	1
	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX.	2
	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS, UV-RESISTANT, OUTDOOR-RATED, PLASTIC LOCKING WALL-MOUNT CASE.	1
	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR.	1
	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE.	1
	RAIN BIRD FD-101 DECODER	24
	RAIN BIRD LSP-1 SURGE PROTECTOR	7
	RAIN BIRD SD-210 SENSOR DECODER	1
	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,542 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
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	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.5 L.F.
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	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2 1/2"	5.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	145.1 L.F.
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	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	60.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	212.3 L.F.

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IRRIGATION PLAN

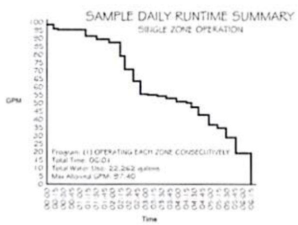
SHEET:
IR-3

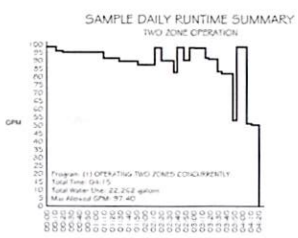
VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	HEADS	PIPE 1"	PIPE 1-1/2"	PIPE 2"	PIPE 2-1/2"	PIPE 3"	DESIGN PSI	FRICTION LOSS	VALVE LOSS	PSI	PSI @ POC	HEAD ELEV	VALVE ELEV	PRECIP
1	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	88.50	6	104.1	103.5	51.0		25.6	60	3.43	4.88	70.04	96.16	4.00 ft	0.00 ft	1.00 in/h
2	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.20	6	126.2	105.8	3.6	8.7	86.0	60	4.94	5.04	72.57	97.78	6.00 ft	-3.00 ft	0.46 in/h
3	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	62.80	4	147.0	3.0	10.9	24.5		60	2.23	4.65	68.60	93.83	4.00 ft	-4.00 ft	0.93 in/h
4	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.90	7	99.1	94.6	94.5		222.3	60	3.42	5.06	71.94	97.16	8.00 ft	-4.00 ft	1.30 in/h
5	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	94.20	6	160.8	106.2	4.2	8.6	88.0	60	3.85	5.04	71.49	97.35	6.00 ft	-3.00 ft	0.44 in/h
6	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	88.50	6	104.1	105.5	50.2		25.3	60	3.47	4.88	69.65	96.83	3.00 ft	0.00 ft	0.99 in/h
7	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	49.60	4	118.8	59.5	91.9			60	3.42	4.80	68.22	98.50	0.00 ft	4.00 ft	1.17 in/h
8	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	78.13	30	562.3	87.1		39.7		45	3.63	4.59	53.84	84.63	1.00 ft	4.00 ft	1.40 in/h
9	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	70.00	5	60.8	75.1	7.1	67.0		60	2.61	4.56	67.60	96.06	1.00 ft	3.00 ft	0.71 in/h
10	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	86.40	7	107.4	202.4			24.9	60	2.58	4.82	67.84	96.32	1.00 ft	3.00 ft	1.13 in/h
11	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	86.40	7	110.4	194.7	8.4		105.1	60	3.61	4.82	69.30	97.78	2.00 ft	3.00 ft	1.08 in/h
12	RAIN BIRD PEB-PRS-D	2"	TURF ROTOR	97.40	9	195.2	120.3	65.8		12.7	60	1.75	5.13	68.15	94.07	3.00 ft	0.00 ft	1.01 in/h
13	RAIN BIRD PEB	1"	TURF ROTARY	11.28	6	269.3					45	0.46	1.94	47.40	72.70	0.00 ft	2.00 ft	0.36 in/h
14	RAIN BIRD PEB	2"	TURF ROTOR	51.48	14	366.9	171.0	4.9			45	3.61	4.78	54.02	79.39	1.00 ft	2.00 ft	0.62 in/h
15	RAIN BIRD PEB	1-1/2"	TURF ROTOR	36.22	10	318.7	20.3				45	1.93	3.54	50.90	77.31	1.00 ft	3.00 ft	0.71 in/h
16	RAIN BIRD PEB	2"	TURF ROTARY	56.50	38	602.5	20.1	23.6			45	2.43	4.72	52.55	79.61	1.00 ft	4.00 ft	0.76 in/h
17	RAIN BIRD PEB	1-1/2"	TURF ROTARY	34.33	19	324.7	34.2				45	1.47	3.56	50.47	77.83	1.00 ft	4.00 ft	0.73 in/h
18	RAIN BIRD PEB	1-1/2"	TURF ROTARY	46.92	26	410.0	12.1	15.9			45	1.32	3.57	49.89	78.26	0.00 ft	5.00 ft	0.90 in/h
19	RAIN BIRD XCZ-LF-100-PRF	1"	AREA FOR DRIPLINE	2.33	232.8 L.F.	61.4					30	0.02	7.56	37.59	66.04	0.00 ft	5.00 ft	0.96 in/h
20	RAIN BIRD PEB	1"	TURF ROTARY	28.52	17	293.4	9.3				45	0.48	5.20	50.69	80.19	0.00 ft	5.00 ft	0.61 in/h
21	RAIN BIRD PEB	2"	TURF ROTOR	54.47	15	406.7	58.9	95.4			45	2.79	4.75	52.54	82.43	0.00 ft	5.00 ft	0.65 in/h
22	RAIN BIRD PEB	2"	TURF ROTARY	50.44	28	531.0	20.1	9.5			45	0.97	4.79	51.20	79.53	1.00 ft	4.00 ft	0.60 in/h
23	RAIN BIRD PEB	2"	TURF ROTOR	52.29	11	327.2	30.4	32.0			45	1.68	4.77	51.45	80.17	0.00 ft	4.00 ft	0.59 in/h
24	RAIN BIRD PEB	2"	TURF ROTOR	90.49	17	517.2	43.9	36.4	19.7	11.6	45	2.67	4.93	52.61	82.10	0.00 ft	4.00 ft	0.58 in/h
25	RAIN BIRD PEB	1-1/2"	TURF ROTARY	42.13	23	397.9	36.9	12.6			45	0.93	3.52	49.89	80.61	1.00 ft	4.00 ft	0.58 in/h

SAMPLE WEEKLY WATERING SCHEDULE - TYPICAL WORSE CASE JULY/ AUGUST @ 1.25"/ WEEK

NUMBER	MODEL	TYPE	PRECIP	SUN	MON	TUE	WED	THU	FRI	SAT	IN/WEEK	MIN/WEEK	GAL/WEEK	GAL/DAY
1	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.00 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	76	6,726	960.9
2	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.46 in/h	24 min	24 min	24 min	24 min	24 min	24 min	24 min	1.25	164	15,449	2,207
3	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.93 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	81	5,067	726.7
4	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.30 in/h	9 min	9 min	9 min	9 min	9 min	9 min	9 min	1.25	58	5,504	786.3
5	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.44 in/h	25 min	25 min	25 min	25 min	25 min	25 min	25 min	1.25	171	16,108	2,301
6	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.99 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	76	6,726	960.9
7	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.17 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	64	3,174	453.5
8	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.40 in/h	8 min	8 min	8 min	8 min	8 min	8 min	8 min	1.25	54	4,219	602.7
9	RAIN BIRD PEB-PRS-D	TURF ROTOR	0.71 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	106	7,420	1,060
10	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.13 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	67	5,789	827.0
11	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.08 in/h	10 min	10 min	10 min	10 min	10 min	10 min	10 min	1.25	70	6,046	864
12	RAIN BIRD PEB-PRS-D	TURF ROTOR	1.01 in/h	11 min	11 min	11 min	11 min	11 min	11 min	11 min	1.25	75	7,305	1,044
13	RAIN BIRD PEB	TURF ROTARY	0.40 in/h	28 min	28 min	28 min	28 min	28 min	28 min	28 min	1.25	190	3,577	511.1
14	RAIN BIRD PEB	TURF ROTOR	0.65 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	111	5,958	851.2
15	RAIN BIRD PEB	TURF ROTOR	0.71 in/h	16 min	16 min	16 min	16 min	16 min	16 min	16 min	1.25	107	3,876	553.6
16	RAIN BIRD PEB	TURF ROTARY	0.81 in/h	14 min	14 min	14 min	14 min	14 min	14 min	14 min	1.25	93	5,100	728.5
17	RAIN BIRD PEB	TURF ROTARY	0.73 in/h	15 min	15 min	15 min	15 min	15 min	15 min	15 min	1.25	103	3,536	505.1
18	RAIN BIRD PEB	TURF ROTARY	0.90 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	84	3,941	563.0
19	RAIN BIRD XCZ-LF-100-PRF	AREA FOR DRIPLINE	0.96 in/h	12 min	12 min	12 min	12 min	12 min	12 min	12 min	1.25	78	181.7	26.0
20	RAIN BIRD PEB	TURF ROTARY	0.61 in/h	18 min	18 min	18 min	18 min	18 min	18 min	18 min	1.25	123	3,508	501.1
21	RAIN BIRD PEB	TURF ROTOR	0.65 in/h	17 min	17 min	17 min	17 min	17 min	17 min	17 min	1.25	117	6,373	910.4
22	RAIN BIRD PEB	TURF ROTARY	0.60 in/h	18 min	18 min	16 min	16 min	16 min	18 min	16 min	1.25	125	6,305	900.7
23	RAIN BIRD PEB	TURF ROTOR	0.59 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	127	6,641	948.7
24	RAIN BIRD PEB	TURF ROTOR	0.58 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	130	11,764	1,681
25	RAIN BIRD PEB	TURF ROTARY	0.58 in/h	19 min	19 min	19 min	19 min	19 min	19 min	19 min	1.25	131	5,520	788.5
		TOTALS:		380	380	380	380	380	380	380		2,551	155,835	22,262





WATER SCHEDULING NOTES:

- SAMPLE WATER SCHEDULE CALCULATIONS ARE BASED ON A FLAT 1.25" PER WEEK MAXIMUM WATER REQUIREMENT (INCLUDES AN ADDITIONAL 25% FOR ET LOSS).
  - 1" OF IRRIGATION WATER PER WEEK (PLUS 25% FOR ET LOSS) WILL ALLOW ALL IRRIGATION TURF AREAS TO BE MAINTAINED AT OPTIMUM HEALTH AND APPEARANCE LEVELS DURING THE DRIEST SUMMER MONTHS (TYPICALLY JULY / AUGUST).
  - TURF GRASS REQUIRES SPECIFIC AMOUNTS OF WATER TO REMAIN LUSH AND "GOLF COURSE" GREEN DURING DROUGHT CONDITIONS (TYPICALLY JULY / AUGUST). IF THE TURF DOES NOT RECEIVE THE AMOUNT OF WATER IT NEEDS IT WILL BEGIN TO GO DORMANT. DORMANCY BEGINS WITH A VISIBLE LIGHT GREEN, GRAYISH GRASS COLOR. DORMANCY WILL THEN PROCEED TO COLOR SHADES OF BROWN AS THE GRASS MOVES TOWARDS FULL DORMANCY. AT FULL DORMANCY THE GRASS WILL HAVE A "DEAD" APPEARANCE THAT WILL PERSIST UNTIL EITHER NORMAL RAINFALL OR SUPPLEMENTAL IRRIGATION WATER IS RECEIVED. AT THIS POINT THE GRASS IS NOT ACTUALLY DEAD, BUT JUST TEMPORARILY DORMANT. ONCE A CERTAIN LEVEL OF WATER HAS BEEN RECEIVED, THE DORMANT GRASS WILL BEGIN TO "GREEN UP" AND, IF SUFFICIENT WATER IS APPLIED, WILL EVENTUALLY RETURN TO A "GOLF COURSE" GREEN APPEARANCE.
  - IF LESS TOTAL WATER USE IS DESIRED, SET LESS TIME ON THE LESS VISIBLE TURF ZONE AREAS AND ALLOW THEM TO GO SEMI-DORMANT TO ENTIRELY DORMANT DURING THE DRIEST MONTHS.
- THE SAMPLE WEEKLY WATERING SCHEDULE IS PROJECTED FOR A 7 DAY PER WEEK X 1 OCCURRENCE PER DAY WATERING SCHEDULE DURING A WORST CASE DROUGHT SCENARIO (TYPICAL JULY / AUGUST) AND DURING THE LANDSCAPE ESTABLISHMENT PERIOD. ALL USAGE FIGURES ARE ESTIMATES ONLY.
  - ACTUAL WATER USAGE REQUIREMENTS WILL VARY FROM TIME TO TIME DEPENDING ON ACTUAL SITE AND WEATHER CONDITIONS.
  - ACTUAL WATERING REQUIREMENTS WILL VARY DUE TO SOIL COMPOSITION AND DAILY EVAPOTRANSPIRATION CONDITIONS AND SHOULD BE CLOSELY MONITORED AND ADJUSTED AS REQUIRED TO PROMOTE THE ESTABLISHMENT AND SURVIVAL OF THE PLANT MATERIALS COVERED.
  - WEEKLY (AND DAILY WHEN REQUIRED DURING DROUGHT CONDITIONS) MONITORING AND WATERING SCHEDULE ADJUSTMENTS WILL BE REQUIRED DURING THE FIRST FULL GROWING SEASON UNTIL THE LANDSCAPE IS ESTABLISHED. AFTER THE FIRST YEAR ESTABLISHMENT PERIOD, ACTUAL WATER USAGE, MONITORING AND WATER SCHEDULE ADJUSTMENT REQUIREMENTS CAN BE EXPECTED TO BE SUBSTANTIALLY LESS THAN AS REQUIRED FOR THE FIRST YEAR.
- INCREASE STATION RUNTIMES AND SET MULTIPLE START TIMES AND/OR OPERATE ADDITIONAL ZONES CONCURRENTLY (NOT TO EXCEED MAXIMUM SYSTEM FLOW OF 100 GPM) PER DESIRED WATERING DAYS IF AN OFF DAY WATERING SCHEDULE IS DESIRED.

ESTIMATED MAXIMUM PROJECTED RUNTIME = +/-6:00 HOURS PER DAY IF OPERATING 1 ZONE AT A TIME IN SEQUENCE.
= OPERATE TWO ZONES CONCURRENTLY TO REDUCE DAILY RUNTIME TO +/-4:15 HOURS PER DAY.
= OPERATE THREE ZONES CONCURRENTLY TO REDUCE DAILY RUNTIME TO +/-XX:XX HOURS PER DAY.
= (OPERATING MORE THAN 2 ZONES CONCURRENTLY ACHIEVES NO APPRECIABLE GAIN AND MAY CAUSE LOW OPERATING PRESSURE ISSUES)

- THESE CALCULATIONS ARE PROVIDED ONLY TO DEMONSTRATE THAT 1.25" OF WATER PER WEEK CAN BE APPLIED WITHIN AN ALLOWED WATERING WINDOW OF 8 HOURS OR LESS PER EACH DAY.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
R-VAN14 / R-VAN14-360	RAIN BIRD R-VAN14 1804-SAM-P45 TURF ROTARY, 8'-14', 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON A 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	16	45
R-VAN18 / R-VAN18-360	RAIN BIRD R-VAN18 1804-SAM-P45 TURF ROTARY, 13'-18', 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON A 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	36	45
R-VAN24 / R-VAN24-360	RAIN BIRD R-VAN24 1804-SAM-P45 TURF ROTARY, 17'-24', 45-270 DEGREES AND 360 DEGREES. HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON A 4.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.	107	45

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	4	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	2	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	1	45
	RAIN BIRD 3504-PC TURF ROTOR, 4.0" POP-UP. ADJUSTABLE AND FULL CIRCLE	23	45
	RAIN BIRD 5004-PL-PC, FC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	16	45
	RAIN BIRD 5004-PL-PC, FC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	1	45
	RAIN BIRD 5004-PL-PC, FC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	38	45
	RAIN BIRD 5004-PL-PC, FC-SAM-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. WITH SEAL-A-MATIC CHECK VALVE	12	45
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	60
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	6	60
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	2	60
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	7	60
14	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	15	60
16	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	31	60
	RAIN BIRD F4-PC, FC-SS-HS TURF ROTOR, 4.0" POP-UP, STAINLESS STEEL RISER, HIGH SPEED ROTATION, ADJUSTABLE AND FULL CIRCLE. WITH REMOVABLE SEAL-A-MATIC CHECK VALVE, 1" FEMALE THREADED INLET	4	60

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-LF-100-PRF 1" LOW FLOW DRIP CONTROL KIT. 1" LOW FLOW VALVE, 3/4" PRESSURE REGULATING RBY FILTER, AND 30PSI PRESSURE REGULATOR. 0.2GPM-5GPM. REPLACE THE STOCK SOLENOID WITH A RB 236239 SOLENOID FOR TWO WIRE APPLICATION	1
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFD-06-12 XFD ON-SURFACE PRESSURE COMPENSATING LANDSCAPE DRIPLINE. 0.6 GPH EMITTERS AT 12" O.C. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	232.8 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	2
	RAIN BIRD PEB 1-1/2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	4
	RAIN BIRD PEB 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH INTERNAL PRESSURE REGULATION (1800'S, 5004'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	6
	RAIN BIRD PEB-PRS-D 2" PLASTIC INDUSTRIAL VALVE. GLOBE CONFIGURATION WITH PRESSURE REGULATOR MODULE. INSTALL THIS VALVE FOR ALL ZONES THAT HAVE HEADS WITH NO INTERNAL PRESSURE REGULATION (3500'S, FALCON 6504'S). INSTALL IN A 12" STANDARD RECTANGULAR VALVE BOX	12
	RAIN BIRD 44-RC 1" 1" BRASS QUICK-COUPLER VALVE. INSTALL IN A 10" ROUND VALVE BOX	5
	MATCO-NORCA 514TY BRASS GATE VALVE. FULL PORT, WITH SOLID WEDGE, IPS CROSS HANDLE. SAME SIZE AS MAINLINE PIPE. INSTALL WITH A 6" ROUND VALVE BOX.	7
	BUCKNER-SUPERIOR 3300 3" NORMALLY OPEN BRASS MASTER VALVE. NO MINIMUM FLOW FEATURE, WHICH ENSURES RELIABLE OPENING AND CLOSING OF THE VALVE IN EXTREME HIGH OR LOW FLOW SCENARIOS.	1
A	AIR RELIEF VALVE BERMAD IR-C10-P - 2". INSTALL IN A 10" ROUND VALVE BOX.	2
BP	WATTS 009 2-1/2" REDUCED PRESSURE BACKFLOW PREVENTER WITH COVER - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	1
C	RAIN BIRD ESP-LXD TWO-WIRE DECODER COMMERCIAL CONTROLLER. 50 STATIONS. UV-RESISTANT, OUTDOOR-RATED, PLASTIC LOCKING WALL-MOUNT CASE	1
R	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR	1
FS	RAIN BIRD FS-200-P 2" FLOW SENSOR FOR USE WITH RAIN BIRD ESP-LXD CONTROL SYSTEMS. PLASTIC (PVC) MODEL. SUGGESTED OPERATING RANGE OF 10.0 GPM TO 200.0 GPM. SENSORS IS SIZED FOR FLOW RATHER THAN PIPE SIZE	1
D1	RAIN BIRD FD-101 DECODER	24
SP	RAIN BIRD LSP-1 SURGE PROTECTOR	7
SD	RAIN BIRD SD-210 SENSOR DECODER	1
M	WATER METER 2" 2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN SIZE SERVICE LINE	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1"	6,842 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 1 1/2"	1,715 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2"	619.9 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 2 1/2"	168.1 L.F.
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 3"	607.8 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	2,194 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 1"	163.9 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2"	81.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 2 1/2"	8.7 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 3"	146.1 L.F.
	IRRIGATION MAINLINE: TYPE K COPPER PIPE 3" WATER SERVICE LINE TO BACKFLOW PREVENTER AND IRRIGATION STUB-OUT. - TO BE FURNISHED AND INSTALLED BY THE SITE UTILITY CONTRACTOR (REF: CIVIL SHEET C2)	89.2 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 4" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	68.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 6" TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE AND WIRE.	212.3 L.F.

Valve Callout: Valve Number, Valve Flow, Valve Size

CRITICAL ANALYSIS

Generated:	2021-01-29 16:24
P.O.C. NUMBER: 01	
Water Source Information:	2" MIN SIZE IRRIGATION WATER METER WITH 2 1/2" MIN. SIZE SERVICE LINE
FLOW AVAILABLE	
Water Meter Size:	2"
Flow Available:	106.99 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	115.00 psi
Elevation Change:	5.00 ft
Service Line Size:	2 1/2"
Length of Service Line:	5.00 ft
Pressure Available:	113.00 psi
DESIGN ANALYSIS	
Maximum Multi-valve Flow:	98.00 gpm
Flow Available at POC:	106.99 gpm
Residual Flow Available:	10.99 gpm
Critical Station:	7
Design Pressure:	60.00 psi
Friction Loss:	3.11 psi
Fittings Loss:	0.31 psi
Elevation Loss:	0.00 psi
Loss through Valve:	4.80 psi
Pressure Req. at Critical Station:	68.22 psi
Loss for Fittings:	0.56 psi
Loss for Main Line:	5.65 psi
Loss for POC to Valve Elevation:	1.73 psi
Loss for Backflow:	12.48 psi
Loss for Master Valve:	2.35 psi
Loss for Water Meter:	7.46 psi
Critical Station Pressure at POC:	98.50 psi
Pressure Available:	113.00 psi
Residual Pressure Available:	14.50 psi

ECOSYSTEMS
IRRIGATION DESIGN AND CONSULTING
2612 SW WINTERGARDEN DRIVE, LEE'S SUMMIT, MO 64081
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MAMMOTH
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Construction Documents

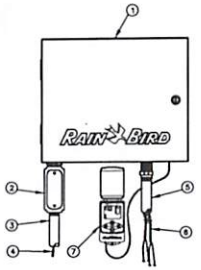
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJG
DATE: 11.23.20
REVISIONS:
1. 11.23.20 - CIVIL BASE FILE UPDATE

IRRIGATION PLAN

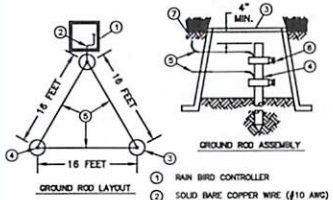
SHEET: IR-4



1. TWO-WIRE DECODER CONTROLLER: RAIN BIRD ESP-LXD TWO-WIRE DECODER WALL MOUNTED CONTROLLER. INSTALL CONTROLLER AND CABINET AT EYE LEVEL ON THE EXTERIOR BUILDING WALL AS PER MANUFACTURER'S RECOMMENDATIONS.
2. JUNCTION BOX
3. 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY
4. POWER SUPPLY WIRE
5. 1-INCH CONDUIT AND FITTINGS FOR TWO-WIRE CABLE
6. TWO-WIRE PATH TO DECODERS – USE A DIFFERENT CABLE JACKET COLOR FOR EACH PATH.
7. RAINBIRD WR2-RFC WIRELESS RAIN/ FREEZE SENSOR RECEIVER – MOUNT RECEIVER ON EXTERIOR BUILDING WALL AS SHOWN.

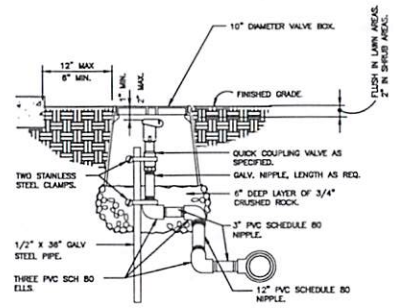
NOTES:
1. ESP-LXD CONTROLLER COMES WITH 50 STATIONS AVAILABLE. TWO ADDITIONAL 75 STATION ESPLXD-SLW75 MODULES MAY BE ADDED TO EXPAND THE CONTROLLER UP TO 200 TOTAL STATIONS.
2. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.
3. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

1 RAIN BIRD LXD TWO WIRE CONTROLLER
AND WIRELESS RAIN/ FREEZE SENSOR

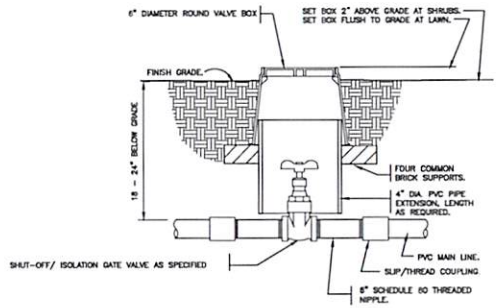


1. RAIN BIRD CONTROLLER
2. SOLID BARE COPPER WIRE (#10 AWG) FROM GROUNDING ROD TO CONTROLLER; MAKE WIRE AS SHORT AND STRAIGHT AS POSSIBLE
3. COVER GROUNDING ROD WITH 10-INCH ROUND VALVE BOX AS SHOWN
4. 5/8-INCH X 8 FT COPPER CLAD GROUNDING ROD OR GROUNDING PLATE. INSTALL RODS IN SOIL IN A TRIGULAR PATTERN SPACED A MINIMUM OF 16 FT APART FROM EACH OTHER. GROUNDING GRID TO HAVE A RESISTANCE OF TEN (10) OHMS OR LESS
5. BARE COPPER WIRE (#10 AWG MIN.) BETWEEN GROUNDING RODS
6. GROUND ROD CLAMP OR WELDS
7. FINISH GRADE

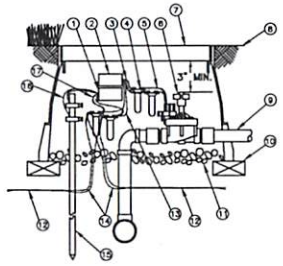
1.5 CONTROLLER GROUNDING GRID



4 QUICK COUPLER VALVE
- FOR WINTERIZATION BLOW-OUT AND WASH-DOWN



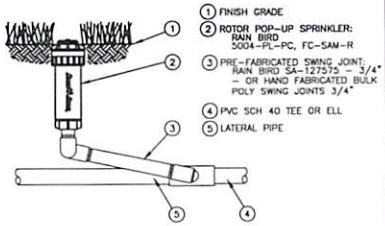
2 SHUT-OFF / ISOLATION GATE VALVE



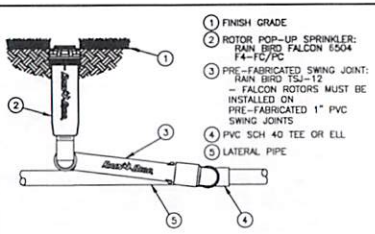
1. LINE SURGE PROTECTOR: RAIN BIRD LSP-1 – WHEN REQUIRED – SEE PLAN
2. FIELD DECODER (RAIN BIRD FD-101)
3. WIRE FROM FIELD DECODER (1 OF 2)
4. DBR SERIES WIRE CONNECTOR
5. SOLENOID WIRE (1 OF 2)
6. RAIN BIRD PEB REMOTE CONTROL VALVE
7. 12-INCH RECTANGULAR VALVE BOX
8. FINISH GRADE OR TOP OF MULCH
9. PVC MAINLINE PIPE
10. BRICK (1 OF 4)
11. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
12. TWO-WIRE CABLE TO NEXT DEVICE (FIELD DECODER, OR WEATHERMATIC CONTROLLER)
13. WIRE FROM FIELD DECODER
14. COMMUNICATION WIRE TO NEXT DEVICE (FIELD DECODER, LINE SURGE PROTECTOR OR WEATHERMATIC CONTROLLER)
15. GROUNDING ROD: 10 OHMS OR LESS
16. GREEN/YELLOW WIRE FROM LSP-1TURF TO BRASS CLAMPS ON GROUNDING ROD (1 OF 2)
17. WIRE FROM LSP-1 WHEN REQUIRED

NOTES:
1. A RAIN BIRD LSP-1 SURGE PROTECTION DEVICE SHALL BE INSTALLED EVERY 500-FEET OR FOR EVERY EIGHT DECODERS ON TWO-WIRE PATH AND AT THE ENDS OF THE TWO-WIRE PATH.
2. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM DECODER TO SOLENOID IS 500 FEET.
3. PLACE 3 FEET OF EXTRA WIRE IN EVERY VALVE BOX FOR EASIER SERVICING
4. INSTALL PRS-D DEVICE ON ALL CONTROL VALVES OPERATING NON-INTERNALLY PRESSURE REGULATED HEADS.

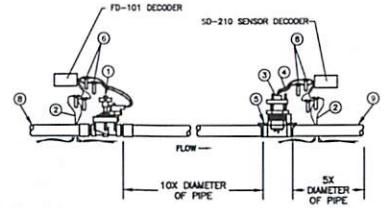
5 RAIN BIRD PEB CONTROL VALVE WITH RAIN BIRD DECODER
- AND LINE SURGE PROTECTION AND PRS-D PRESSURE REGULATING DEVICES WHERE REQUIRED AS APPLICABLE



7 RB 5004 TURF ROTOR



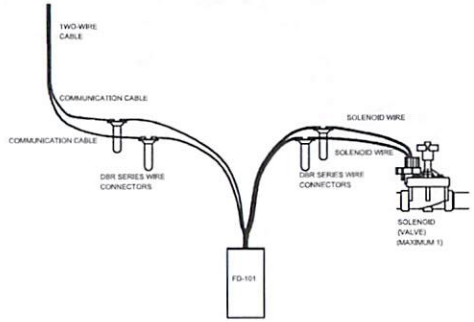
8 RB 6504 FALCON TURF ROTOR



1. NORMALLY CLOSED MASTER VALVE: RAIN BIRD PEB
2. WIRE TO TWO WIRE PATH
3. FLOW SENSOR: RAIN BIRD FS-200P SERIES
4. FLOW SENSOR WIRES
5. DOUBLE-STRAP SADDLE
6. WIRE SPLICE: 3M-DBR
7. CONCENTRIC REDUCER
8. IRRIGATION WATER SUPPLY LINE
9. IRRIGATION WATER SUPPLY LINE TO SYSTEM

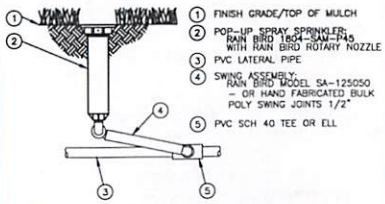
NOTES:
1. REFER TO RAIN BIRD TECHNICAL DATA FOR FLOW SENSOR INSTALLATION BASED ON PIPE SIZING PARAMETERS.
2. MASTER VALVE(S) AND FLOW SENSOR(S) SHALL BE INSTALLED WHERE SHOWN ON THE PLANS.

3 MASTER VALVE AND FLOW SENSOR



NOTE:
1. MAXIMUM LENGTH OF SECONDARY WIRE PATH (14 AWG) FROM DECODER TO SOLENOID IS 500 FEET.

6 RAIN BIRD FD-101 DECODER WIRING



9 RB TURF ROTARY HEAD
- 12" SHRUB SPRAY HEADS INSTALL WITH THIS TYPE SWING JOINT

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IRRIGATION PLAN

SHEET:
IR-5

SECTION 328000 – LANDSCAPE IRRIGATION WORK

PART 1 - GENERAL

1.1 RELATED SPECIFICATION SECTIONS

A. Landscape Work – Section 329000

1.2 SUMMARY

A. The prospective bidder must be licensed to practice in the State and City in which the Project is located. Bidders may be required to submit proof of licensing and other qualifications prior to the award of the bid. If requested, the prospective Irrigation Contractor shall provide a record of previous similar experience and a list of at least (3) projects of similar size and scope completed within the past (5) years.

B. The Irrigation Contractor shall furnish all materials, tools, equipment and labor to install a complete and operable automatically controlled Landscape Irrigation System as indicated on the drawings, as specified and as necessary to complete the contract, including but not limited to, these major items:

1. Submittal of required material data
2. Pre-installation Flow and Pressure tests and the submittal of a Report of the findings prior to beginning the actual installation work. The Irrigation Contractor shall submit this Report in a timely fashion and allow ample time for resolution if the reported flow and pressure are below the system design parameters. ***Failure of the Irrigation Contractor to follow and adhere to the specified testing and reporting process will not relieve him of his responsibility to provide a functional system as per the spirit and intent of the plans and contract documents. Any additional costs arising from said failure to comply with the specifications will be the sole responsibility of the Irrigation Contractor.***
3. Utility Locates
4. Installation of the Irrigation System and all related appurtenances as per the plans and specifications.
5. Irrigation System sleeving and /or boring as noted on the drawings or as may be required to complete the installation. This includes scheduling coordination with other trades and minor field adjustment that may be required due to actual site conditions. The Contractor shall bore any missed crossings or crossing unable to be sleeved due to scheduling issues.
6. Excavation and backfill of pipe trenches
7. Record drawings and guarantees
8. Permits and licenses
9. Post installation testing of supplies and systems
10. Clean-up

C. Water for the Irrigation System will be sourced from new 2" dedicated irrigation water meter with a 2 ½" service line from the existing 16" City Water main and 2" service line from the water meter to the 2" RPZ Backflow Preventer as noted and shown on the drawings.

D. The Irrigation System is will utilize potable water.

[illegible]

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IRRIGATION PLAN

SHEET:
IR-6

Please consider the environment before printing this document.

PART 3 - EXECUTION

3.1 GENERAL

A. Verification of Conditions: Examine the areas to receive the Work and the conditions under which the Work would be performed. Remedy conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

B. The Irrigation Contractor shall install all irrigation system components in accordance with the Contractor's approved submittals, the Plans, and these Specifications. The workmanship of the entire job must in every way be first class and only experienced and competent persons shall work on the project.

C. Supervision: The Irrigation Contractor shall supervise the work constantly while his work is underway and shall keep the same foreman and workmen of the job from commencement to completion.

D. Schedule of Work: The Irrigation Contractor shall be responsible for the installation of the piping and equipment in a manner that will affect the earliest completion of the work in conformance with the construction progress schedules of other Contractors and Trades, and these Specifications.

E. Installation Observation and Inspection: In addition to normal progress inspection, the Irrigation Contractor shall give at least 72 hours notice to the Landscape Architect and Irrigation Design Professional for observation of the work as follows:
1. Layout of the system
2. Observation of trenches, backfilling and equipment installation
3. Pressure tests and flushing operations
4. Coverage adjustment
5. Demonstration of final automatic operation and Final Walkthrough
6. The Irrigation Contractor shall produce and maintain written documentation of all the items above and include copies with the Final Closeout Documents.

3.2 PROTECTION

A. The Irrigation Contractor shall be responsible for the storage of materials and any theft or damage to the work covered by these Specifications before the final acceptance of the work.

B. Pipe and fittings shall be packaged in a manner suitable for shipment by a commercial carrier. Upon receipt at job site, a receiving inspection shall be prepared. The quantity shall be verified, and any shipping damage shall be reported to the supplier within seven (7) days.

C. Protect work and materials from damage during construction. Storage of polyvinyl chloride (PVC) pipe and fittings shall be protected from direct sunlight. Beds on which materials are stored must be the full length of the pipe to avoid damage. Any pipe that has been damaged or dented shall not be used in the work.

D. Any existing structures, equipment, utilities, pavement, landscaping, etc., damaged by Irrigation Contractor during the course of the work, including any damage caused by leakage or settling of piping systems being or having been installed by them, shall be restored at Irrigation Contractor's expense and to the Owner's satisfaction.

E. Securely cover openings into the system and cover apparatus, equipment, and appliances, both before and after being set in place to prevent obstruction in the pipes and the breakage, misuse or disfigurement of the apparatus, equipment, or appliances.

3.3 LAYOUT AND VERIFICATION

A. The Irrigation Contractor shall stake the locations of all pipe circuits, quick coupling valves, and irrigation heads in accordance with the Project drawings. The Irrigation Contractor shall check and verify dimensions of layout and report variations to the Landscape Architect and Irrigation design Professional. Layout the work as accurately as possible to the drawings.

B. Minor changes in locations to the above from locations shown shall be made as necessary to avoid existing or proposed planting, piping, utilities, structures, etc., at the Irrigation Contractor's expense or when directed by the Owner's Representative, providing such

change is ordered before such items or work directly connected to same are installed, and providing no extensive additional materials are required.

C. The Irrigation Contractor will be held responsible for the relocating of any items without first obtaining the Owner's Representative approval. The Irrigation Contractor shall remove and relocate such items, at his expense, if so directed by Owner's Representative.

D. Before starting work on irrigation system, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths.

E. No fittings shall be installed on pipe underneath pavement or walls. If such a need should occur, the Contractor shall bring it to the attention of Landscape Architect and Irrigation Design Professional.

F. Exact drip line and sprinkler head placement is based on and shall be coordinated with actual planting layout and shall be verified by Landscape Architect and Irrigation Design Professional.

3.4 TRENCHING, BORING AND ENCASEMENT

A. Excavation: Trenches shall be excavated in accordance with the plans and specifications. OSHA standards or Owner safety policies regarding safety shall be followed regarding trench safety. If groundwater is encountered, it shall be removed by the Contractor. Shoring of the trench, where required, is the responsibility of the Contractor.

B. Make trenches for main and laterals straight and true with the bottoms graded on uniform slopes to low points. Excavate trenches wide enough to allow a minimum of four inches (4") (100 mm) between parallel pipelines, eight inches (8") (200 mm) from lines of other trades. Do not install lines parallel and directly over one another. Maintain two inches (2") (50 mm) vertical clearance between irrigation lines; minimum transverse angle is 45 degrees. There shall be a maximum of two lines per trench. No irrigation lines shall extend above subgrade.

C. Trench Depths:
1. Main Line:
a. 18 – 24" below final grade in green space areas
b. 30" below top of hard surface under hard surface areas within sleeves
2. Laterals:
a. 12 – 18" below final grade in green space areas
b. 30" below top of hard surface under hard surface areas within sleeves

3.5 PIPE ASSEMBLY

A. General:
1. Provide flanges or unions as indicated and as necessary to allow removal and reinstallation of any item of equipment or accessory without cutting, welding, or soldering.
2. Provide discharge piping of proper size for all air vent, solenoid, and relief valves. Extend to nearest drain.
3. Provide 1" manual drain gate valves with hose connection at all low points in the system and immediately upstream of check valves as necessary to allow the system to be completely drained. Accurately locate manual drain valves on the As Built drawings.
4. Cut pipe to measurements established at the site. Work into place without springing or forcing.
5. Protect all openings in piping during construction to prevent entrance of foreign matter.
6. Cut pipe and tubing ends square. Remove rough edges and burrs so that a smooth and unobstructed flow will be obtained.
7. Close or short nipples shall only be used where shown on the irrigation drawing, or absolutely necessary to satisfy dimensional constraints.
8. Make changes in pipe size using reducing fittings.
9. Wherever two or more pipes are installed parallel, allow sufficient space for required welding, soldering, painting, and/or the application of insulation.

B. Installation of all pipes and fittings shall be in strict accordance with the manufacturer's written specifications. Deviations from these specifications shall be permitted only with the written approval of Owner's Representative.

C. PVC pipe and Fittings:

1. Plastic pipe and fittings shall be solvent welded using solvents and methods as recommended by manufacturer of the pipe, except where screwed connections are required. Pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before applying solvent with a non-synthetic bristle brush.
2. Install PVC pipe in dry weather when temperature is above 40 degrees Fahrenheit in strict accordance with manufacturer's instructions.
3. Pipe may be assembled and welded on the surface. Snake pipe from side to side of trench bottom to allow for expansion and contraction.

D. Connections between plastic pipe and metal valves shall be made using plastic male adapters and applying the recommended threaded joint compound. Do not use pipe dope.

E. All metal screwed joints shall be tightened with tongs or wrenches and employ the specified joint compound. Caulking of any kind will not be permitted.

F. All lines to be installed under hard surfaces shall be installed in a PVC Schedule 40 sleeve. Depth of sleeves to be determined by the final top elevation of the hard surface above sleeve. All sleeves shall be placed at a minimum 30" depth below the final top elevation of the hard surface above the sleeve crossing. All sleeves are to be placed prior to the installation of any hard surface. Each end of all sleeve locations shall be marked with a brass marker placed below grade back of curb or walk.

G. Core drilling for irrigation piping penetrations shall be accomplished in a manner approved by the Owner. Provide metal sleeves for all irrigation lines wherever passing though a concrete wall or floor. Provide a water stop or membrane clamp for every pipe or sleeve penetrating an exterior concrete wall or floor; whichever is appropriate to the waterproofing method.

H. Install drip emitter line and related equipment under the mulch and as per manufacturer's recommendations and written instructions. Do not install emitter line in direct sunlight. Maintain consistent spacing of drip line within planter beds to provide even distribution throughout the area.

I. Pipe Detection Tape: install 12" above main line pipe only.

3.6 AUTOMATIC CONTROLLER

A. The automatic controller shall be provided with direct surge protection. The Irrigation Contractor shall verify power location and type, as well as power connection requirements to the Controller Location indicated on the Plan. The Irrigation Contractor shall connect the power to the controller. The location of the controller shall be as shown and noted on the drawings and as directed by the Owner's Representative.

B. The controller shall be grounded to the building grounding systems per manufacturer's recommendations.

3.7 ELECTRICAL CONTROL WIRES

A. Electrical control wires shall be installed in the same trench as the main line wherever possible. Wires shall be laid alongside the pipe by "snaking" into the trench to allow as much slack as possible for contraction and expansion of the wire. All wire connections at remote control valves and at all wire splices will be left with two feet of wire so that the splice or the valve manifold can be brought to the surface for repairs without disconnecting the wires.

B. Wire splices shall be absolutely waterproof so that there is no chance for leakage of water and corrosion build-up on the connection. All wiring shall be accomplished with as few splices as possible.

C. Install all wire splices in a 10" round valve box and accurately note their locations on the As-Built drawings.

3.8 FIELD QUALITY CONTROL

A. The Irrigation Contractor shall notify the Landscape Architect and Irrigation Design Professional for the following reviews, with three (3) working days minimum notice:
1. Pressure testing mains and laterals
2. Observation of trenches, backfilling and equipment installation
3. Pressure tests and flushing operations
4. Coverage adjustment

5. Demonstration of final automatic operation and Final Walkthrough

B. Provide equipment and / or personnel required to conduct tests.

C. Provide up-to-date Progress Drawings at each review.

3.10 CLOSING OF PIPE AND FLUSHING OF LINES

A. Closing: Openings in laterals and main shall be capped or plugged, leaving caps and plugs in place until removal is necessary for completion of installation. Contractor shall take other precautions as necessary to prevent dirt and debris from entering pipe or equipment.

B. Flushing: Lines shall be thoroughly flushed out before installing quick coupling valves, sprinklers, or emitters. After flushing, main line pipe may be partially backfilled, but joints, fittings and connections shall remain free and visible.

C. Test in accordance with paragraph on Hydrostatic Test. Upon completion of the testing the Contractor shall complete assembly and adjust sprinkler heads for proper distribution.

3.11 PURGING

A. Immediately prior to hydrostatic testing, all irrigation lines shall be thoroughly purged of all entrapped air. Introduce water into lines to be tested at full operating head. Observe water flow at end of discharge point until determination is made that all air and residual debris has been expelled from the line.

3.12 HYDROSTATIC TESTING

A. While the necessary piping system components are exposed, all mainline piping is to be subjected to a hydrostatic test. The Landscape Architect and/or the Irrigation Design Professional should be on premises for this testing.

B. The Irrigation Contractor is responsible to keep logs and written documentation of all testing activities. The Irrigation Contractor shall summarize and distribute this documentation as a part of the close out submittal package.

C. Do not install remote control valves, quick couplers, or any other valve assembly until Landscape Architect and/or Irrigation Design Professional accepts testing of pressure main lines.

D. Testing shall occur with pipe joints exposed. Small amounts of backfill between fittings shall be allowed to prevent pipe displacement and floating. All fittings shall be visible prior to testing.

E. Pressure gauges shall be read in PSI. Calibration shall be such that accurate determination of potential pressure loss can be ascertained.

F. For PVC pipe:
1. Test pressure supply lines under hydrostatic pressure of 125 psi minimum. Pipe shall hold pressure for a period of one (1) hour with no more than five (5) psi loss in order to pass test.
2. Re-test as required until the system meets the requirements. During the tests, regardless of the amount of leakage, all detectable leaks are to be stopped and all defects corrected. Note such activities and locations in the written log documentation as mentioned in item B of this section.

3.13 BACKFILLING AND COMPACTING

A. Backfilling of PVC pipe:
1. Rock free backfill material for mainline pipe is to be tamped in four inch (4") (100 mm) layers under the pipe and uniformly on both sides of the full width of the trench or as shown, and the full length of the pipe. Materials are to be sufficiently damp to permit thorough compaction under and on each side of pipe, to provide support free voids. PVC pipe shall not rest on concrete, rock wood blocks, or similar items.

B. All pipe is to be immediately backfilled with preliminary backfill sufficient to prevent arching or slipping under pressure.

C. Other than for preliminary backfill over pipe, do not allow or cause any of the work to be covered before it has been inspected, tested, and approved by the Landscape Architect and/or Irrigation Design Professional.

D. Upon approval, proceed to place remaining (final) backfill. Final backfill material shall be clear of all debris (i.e. roots, limbs, large rocks, boulders, clumps, or frozen clods) larger than two-inch (2") (50 mm) in diameter, or any object that could damage the pipe. Finish grade of all trenches must conform to adjacent grades without dips, sunken areas, humps, or other irregularities. Dispose of any excess debris.

F. Restore all surfaces, existing underground installations, damaged or cut as a result of the excavations to their original condition.

3.14 ADJUSTING THE SYSTEM

A. Adjust alignment and coverage of all heads. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, make all necessary changes, or make arrangements to have adjustments made, prior to any planting. These changes or adjustments shall be made without additional cost and noted on the As-Built Drawings.

B. If any heads require different nozzles other than those specifically noted per each head on the plan, note the new nozzle size/ type and include the revised calculations on the As-Built drawings.

C. If any heads are added or subtracted from the current plan, due to actual site layout conditions, accurately note such heads and include revised zone calculations on the As-Built drawings.

D. Adjust and balance the system to eliminate over spray and fogging and as directed by Landscape Architect and/or Irrigation Design Professional.

3.15 TURN-OVER MATERIALS

A. Final Record As-Built Drawings:
1. A minimum of two physical sets of these shall be produced, one half sized plastic laminated paper set for placement in close proximity to irrigation controller cabinet location and one full size paper set for storage at another location decided by the Owner's Representative.
a. Both sets shall have the irrigation valve zone lateral lines color coded so as to readily distinguish between adjacent zones. The valve size, station number and gallons per minute shall be legible at each valve and shall match how the controller is wired. Additionally, each valve shall be annotated to describe which type of irrigation it is, i.e.: spray, rotor, bubbler, etc. Color-coded copies shall then be professionally laminated in 5 mil clear plastic.
2. The As-Built drawings shall be performed in Auto-CAD as per paragraph 1.4, subsection 5 of this specification.

B. Operational and Maintenance Data: Submit four copies of manufacturer's data, maintenance schedule and operational schedule in a three-ring binder, labeled and indexed. Include written Observation and Testing log records.

C. Equipment: Provide the following to the Owner's Representative:
1. One (1) Quick Coupler key equipped with swivel 90 (standard thread hose bib) per (5) Quick Couplers installed on the project.
2. Two (2) valve stem keys (48")
3. Four (4) spare heads of each series specified
4. A total of One (1) remote control solenoid valves/ kits of each type and size installed

D. Provide Owner's Representative with all Record Drawing submittals, turnover materials, salvaged items and warranty requirements prior to Final Walkthrough and Review.

END OF SECTION 328000

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www.cegolfdesign.com

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SPORTS CONSTRUCTION
601 E. Wyandotte Street
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Construction Documents

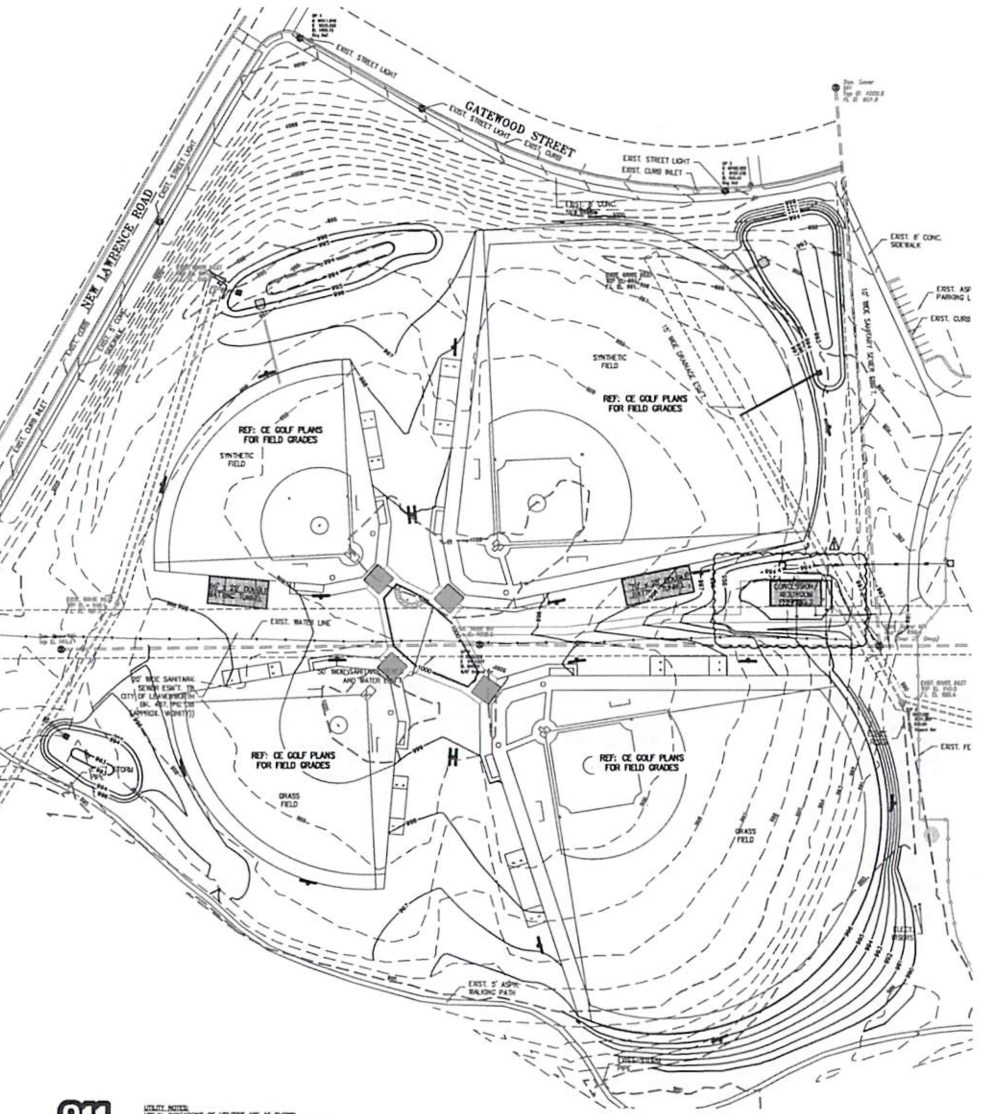
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 2017
DRAWN BY: BRG
CHECKED BY: TJC
DATE: 11.23.20
REVISIONS:
1. 11.23.20 - CIVIL BASE FILE UPDATE

IRRIGATION PLAN

SHEET:
IR-7



SITE GRADING NOTES:

1. CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted. proposed contours and elevations shown represent approximate finish grade. Contractor shall hold down subgrades to allow for pavement and sub-base thicknesses.
2. If the contractor does not accept existing topography as shown on the plans, without exception, he shall have made at his expense, a topographic survey by a registered land surveyor and submit it to the owner for review.
3. CLEARING AND GRUBBING: Prior to beginning preparation of subgrade, all areas under pavements or building shall be stripped of all topsoil, vegetation, large rock fragments (greater than 6 inches in any dimension) and any other deleterious material. The actual stripping depth should be based on visual examination during construction and the results of proof-rolling operations. The root systems of all trees (not designated to remain) shall be removed in their entirety. Stripping materials shall not be incorporated into structural fills.
4. TOPSOIL STRIPPING: Prior to the start of site grading, the contractor shall strip all topsoil from areas to be graded, and stockpiled at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping. At that time, and prior to the installation of landscaping or irrigation, all topsoil graded areas shall be visually inspected and accepted by the owner and ITL.
5. Contractor shall adjust and/or cut existing pavement as necessary to assure a smooth fit and continuous grade. Contractor shall assure positive drainage away from buildings for all natural and paved areas.
6. SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
7. PROOFROLLING: Subsequent to completion of stripping and over-excavation, all building and pavement areas to receive engineered fill should be systematically proof-rolled using a tandem axle dump truck loaded to approximately 20,000 pounds per axle. Also, any finished subgrade areas to receive paving shall be proof-rolled within 48 hours of paving. Unsuitable soils that are detected and that can not be recompacted should be over-excavated and replaced with controlled structural fill.
8. EARTHWORK:

   A) GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report. Said report and its recommendations are herein incorporated into the project requirements by reference. Prior to beginning construction, the contractor shall obtain a copy of and become familiar with the geotechnical report. Unless specifically noted on the plans, the recommendations in the geotechnical report are hereby incorporated into the project requirements and specifications.

   B) SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.

   C) FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil and debris. In areas where the thickness of the engineered fill is greater than [illegible] feet building and pavement construction should not commence until so authorized by the on-site geotechnical engineer to allow for consolidation.

   D) BUILDING SUBGRADE: As specified in the Geotechnical Engineering Report, the upper section of building subgrade shall consist of Low Volume Change (LVC) material defined as approved, compacted granular fill or low to moderate plasticity cohesive soil materials stabilized with Class C Flyash. Granular fill shall consist of compacted granular materials with a maximum particle size of two (2) inches or less, such as limestone screenings. Refer to geotechnical report for complete requirements.

   E) EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 5:1 (horizontal to vertical), existing slope shall be benched providing a minimum vertical face of twelve inches (12"). The benches should be cut wide enough to accommodate the compaction equipment. Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose lift measurement), unless otherwise approved by the Geotechnical Engineer.

   F) COMPACTION REQUIREMENTS: The upper 8 inches of pavement subgrade areas shall be compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall within a range of [illegible] below to [illegible] above optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.
9. All cut or fill slopes shall be 3:1 or flatter. All asphalt parking areas shall be a minimum of 1% slope but not more than 5% slope unless otherwise noted. All pavements within ADA parking areas shall not exceed 2% total slope. All grades around building shall be held down 6" from finish floor and slope away another 6" in 10 feet. Contractor shall notify engineer prior to final subgrade construction of any areas not within this slope requirement.
10. TESTING AND INSPECTION: Owner's Independent Testing Laboratory (ITL) shall make tests of earthwork during construction and observe the placement of fills and other work performed on this project to verify that work has been completed in accordance with Geotechnical Engineering Report, Project Specifications and within industry standards. The ITL will be selected by the owner and the cost of testing will be the owner's responsibility.
11. CLASSIFICATION: All excavation shall be considered unclassified. No separate or additional payments shall be made for rock excavation.
12. PERMANENT RESTORATION: All areas disturbed by earthwork operations shall be seeded, unless shown otherwise by the landscaping plan or erosion control plan.
13. UTILITIES: The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.
14. LAND DISTURBANCE: The contractor shall adhere to all terms & conditions as outlined in the EPA or applicable state N.P.D.E.S. permit for storm water discharge associated with construction activities. Refer to project S.W.P.P.P. requirements.

ADA PATH NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE THAT THE SIDEWALK/CROSSWALK SHALL NOT EXCEED 2% CROSS SLOPE OR 5% RUNNING SLOPE (IN THE DIRECTION OF TRAVEL, EXCEPT AT RAMP LOCATIONS).

FLOOD NOTE:

THIS PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOOD PLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF OLATHE, JOHNSON COUNTY, KANSAS, COMMUNITY NO. 200136, 200106, & 200190, PANEL NO. 0143 G, AND DATED JULY 16, 2015.

CONTROL POINTS:

C.P. NO. 3
MAG NAIL IN WEST SIDE OF CONCRETE SIDEWALK RAMP LOCATED ON THE CURB ON THE SOUTH SIDE OF GATEWOOD ST.
TOP ELEV = 1001.21

C.P. NO. 5
MAG NAIL IN CENTER OF CONCRETE DRIVEWAY LOCATED ON THE CURB ON THE EAST SIDE OF NEW LAWRENCE ROAD.
TOP ELEV = 1001.21

C.P. NO. 6
S.E. CORNER GRATE INLET LOCATED BEHIND TRACK BLEACHERS AT RICHARD WARREN MIDDLE SCHOOL.
TOP ELEV = 988.89

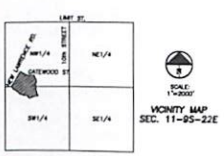
Earthwork Summary
LEAVENWORTH BASEBALL
12/14/2020

Raw Excavation	8,456 Cu. Yds.	
In Place Compaction (+15%)	-11,949 Cu. Yds.	
Pavement Adjustment (Synthetic Turf)	3,955 Cu. Yds.	(assume 8" of additional excavation)
Pavement Adjustment (Sidewalk)	89 Cu. Yds.	(assume 4" of additional excavation)
Building Adjustment (Concession Stand)	133 Cu. Yds.	(assume 24" of additional excavation)
Building Adjustment (Batting Cages)	97 Cu. Yds.	(assume 8" of additional excavation)
On Site Net	782 Cu. Yds.	

LEGEND

—PL—	PROPERTY LINE
—LL—	LOT LINE
—R/W—	RIGHT-OF-WAY
920 / 918	EXISTING CONTOURS
920 / 918	PROPOSED CONTOURS
1006.00 TW	PROPOSED SPOT ELEVATION
LG	LIP OF GUTTER
TC	TOP OF CURB
SW	SIDEWALK
ME	MATCH EXISTING
HP	HIGH POINT
LP	LOW POINT
P	TOP OF PAVEMENT
TS	TOP OF STRUCTURE
GR	GROUND ELEVATION
BS	BOTTOM OF STEPS
TS	TOP OF STEPS
BW	BOTTOM OF WALL
TW	TOP OF WALL
	EXISTING STORM SEWER
	PROPOSED STORM PIPE

SCALE: 1"=50'



SCALE: 1"=2000'
VICINITY MAP
SEC. 11-9S-22E

811
Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

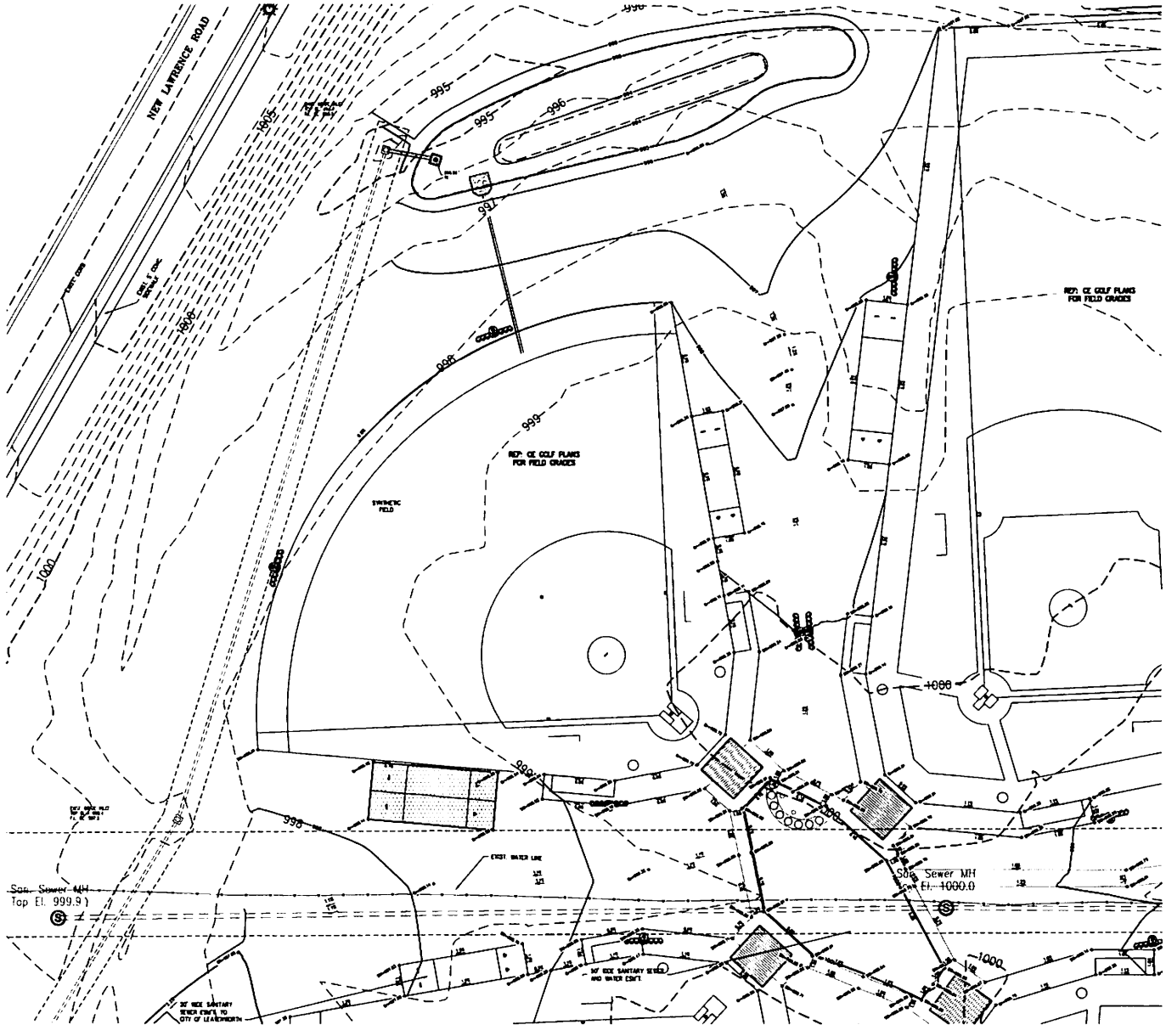
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

02/02/2021

JOB NO:	200824
DRAWN BY:	MRR
CHECKED BY:	DEU
DATE:	11.23.20
REVISIONS:	1.29.21 CITY COMMENTS

GRADING PLAN

SHEET: C1



ADA PATH NOTE:

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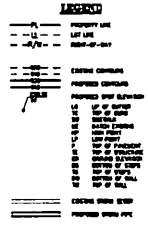
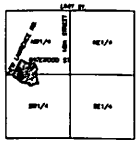
FLOOD NOTE:

CONTROL POINTS:

LEGEND





SCALE: 1"=50'

811 Know what's below. Call before you dig.

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Construction Documents

JOB NO. 200624
DRAWN BY: MWE
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

ENLARGED GRADING PLAN

SHEET
C1.1

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
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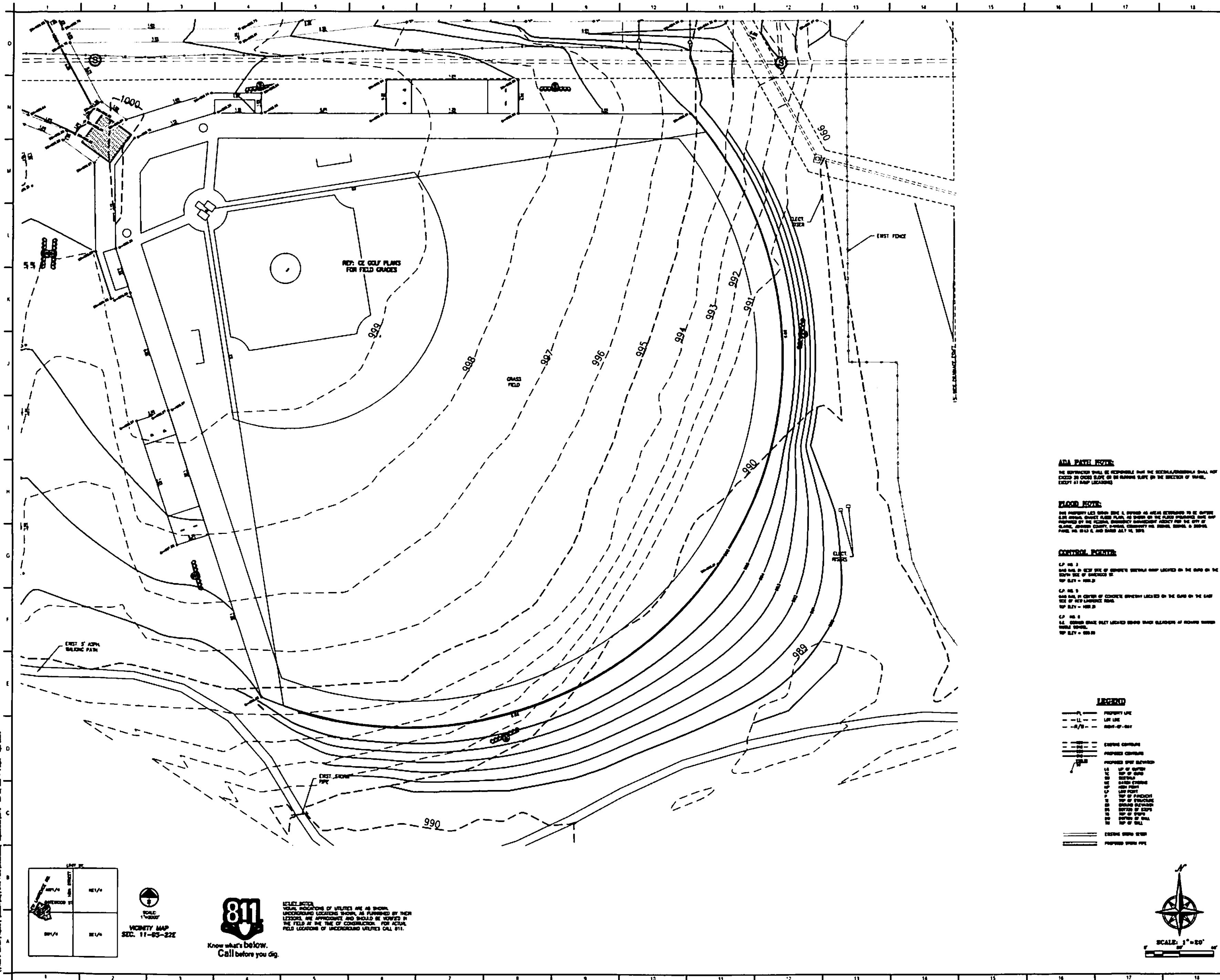
Construction Documents

ENLARGED GRADING PLAN

C1.2



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NEW BASEBALL & SOFTBALL COMPLEX

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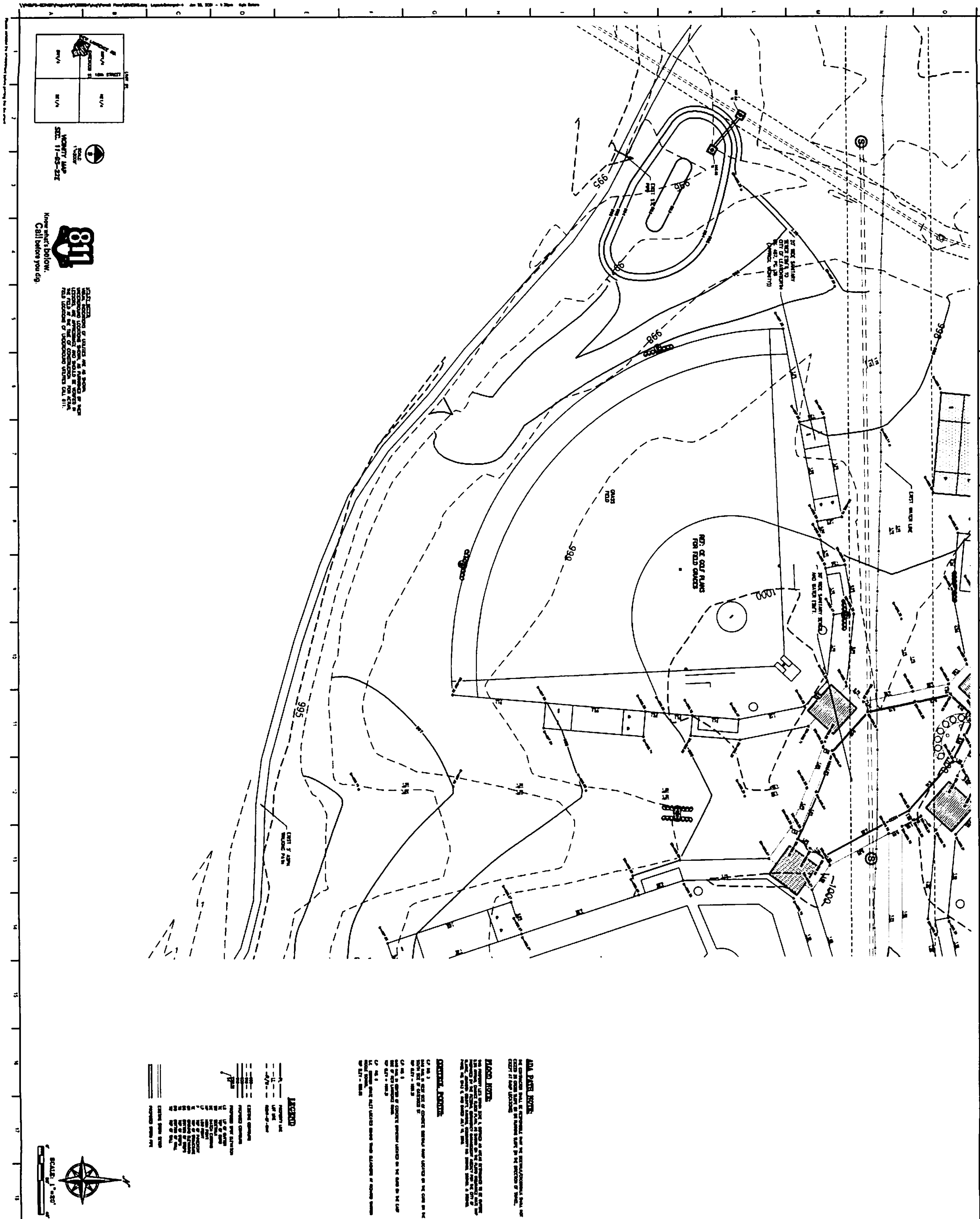
DRAWN BY MRR
CHECKED BY DEU
DATE 11.23.20
REVISIONS 1.29.21 CITY COMMENTS

ENLARGED GRADING PLAN

SHEET
C1.3



NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
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Construction Documents

ENLARGED GRADING PLAN

C1.4

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Meriden, Kansas 66512
Phone 785.400.6136
www.turnbeauturf.com

UTILITY COMPANIES:

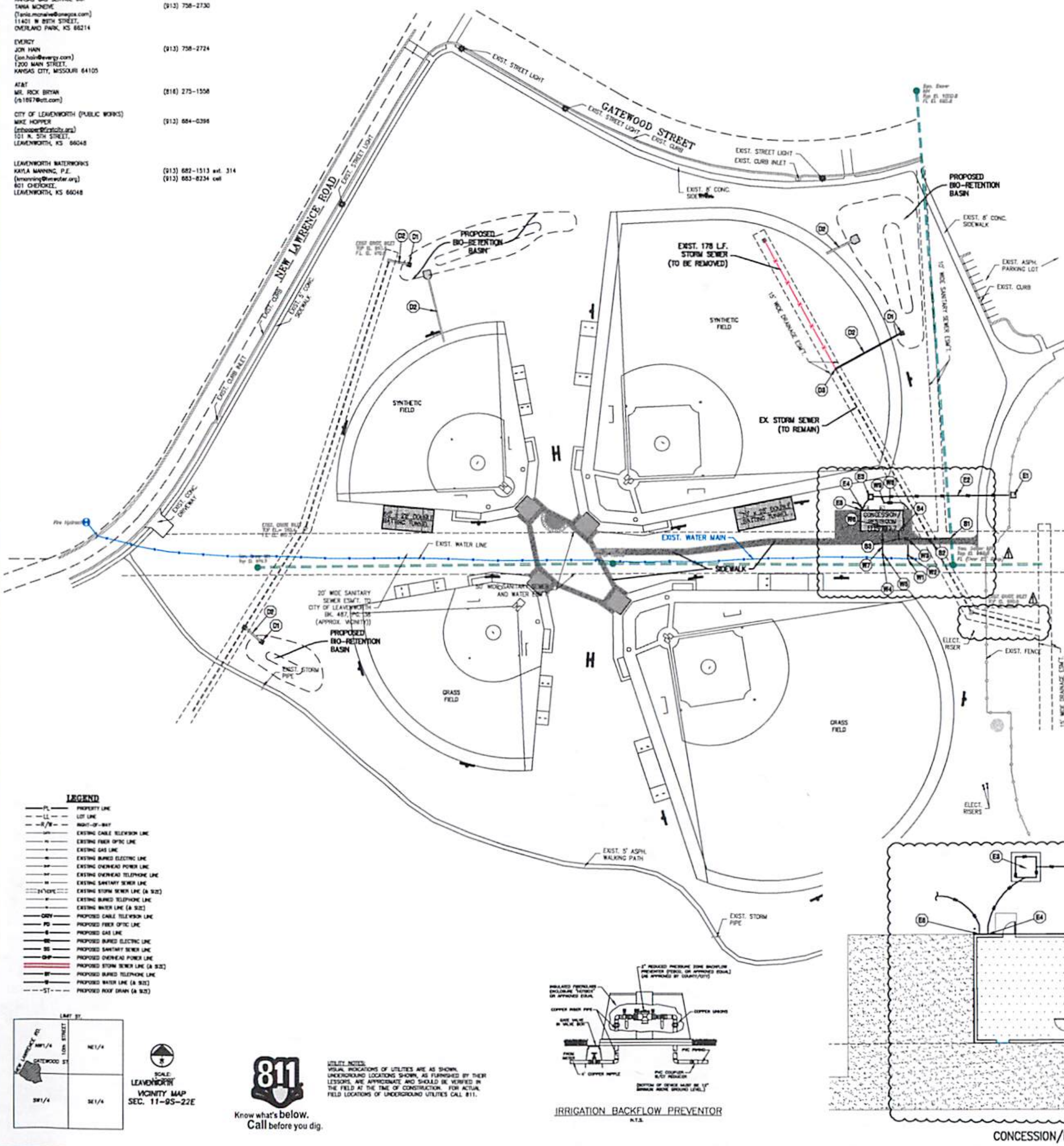
KANSAS GAS SERVICE CO.
TANIA MCNEIVE (913) 758-2730
(Tania.mcneive@onegas.com)
11401 W 89TH STREET,
OVERLAND PARK, KS 66214

EVERGY
JON HAIN (913) 758-2724
(jon.hain@evergy.com)
1200 MAIN STREET,
KANSAS CITY, MISSOURI 64105

AT&T
MR. RICK BRYAN (816) 275-1558
(rb1697@att.com)

CITY OF LEAVENWORTH (PUBLIC WORKS)
MIKE HOPPER (913) 684-0398
(mhopper@firstcity.org)
101 N. 5TH STREET,
LEAVENWORTH, KS 66048

LEAVENWORTH WATERWORKS
KAYLA MANNING, P.E. (913) 682-1513 ext. 314
(kmanning@lvnwater.org) (913) 683-8234 cell
601 CHEROKEE,
LEAVENWORTH, KS 66048



UTILITY NOTES: VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

UTILITY NOTES:

1. The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
2. The construction of storm sewers on this project shall conform to the requirements of the City's Technical Specifications and Design Criteria.
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
12. Water lines shall be as follows (unless otherwise shown on plans):
    A. Pipe sizes less than 3-inches that are installed below grade and outside building shall comply with the following:
        1. Seamless Copper Tubing: Type "K" soft copper, ASTM B88.
        2. Fittings: Wrought copper [illegible]
    B. Pipe sizes 3-inches through 48-inches that are installed below grade and outside building shall comply with one of the following:
        1. Gray Cast Iron Water Pipe: [illegible]
            a. Fittings: Either mechanical joint or push_on joint, AWWA C110 or AWWA C111.
            b. Elastomeric gaskets and lubricant: ASTM F477.
            c. Cement Mortar Lining, AWWA C104
        2. Ductile Iron Water Pipe: AWWA C151, thickness class 50.
            a. Fittings: Either mechanical joint or push_on joint, AWWA C110 or AWWA C111.
            b. Elastomeric gaskets and lubricant: ASTM F477.
            c. Cement Mortar Lining, AWWA C104
        3. Polyvinyl Chloride (PVC) Water Pipe: [illegible]
13. [illegible]
14. Minimum trench width shall be 2 feet.
15. [illegible]
16. [illegible]
17. [illegible]
18. [illegible]
19. [illegible]
20. When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
21. Refer to the building plans for site lighting electrical requirements, including conduits, pole bases, pull boxes, etc.

UTILITY KEY NOTES:

(D1) INSTALL OUTLET CONTROL STRUCTURE (SEE SHEET C7.3 FOR DETAIL)

(D2) INSTALL PRIVATE HDPE STORM SEWER. SEE STORMWATER PLAN & PROFILES FOR INVERT ELEVATIONS.

(D3) INSTALL 90° BEND. CONNECT TO EXISTING STORM LINE. (SEE SHEET C3)

(S1) CONNECT TO EXISTING 8" PVC SANITARY SEWER MAIN 33' DOWNSTREAM OF EXIST M.H.

(S2) INSTALL 96 L.F. 6" PVC SANITARY SEWER SERVICE LINE (SDR-35) (1.00% MIN SLOPE)

(S3) INSTALL 6" SANITARY SEWER CLEANOUT 10' FROM BLDG. (SEE DETAIL SHEET C7.3). TE=893.10

(S4) CONNECT TO BLDG. INTERIOR PLUMBING

(W1) CONTRACTOR TO PERFORM AND COORDINATE 16"x2-1/2" TAP ON EXISTING DIP MAIN FOR PROPOSED 2-1/2" DOMESTIC SERVICE LINE TO METER. CONTACT LEAVENWORTH WATER FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP.
OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY LEAVENWORTH WATER.

(W2) PROVIDE AND INSTALL 2" PRIMARY WATER METER PIT PER LEAVENWORTH WATER REQUIREMENTS. CONTRACTOR TO COORDINATE AND PAY ALL FEES. ALL LABOR AND MATERIALS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR'S PLUMBER IN ACCORDANCE WITH CITY STANDARDS.

(W3) INSTALL DOMESTIC 2" WATERLINE SERVICE LINE FROM METER. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO BUILDING ENTRY

(W4) CONTRACTOR TO PERFORM AND COORDINATE 16"x2" TAP ON EXISTING DIP MAIN FOR PROPOSED 2" DOMESTIC SERVICE LINE TO METER. CONTACT LEAVENWORTH WATER FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP.
OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY LEAVENWORTH WATER.

(W5) PROVIDE AND INSTALL 1-1/2" PRIMARY WATER METER PIT PER LEAVENWORTH WATER REQUIREMENTS. CONTRACTOR TO COORDINATE AND PAY ALL FEES. ALL LABOR AND MATERIALS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR'S PLUMBER IN ACCORDANCE WITH CITY STANDARDS.

(W6) INSTALL 2" DOMESTIC WATERLINE ENTRY TO BUILDING. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO THE BUILDING ENTRY. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES (RE: BUILDING PLANS), GATE VALVES, REDUCERS, BENDS, TEES, ETC., WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH WATER UTILITY.

(W7) INSTALL DOMESTIC 2" WATERLINE SERVICE LINE FROM METER. CONTRACTOR SHALL USE TYPE K COPPER FROM THE MAIN TO 3 FEET OUTSIDE OF THE FIRST METER PIT. CONTRACTOR MAY TRANSITION TO HDPE FROM THE POINT 3 FEET OUTSIDE OF THE FIRST METER PIT TO BUILDING ENTRY

(W8) INSTALL 2" IRRIGATION BACKFLOW

(W9) STUBOUT FOR IRRIGATION CONTRACTOR TO CONNECT TO.

(E1) EXISTING ELECTRIC SECTIONALIZER (CONTRACTOR TO FIELD VERIFY LOCATION)

(E2) PROPOSED PRIMARY PVC ELECTRICAL CONDUIT. CONTRACTOR TO VERIFY CONDUIT SIZE WITH EVERGY.

(E3) PROPOSED ELECTRICAL TRANSFORMER

(E4) PROPOSED SECONDARY ELECTRICAL ENTRY INTO BUILDING

(E5) PROPOSED SECONDARY ELECTRICAL EXIT FROM BUILDING TO SUPPLY POWER TO THE FIELDS. REF MEP FOR ROUTING OF THIS CONDUIT.

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

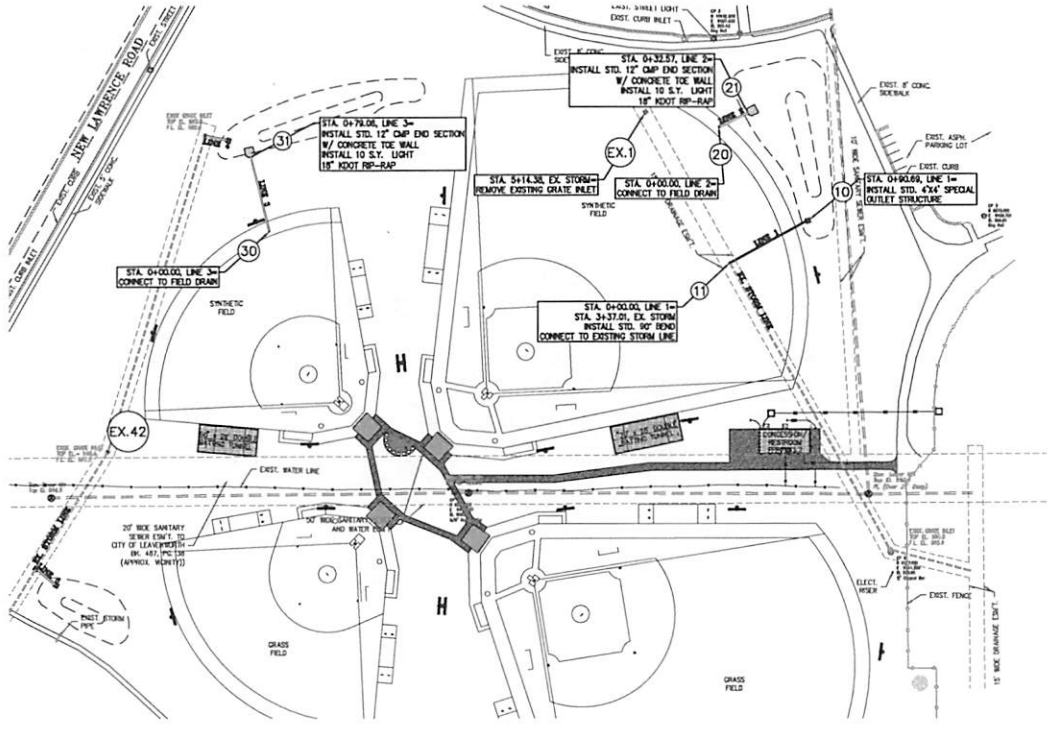
02/02/2021

JOB NO: 20S624	
DRAWN BY: MRR	
CHECKED BY: DEU	
DATE: 11.23.20	
REVISIONS: 1.29.21 CITY COMMENTS	

UTILITY PLAN

SHEET

C2



EXISTING STORM & LINES 1, 2, & 3

SCALE: 1"=50'

SCALE: 1"=50' HORIZ. 1"=10' VERT.

LINE 3

SCALE: 1"=50' HORIZ. 1"=10' VERT.

LINE 2

SCALE: 1"=50' HORIZ. 1"=10' VERT.

EX. STORM

SCALE: 1"=50' HORIZ. 1"=10' VERT.

LINE 1

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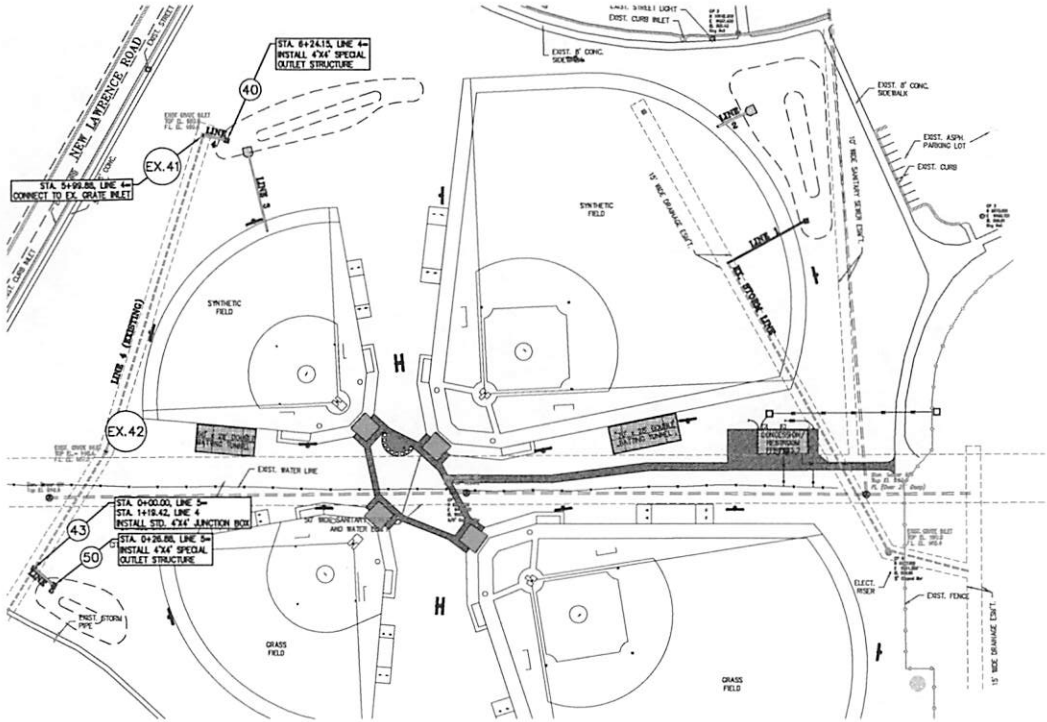
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

STORM PLAN & PROFILE

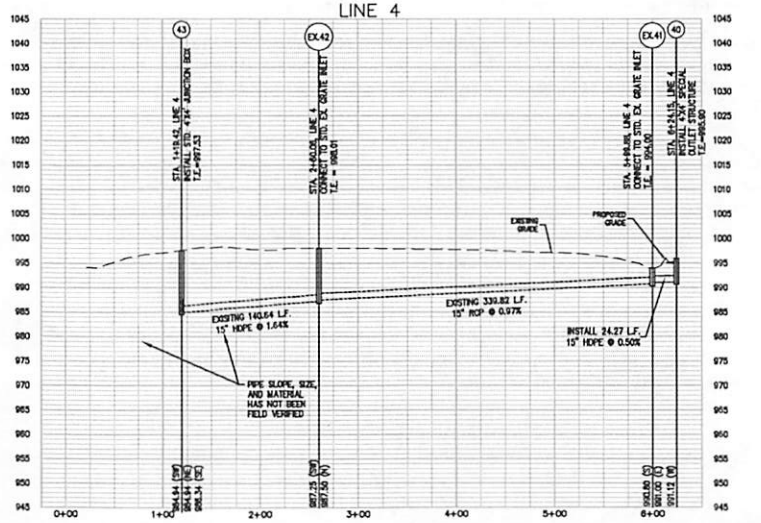
SHEET:
C3



EXISTING STORM & LINES 4 & 5

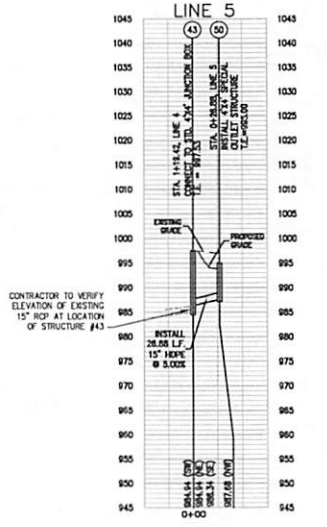
SCALE: 1"=50' HORIZ.
1"=10' VERT.

LINE 4



SCALE: 1"=50' HORIZ.
1"=10' VERT.

LINE 5



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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
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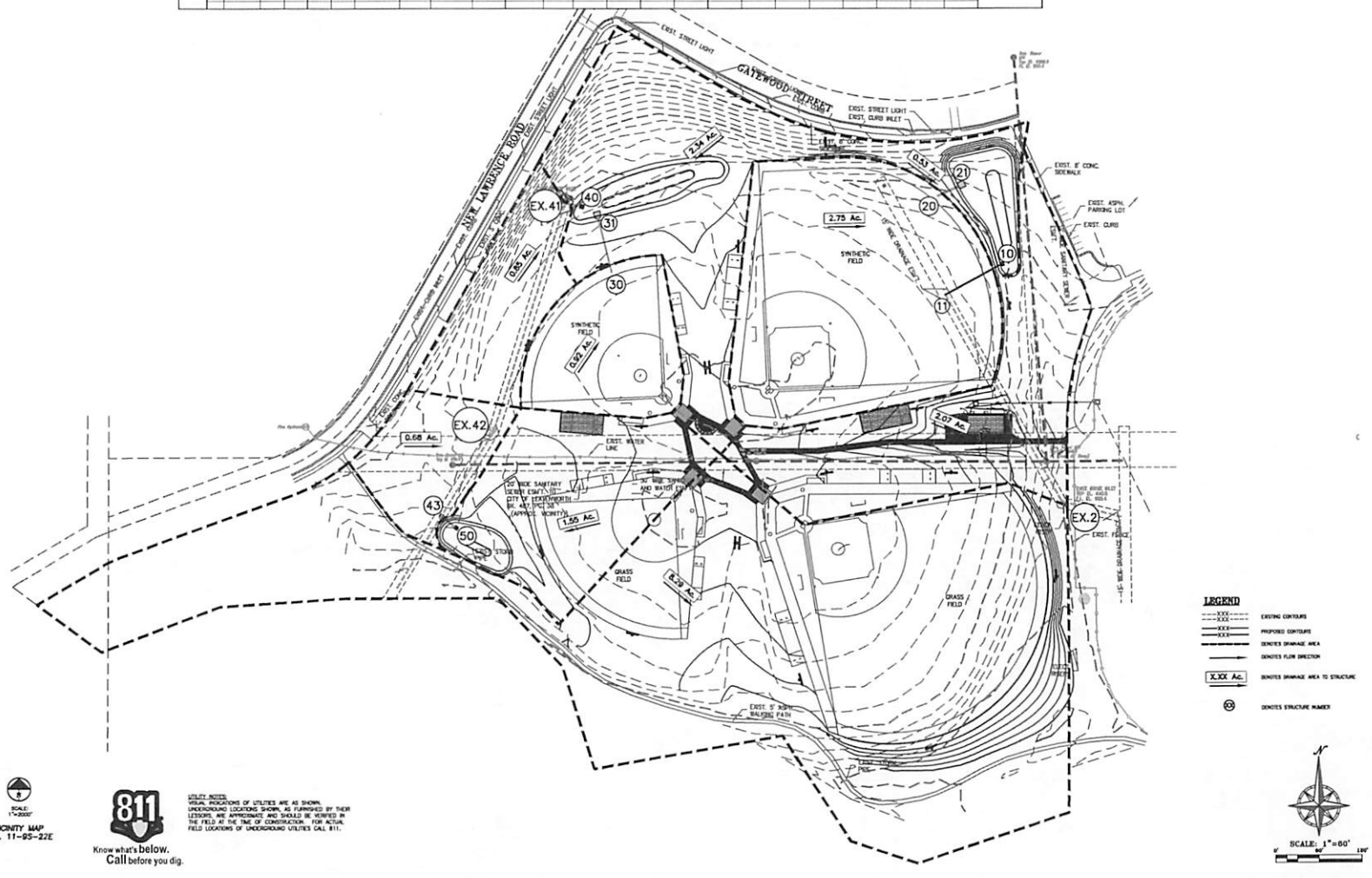
STORM PLAN & PROFILE

SHEET:
C3.1

STORM DRAINAGE CALCULATIONS

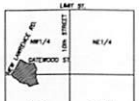
DESIGN CRITERIA: $K_{10} = 10$; $K_{100} = 1.25$; $n = 0.013$ (RCP); STORM FREQUENCY = 10 YEAR; A.I. = AREA INLET; J.B. = JUNCTION BOX; C.I. = CURB INLET; C.O. = CURB CUT; G.I. = GRATE INLET; HEIGHT OF STRUCTURE=RIM ELEV MINUS FLOWLINE OUT

LOCATION	INCREMENTAL RUNOFF COEFFICIENT "C"	INCREMENTAL AREA "A" (ACRES)	INCREMENTAL C x A	CUMULATIVE AREA "A" (ACRES)	CUMULATIVE C x A	SYSTEM TIME OF CONCENTRATION "$T_c = t_o + t_d$" STRUCTURE (MIN)	RADIAL INTENSITY "$I_{10} = K_{10}/T_c^{0.6}$" (IN/HR)	ANTECEDENT PRECIPITATION FACTOR "K_{100}/K_{10}"	RUNOFF "$Q_{10} = CIA$" (CFS)	STRUCTURES: Upstream Structure Number	Downstream Structure Number	Upstream Structure Rim Elevation	Height of Structure (FT.)	Diameter "D" (IN.)	Length "L" (FT.)	PIPE: Upstream Invert Elevation	Downstream Invert Elevation	Slope "S" (FT/FT)	Travel Time in Pipe "TT" (min)	Velocity Full V_f (FPS)	Runoff Q_{10} (CFS)	Runoff Q_{100} (CFS)	Full Flow Q_f (CFS)	REMARKS
1	0.55	0.51	0.28	3.28	1.73	5.00	7.35	1.00	12.7	10	11	995.00	4.76	15	90.69	990.24	989.33	0.0100	0.28	5.3	12.7	22.5	6.5	
							10.32	1.25	22.3															
	EX.11	0.50	0.00	0.00	3.28	1.73	5.28	7.27	1.00	12.6	11	12	997.74	8.45	15	317.01	989.33	985.80	0.0111	1.01	5.6	12.6	22.5	6.8	
								10.21	1.25	22.1														
	EX.12	0.60	2.07	0.83	5.35	2.56	6.29	6.97	1.00	17.9	11	13												
								9.81	1.25	31.4														
2	0.57	2.73	1.57	2.73	1.57	5.00	7.35	1.00	11.5	20	21	997.09	2.89	12	32.57	994.20	993.87	0.0101	0.12	4.6	11.5	20.1	5.6	
							10.32	1.25	25.1															
3	0.68	0.93	0.63	0.93	0.63	5.00	7.35	1.00	4.6	30	31	998.32	2.87	12	79.06	993.25	992.80	0.0082	0.12	4.2	4.6	8.1	3.2	
							10.32	1.25	8.1															
4	0.30	2.34	0.70	3.27	1.33	5.00	7.35	1.00	9.8	40	41	995.90	4.79	15	24.27	991.12	991.00	0.0045	0.11	3.7	9.8	17.2	4.5	
							10.32	1.25	17.2															
	EX.41	0.30	0.83	0.26	4.13	1.59	5.41	7.17	1.00	11.6	41	42	996.80	5.20	15	339.82	990.80	987.50	0.0097	1.08	5.2	11.6	20.4	6.4	
								10.29	1.25	20.4														
	EX.42	0.40	0.68	0.27	4.80	1.86	6.39	7.00	1.00	13.0	42	43	998.01	10.76	15	140.64	987.25	985.84	0.0101	0.68	5.3	13.0	22.9	6.5	
								9.83	1.25	22.9														
	43	0.30	0.00	0.00	4.80	1.86	6.63	6.89	1.00	16.0	43	44	997.53	11.71	15	119.42	985.80	984.61	0.0100	0.38	5.3	16.0	26.2	6.8	
								9.68	1.25	26.7														
	EX.44																							
5	0.30	1.33	0.40	1.33	0.47	5.00	7.35	1.00	3.9	50	51	995.00	7.32	15	26.88	987.68	986.18	0.0056	0.08	11.8	3.9	8.1	10.4	
							10.32	1.25	8.1															
	45																							



LEGEND

- XXX — EXISTING CONTOURS
- XXX — PROPOSED CONTOURS
- DENOTES DRAINAGE AREA
- DENOTES FLOW DIRECTION
- X.XX Ac. — DENOTES DRAINAGE AREA TO STRUCTURE
- DENOTES STRUCTURE NUMBER



VICINITY MAP
SEC. 11-9S-22E

SCALE: 1"=2000'

811 Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCALE: 1"=60'

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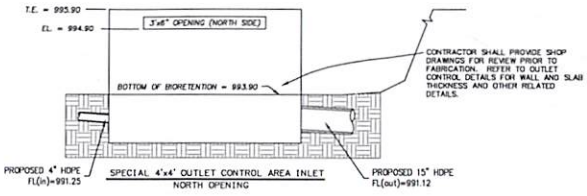
DRAINAGE MAP & CALCULATIONS

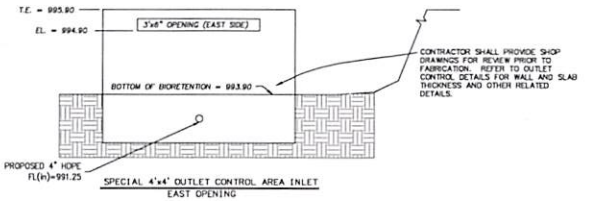
SHEET:
C4

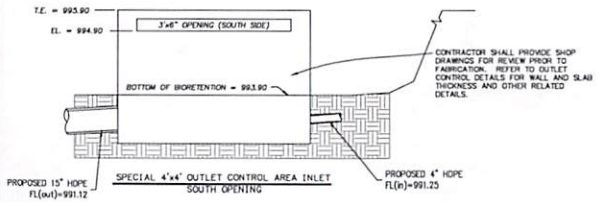
Bioretention Basin Maintenance and Inspections

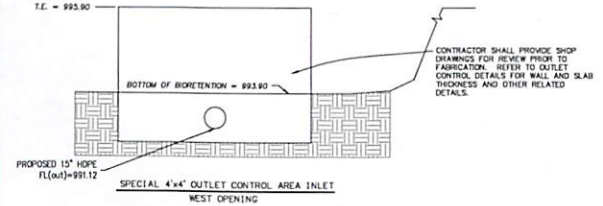
Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

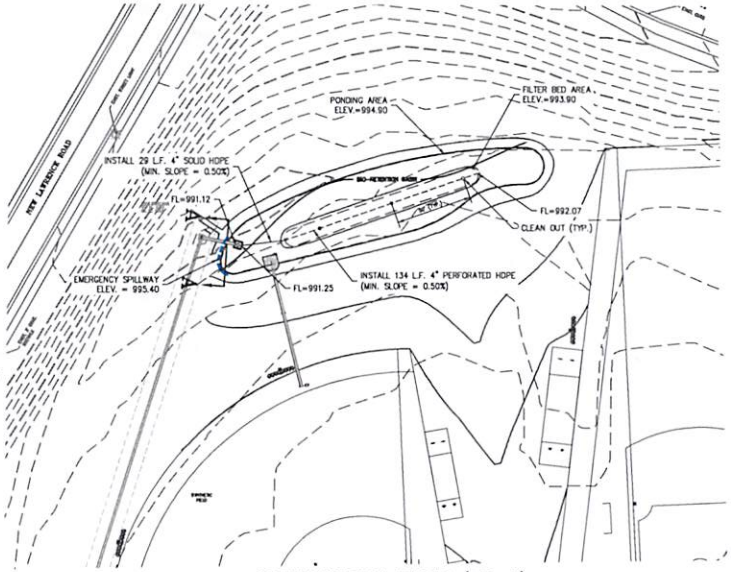
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year on application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).











BIORETENTION BASIN (BR-1)

TREATMENT AREA=3.26 ACRES

FILTER BED ELEVATION=993.90
FILTER BED AREA 1,450 S.F.

PONDING ELEVATION=994.90
PONDING AREA=7,793 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

3.26 Acres	Treatment Area
40%	% Impervious to Basin
0.15 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,230 Sq. Ft.	Minimum Required Filter Bed Area
6,647 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{in} = 21.67 CFS

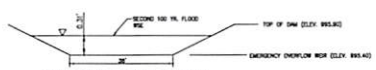
Emergency Spillway Elevation = 995.40'
Emergency Spillway Width = 38'

100-Year Emergency Spillway Flow Depth, H = 0.31'
$Q = CLH^{1.5}$ 20.61 = (3.1)(38)(.31)$^{1.5}$

Bioretention Basin Berm Elevation = 995.90'

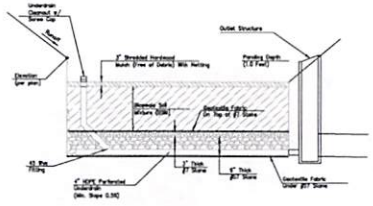
LEGEND

- WATER SURFACE ELEVATION
- 960 / 962 PROPOSED CONTOURS
- 960 / 962 EXISTING CONTOURS
- EMERGENCY SPILLWAY

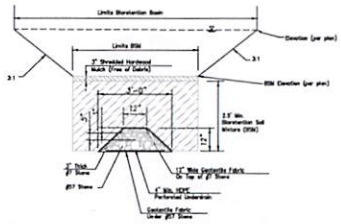


EMERGENCY OVERFLOW A-A

0100 (INFLOW) = 20.61 cfs
$Q = C_d L H^{\frac{3}{2}}$
$C_d = 3.1$



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture: The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below.
Organic Compost	20%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil: The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 - 0.050 mm)	50 - 85%	AASHTO T88
Silt (0.050 - 0.002 mm)	0 - 30%	AASHTO T88
Clay (less than 0.002 mm)	2 - 20	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	95
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No BSM substitutions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost: Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. Compost is deemed acceptable if it meets 3 of the following requirements:

1. C/N ratio <= 20;
2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding inherent, non-toxic, woody material roots.
4. Foreign matter less than 1 percent by weight must not exceed 13.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 - 7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate - P205)	not to exceed 80 ppm plant available phosphorus	*
Potassium (K2O)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedures

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Blding of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Blding of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no materials shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2in Shredded Hardwood Bark	See below.
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 1 in. particle size and provide a uniform texture free from woodwool, clay, soil, foreign materials, and any artificially introduced chemical components that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesian) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	90
No. 100	10

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a salt acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 220824
DRAWN BY: MKR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

BIO-RETENTION PLAN

SHEET:
C5

Please consider the environment before printing this document.

Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

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- The basin shall be aerated periodically.
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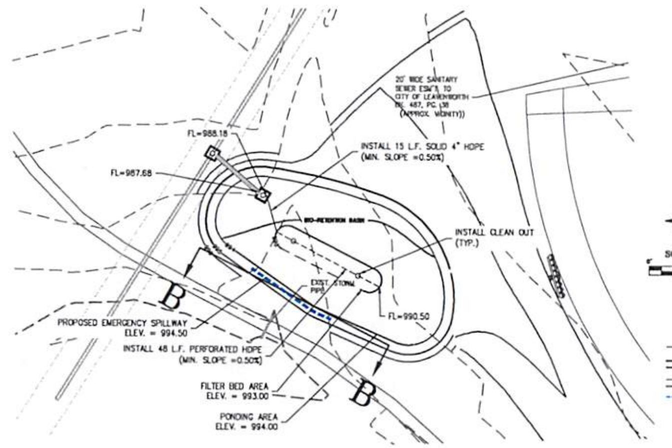


BIORETENTION BASIN (BR-2)

TREATMENT AREA=1.55 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 457 S.F.

PONDING ELEVATION=994.00
PONDING AREA=4,024 S.F.

BIORETENTION BASIN BR-1 PARAMETERS

1.55 Acres	Treatment Area
25.00%	% Impervious to Basin
0.05 Ac.-Ft.	Water Quality Volume
2.5 Ft.	Bioretention Soil Mix Depth
1.50 Ft./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 Ft.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
392 Sq. Ft.	Minimum Required Filter Bed Area
2,120 Sq. Ft.	Minimum Required Ponding Area

100-YEAR OVERFLOW

100-Year Inflow Q_{100} =7.44 CFS

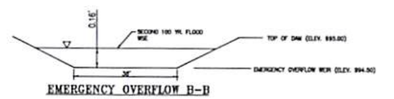
Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 38'

100-Year Emergency Spillway Flow Depth, H = 0.16'
$Q = CLH^{1.5}$ $7.44 = (3.1)(38)(.16)^{1.5}$

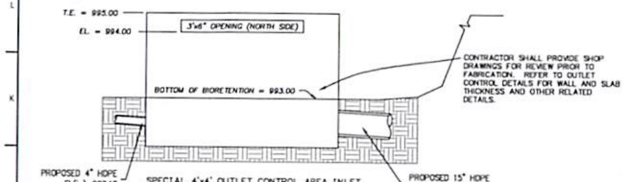
Bioretention Basin Berm Elevation = 995.00'

LEGEND

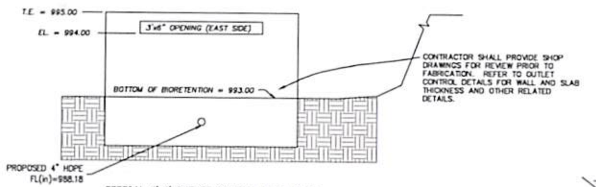
— - —	WATER SURFACE ELEVATION
960 / 962	PROPOSED CONTOURS
960 / 962 (dashed)	EXISTING CONTOURS
- - - - (blue)	EMERGENCY SPILLWAY



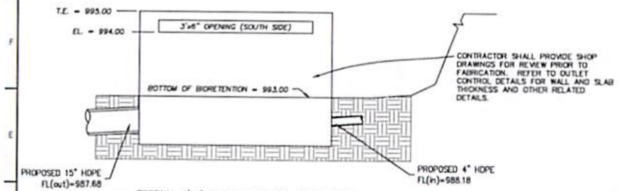
EMERGENCY OVERFLOW B-B



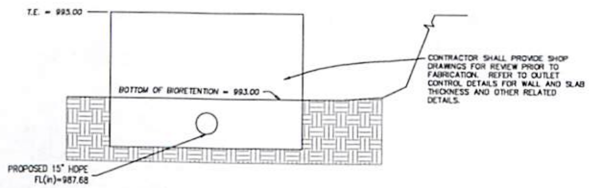
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



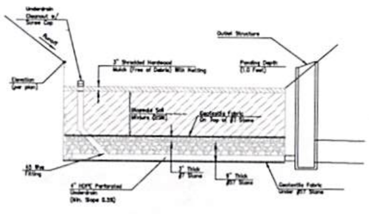
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



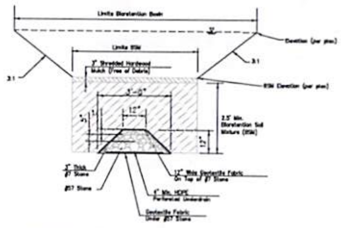
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture: The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	20%	See below.
Organic Compost	30%	See below.
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil: The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 -0.050 mm)	50 -85%	AASHTO T88
Silt (0.050 -0.002 mm)	0 -50%	AASHTO T88
Clay (less than 0.002 mm)	2 -5%	AASHTO T88
Organic Matter	3 -10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	90
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source and testing results of the Planting Soil for the BSM to the Engineer for approval. No time extensions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been sampled, no material shall be added to the stockpile.

C. Organic Compost: Compost is a homogeneous and friable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase.
Compost is deemed acceptable if it meets 2 of the following requirements:

1. C/N ratio <= 25;
2. Oxygen uptake rate <= 150 mg O2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding mineral soils, woody material and rocks.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	5.5 -7.5	ASTM D4972
Magnesium	Minimum 32 ppm	*
Phosphorus (Phosphate – P2O5)	not to exceed 60 ppm plant available phosphorus	*
Potassium (K2O)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedures

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum requirement for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting soil and/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Mixing of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 7 Aggregate	ASTM D448
4-inch HDPE Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2x Shredded Hardwood Bark	See below.
Water	See below.
Lime	ASTM C25
Ammonium Sulfate	See below.
Magnesium Sulfate	See below.
Potash	See below.

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of the bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 4 in. particle size and provide a uniform texture free from sawdust, clay, soil, foreign materials, and any artificially introduced chemical compounds that would be detrimental to plant or animal life.

2. Aggregate: No. 7 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	98
No. 100	50

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

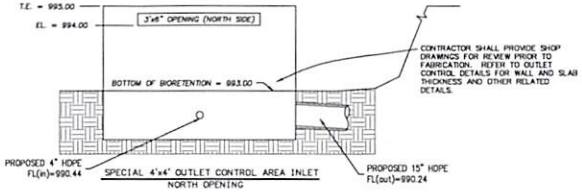
BIO-RETENTION PLAN

SHEET: C5.1

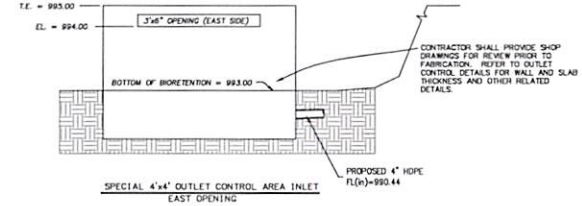
Bioretention Basin Maintenance and Inspections

Bioretention basins shall be inspected regularly and maintained when necessary to ensure that the basin is functioning properly. The following is a list of periodic inspections and maintenance actions that should be taken to upkeep the bioretention basin.

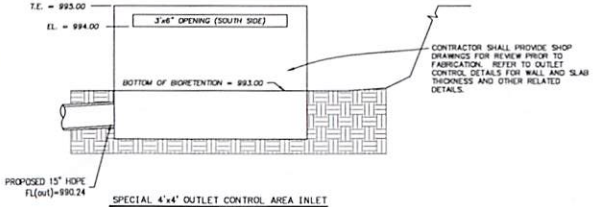
- The bioretention basin shall be inspected biannually for erosion.
- Biannually the basin shall be inspected for locations of bare soil. Random bare spots may be corrected with spot mulching. Where there are significant amounts of bare soil, old mulch remaining shall be removed and disposed of properly before new mulch is distributed.
- The vegetation shall be inspected annually. Any dead or diseased vegetation shall be removed.
- If the vegetation is stressed, the soil shall be inspected for contamination. If the soil is contaminated, then full or partial replacement of the planting zone is required.
- If treatment of vegetation is necessary, chemicals used shall be low-toxic and used to the least amount necessary.
- Once to twice per year on application of an alkaline product, such as limestone, shall be applied to the basin to counteract soil acidity resulting from slightly acidic precipitation. Before making the application, the soil should be tested for the pH level to determine how much alkaline product to add.
- The outlet structure shall be inspected annually that it is functioning properly. Any obstructions to the overflow shall be removed.
- Any trash or sediment shall be removed as necessary.
- The basin shall be aerated periodically.
- Any voluntary non desired vegetation shall be removed periodically (weeding).



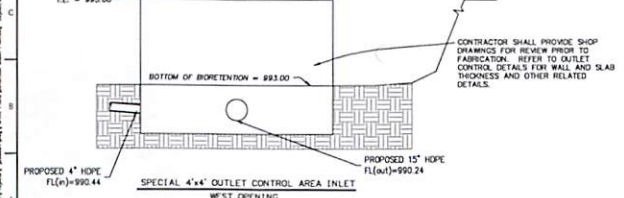
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
NORTH OPENING



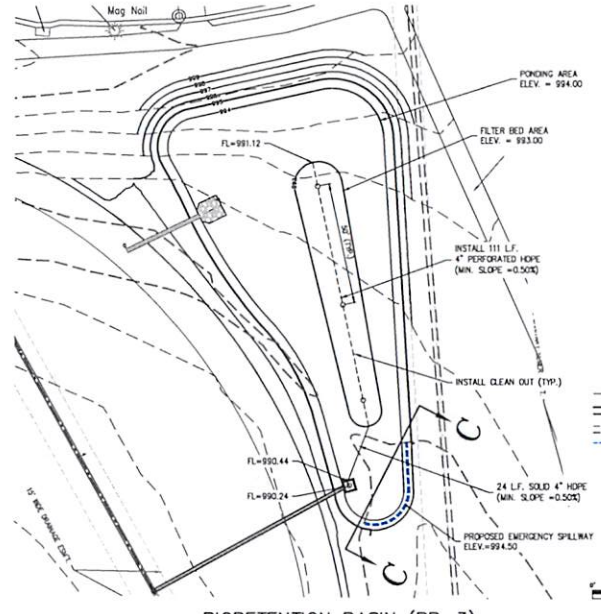
SPECIAL 4'x4' OUTLET CONTROL AREA INLET
EAST OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
SOUTH OPENING



SPECIAL 4'x4' OUTLET CONTROL AREA INLET
WEST OPENING



BIORETENTION BASIN (BR-3)

TREATMENT AREA=3.28 ACRES

FILTER BED ELEVATION=993.00
FILTER BED AREA 1,772 S.F.

PONDING ELEVATION=994.00
PONDING AREA=9,335 S.F.

LEGEND

- WATER SURFACE ELEVATION
- 960 / 962 PROPOSED CONTOURS
- 960 / 962 EXISTING CONTOURS
- EMERGENCY SPILLWAY

BIORETENTION BASIN BR-1 PARAMETERS

3.28 Acres	Treatment Area
57%	% Impervious to Basin
0.21 Ac.-FT.	Water Quality Volume
2.5 FT.	Bioretention Soil Mix Depth
1.50 FT./Day	Coefficient of Permeability for Bioretention Soil Mix
1.00 FT.	Maximum Ponding Depth
3 Days	Time Required for Water Quality Volume to filter through Bioretention Soil Mix
1,701 Sq. FT.	Minimum Required Filter Bed Area
9,183 Sq. FT.	Minimum Required Ponding Area

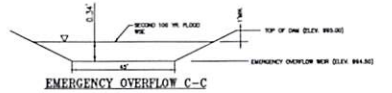
100-YEAR OVERFLOW

100-Year Inflow Q_{in} =27.50 CFS

Emergency Spillway Elevation = 994.50'
Emergency Spillway Width = 45'

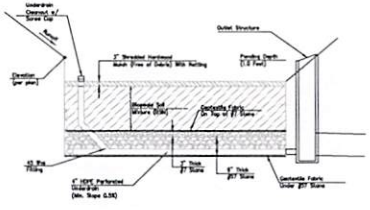
100-Year Emergency Spillway Flow Depth, H = 0.34'
$Q = CLH^{1.5}$ $27.50 = (3.1)(45)(.34)^{1.5}$

Bioretention Basin Berm Elevation = 995.00'

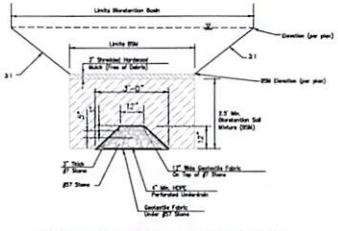


EMERGENCY OVERFLOW C-C

0100 (INFLOW) = 27.50 cfs
$Q = C_W H^{\frac{3}{2}}$
$C_W = 2.7$



BIORETENTION BASIN TYPICAL SECTION 1
NOT TO SCALE



BIORETENTION BASIN TYPICAL SECTION
SCALE: N.T.S.

Bioretention Basin Materials:

A. Bioretention Soil Mixture. The Bioretention Soil Mixture (BSM) is a mixture of planting soil, compost, and sand consisting of the following:

Item	Composition By Volume	Reference
Planting Soil	30%	See below
Organic Compost	20%	See below
Sand	50%	ASTM C33 Fine Aggregate

B. Planting Soil. The USDA textural classification of the Planting Soil for the BSM shall be LOAMY SAND OR SANDY LOAM. The Planting Soil shall be the best available on site material or furnished. Additionally, the Planting Soil shall be tested and meet the following criteria or as approved by the Engineer:

Item	Percent By	Weight Test Method
Sand (2.0 - 0.050 mm)	50 - 80%	AASHTO T88
Silt (0.050 - 0.002 mm)	5 - 30%	AASHTO T88
Clay (less than 0.002 mm)	3 - 5%	AASHTO T88
Organic Matter	3 - 10%	AASHTO T194

The textural analysis for the Planting Soil shall be as follows:

ASTM E11 Sieve Size	Minimum Percent Passing By Weight
2 in.	100
No. 4	80
No. 10	80

At least 45 days prior to the start of construction of bioretention facilities, the Contractor shall submit the source of testing results of the Planting Soil for the BSM to the Engineer for approval. No time extensions will be granted should the proposed Planting Soil fail to meet the minimum requirements stated above. Once a stockpile of the Planting Soil has been accepted, no materials shall be added to the stockpile.

C. Organic Compost. Compost is a homogeneous and stable mixture of partially decomposed organic matter, with or without soil, resulting from composting, which is a managed process of bio-oxidation of a solid heterogeneous organic substrate initially in a thermophilic phase.
Compost is deemed acceptable if it meets 3 of the following requirements:

1. C/N ratio <= 25
2. Oxygen uptake rate <= 150 mg O_2/kg volatile solids per hour; and
3. Compost must not contain more than 1 percent foreign matter. Foreign matter is defined as: Any matter over a 2 mm dimension that results from human intervention and having organic or inorganic constituents such as metal, glass and synthetic polymers (e.g. plastic and rubber) that may be present in the compost but excluding inherent soils, stony material and rocks.
4. Foreign matter less than 1 percent by weight must not exceed 12.5 mm in any dimension.

D. The Bioretention Soil Mixture (BSM) shall be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than two inches excluding mulch. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

1. The Bioretention Soil Mixture shall be tested and meet the following criteria:

Item	Criteria	Test Method
Corrected pH	6.3 - 7.5	ASTM D4972
Magnesium	Minimum 35 ppm	*
Phosphorus (Phosphate - P_2O_5)	not to exceed 80 ppm plant available phosphorus	*
Potassium (K_2O)	Minimum 78 ppm	*
Soluble Salts	Not to exceed 500 ppm	*

*Use authorized soil test procedures

2. Should the pH fall outside of the acceptable range, it may be modified with lime (to raise) or ammonium sulfate (to lower). The lime or ammonium sulfate must be mixed uniformly into the BSM prior to use in bioretention facilities.

3. Should the BSM not meet the minimum requirement for magnesium, it may be modified with magnesium sulfate. Likewise, should the BSM not meet the minimum content for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the BSM prior to use in bioretention facilities.

4. Planting and small/or BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense. Blding of the corrective additives to the BSM is incidental and shall be at the Contractor's expense.

5. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Engineer. Upon approval of all requirements and testing above, the BSM shall be stockpiled, and no material shall be added to the BSM in the stockpile or during transport to the bioretention facility.

E. Other Materials

Material	Specification
No. 57 Aggregate	ASTM D448
No. 2 Aggregate	ASTM D448
Underdrain Plastic Pipe Underdrain	AASHTO M252
Geotextile Fabric	AASHTO M288
Mulch, 2x Shredded Hardwood Bark	See below
Water	See below
Lime	ASTM C25
Ammonium Sulfate	See below
Magnesium Sulfate	See below
Potash	See below

1. Shredded Hardwood Mulch: Shredded hardwood mulch shall be aged a minimum of 6 months and consist of fire bark and wood (50/50) from hardwood trees which has been milled and screened to a maximum 1 in. particle size and provide a uniform texture free from sawdust, dirty, soil, foreign materials, and any artificially introduced chemical components that would be detrimental to plant or animal life.

2. Aggregate No. 2 and No. 57 Aggregate shall be double-washed to reduce suspended solids and potential for clogging. The aggregate shall be placed as shown in the Contract Drawings.

3. Water: Water used in the planting, establishing, or caring for vegetation shall be free from any substance that is injurious to plant life.

4. Lime: Lime shall contain not less than 85 percent calcium and magnesium carbonates. Dolomitic (magnesium) lime shall contain at least 10 percent magnesium as magnesium oxide and 85 percent calcium and magnesium carbonates. Lime shall conform to the following gradation:

Sieve Size	Minimum Percent Passing By Weight
No. 10	100
No. 20	95
No. 100	30

5. Ammonium Sulfate: Ammonium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer for supplying nitrogen and as a soil acidifier.

6. Magnesium Sulfate: Magnesium sulfate shall be a constituent of an approved horticultural product produced as a fertilizer.

7. Potash: Potash (potassium

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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

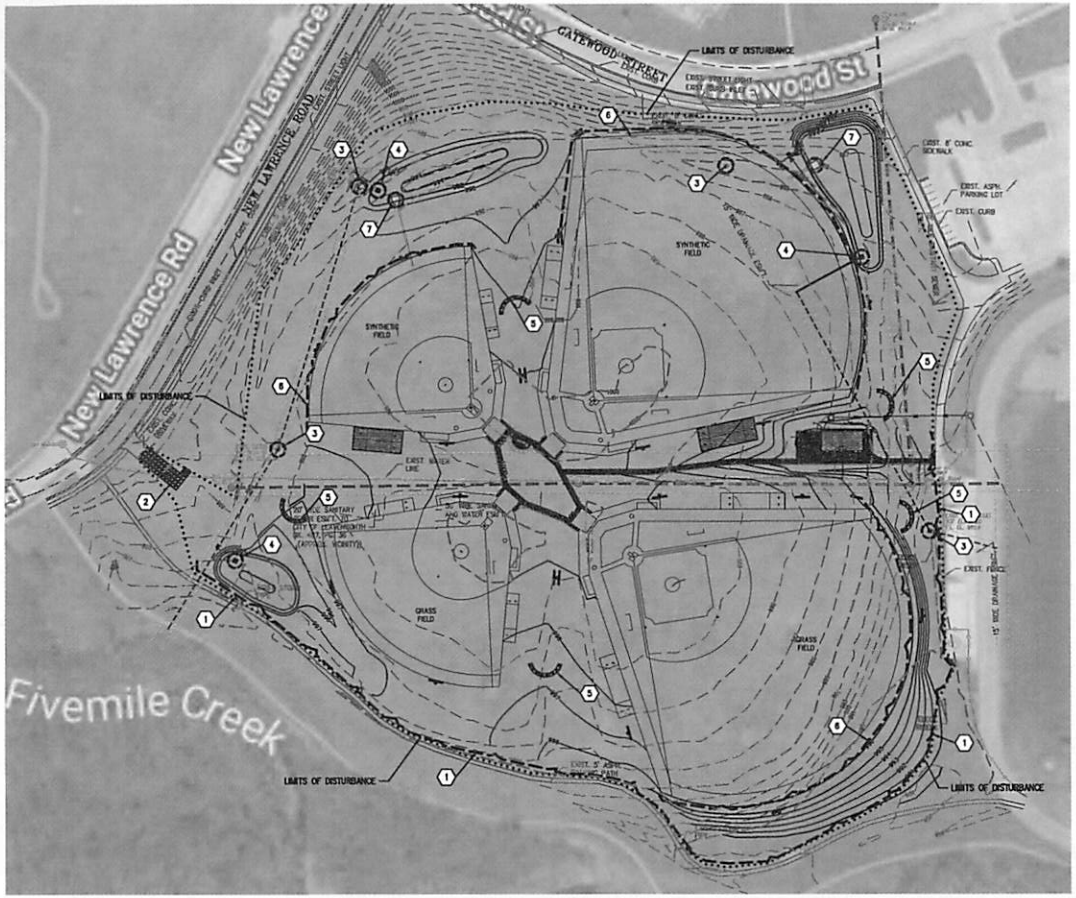
JOB NO: 220824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.22
REVISIONS:

BIO-RETENTION PLAN

SHEET:

C5.2

Please consider the environment before printing this document.



EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. Prior to Land Disturbance activities, the contractor shall:
   - Delineate the outer limits of any tree or stream preservation designated to remain with construction fencing.
   - Construct a stabilized entrance/parking/delivery area and install all perimeter sediment controls on the site.
   - Install and request the inspection of the preconstruction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until t here is a satisfactory inspection.
   - Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing, placement of physical barriers or other means acceptable to the contractor and the City inspector.
2. Erosion and sediment control devices protecting the public right-of-way shall be installed as soon as the right-of-way has been backfilled and graded.
3. The contractor shall comply with all requirements of City Ordinances or State permit requirements, such as:
   - The contractor shall seed, mulch, or otherwise stabilize any disturbed area where the land disturbance activity has ceased for more than 14 days.
   - The contractor shall perform inspections of erosion and sediment control measures at least once a every 14 days and within 24 hours following each rainfall event of ½" or more within any 24-hour period.
   - The contractor shall maintain an inspection log including the inspector's name, date of inspection, observations as to the effectiveness of the erosion and sediment control measures, actions necessary to correct deficiencies, when the deficiencies were corrected, and the signature of the person performing the inspection. The log shall be available for review by the City, the State of Kansas, or other authorities having jurisdiction.
4. The contractor shall maintain installed erosion and sediment control devices on a manner that preserves their effectiveness for preventing sediment from leaving the site or entering a sensitive area such as a natural stream corridor, tree preservation areas of the site intended to be left undisturbed, a storm sewer, or an on-site drainage channel. Failure to do so is a violation of the provisions of City Ordinances and State permit requirements.
5. The contractor is responsible for providing erosion and sediment control for the duration of a project. If the City determines that the BMP's in place do not provide adequate erosion and sediment control at any time during the project, the contractor shall install additional or alternate measures that provide effective control.
6. Concrete wash or rinsewater from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., may not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place and excess water evaporated or infiltrated into the ground.
7. Chemicals or materials capable of causing pollution may only be stored onsite in their original container. Materials store outside must be in closed and sealed water-proof containers and located outside of drainageways or areas subject to flooding. Locks and other means to prevent or reduce vandalism shall be used. Spills will be reported as required by law and immediate actions taken to contain them.

MAINTENANCE: ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLANATION, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-THIRD THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

LEGEND

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM

STAGING CHART

Project Stage	BMP Plan Ref No.	BMP Description	Remove after Stage:	Notes:
A. Prior to Land Disturbance/ Sanitary Sewer Installation	①	Sediment Fence	C	Place downstream project site perimeter.
	②	Constr Entrance & Staging Area	C	Include concrete washout pit.
	③	Inlet Protection	C	Install Inlet Protection before and after grading
B. Mass Grading & Storm Sewer Installation	④	Inlet Protection	C	Install Inlet Protection before and after grading
	⑤	Rock Ditch Check	C	Install rock ditch check.
	⑥	Sediment Fence	C	Place downstream ball field perimeter.
	⑦	Outlet Protection	C	Install Rip-Rap at end section
C. During Field Construction Until Closure of Land Disturbance Permit		Seed/Sod & Landscape	NA	Install Sod/Seed and Landscaping.

DISTURBED AREA = 15.44± ACRES

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
ROUGH GRADE / SEDIMENT CONTROL																		
TEMPORARY CONTROL MEASURES																		
STRIP & STOCKPILE TOPSOIL																		
STORM FACILITIES																		
TEMPORARY CONSTRUCTION ROADS																		
FOUNDATION / BUILDING CONSTRUCTION																		
SITE CONSTRUCTION																		
PERMANENT CONTROL STRUCTURES																		
FINISH GRADING																		
LANDSCAPING/SEED/FINAL STABILIZATION																		

SCALE: 1"=2000'

VICINITY MAP
SEC. 11-9S-22E

811
Know what's below.
Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCALE: 1"=50'

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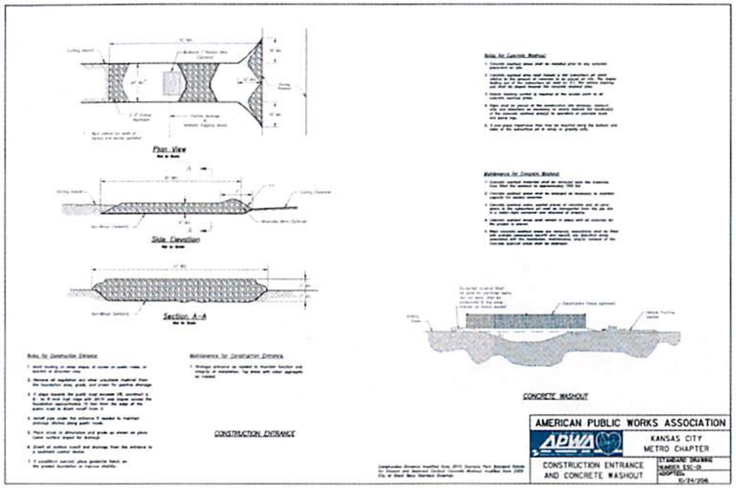
02/02/2021

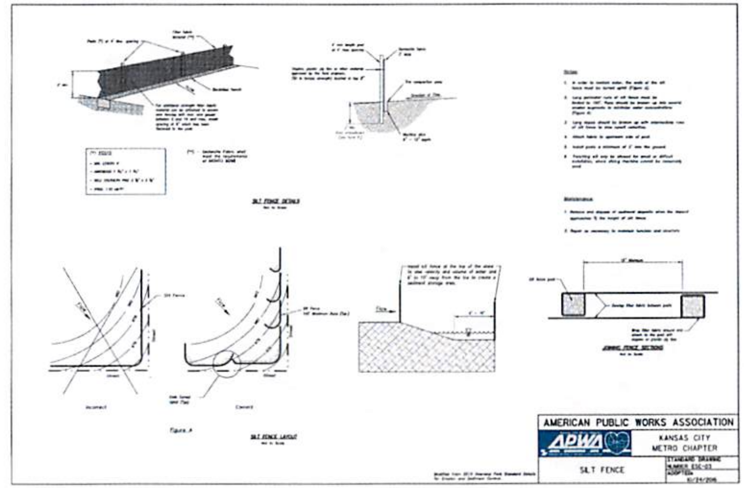
JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS:

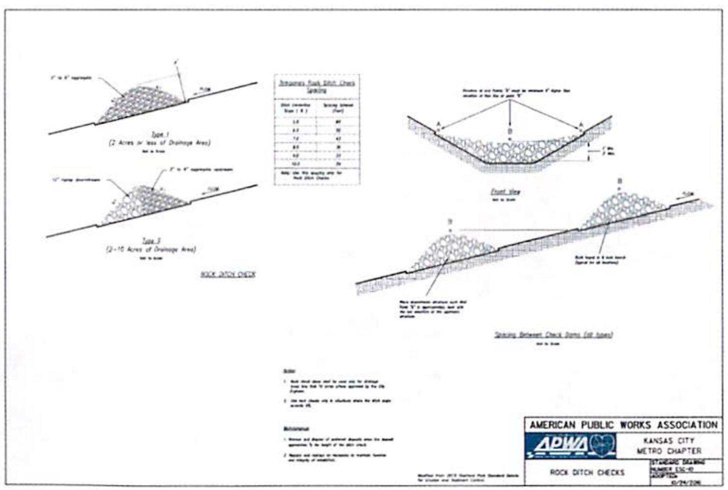
EROSION CONTROL PLAN

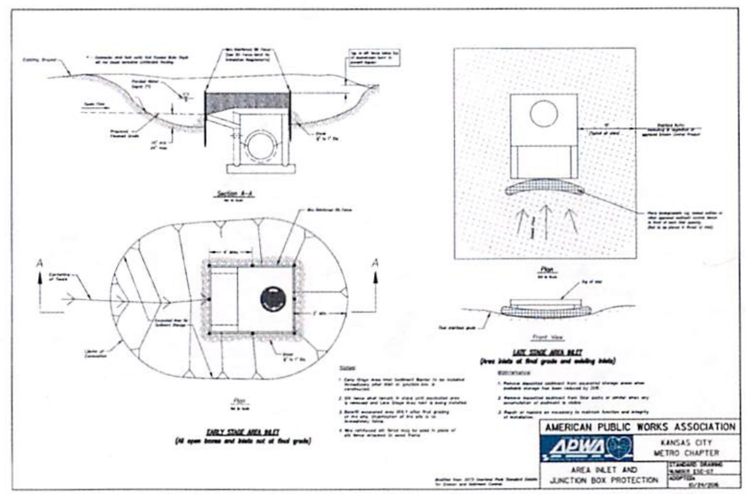
SHEET:

C6









CE Golf Design
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.0760
www.cegolfdesign.com

PEI
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

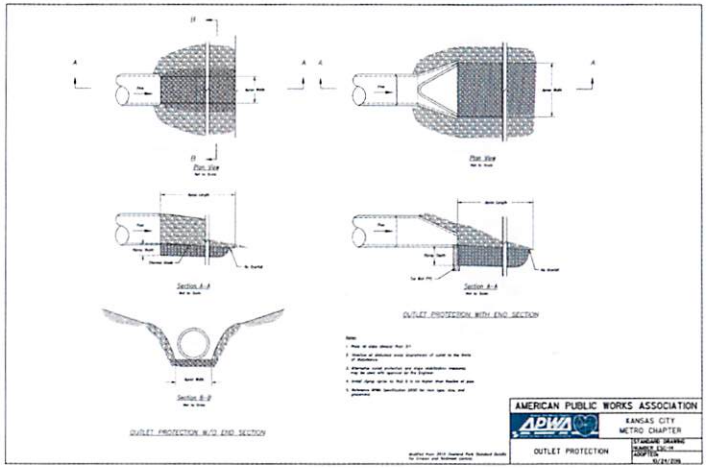
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

EROSION CONTROL DETAILS

SHEET
C6.1



CE Golf Design
Golf Course Design & Landscape Architecture
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.5760
www.cegolfdesign.com

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1270 N. Winchester
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601 E. Wyandotte Street
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Construction Documents

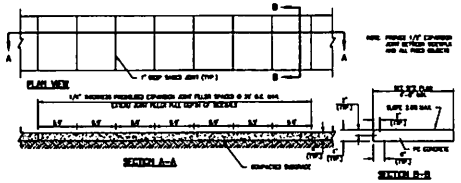
NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

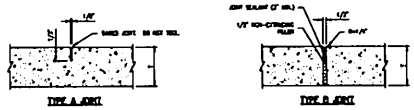
EROSION CONTROL DETAILS

SHEET:
C6.2



NOTE:
1. USE KANSAS CITY MATERIALS METRO BOARD (MCMAB) MIX DESIGN SPECIFICATIONS FOR 4,000 P.S.I. AIR ENTRAINED CONCRETE FOR ALL PRIVATE SIDEWALKS.

PRIVATE CONCRETE SIDEWALKS (NON REINFORCED)



NOTE: TYPE A JOINTS SHALL NOT EXCEED 30 TIMES THE PAVEMENT THICKNESS (T)

CONCRETE SIDEWALK JOINT DETAILS

CE Golf Design
3250 Brintwhoff Road
Kansas City, Kansas 66115
Phone 913.621.5214
Fax 913.621.5790
www.cegolfdesign.com

PEC
1273 N. Winchester
Olathe, Kansas 66061
Phone 913.393.1155
www.phelpsengineering.com

MAMMOTH
601 E. Wyandotte Street
Minden Kansas 66512
Phone 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

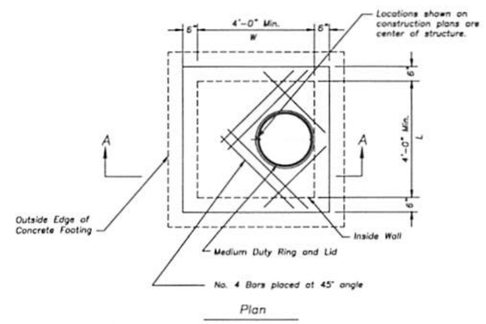
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO 220624
DRAWN BY MRR
CHECKED BY DEU
DATE 11.23.22
REVISIONS 1.23.23 CITY COMMENTS

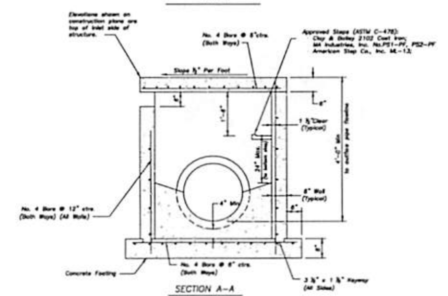
STANDARD DETAILS

SHT #

C7



Plan



SECTION A-A

OUTLET CONTROL DETAIL
SCALE: N.T.S.

Outlet Control Structure Notes

General

1. All storm sewer structures shall be pre-cast or poured in place. If pre-cast structures are used for publicly financed, maintained or administered construction, the tops shall be poured in place and the wall steel shall be left exposed to a height 2" below the finish top elevation, or as directed by the City Engineer.
2. Pre-cast shop drawings are to be approved by the City Engineer for publicly financed or administered projects. Pre-cast shop drawings for privately financed projects are to be submitted to the Engineering Services Division of the Planning and Development Services Department.
3. Do not scale these drawings for dimensions or clearances. Any questions regarding dimensions shall be brought to the attention of the City Engineer prior to construction.
4. The first dimension listed in the construction notes is the "L" dimension. The second dimension is the "W" dimension. The concrete thickness and reinforcement shown is for boxes with ("L"+"H") and ("W"+"H") less than or equal to 20. For boxes with either of these calculations greater than 20, a special design is required.

Concrete

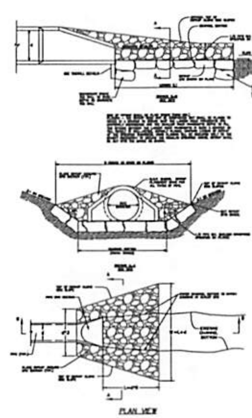
5. Concrete used in this work shall be KCMMB4K, as approved by the Kansas City Metropolitan Materials Board, and shall meet the requirements of the Lenexa Municipal Code.
6. Concrete construction shall meet the applicable requirements of Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation, latest edition, except as modified in the Lenexa Municipal Code.
7. Inlet floors shall be shaped with non-reinforced concrete inverts to provide smooth flow.
8. Bevel all exposed edges with ¾" triangular molding.

Reinforcing Steel

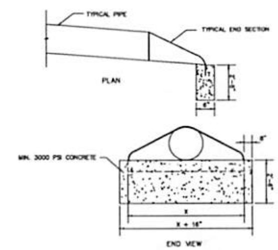
9. Reinforcing steel shall be new billet, minimum Grade 60 as per ASTM A615, and shall be bent cold.
10. All dimensions relative to reinforcing steel are to centerline of bars. 2" clearance shall be provided throughout unless noted otherwise. Tolerance of +/- ⅜" shall be permitted.
11. All lap splices not shown shall be a minimum of 40 bar diameters in length.
12. All reinforcing steel shall be supported on fabricated steel bar supports @ 3'-0" maximum spacing.
13. All dowels shall be accurately placed and securely tied in place prior to placement of bottom slab concrete. Sticking of dowels into fresh or partially hardened concrete will not be acceptable.

Construction

14. The bottom slab shall be at least 24 hours old before placing sidewall concrete. All sidewall forms shall remain in place a minimum of 24 hours after sidewalls are poured before removal, and after removal shall be immediately treated with membrane curing compound.
15. Pipe connections to pre-cast structures shall have a minimum of 6" of concrete around the entire pipe within 2' of the structure.
16. Material selection and compaction requirements for backfill around structures shall be as specified in the Manual of Infrastructure Standards, as promulgated by the City Engineer.



RIPRAP INSTALLATION DETAIL
SCALE: N.T.S.



TYPICAL END SECTION DETAIL
SCALE: N.T.S.

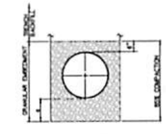


TABLE OF EMBEDMENT DEPTH BELOW PIPE		
D	A MIN. SOIL	A MIN. ROCK
LESS THAN 60"	4"	6"
60" OR LARGER	6"	12"

LEGEND
- D NOMINAL PIPE SIZE
- A EMBEDMENT BELOW PIPE
- GRANULAR EMBEDMENT

TRENCH BEDDING

1. GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1100, PB-2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

SIEVE SIZE	PERCENT RETAINED
1-INCH	0
[illegible]-INCH	0-20
[illegible]-INCH	40-70
No. 8	95-100

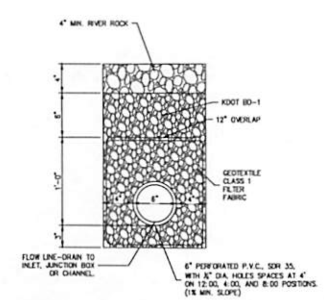
   GRANULAR EMBEDMENT FROM THE TOP OF PIPE DOWN SHALL BE COMPACTED TO 85% MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.

   GRANULAR EMBEDMENT ABOVE TOP OF PIPE SHALL BE AN UN-COMPACTED LAYER FOR ALL INSTALLATIONS.
2. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.
3. TRENCH WIDTHS SHALL BE LIMITED BELOW AN ELEVATION OF ONE (1) FOOT ABOVE THE TOP OF THE INSTALLED PIPE AS FOLLOWS: NOT LESS THAN FIFTEEN (15) INCHES NOR MORE THAN TWENTY-FOUR (24) INCHES GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE PIPE.

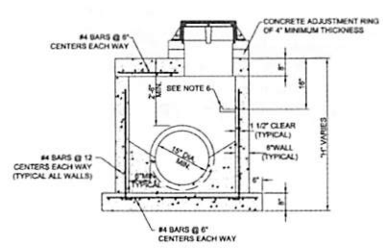
BACKFILL

1. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321-89.
2. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
3. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
4. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

EMBEDMENTS FOR STORM SEWER PIPE
SCALE: N.T.S.



UNDERDRAIN DETAIL
SCALE: N.T.S.



SECTION A-A

JUNCTION BOX

CE Golf Design
Golf Course Design & Landscape Architecture
3250 Brinkerhoff Road
Kansas City, Kansas 66115
Phone: 913.621.5214
Fax: 913.621.0760
www.cegolfdesign.com

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
Phone: 913.393.1155
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MAMMOTH SPORTS CONSTRUCTION
601 E. Wyandotte Street
Meriden, Kansas 66512
Phone: 785.400.6136
www.kansasturf.com

Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

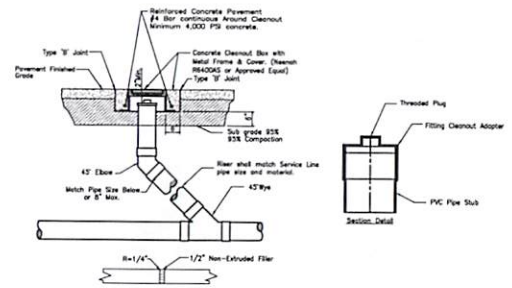
Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

[illegible] 20650 02/02/2021 [illegible]

JOB NO: 200624
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

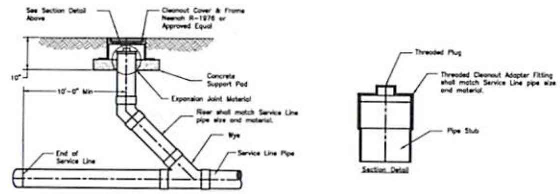
STORM SEWER DETAILS

SHEET
C7.1



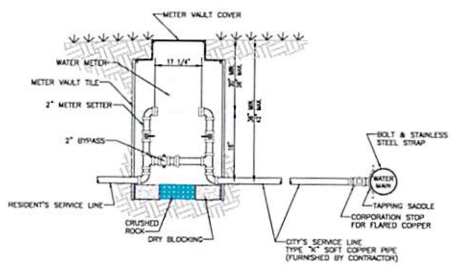
CLEANOUT IN PAVED AREAS DETAIL

SCALE: N.T.S.



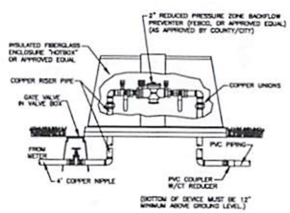
CLEANOUT DETAIL (NON-PAVED AREAS)

SCALE: N.T.S.



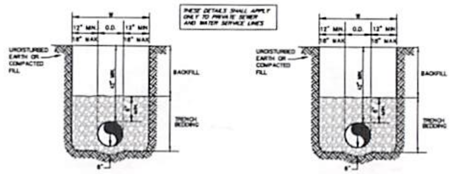
2" SINGLE WATER SERVICE DETAIL

SCALE: N.T.S.



IRRIGATION BACKFLOW PREVENTOR

N.T.S.



WATER LINE

SCALE: NOT TO SCALE

SANITARY SEWER

SCALE: NOT TO SCALE

GENERAL NOTES

TRENCH BEDDING

1. GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1100, PB-2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

SIEVE SIZE	PERCENT RETAINED
1-INCH	0
3/4-INCH	0-30
3/8-INCH	40-70
No. 8	95-100

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3. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
4. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

UTILITY TRENCH AND BEDDING

CE Golf Design
Golf Course Design & Landscape Architecture
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Fax: 913.621.0760
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Construction Documents

NEW BASEBALL & SOFTBALL COMPLEX

Leavenworth School District - USD 453
200 N. 4th Street
Leavenworth, Kansas 66048

JOB NO: 200824
DRAWN BY: MRR
CHECKED BY: DEU
DATE: 11.23.20
REVISIONS: 1.29.21 CITY COMMENTS

STORM SEWER DETAILS

SHEET

C7.2

Hal Burdette

From: Mike McDonald
Sent: Tuesday, February 02, 2021 3:20 PM
To: Paul Kramer
Cc: Hal Burdette
Subject: FW: USD 453 New Lawrence Road Ballfield Project Permit Fees

I support waiving the fees
There were no plan review fees as no plan review was required
Mike

From: Hal Burdette <HBurdette@firstcity.org>
Sent: Tuesday, February 02, 2021 3:19 PM
To: Mike McDonald <MMcDonald@firstcity.org>
Subject: USD 453 New Lawrence Road Ballfield Project Permit Fees

Mike,

USD 453 is currently working on a project on New Lawrence Road for two ballfields, a concessions stand/restroom building, and other site improvements.

As we have discussed previously, I intend to issue the permits without collecting the permit fees for this project. The City Commission has waived all permit fees for every project brought before them that USD 453 has undertaken in the 19+ years that I have held the position of Chief Building Inspector. The fees that would be required for this project include $1,727.00 for the building permit, $37.00 for a site grading permit, and an estimated $200.00 for the electrical, mechanical and plumbing permits.

The city has collected plan review fees in the past, but the scope of this project did not warrant a third party plan review.

Please let me know if you are in agreement with waiving the fees.

Thanks,

Hal Burdette
Chief Building Inspector
City of Leavenworth
100 N. 5th St.
Leavenworth, KS 66048
913-684-0378

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NEW CHAMPION

Contractor JFD Phone # _____

Application # 8535 Inspection ID # 6.9643

BUILDING

Approved	Disapproved				
[ ]	[ ]	Footing	[ ]	Foundation	[ ]
[ ]	[ ]	Rough In	[ ]	Sheetrock	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

PLUMBING

Approved	Disapproved				
[X]	[ ]	Sewer	[X]	Gas	[ ]
[X]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

HVAC

Approved	Disapproved				
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

ELECTRICAL

Approved	Disapproved				
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Comments: _____

5/3/21
Date

1100
Time

Inspector

City of Leavenworth, KS
Electrical Permit Application

FOR RESIDENTIAL AND COMMERCIAL USE

Job Address

Owner	Physical Address(if different from above)	Zip Code	Phone #	Email
LEAVENWORTH HIGH SCHOOL	2012 10TH AVE	66048	(913) 684-1550	usd453.org
Contractor	**Mailing Address**	**Zip Code**	**Phone #**	**Email**
ASHLER ELECTRICAL	605 SW HWY 40 STE 416	64014	(816) 366-7136	justin.johnson@ashlerelectricinc.com

Permit Fees

Service	QTY:	Rate:	Fee Amount
60 AMP SERVICE		$ 15.00	
100 AMP SERVICE		$ 18.00	
150 AMP SERVICE		$ 20.00	
200 AMP SERVICE		$ 23.00	
400 AMP SERVICE		$ 25.00	$25.00
600 AMP SERVICE		$ 28.00	
800 AMP SERVICE		$ 30.00	
OVER 800 AMP SERVICE		$ 50.00	
ELECTRIC OPENING		$ 0.20	$16.00
MOTOR 1 HP OR LESS		$ 2.00	
MOTOR 5HP TO 10HP		$ 3.00	$30.00
MOTOR 10HP TO 20HP		$ 5.00	
MOTOR OVER 20HP		$ 9.00	
OUTDOOR SIGN		$ 5.00	
FURNACE/RANGE/DRYER		$ 2.00	
TRANSFORM UP TO 2KVA		$ 3.00	$3.00
TRANSFORM 2-10KVA		$ 3.00	
TRANSFORM 2-10KVA ADD FEE		$ 1.00	
TRANSFORM 10-50KVA BASE		$ 11.00	
TRANSFORM 10-50KVA ADD FEE		$ 0.55	
TRANSFORM +50KVA BASE		$ 33.00	
TRANSFORM +50KVA ADD FEE		$ 0.20	
A/C OTHER THAN WINDOW		$ 3.00	$3.00
CARNIVAL & CIRCUS		$ 100.00	
REFRIGERATED DISPLAY CASE		$ 5.00	
FLAT RATE	1	$ 24.00	$ 24.00
FEE TOTALS			$101.00

NOTICE

THE CITY OF LEAVENWORTH USES THE FOLLOWING CODES: 2018 INTERNATIONAL RESIDENTIAL CODE, 2018 INTERNATIONAL BUILDING CODE, 2018 MECHANICAL CODE, 2018 PLUMBING CODE, 2017 INTERNATIONAL CODE COUNCEL ELECTRIC CODE, 2018 EXISTING BUILDING CODE, 2018 FUEL GAS CODE, 2018 POOL AND SPA CODE, AND 2018 INTERNATIONAL FIRE CODE.

SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING, HEATING, VENTILATING OR AIR CONDITIONING.

THIS PEMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMMENCED WITHIN 180 DAYS OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONEDFOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED.

BY SUBMITTING THIS APPLICATION TO THE INSPECTIONS DIVISION, I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHEATHER SPECIFIED HEREIN OR NOT. THE GRANTING OF THIS PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

APPLICATION ONLY, THIS IS NOT A PERMIT
ALL PERMITS ARE SUBJECT TO PLAN REVIEWS

For questions or submittal please contact 913-684-0378 or email hgabbert@firstcity.org

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3001 New Lawrence Rd

Contractor Asher Electric Phone # _____

Application # 8535 Inspection ID # _____

Approved	Disapproved			
		BUILDING		
[ ]	[ ]	Footing [ ]	Foundation	[ ]
[ ]	[ ]	Rough In [ ]	Sheetrock	[ ]
[ ]	[ ]	Final		
[ ]	[ ]	Other _____		
Approved	Disapproved	**PLUMBING**		
[ ]	[ ]	Sewer [ ]	Gas	[ ]
[ ]	[ ]	Rough In [ ]	Under Slab	[ ]
[ ]	[ ]	Final		
[ ]	[ ]	Other _____		
Approved	Disapproved	**HVAC**		
[ ]	[ ]	Rough In [ ]	Change Out	[ ]
[ ]	[ ]	Fireplace [ ]	Wood Stove	[ ]
[ ]	[ ]	Final		
[ ]	[ ]	Other _____		
Approved	Disapproved	**ELECTRICAL**		
[X]	[ ]	Rough In [X]	Under Slab	[O]
[ ]	[ ]	Service _____		
[ ]	[ ]	Final		
[ ]	[ ]	Other _____		

Comments:

* CLEAN MUD FROM STREET

* ESTABLISH STABLE CONST ENTRANCE

3/15
Date

7:30
Time

Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NEW LAWRENCE RD

Contractor _____ Phone # _____

Application # _____ Inspection ID # _____

Approved	Disapproved	BUILDING			
[ ]	[ ]	Footing	[ ]	Foundation	[ ]
[ ]	[ ]	Rough In	[ ]	Sheetrock	[ ]
[ ]	[ ]			Final	
[ ]	[ ]	Other _____			

Approved	Disapproved	PLUMBING			
[ ]	[ ]	Sewer	[ ]	Gas	[ ]
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]			Final	
[ ]	[ ]	Other _____			

Approved	Disapproved	HVAC			
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]
[ ]	[ ]			Final	
[ ]	[ ]	Other _____			

Approved	Disapproved	ELECTRICAL			
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]			Final	
[ ]	[ ]	Other _____			

Comments: _____

3-5-21
Date

9:00
Time

Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NEW LAWRENCE RD

Contractor JFD Phone # _____

Application # _____ Inspection ID # _____

BUILDING

Approved	Disapproved				
[ ]	[ ]	Footing	[ ]	Foundation	[ ]
[ ]	[ ]	Rough In	[ ]	Sheetrock	[ ]
[ ]	[ ]			Final	
[ ]	[ ]	Other			

PLUMBING

Approved	Disapproved				
[X]	[X]	Sewer	[ ]	Gas	[ ]
[ ]	[ ]	Rough In	[ ]	Under Slab	[X]
[ ]	[ ]			Final	
[ ]	[ ]	Other			

HVAC

Approved	Disapproved				
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]
[ ]	[ ]			Final	
[ ]	[ ]	Other			

ELECTRICAL

Approved	Disapproved				
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Service			
[ ]	[ ]			Final	
[ ]	[ ]	Other			

Comments: _____

3-10-21
Date

Time

Inspector

PLANNING
ENGINEERING
IMPLEMENTATION

Date: January 28, 2021

To: Justin Stewart, City of Leavenworth

From: Doug Ubben, Jr., P.E., Phelps Engineering, Inc.

Re: Responses to City Comments
Leavenworth Baseball/Softball Fields
PEI # 200824

Justin, we have received your comments and have addressed each with the enclosed plans and comment responses in *red italics* below. Please let us know if you have any questions during your review.
Thank you,
Doug

1. Note S1 show hooking up to the 24" trunk sewer. We would prefer hooking up to the 8 inch main on the east side of the building.
Response: Acknowledged. Sanitary connection has been moved to the 8" main.

2. What is the waterline separation from the sanitary service line to the Sanitary Sewer main if we need to hook to the 24" trunk sewer?
Response: Sanitary service has been moved. There is no intersection now.

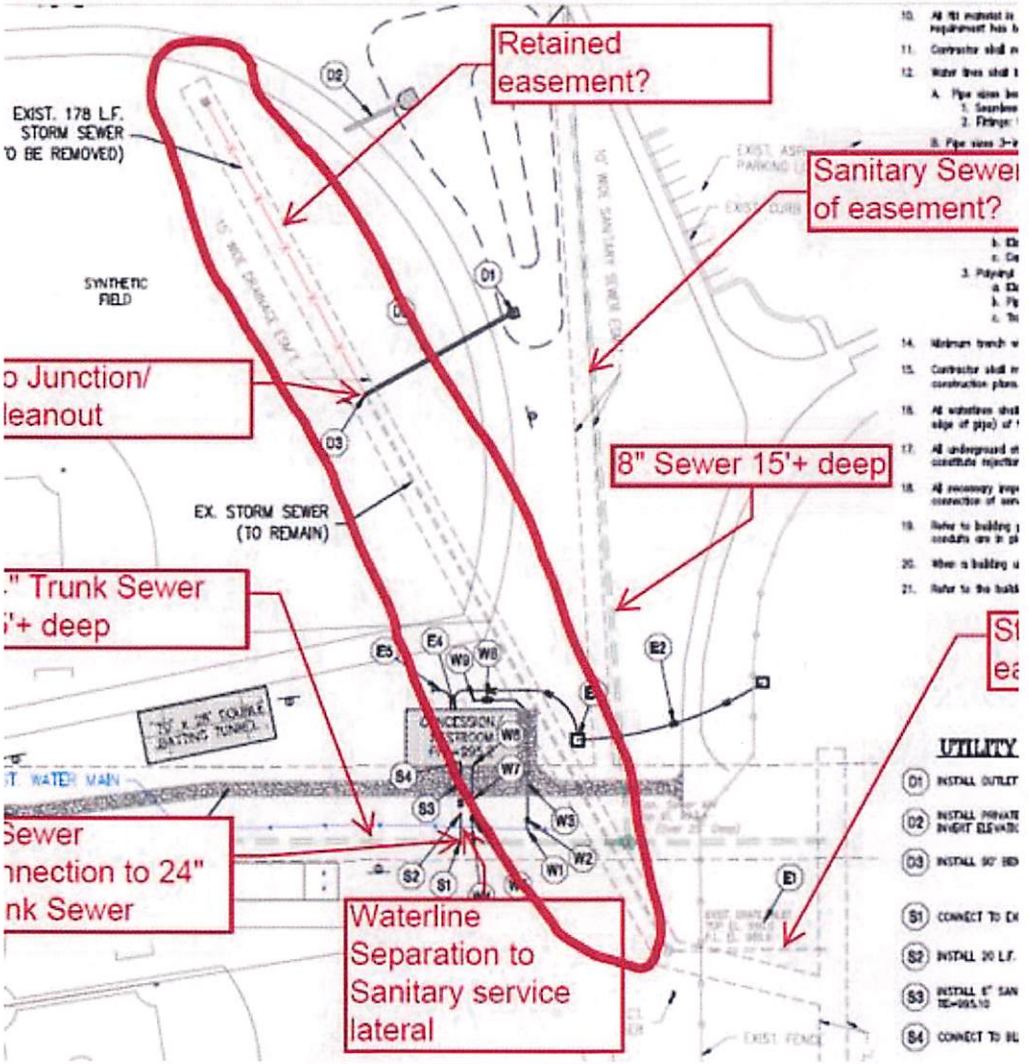
3. On the east side of the project at Note E1, is the sewer out of the Easement?
Response: We have verified with the surveyor that the existing sewer and sewer easement are both plotted correctly.

4. On the north east side of the project, next to the detention area, Is the sanitary sewer out of the easement.
Response: Pipe location has been adjusted so that the pipe is centered on the easement.

5. Note D3, there is no junction at the change of direction in the storm sewer.
Response: Having a manhole top in the middle of the field would be a safety issue. Therefore, a direct pipe to pipe connection with a fitting is to be used. Additionally, this storm sewer is being turned over to the school district and will be private.

6. On the north side of project, are we retaining the easement for the abandoned 178LF of storm sewer.
Response: No, the easement will be vacated.

7. USD should ask for city to transfer ownership of the ***stormwater system*** and easement to them from the Red Circled area.



Response: Acknowledged

Hal Burdette

From: Connor Harris <Connor@mammothturf.com>
Sent: Thursday, February 11, 2021 8:41 AM
To: Hal Burdette; 'Doug Ubben, Jr.'
Cc: Heather Gabbert
Subject: Re: Mammoth Sports, USD 453, Gatewood Ball Fields

Thank you for the update Hal.

Have a great rest of your week!

Thanks

CONNOR HARRIS
Project Manager
MAMMOTH
SPORTS CONSTRUCTION

O: 785.400.6136 • **M:** 816.352.1993
MammothTurf.com •

From: Hal Burdette <HBurdette@firstcity.org>
Sent: Thursday, February 11, 2021 8:27 AM
To: Connor Harris <Connor@mammothturf.com>; 'Doug Ubben, Jr.' <dougubben@phelpsengineering.com>
Cc: Heather Gabbert <hgabbert@firstcity.org>
Subject: Re: Mammoth Sports, USD 453, Gatewood Ball Fields

Gentlemen,

The issues were not presented to the City Commission meeting this week. Staff did not have time to prepare the information for the commission to consider.

That being said, city staff has no intentions of slowing progress on your project. We are confident that the issues that need to go before the commission will be addressed.

Feel free to move forward as if all permits have been issued and call the Inspections office for inspections. The permits will be issued at a later date.

Feel free to contact me with any questions.

Hal Burdette
Chief Building Inspector
913-684-0378

From: Connor Harris <Connor@mammothturf.com>
Sent: Wednesday, February 10, 2021 8:38:36 AM

To: Doug Ubben, Jr.; Hal Burdette
Cc: Brent Hugo; Andy Poling; Heather Gabbert
Subject: Re: Mammoth Sports, USD 453, Gatewood Ball Fields

Good Morning,

Just checking in to see about the permits for this project. Wasn't sure when the city commission meeting was this week.

Thanks!

CONNOR HARRIS
Project Manager
MAMMOTH
SPORTS CONSTRUCTION
O: 785.400.6136 • **M:** 816.352.1993
MammothTurf.com •

From: Doug Ubben, Jr. <dougubben@phelpsengineering.com>
Sent: Tuesday, February 2, 2021 4:31 PM
To: Hal Burdette <HBurdette@firstcity.org>
Cc: Brent Hugo <brent@cegolfdesign.com>; Connor Harris <Connor@mammothturf.com>; Andy Poling <Andy@mammothturf.com>; Heather Gabbert <hgabbert@firstcity.org>
Subject: RE: Mammoth Sports, USD 453, Gatewood Ball Fields

Thanks Hal. Please keep us up to date once permits are ready.

Doug Ubben, Jr., P.E.
Phelps Engineering, Inc.
1270 N. Winchester | Olathe, KS 66061
(913) 393-1155 – Office | (913) 538-5806 – Direct
dougubben@phelpsengineering.com

From: Hal Burdette <HBurdette@firstcity.org>
Sent: Tuesday, February 2, 2021 4:30 PM
To: Doug Ubben, Jr. <dougubben@phelpsengineering.com>
Cc: Brent Hugo <brent@cegolfdesign.com>; Connor Harris <Connor@mammothturf.com>; Andy Poling <Andy@mammothturf.com>; Heather Gabbert <hgabbert@firstcity.org>
Subject: RE: Mammoth Sports, USD 453, Gatewood Ball Fields

Doug,

I have heard back from Engineering. The proposed changes that you submitted are approved. There is still an administrative issue related to storm sewers and easements that city staff hope to have on the agenda for the City Commission next week. Once that has been taken care of, the permits for the project will be ready to be issued.

Let me know if you have any questions.

Hal Burdette

Chief Building Inspector
City of Leavenworth
100 N. 5th St.
Leavenworth, KS 66048
913-684-0378

From: Doug Ubben, Jr. <dougubben@phelpsengineering.com>
Sent: Tuesday, February 02, 2021 1:41 PM
To: Hal Burdette <HBurdette@firstcity.org>
Cc: Brent Hugo <brent@cegolfdesign.com>; Connor Harris <Connor@mammothturf.com>; Andy Poling <Andy@mammothturf.com>
Subject: RE: Mammoth Sports, USD 453, Gatewood Ball Fields

Hal,

Please see link below for updated plans and comment responses. Let us know if you need anything else in order to issue the permit. The contractor will be looking to start this work very soon.

https://app.box.com/s/ljzd2awhnzvizfiyjneuq68k3k221u3q

Thanks,

Doug Ubben, Jr., P.E.
Phelps Engineering, Inc.
1270 N. Winchester | Olathe, KS 66061
(913) 393-1155 – Office | (913) 538-5806 – Direct
dougubben@phelpsengineering.com

From: Hal Burdette <HBurdette@firstcity.org>
Sent: Tuesday, January 12, 2021 3:16 PM
To: Doug Ubben, Jr. <dougubben@phelpsengineering.com>
Subject: FW: Mammoth Sports, USD 453, Gatewood Ball Fields

Doug,

It has been a while since we have communicated, but I have received some feedback from our Engineering Department that you need to respond to. Please see below.

Hal Burdette
Chief Building Inspector
City of Leavenworth
100 N. 5th St.
Leavenworth, KS 66048
913-684-0378

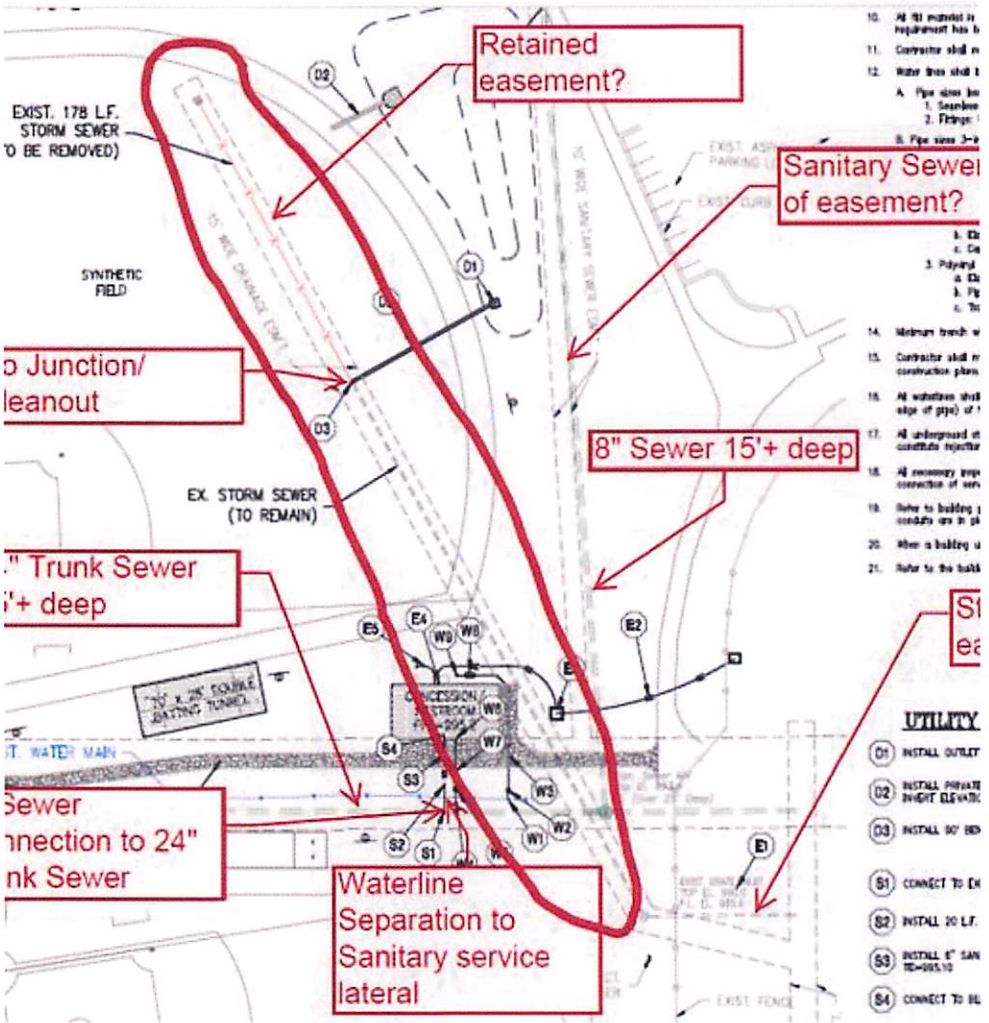
From: Mike McDonald <MMcDonald@firstcity.org>
Sent: Tuesday, January 12, 2021 9:57 AM

To: Hal Burdette <HBurdette@firstcity.org>
Subject: RE: Mammoth Sports, USD 453, Gatewood Ball Fields

Hal –

1. I am good with Justin's Comments
2. USD should ask for city to transfer ownership of the ***stormwater system*** and easement to them from the Red Circled area
3. I suspect the utilities not being in the easements is function of surveying rather than field location – it should be explored and corrected if they are in different places

Mike



From: Hal Burdette <HBurdette@firstcity.org>
Sent: Tuesday, January 12, 2021 8:29 AM
To: Mike McDonald <MMcDonald@firstcity.org>
Subject: FW: Mammoth Sports, USD 453, Gatewood Ball Fields

Mike,

Are you going to review Justin's comments before I send them to the designers or should I go ahead with the comments as they are?

Hal

From: Justin Stewart <JStewart@firstcity.org>
Sent: Monday, January 11, 2021 9:15 AM
To: Hal Burdette <HBurdette@firstcity.org>; Michael Stephan <mstephan@firstcity.org>; Mike McDonald <MMcDonald@firstcity.org>
Subject: Mammoth Sports, USD 453, Gatewood Ball Fields

Short list of questions and comments

- Note S1 show hooking up to the 24" trunk sewer. We would prefer hooking up to the 8 inch main on the east side of the building.
- What is the waterline separation from the sanitary service line to the Sanitary Sewer main if we need to hook to the 24" trunk sewer?
- On the east side of the project at Note E1, is the sewer out of the Easement?
- On the north east side of the project, next to the detention area, Is the sanitary sewer out of the easement?
- Note D3, there is no junction at the change of direction in the storm sewer.
- On the north side of project, are we retaining the easement for the abandoned 178LF of storm sewer?

Feel free to comment.

Justin Stewart
Civil Engineering Tech. II
City of Leavenworth
100 North 5th Street
Leavenworth, KS. 66048
913-684-0368
913-684-0375
913-682-1521 (fax)
jstewart@firstcity.org

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*** THIS EMAIL CAME FROM AN EXTERNAL SOURCE. PLEASE BE CAUTIOUS WHEN CLICKING ON LINKS OR ATTACHMENTS.

Hal Burdette

From: Mike McDonald
Sent: Monday, March 15, 2021 10:00 AM
To: Paul Kramer
Cc: Michael Stephan; Brian Faust; Hal Burdette
Subject: FW: Easement for LV Schools
Attachments: SKM_C554e21031210020.pdf; SAN ESMT-1.pdf

This ought to work as a corrected San Sew easement

Still hanging out there

1. Vacate the incorrect San Sew easement?
2. Some sort of agreement between USD and City on the storm sewer we want to give them includes a vacated easement as well

They want to get the permit for the concession stand which also gets waterworks to provide the tap for the concession stand, etc.

Do we need to review further?

Mike

From: Matt Dedeke <matt.dedeke@lvpioneers.org>
Sent: Friday, March 12, 2021 11:49 AM
To: Mike McDonald <MMcDonald@firstcity.org>; Hal Burdette <HBurdette@firstcity.org>
Subject: Easement for LV Schools

Please find a signed copy of the easement for the drains at the new ballfields. I think Paul will need to sign as well if this works for you to get permits issued.

Matt Dedeke
Director of Facilities
USD 453
913-684-1560 office
Facilities Department

*** THIS EMAIL CAME FROM AN EXTERNAL SOURCE. PLEASE BE CAUTIOUS WHEN CLICKING ON LINKS OR ATTACHMENTS.

PERMANENT SEWER EASEMENT

This agreement made this 18 day of March 2021 by and between **USD 453 Board of Education** party of the first part and the **City of Leavenworth, Kansas** a municipal corporation and existing under the State of Kansas, party of the second part.

Whereas the said party of the first part is owner of a certain tract of land in the City of Leavenworth, County of Leavenworth, Kansas, which is hereinafter, described to-wit:

Legal: All that part of the Northwest Quarter of Section 11, Township 9 South, Range 22 East, of the 6th P.M., more particularly described as follows:

A 20.00 feet wide Easement for the purpose of Sanitary Sewer, located in Lot 4, Southwest Leavenworth Park Subdivision, A subdivision in the City of Leavenworth, Leavenworth County, Kansas, whose centerline is described as follows: Commencing at the Northwest corner of Lot 3 of said Southwest Leavenworth Park Subdivision, Thence Westerly along the North line of said Lot 4, on a curve to the right, having a radius of 478.23 feet, a length of 13.78 feet, and a chord which bears South 68°34'09" West 13.78 feet to the POINT OF BEGINNING; Thence South 6°20'13" East 439.39 feet to the POINT OF TERMINATION, said point being on the North line of an existing East-West Sanitary Sewer Easement, and said point being 31.18 feet West of the West line of Lot 3, Southwest Leavenworth Park Subdivision. **(see attached Exhibit "A")**

The party of the first part agrees to hereby waive all rights to an appraisal and offer to just compensation, based on an appraisal, for the above referenced project.

The undersigned does hereby donate, convey and deliver unto the **City of Leavenworth, Kansas** a municipal corporation, a permanent sewer easement with the right to excavate, place, erect, construct, install, backfill, seed over, and maintain under and across the described property situated in Leavenworth County, Kansas, and, The undersigned agrees to hold the **City of Leavenworth** harmless for work performed on the easement. This agreement, together with other provisions of this grant, shall constitute a covenant running with the land for the benefit of the City. The undersigned covenant that they are the owners of the above-described lands, that they have good and lawful right to convey said easement and will forever warrant and defend the title thereto.

Party of the First Part: USD 453 Board of Education

Mike Roth
(Signature)

Dr. Mike Roth
(Printed Name)

STATE OF KANSAS)
) **SS:**
COUNTY OF LEAVENWORTH)

BE IT REMEMBERED, that on this 18th day of March, 2021, before me, the undersigned, a Notary Public in and for the county and state aforementioned said came Dr. Mike Roth who is/are personally known to me to be the person(s) who executed the within and foregoing instrument in writing and duly IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

BRENDA L. SHEUMAKER
Notary Public - State of Kansas
My Appt. Expires 11/17/2024

(SEAL)

Brenda L Sheumaker
Notary Public

My Commission expires: 11/17/2024

Party of the Second Part:

(Signature)

Paul Kramer, City Manager, City of Leavenworth

STATE OF KANSAS)
) **SS:**
COUNTY OF LEAVENWORTH)

BE IT REMEMBERED, that on this 18 day of March, 2021, before me, the undersigned, a Notary Public in and for the county and state aforementioned said came **Paul Kramer**, City Manager of the City of Leavenworth, who is personally known to me to be the person(s) who executed the within and foregoing instrument in writing and duly IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

CARLA M. WILLIAMSON
NOTARY PUBLIC
My Appt. Exp. 7-12-2021
STATE OF KANSAS

(SEAL)

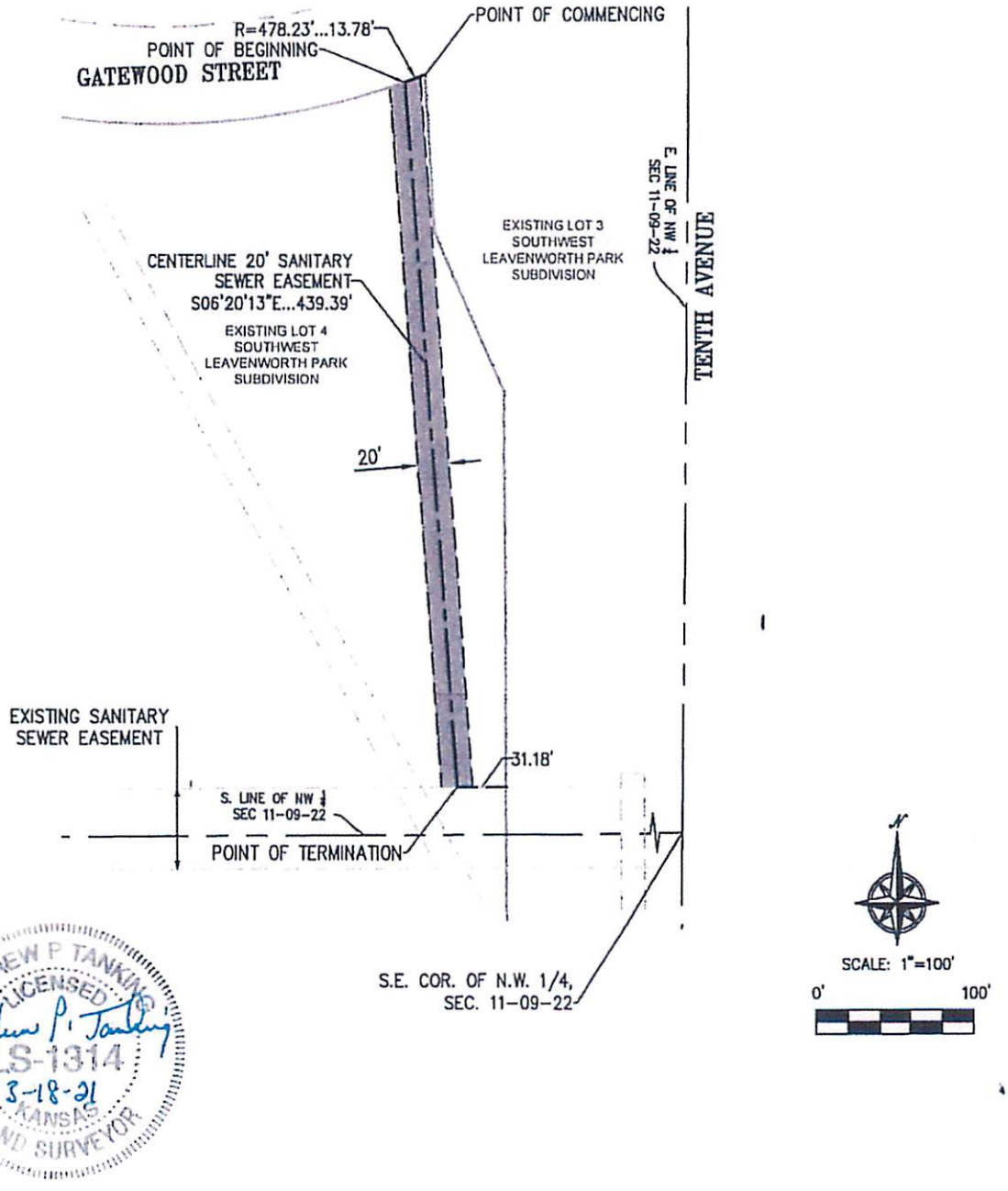
Carla M Williamson
Notary Public

My Commission expires: 7-12-2021

EXHIBIT "A"

SANITARY SEWER EASEMENT

PART OF LOT 4, SOUTHWEST LEAVENWORTH PARK SUBDIVISION BEING PART OF THE N.W. 1/4 SECTION 11, T. 09 S., R 22 E., IN THE CITY OF LEAVENWORTH, LEAVENWORTH COUNTY, KANSAS.



ANDREW P TANKING
LICENSED
LS-1314
3-18-21
KANSAS
LAND SURVEYOR

Home of the Pioneers
LEAVENWORTH
UNIFIED SCHOOL DISTRICT 453

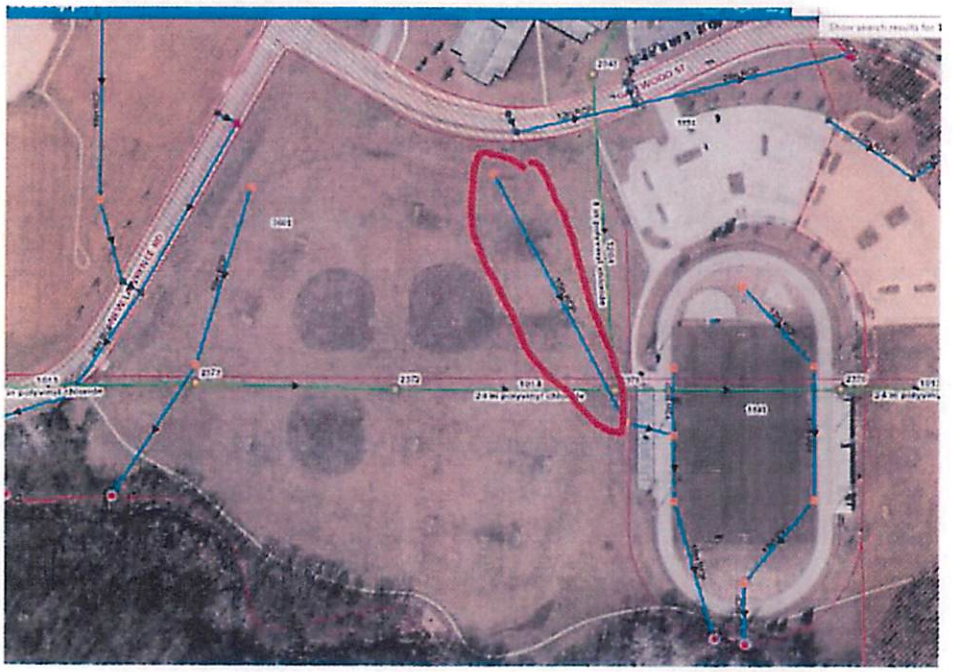
March 18, 2021

Mr. Brian D. Faust, PE
Public Works Director
City of Leavenworth
100 N. 5th Street
Leavenworth, KS 66048

Mr. Faust,

Leavenworth Public Schools, USD 453, is submitting this letter to confirm the transition of ownership of an underground storm drain located at 3601 New Lawrence Rd. This is the site of the Leavenworth Public Schools baseball and softball complex.

This storm drain is located under the outfield of the synthetic baseball field and has been transferred to USD 453 by the City for future maintenance and upkeep. The Leavenworth Schools accepts this responsibility to maintain this storm drain and treat it as district property.



Respectfully,

Dr. Mike Roth
Superintendent, USD 453

200 N. Fourth Street Leavenworth, KS 66048 p. (913) 684-1400 f. (913) 684-1407

Doc #: 2021R03652
TERRILOIS MASHBURN
REGISTER OF DEEDS
LEAVENWORTH COUNTY, KANSAS
RECORDED ON:
03/25/2021 11:31:52 AM
RECORDING FEE: 38.00
PAGES: 2

PERMANENT SEWER EASEMENT

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Party of the First Part: USD 453 Board of Education

Mike Roth
(Signature)

Dr. Mike Roth
(Printed Name)

STATE OF KANSAS)
) **SS:**
COUNTY OF LEAVENWORTH)

BE IT REMEMBERED, that on this 18th day of March, 2021, before me, the undersigned, a Notary Public in and for the county and state aforementioned said came Dr. Mike Roth who is/are personally known to me to be the person(s) who executed the within and foregoing instrument in writing and duly IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

BRENDA L SHEUMAKER
Notary Public - State of Kansas
My Appt. Expires 11/17/2024

(SEAL)

Brenda L Sheumaker
Notary Public
Brenda L Sheumaker

My Commission expires: 11/17/2024

Party of the Second Part:

(Signature)

Paul Kramer, City Manager, City of Leavenworth

STATE OF KANSAS)
) **SS:**
COUNTY OF LEAVENWORTH)

BE IT REMEMBERED, that on this 18 day of March, 2021, before me, the undersigned, a Notary Public in and for the county and state aforementioned said came **Paul Kramer**, City Manager of the City of Leavenworth, who is personally known to me to be the person(s) who executed the within and foregoing instrument in writing and duly IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

CARLA K. WILLIAMSON
NOTARY PUBLIC
My Appt. Exp. 7-12-2024
STATE OF KANSAS

(SEAL)

Carla K. Williamson
Notary Public
Carla K. Williamson

My Commission expires: 7-12-2024

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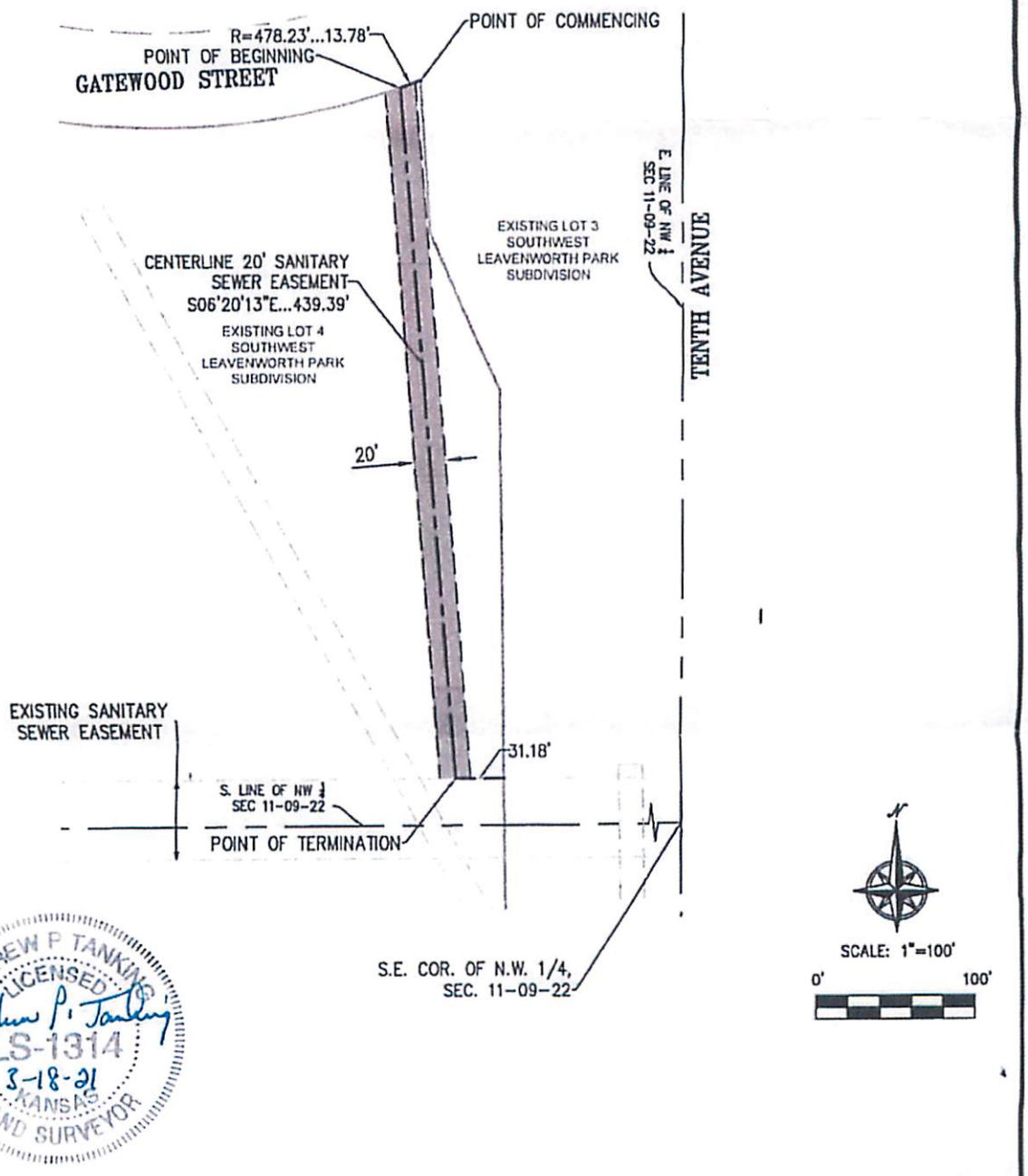
PART OF LOT 4, SOUTHWEST LEAVENWORTH PARK SUBDIVISION BEING PART OF THE N.W. 1/4 SECTION 11, T. 09 S., R 22 E., IN THE CITY OF LEAVENWORTH, LEAVENWORTH COUNTY, KANSAS.



ANDREW P TANKING
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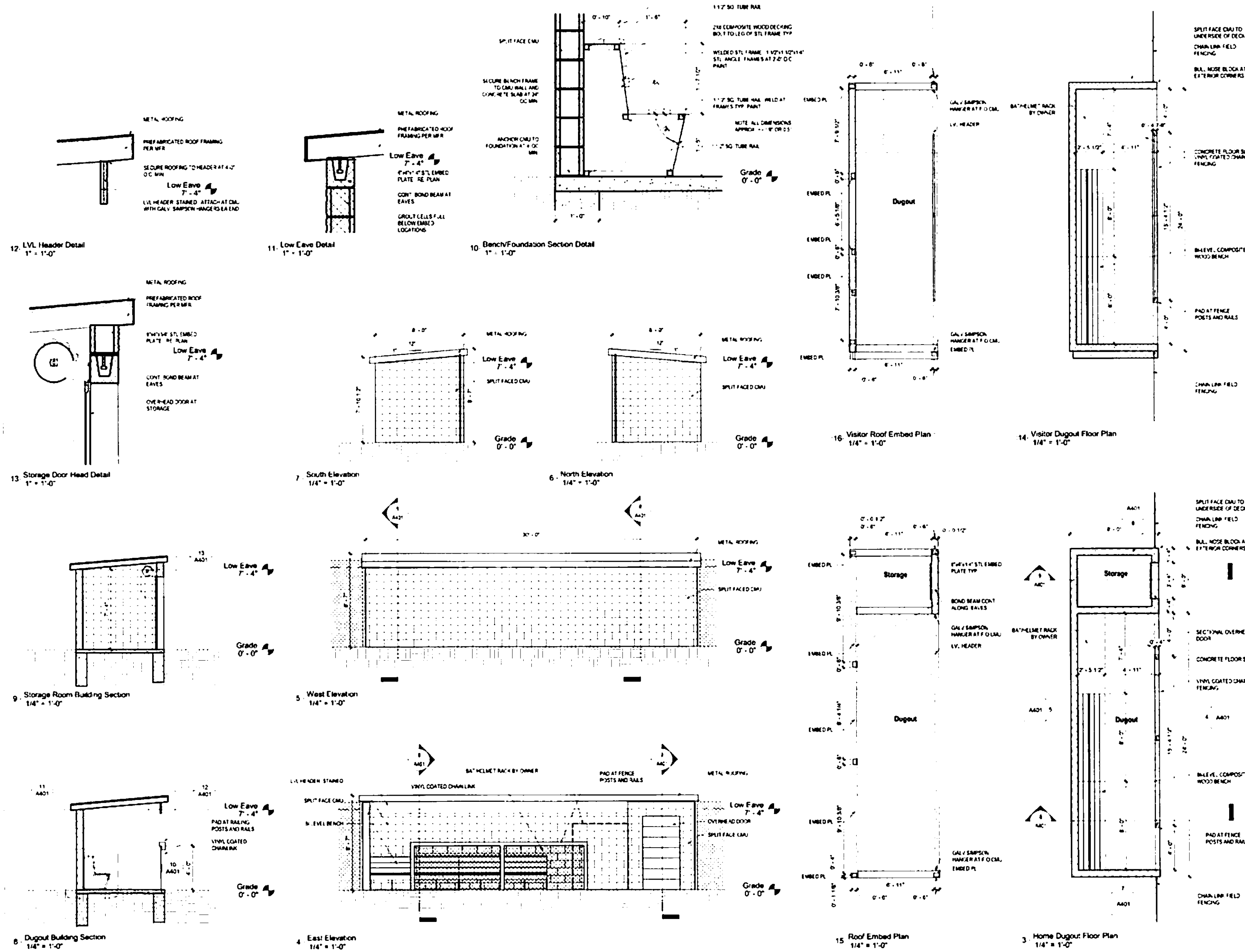
KANSAS
LAND SURVEYOR



ROOF GENERAL NOTES

1. COORDINATE INSTALLATION OF NEW ROOFING WITH OTHER TRADES. REPORT ANY CONFLICTS WITH ITEMS INSTALLED BY OTHER TRADES TO ARCHITECT
2. ALL ROOF CURBS FOR NEW ROOFTOP EXHAUST FANS, HVAC UNITS AND CONDENSING UNITS SHALL HAVE CURB HEIGHTS THAT WILL ALLOW FOR A MINIMUM OF 8" BASE FLASHING HEIGHTS FOR THE ROOF SYSTEM
3. ALL PLUMBING VENTS SHALL EXTEND ABOVE THE FINISHED SURFACE OF THE ROOF SYSTEM AS REQUIRED TO PROVIDE A MINIMUM OF 8" BASE FLASHING
4. PROVIDE ICE BREAKS AT ALL PERIMETER AREAS OF STANDING SEAM ROOFING
5. PROVIDE 30" WIDE WALK PADS @ SERVICE SIDE OF ALL MECH. EQUIPMENT & PROVIDE 30" WIDE WALK PADS AROUND ALL ROOF HATCHES & 72"x72" PADS AT LADDERS
6. ALL EXPOSED METAL FLASHING TRIM PIECES TO BE PRE-FINISHED 24 GA. STL. U.N.O. PROVIDE PRE-FINISHED OR FIELD PAINT FLASHING ONLY AS NOTED
7. GUTTERS - ALL GUTTERS TO BE PRE-FINISHED 24 GA. STEEL. PROVIDE PRE-FINISHED GALV. STL. BENT PLATE BRACKETS AND 14 GA. 1" GALV. STL. SPACERS @ 30" MAX. - STAGGER EACH OTHER @ 18" O.C. PROVIDE PREFORMED GUTTER EXPANSION JOINTS PER SMACNA FIG 1-7. TYP. @ 30'-0" MAX. PROVIDE S.S. SCREENS @ ALL GUTTERS PER SMACNA FIG 1-24
8. ALL DOWNSPOUTS TO BE PRE-FINISHED GA. TL PER SMACNA FIG 1-32D. DOWNSPOUTS ARE 8"x8" U.N.O. LOCATED AS NOTED ON ROOF PLAN. 15 GA.x2" GALV. STL. HANGERS @ 8' O.C. MAX. PER SMACNA FIG 1-35B
9. PROVIDE PAINTED 4' TALL CAST ALUM. DOWNSPOUT BOOTS @ ALL DOWNSPOUTS. TIE INTO SUB-GRADE DRAINAGE. RE: CIVIL
10. TAPERED INSULATION TO BE 1/4" PER FOOT MIN. SLOPE TO DRAIN. ROOF PLAN SHOWS TAPERED INSULATION FOR GRAPHIC REPRESENTATION ONLY. CONTRACTOR TO VERIFY INSULATION REQUIRED TO SLOPE PRIOR TO MEMBRANE INSULATION
11. PROVIDE TAPERED INSULATION CRICKETS 1/4" PER FOOT MIN. SLOPE @ HIGH SIDE OF ALL MECHANICAL UNITS AND ROOF HATCHES TO SHED WATER AROUND AND MAINTAIN POSITIVE ROOF DRAINAGE
12. ALL WOOD BLOCKING AT ROOF EDGES, RIDGES, ETC. TO BE 2x FR-WD BLOCKING
13. VERIFY ELEVATION OF ROOF DRAIN RELATIVE TO OVERFLOW SCUPPER PRIOR TO INSTALLATION OF SCUPPERS
14. ATTIC SHALL HAVE DRAFT STOPS DIVIDING THE ATTIC INTO DISTINCT AREAS, NONE OF WHICH SHALL BE OVER 3,000 SQ.FT. IN HORIZONTAL AREA
15. DRAFT STOPPING MATERIALS MAY BE 0.5-INCH GYPSUM BOARD, 0.375-INCH PARTICLE BOARD, 1-INCH NOMINAL LUMBER, CEMENT BOARD, BATTS, OR BLANKETS OF MINERAL WOOL OR GLASS FIBER, OR OTHER APPROVED EQUAL MATERIALS ADEQUATELY SUPPORTED

FLOOR PLAN GENERAL NOTES

1. CONTRACTOR TO COORDINATE AND VERIFY ALL PLUMBING, ELECTRICAL, AND MECHANICAL ROUGH-IN REQUIREMENTS PRIOR TO INSTALLATION
2. ALL PARTITIONS TO BE TYPE 'A' U.N.O. REFER TO PARTITION TYPE SCHEDULE FOR WALL ASSEMBLIES
3. REFER TO CODE PLANS FOR ANY RATED PARTITION CLARIFICATIONS
4. SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF LOAD BEARING & SHEAR WALLS
5. REFER TO WALL SECTIONS FOR ALL EXTERIOR WALL ASSEMBLIES, TYP.
6. PHASING PLANS ARE DIAGRAMMATIC IN NATURE AND INDICATE REQUIRED SEPARATION OF THE WORK FROM OCCUPIED AREAS. THESE DRAWINGS ARE NOT ALL INCLUSIVE
7. TEMPORARY SEPARATION WALLS: A 1-HOUR RATED SEPARATION MUST BE MAINTAINED BETWEEN CONSTRUCTION AREAS AND OCCUPIED SPACES. OPENINGS IN TEMPORARY CONSTRUCTION SHALL BE 45 MINUTE RATED
8. DURING UN-OCCUPIED TIMES AND AT PERIODS COORDINATED WITH THE OWNER WHEN THE BUILDING IS NOT OCCUPIED, WORK MAY BE PERFORMED OUTSIDE OF THE INDICATED PHASING BOUNDARIES AS DETERMINED BY THE CONTRACTOR TO COMPLETE PORTIONS OF THE WORK. COORDINATE THIS WORK WITH THE OWNER AND ARCHITECT PRIOR TO COMMENCEMENT
9. PROVIDE TEMPORARY SIGNAGE AS INDICATED
10. TEMPORARY LIGHTING SHALL BE OPERATIONAL AT ALL TIMES WHILE ADJACENT BUILDING IS OCCUPIED
11. PROVIDE STABLE GRAVEL PATHWAY FOR EGRESS FROM TEMPORARY PROTECTION ENCLOSURE LEADING TO BEYOND CONSTRUCTION ZONE OR TO PERMANENT HARD SURFACE. PATHWAY SHALL BE MAINTAINED WHILE ADJACENT SPACES ARE OCCUPIED
12. ALL FURNITURE IS PROVIDED BY OWNER

DAVID BRIAN DEVORE LICENSED ARCHITECT KANSAS

Construction Documents

MAMMOTH SPORTS CONSTRUCTION

USD 453 Sports Complex

Dugout Option A

Revision Key

No.	Date	Revision

Project Manager	David Devore, AIA
Project Engineer	
Checked By	
Project Number	21-1002
Date of Issue	02/27/2021
Sheet Number	

A401

Dugout Details

Home of the Pioneers
LEAVENWORTH
UNIFIED SCHOOL DISTRICT 453

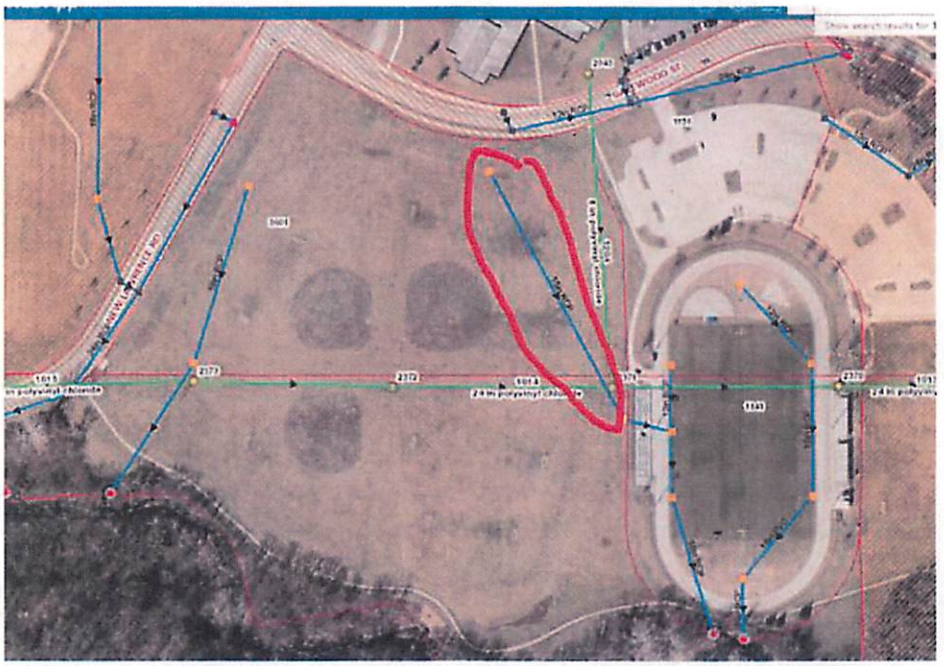
March 18, 2021

Mr. Brian D. Faust, PE
Public Works Director
City of Leavenworth
100 N. 5th Street
Leavenworth, KS 66048

Mr. Faust,

Leavenworth Public Schools, USD 453, is submitting this letter to confirm the transition of ownership of an underground storm drain located at 3601 New Lawrence Rd. This is the site of the Leavenworth Public Schools baseball and softball complex.

This storm drain is located under the outfield of the synthetic baseball field and has been transferred to USD 453 by the City for future maintenance and upkeep. The Leavenworth Schools accepts this responsibility to maintain this storm drain and treat it as district property.



Respectfully,

Dr. Mike Roth
Superintendent, USD 453

200 N. Fourth Street Leavenworth, KS 66048 p. (913) 684-1400 f. (913) 684-1407

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 N Lawrence Road

Contractor JPA Phone # _____

Application # 8535 Inspection ID # 72095

Approved	Disapproved	BUILDING			
[ ]	[ ]	Footing [ ]	Foundation [ ]		
[ ]	[ ]	Rough In [ ]	Sheetrock [ ]		
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	PLUMBING			
[ ]	[ ]	Sewer [ ]	Gas [ ]		
[ ]	[ ]	Rough In [ ]	Under Slab [ ]		
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	HVAC			
[ ]	[ ]	Rough In [ ]	Change Out [ ]		
[ ]	[ ]	Fireplace [ ]	Wood Stove [ ]		
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	ELECTRICAL			
[ ]	[ ]	Rough In [ ]	Under Slab [ ]		
[ ]	[ ]	Service _____			
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Comments:

Project Status
Meet with Andy
785-640-4191

4/22/2021
Date

10:00
Time

Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 Newlawn Road

Contractor _____ Phone # _____

Application # _____ Inspection ID # _____

Approved	Disapproved	BUILDING			
[ ]	[ ]	Footing [ ]		Foundation	[ ]
[ ]	[ ]	Rough In [ ]		Sheetrock	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	PLUMBING			
[ ]	[ ]	Sewer [ ]		Gas	[ ]
[ ]	[ ]	Rough In [ ]		Under Slab	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	HVAC			
[ ]	[ ]	Rough In [ ]		Change Out	[ ]
[ ]	[ ]	Fireplace [ ]		Wood Stove	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	ELECTRICAL			
[ ]	[ ]	Rough In [ ]		Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Comments:

Project Status
Meet With Andy
785 - 640 - 4191
* WATER GROUND REQUIRED

4/16/2021
Date

10:00
Time

Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 New lawrence Rd

Contractor Mammoth Phone # _____

Application # 8535 Inspection ID # 72143, 72441

Approved	Disapproved	BUILDING			
[ ]	[ ]	Footing	[ ]	Foundation	[ ]
[ ]	[ ]	Rough In	[ ]	Sheetrock	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	PLUMBING			
[X]	[ ]	Sewer	[ ]	Gas	[ ]
[ ]	[ ]	Rough In	[X]	Under Slab	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	HVAC			
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Approved	Disapproved	ELECTRICAL			
[X]	[ ]	Rough In	[X]	Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Comments:

- IN WALL - CONCESSION - TICKET / STORAGE

4/28
Date

9
Time

Inspector

Heather Gabbert

From: Connor Harris <Connor@mammothbuilt.com>
Sent: Friday, May 28, 2021 3:24 PM
To: Barry Smith
Cc: Hal Burdette; Heather Gabbert; Michael Stephan; Brian Faust
Subject: Re: Baseball Fields at Warren Middle School
Attachments: 5-3, 5-8, 5-12, 5-26.pdf; Image (24).jpeg

Categories: Forwarded

Barry,

Attached are the SWPP inspections for the month of May so far.

I have also attached a picture of the fixes they are working on now. I don't don't have a picture, but they scraped the street with the skid loader bucket and got the mud off. Our street sweeper is not working currently so they are working on it & hoping to get those areas addressed this evening.

Let me know if you need anything else,

Thanks

From: Barry Smith <bsmith@firstcity.org>
Sent: Friday, May 28, 2021 10:24 AM
To: Connor Harris <Connor@mammothbuilt.com>
Cc: Hal Burdette <HBurdette@firstcity.org>; Heather Gabbert <hgabbert@firstcity.org>; Michael Stephan <mstephan@firstcity.org>; Brian Faust <brian.faust@firstcity.org>
Subject: Baseball Fields at Warren Middle School

Mr. Harris-

The City has some issues with the erosion control out on your project. Here is the list of some only some of the issues.

1. There has been a lot of mud tracking in the streets.
2. There is an unprotected inlet near the construction entrance collecting silt from the tracking.
3. A dirt stock pile in the parking lot unprotected uphill from an unprotected inlet.
4. The new detention basins need to be protected until vegetation is established to keep silt from entering the storm system.
5. I need as builts for the detention basins/storm system for the GIS.

I need the contractors to inspect the project and provide the City with a copy of your recent SWPPP inspections ASAP. SWPPP inspections must include deficiencies and the plan to resolve them. The list I provided above are likely not the only deficiencies. Attached are photos.

Please and Thank You,

Barry Smith
Engineering Technician
City of Leavenworth
100 N 5th St.
Leavenworth, KS 66048
bsmith@firstcity.org
Office: 913-684-0375
Mobile: 913-787-7474

Maintenance Inspection Report #15

Date of Inspection: 5-3 Reason for inspection* Rain & Bi-weekly

Project Name/Location: LV BB & SB

Owner: LVSD

Weather Conditions: Cloudy/overcast 65°

Rain in last 24 hours (inches): Yes, .5-1"

Inspector Name (print) and Signature: Conor Harris [signature]

Stage of Construction:

_____ Pre-construction Meeting
_____ Installation of Perimeter ESC Measures
_____ Clearing and Grubbing
_____ Rough Grading
✓ Other (Describe: [illegible] fence & [illegible] for [illegible].)
_____ Temporary Stabilization
_____ Finish Grading
_____ Public Improvements
✓ Building Construction

Inspection Checklist: Steel framing. Concrete work (pads on [illegible]). Fence posts in.

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Storm Sewer Inlet Barriers (sand bags, gutter buddies, straw wattles)				
Are storm sewer inlet barriers properly placed?	✓			
Are storm sewer inlet barriers in good condition?	✓			
Are barriers controlling flows into the inlet?	✓			
Is sediment height less than ½ the barrier height?	✓			
Are all storm water inlets protected?	✓			
Are storm sewer boxes and/or pipes free of sediment?	✓			
Perimeter Controls (diversions, silt fence, straw wattles, mulch berms, etc.)				
Is offsite storm water drainage diverted?	✓			
Are perimeter controls up and in good condition?		✓		Silt fence down [illegible] from wind. Will put back up.

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Perimeter Controls (continued)				
Have all offsite properties and drainages been protected by perimeter controls?	✓			
Stabilized Construction Entrances				
Is there adequate clean gravel present?		✓		low on rock from moisture & traffic. Will add more.
Is soil and gravel staying onsite?	✓			
Are contractors using the stabilized construction entrance?	✓			
Stream Crossings				
Are temporary crossings controlling erosion?			✓	
Are culverts adequately sized?			✓	
Temporary Stabilization				
Are seeded areas properly established?	✓			
Is mulch crimped in and holding seed in place?	✓			
Are erosion control blankets and mats in good condition?	✓			
Are soil piles seeded, mulched and bordered down slope by sediment barriers?	✓			
Sediment Basin				
Is the basin less than ½ full of sediment from original design?	✓			
Are side slopes in good condition?	✓			
Is the basin containing storm water flows?	✓			
Is the outfall in good condition?	✓			

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Swales and Drainage Ways				
Are ditch bottoms protected from undercutting and erosion?	✓			
Are ditch checks properly maintained?	✓			
Are outfalls properly stabilized?	✓			
Slope Protection				
Are all slopes protected with vegetative cover, terraces or erosion control blankets?		✓		Dirt in between mound
General Site Conditions				
Is trash and construction debris properly contained onsite?	✓			needs to be switched out.
Are porta-potties properly located and maintained?	✓			
Are all vehicles properly maintained to avoid leakage?	✓			
Are all chemicals properly containerized and stored?	✓			
Are concrete washout areas established and maintained?	✓			

Corrective Measures: For all areas needing BMPs or maintenance, describe corrective measures and implementation timeframe?

* Put silt fence back up (approx 60 Lf).
* Add more room for construction entrance.
* Switch out Dumpster.

* Reason for Inspection note: Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. This report shall be kept on file by the General Contractor as part of the Storm Water Pollution Prevention Plan for at least **3 years** from the date of completion and submission of the Notice of Termination.

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Conner Harris

Address: 601 E Wyandotte St. Meriden, KS. 66512

Phone: 816-352-1993

(Authorized Signature**) Date: 5-3-21

**It is the Owners (Permittee) responsibility to insure that the inspector has been properly authorized under the applicable General Permit Regulations to sign these inspection forms.

Maintenance Inspection Report # 16

Date of Inspection: 5-8 Reason for inspection* Rain

Project Name/Location: LV BB & SB

Owner: LVSD

Weather Conditions: Cloudy & Raining 60°

Rain in last 24 hours (inches): Yes 3/4 - 1"

Inspector Name (print) and Signature: Conner Harris

Stage of Construction:

_____ Pre-construction Meeting
_____ Installation of Perimeter ESC Measures
_____ Clearing and Grubbing
_____ Rough Grading
✓ Other (Describe: Interior work on Buildings (electrical, plumbing, etc.))

_____ Temporary Stabilization
_____ Finish Grading
_____ Public Improvements
✓ Building Construction

Inspection Checklist: Fields: Field Inspection, Bathrooms, etc. Not any today.

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Storm Sewer Inlet Barriers (sand bags, gutter buddies, straw wattles)				
Are storm sewer inlet barriers properly placed?	✓			
Are storm sewer inlet barriers in good condition?	✓			
Are barriers controlling flows into the inlet?	✓			
Is sediment height less than ½ the barrier height?	✓			
Are all storm water inlets protected?	✓			
Are storm sewer boxes and/or pipes free of sediment?	✓			
Perimeter Controls (diversions, silt fence, straw wattles, mulch berms, etc.)				
Is offsite storm water drainage diverted?	✓			
Are perimeter controls up and in good condition?	✓			

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Swales and Drainage Ways				
Are ditch bottoms protected from undercutting and erosion?	✓			
Are ditch checks properly maintained?	✓			
Are outfalls properly stabilized?	✓			
Slope Protection				
Are all slopes protected with vegetative cover, terraces or erosion control blankets?	✓			
General Site Conditions				
Is trash and construction debris properly contained onsite?	✓			
Are porta-potties properly located and maintained?		✓		Dozer could not get to east side. Will need to come back (PP-Rd1).
Are all vehicles properly maintained to avoid leakage?	✓			
Are all chemicals properly containerized and stored?	✓			
Are concrete washout areas established and maintained?	✓			Clean concrete infront of construction entrance at road.

Corrective Measures: For all areas needing BMPs or maintenance, describe corrective measures and implementation timeframe?

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Perimeter Controls (continued)				
Have all offsite properties and drainages been protected by perimeter controls?	✓			
Stabilized Construction Entrances				
Is there adequate clean gravel present?	✓			
Is soil and gravel staying onsite?	✓			
Are contractors using the stabilized construction entrance?	✓	✓		Building Contractors using parking lot on east side as entrance to building because site is too wet.
Stream Crossings				
Are temporary crossings controlling erosion?			✓	
Are culverts adequately sized?			✓	
Temporary Stabilization				
Are seeded areas properly established?			✓	
Is mulch crimped in and holding seed in place?			✓	
Are erosion control blankets and mats in good condition?			✓	
Are soil piles seeded, mulched and bordered down slope by sediment barriers?		✓		pile of dirt waiting to be spread in retention areas (next week when dry).
Sediment Basin				
Is the basin less than ½ full of sediment from original design?	✓			
Are side slopes in good condition?	✓			
Is the basin containing storm water flows?	✓			
Is the outfall in good condition?	✓			

* Reason for Inspection note: Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. This report shall be kept on file by the General Contractor as part of the Storm Water Pollution Prevention Plan for at least **3 years** from the date of completion and submission of the Notice of Termination.

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Connor Henry

Address: 601 E Wyandotte St. Meriden, KS 66512

Phone: 816-352-1993

Date: 5-8-21

(Authorized Signature**)

**It is the Owners (Permittee) responsibility to insure that the inspector has been properly authorized under the applicable General Permit Regulations to sign these inspection forms.

Maintenance Inspection Report # 17

Date of Inspection: 5-12 Reason for inspection* Rain

Project Name/Location: LV BB & SB

Owner: LVSD

Weather Conditions: 57° Rainy / Cloudy

Rain in last 24 hours (inches): Yes, 1"

Inspector Name (print) and Signature: Conner Harris

Stage of Construction:

_____ Pre-construction Meeting
_____ Installation of Perimeter ESC Measures
_____ Clearing and Grubbing
_____ Rough Grading
✓ Other (Describe: Building: Framing & Interior Work)

_____ Temporary Stabilization
_____ Finish Grading
_____ Public Improvements
✓ Building Construction

Inspection Checklist: Fields: Backstops, Ball pad, Irrigation, etc.

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Storm Sewer Inlet Barriers (sand bags, gutter buddies, straw wattles)				
Are storm sewer inlet barriers properly placed?	✓			
Are storm sewer inlet barriers in good condition?		✓		Replace barriers on east side of property. Falling apart.
Are barriers controlling flows into the inlet?	✓			
Is sediment height less than ½ the barrier height?	✓			
Are all storm water inlets protected?	✓			
Are storm sewer boxes and/or pipes free of sediment?	✓			
Perimeter Controls (diversions, silt fence, straw wattles, mulch berms, etc.)				
Is offsite storm water drainage diverted?	✓			
Are perimeter controls up and in good condition?	✓			

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Perimeter Controls (continued)				
Have all offsite properties and drainages been protected by perimeter controls?	✓			
Stabilized Construction Entrances				
Is there adequate clean gravel present?	✓			
Is soil and gravel staying onsite?	✓			
Are contractors using the stabilized construction entrance?	✓			
Stream Crossings				
Are temporary crossings controlling erosion?			✓	
Are culverts adequately sized?			✓	
Temporary Stabilization				
Are seeded areas properly established?	✓			new seed on Retention areas & Native grass seed & plugs.
Is mulch crimped in and holding seed in place?			✓	
Are erosion control blankets and mats in good condition?			✓	
Are soil piles seeded, mulched and bordered down slope by sediment barriers?	✓			piles moved to retention areas. 1 small pile left to spread
Sediment Basin				
Is the basin less than ½ full of sediment from original design?	✓			
Are side slopes in good condition?	✓			
Is the basin containing storm water flows?	✓			
Is the outfall in good condition?	✓			

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Swales and Drainage Ways				
Are ditch bottoms protected from undercutting and erosion?	✓			
Are ditch checks properly maintained?	✓			
Are outfalls properly stabilized?	✓			
Slope Protection				
Are all slopes protected with vegetative cover, terraces or erosion control blankets?	✓			
General Site Conditions				
Is trash and construction debris properly contained onsite?	✓			
Are porta-potties properly located and maintained?		✓		Get 2 porta potty's taken off site & other 2 re-cleaned (winterized).
Are all vehicles properly maintained to avoid leakage?	✓			
Are all chemicals properly containerized and stored?	✓			
Are concrete washout areas established and maintained?	✓			

Corrective Measures: For all areas needing BMPs or maintenance, describe corrective measures and implementation timeframe?

B- Replace inlet barriers.
A- Call off PP's

* Reason for Inspection note: Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. This report shall be kept on file by the General Contractor as part of the Storm Water Pollution Prevention Plan for at least **3 years** from the date of completion and submission of the Notice of Termination.

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Conner Harris

Address: 601 E Wyandotte St. Meriden, KS. 66512

Phone: 816-352-1913

Date: 5-12-21

(Authorized Signature**)

**It is the Owners (Permittee) responsibility to insure that the inspector has been properly authorized under the applicable General Permit Regulations to sign these inspection forms.

Maintenance Inspection Report #_18_

Date of Inspection: 5-26 Reason for inspection* Bi-weekly + Rain

Project Name/Location: LV BB & SB

Owner: LVSD

Weather Conditions: Sunny 84°

Rain in last 24 hours (inches): No. Rain expected Tonight & tomorrow 5-27

Inspector Name (print) and Signature: Conner Harris [signature]

Stage of Construction:

_____ Pre-construction Meeting
_____ Installation of Perimeter ESC Measures
_____ Clearing and Grubbing
_____ Rough Grading
__✓__ Other (Describe: building: partitions, painting, etc)
_____ Temporary Stabilization
_____ Finish Grading
_____ Public Improvements
__✓__ Building Construction

Inspection Checklist: fields: infield mix, irrigation, sod laying, fence fabric

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Storm Sewer Inlet Barriers (sand bags, gutter buddies, straw wattles)				
Are storm sewer inlet barriers properly placed?	✓			
Are storm sewer inlet barriers in good condition?	✓			
Are barriers controlling flows into the inlet?	✓			
Is sediment height less than ½ the barrier height?	✓			
Are all storm water inlets protected?	✓			
Are storm sewer boxes and/or pipes free of sediment?	✓	✓		Retention area at [illegible] SB Box had sediment. It was cleared that afternoon
Perimeter Controls (diversions, silt fence, straw wattles, mulch berms, etc.)				
Is offsite storm water drainage diverted?	✓			
Are perimeter controls up and in good condition?		✓		Silt fence was down on NE side due to wind & [illegible]. It was fixed.

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Perimeter Controls (continued)				
Have all offsite properties and drainages been protected by perimeter controls?	✓			
Stabilized Construction Entrances				
Is there adequate clean gravel present?	✓			Added more because of moisture.
Is soil and gravel staying onsite?	✓			
Are contractors using the stabilized construction entrance?	✓			
Stream Crossings				
Are temporary crossings controlling erosion?			✓	
Are culverts adequately sized?			✓	
Temporary Stabilization				
Are seeded areas properly established?	✓			
Is mulch crimped in and holding seed in place?	✓			
Are erosion control blankets and mats in good condition?	✓			
Are soil piles seeded, mulched and bordered down slope by sediment barriers?	✓			
Sediment Basin				
Is the basin less than ½ full of sediment from original design?	✓			
Are side slopes in good condition?	✓			
Is the basin containing storm water flows?	✓			
Is the outfall in good condition?	✓			

BMP Condition	Yes	No	N/A	If "no", list locations needing BMPs and/or maintenance.
Swales and Drainage Ways				
Are ditch bottoms protected from undercutting and erosion?	✓			
Are ditch checks properly maintained?	✓			
Are outfalls properly stabilized?	✓			
Slope Protection				
Are all slopes protected with vegetative cover, terraces or erosion control blankets?	✓			Small pile in between natural fields. Will be spread in 1-2 weeks.
General Site Conditions				
Is trash and construction debris properly contained onsite?	✓			Got dumpster switched out 5-25
Are porta-potties properly located and maintained?	✓			Got PP switched out / cleaned 5-21/5-22
Are all vehicles properly maintained to avoid leakage?	✓			
Are all chemicals properly containerized and stored?	✓			
Are concrete washout areas established and maintained?		✓		mud on street by construction entrance. Got it swept before rain. Also swept area where infield mix was dettered. 1 more load being delivered tomorrow.

Corrective Measures: For all areas needing BMPs or maintenance, describe corrective measures and implementation timeframe?

* Spread dirt pile. (1-2 weeks)
* Fixed Box with sediment build up on natural SB. ✓
* Fixed Silt fence on NE side. ✓
* Add more rock to construction entrance (4") - 4th or Friday
* Dumpsters in PP switched out ✓

* Reason for Inspection note: Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. This report shall be kept on file by the General Contractor as part of the Storm Water Pollution Prevention Plan for at least **3 years** from the date of completion and submission of the Notice of Termination.

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Cameron Harris

Address: 601 E Wyandotte St. Mendon, MS 66572

Phone: 816-352-1953

(Authorized Signature) Date: 5-27-21
Date report was written.

**It is the Owners (Permittee) responsibility to insure that the inspector has been properly authorized under the applicable General Permit Regulations to sign these inspection forms.

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NE LAWRENCE RD

Contractor _____ Phone # _____

Application # 8535 Inspection ID # _____

Approved	Disapproved	BUILDING			
[ ]	[ ]	Footing [ ]		Foundation	[ ]
[ ]	[ ]	Rough In [ ]		Sheetrock	[ ]
[ ]	[ ]		Final		
[ ]	[ ]	Other _____			

Approved	Disapproved	PLUMBING			
[ ]	[ ]	Sewer [ ]		Gas	[ ]
[ ]	[ ]	Rough In [ ]		Under Slab	[ ]
[ ]	[ ]		Final		
[ ]	[ ]	Other _____			

Approved	Disapproved	HVAC			
[ ]	[ ]	Rough In [ ]		Change Out	[ ]
[ ]	[ ]	Fireplace [ ]		Wood Stove	[ ]
[ ]	[ ]		Final		
[ ]	[ ]	Other _____			

Approved	Disapproved	ELECTRICAL			
[ ]	[ ]	Rough In [ ]		Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]		Final		
[ ]	[ ]	Other _____			

Comments:

* COVER MISSING ABOVE PANEL, OTHER AREAS
* WATER GROUND REQUIRED FOR FINAL OCCUPANCY

6-10-21
Date

9:00 AM
Time

Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NEW LAUREL ACC

Contractor MAMMOTH Phone # _____

Application # 8535 Inspection ID # 19642-21265

Approved	Disapproved					
		BUILDING				
[ ]	[ ]	Footing	[ ]	Foundation	[ ]	
[ ]	[ ]	Rough In	[ ]	Sheetrock	[ ]	
[ ]	[ ]			Final		
[ ]	[ ]	Other				
Approved	Disapproved	**PLUMBING**				
[ ]	[ ]	Sewer	[ ]	Gas	[ ]	
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]	
[ ]	[ ]			Final		
[ ]	[ ]	Other				
Approved	Disapproved	**HVAC**				
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]	
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]	
[ ]	[ ]			Final		
[ ]	[ ]	Other				
Approved	Disapproved	**ELECTRICAL**				
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]	
[ ]	[ ]	Service				
[ ]	[ ]			Final		
[ ]	[ ]	Other				

Comments:

① CLEAN-UP SITE & CLEAN STREETS/GUTTERS.

OK FOR TCO FOR EQUIPMENT & SUPPLIES.

6/16/21
Date

2:30
Time

MARK
Inspector

CITY OF LEAVENWORTH, KANSAS
BUILDING INSPECTION DEPARTMENT
PHONE: (913) 684-0378

Address 3601 NE LAWRENCE RD

Contractor _____ Phone # _____

Application # _____ Inspection ID # _____

BUILDING

Approved	Disapproved				
[ ]	[ ]	Footing	[ ]	Foundation	[ ]
[X]	[ ]	Rough In	[ ]	Sheetrock	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

PLUMBING

Approved	Disapproved				
[ ]	[ ]	Sewer	[ ]	Gas	[ ]
[ ]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

HVAC

Approved	Disapproved				
[ ]	[ ]	Rough In	[ ]	Change Out	[ ]
[ ]	[ ]	Fireplace	[ ]	Wood Stove	[ ]
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

ELECTRICAL

Approved	Disapproved				
[X]	[ ]	Rough In	[ ]	Under Slab	[ ]
[ ]	[ ]	Service _____			
[ ]	[ ]	Final			
[ ]	[ ]	Other _____			

Comments: _____

7-27-21
Date

Time

Inspector