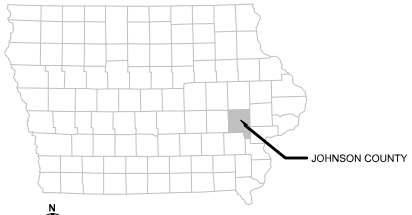
ATTACHMENT 3

PHASE 1 BID DRAWINGS



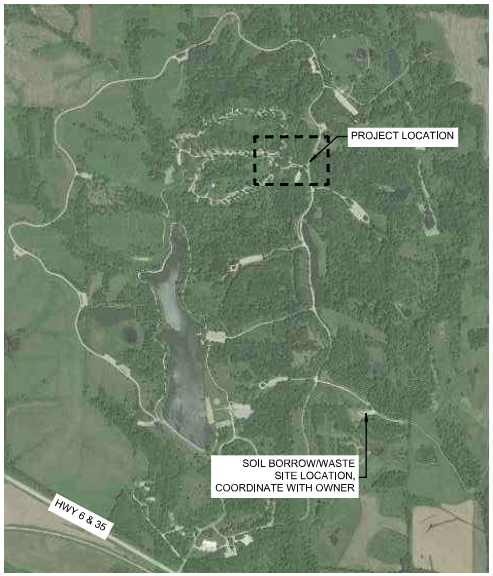
IOWA LOCATION MAP
NOT TO SCALE

F.W. KENT PARK
CAMPGROUND SITE AND UTILITY IMPROVEMENTS

JOHNSON COUNTY CONSERVATION BOARD

2048 HIGHWAY 6 NW OXFORD, IOWA 52322

JOHNSON COUNTY



SHEET INDEX

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS GENERAL SUPPLEMENTAL SPECIFICATIONS; AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS, SHALL APPLY TO THE CONSTRUCTION OF THIS PROJECT.

CERTIFICATIONS

CIVIL ENGINEER

DANIEL J. JENSEN 25063 LICENSED PROFESSIONAL ENGINEER IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE — DATE: 01-18-2024

PRINTED OR TYPED NAME: Daniel Jensen

LICENSE NUMBER: 25063

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: ALL "A", "B", "C", "D", "EC", "F", "G", AND "K" SHEETS; M1.01, M1.04, M1.05, MS1.01 - MS1.07, R1.01, "S" SHEETS, "J" SHEETS

LANDSCAPE ARCHITECT

GARRET J. MUNCH PLA1179 REGISTERED LANDSCAPE ARCHITECT IOWA

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

GARRET MUNCH
PRINTED OR TYPED NAME OR SECURE ELECTRONIC SIGNATURE

SIGNATURE — DATE: 01-18-2024

PAGES OR SHEETS COVERED BY THIS SEAL: ALL "T" SHEETS

License Expires: 06/30/2025

CIVIL ENGINEER

JAMES A. CARROLL 11328 LICENSED PROFESSIONAL ENGINEER IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE — DATE: 01-18-2024

PRINTED OR TYPED NAME: James A. Carroll

LICENSE NUMBER: 11328

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: ALL "MS" SHEETS EXCEPT MS1.09 AND MS1.10

ELECTRICAL ENGINEER

LON D. BROMOLSON 25784 LICENSED PROFESSIONAL ENGINEER IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE — DATE: 01-18-2024

PRINTED OR TYPED NAME: Lon Bromolson

LICENSE NUMBER: P25784

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: Z1.05, Z1.06

ELECTRICAL ENGINEER

MATTHEW K GORDON 19216 LICENSED PROFESSIONAL ENGINEER IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE — DATE: 01-18-2024

PRINTED OR TYPED NAME: Matthew K. Gordon

LICENSE NUMBER: 19216

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2024

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: M1.02, M1.03, MS1.09, MS1.10, R1.02, R1.03

MODUS
WATERLOO | DES MOINES | IOWA CITY

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

GENERAL NOTES

1. UTILITY NOTE:
   A. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION OF EXISTENCE OF, AND THE DETERMINATION OF THE EXACT LOCATION OF, UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).
   B. SOME UTILITIES HAVE BEEN DISCONNECTED BY OWNER AND ABANDONED IN PLACE. REFER TO R-SHEETS FOR UTILITIES TO BE DISCONNECTED AND ABANDONED IN PLACE BY THE CONTRACTOR.
   C. IF ABANDONED UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, NOTIFY THE OWNER AND ENGINEER PRIOR TO RESUMING CONSTRUCTION.
2. NOTIFY UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
4. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
5. NOTIFY THE APPROPRIATE GOVERNING AUTHORITY 48 - 72 HOURS PRIOR TO BEGINNING CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY. JOHNSON COUNTY CONSERVATION SHALL BE THE PUBLIC AGENCY RESPONSIBLE FOR INSPECTION DURING CONSTRUCTION OF THE PUBLIC PORTIONS OF THE PROJECT.
6. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
7. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
8. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK.
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
10. PROVIDE TRAFFIC AND PEDESTRIAN CONTROL MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) IN COMPLIANCE WITH PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION.
11. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
12. MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
13. ADJUST ALL VALVES, MANHOLES, CASTINGS, GAS VENTS, ETC., TO MATCH THE NEW SURFACE. ADJUSTMENT SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND THE COST FOR ALL ADJUSTMENTS SHALL BE INCIDENTAL TO THE CONSTRUCTION. AT NO ADDITIONAL COST TO THE OWNER, REPAIR ANY DAMAGE TO SAID STRUCTURES AND APPURTENANCES THAT OCCUR DURING CONSTRUCTION.
14. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES.
15. ALL OPEN EXCAVATIONS SHALL BE PROTECTED.
16. REPLACE ANY PROPERTY MONUMENTS REMOVED OR DESTROYED BY CONSTRUCTION. MONUMENTS SHALL BE SET BY A LAND SURVEYOR REGISTERED TO PRACTICE IN THE STATE OF IOWA.
17. CONSTRUCTION ACTIVITIES ARE TO BE LIMITED TO THE EXISTING RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS. IF ADDITIONAL AREAS ARE NEEDED FOR STAGING, STORAGE, ETC., IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER(S). COPIES OF THE AGREEMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE PRIOR TO THE USE OF PROPERTY.
18. CONTROL DUST SPREADING FROM ALL WORK AND STAGING AREAS.
19. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SET FORTH AS A SPECIFIC BID ITEM, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THE COMPLETION OF THIS WORK.
20. REPAIR OR REPLACE EXISTING FACILITIES (CURBS, PAVEMENT, UTILITIES, ETC.) TO REMAIN, AT NO ADDITIONAL EXPENSE TO THE OWNER.
21. IT IS INTENDED THAT ALL COSTS OF MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS BE PAID FOR UNDER THE ITEMS LISTED ON THE BIDDER'S PROPOSAL. BEFORE SUBMITTING A BID ON THIS PROJECT, THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, SPECIAL PROVISIONS AND THE JOB SITE. IF ANY DISCREPANCIES OR DELETIONS OCCUR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPORT SAME TO SHIVE-HATTERY, INC. IN WRITING AND OBTAIN WRITTEN CLARIFICATION AND/OR INSTRUCTIONS ON HOW TO PROCEED.
22. WORK WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE CONTRACT WILL BE CONSIDERED UNACCEPTABLE. UNACCEPTABLE WORK, WHETHER THE RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE MATERIALS, DAMAGE THROUGH CARELESSNESS OR ANY OTHER CAUSE, FOUND TO EXIST PRIOR TO THE FINAL ACCEPTANCE OF THE WORK, SHALL BE REMOVED AND REPLACED IN AN ACCEPTABLE MANNER, AS REQUIRED BY SHIVE-HATTERY, INC, AT THE CONTRACTOR'S EXPENSE. WORK DONE CONTRARY TO THE INSTRUCTIONS OF SHIVE-HATTERY, INC., WORK DONE BEYOND THE LINES SHOWN ON THE PLANS OR ANY EXTRA WORK DONE WITHOUT AUTHORITY WILL NOT BE PAID FOR.
23. THE CONTRACTOR SHALL PROTECT ALL TREES SHOWN TO BE SAVED ON THE PLANS. CONTRACTOR SHALL ERECT FENCING AROUND TREE AT THE DRIP LINE, UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR PARK OR TRAVEL WITH ANY VEHICLE UNDER THE TREE DRIP LINE.

LEGEND
EXISTING GENERAL SITE

PLAN MARK	DESCRIPTION
	EXISTING STRUCTURE
	BOLLARD
	SHRUB
	DECIDUOUS TREE
	CONIFEROUS TREE
	SINGLE POLE SIGN
	DOUBLE POLE SIGN
	TREE LINE
621	MINOR CONTOUR
620	MAJOR CONTOUR

LEGEND
UTILITY LINES

EXISTING LINE TYPE	DESCRIPTION	PROPOSED LINE TYPE
OE	ELECTRIC - OVERHEAD	OE
E	ELECTRIC - UNDERGROUND	E
G	GAS MAIN	G
W	WATER MAIN	W
	SANITARY SEWER	
	STORM SEWER	
T	TELEPHONE - UNDERGROUND	T
FO	FIBER OPTICS	FO
HV	HIGH VOLTAGE ELECTRICAL	HV
LV	LOW VOLTAGE ELECTRICAL	LV

LEGEND
UTILITIES

PLAN MARK	DESCRIPTION
W	WATER IRRIGATION VALVE
	UTILITY POLE W/TRANSFORMER
	SIREN POLE
	WATER SHUTOFF VALVE
	GUY ANCHOR
	FIRE HYDRANT
	FLARED END SECTION
	VALVE
	STOP BOX
C	CABLE TV PEDESTAL
	CLEANOUT
J	JUNCTION BOX
MH	MANHOLE
D	STORM MANHOLE
E	ELECTRICAL MANHOLE
S	SANITARY MANHOLE
T	TELEPHONE MANHOLE
T	TELEPHONE PEDESTAL
V	VAULT BOX
HH	HANDHOLE
S	SIGNAL BOX
G	GAS METER
E	ELECTRIC METER
W	WATER METER
	CURB INLET
	INTAKE - CIRCLE
	INTAKE - RECTANGLE
	INTAKE - SQUARE

LEGEND
RIGHT-OF-WAY

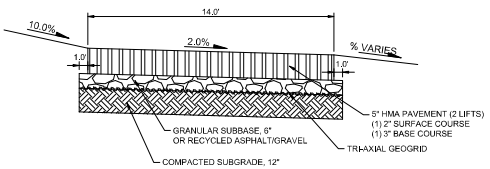
PLAN MARK	DESCRIPTION
ROW	PROPOSED RIGHT-OF-WAY
ROW	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	TEMPORARY EASMENT
	PROPOSED EASEMENT

LEGEND
SURVEY

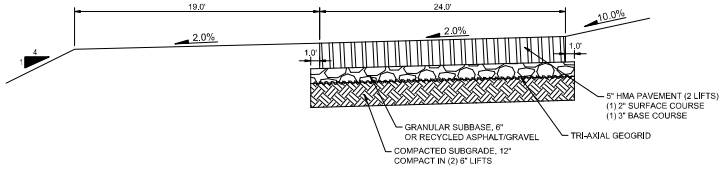
PLAN MARK	DESCRIPTION
BM	BENCH MARK
	BOUND
	IRON ROD - FOUND
	IRON ROD - SET
	MONUMENT FOUND
	MONUMENT SET
	X CUT FOUND
	X CUT SET
	RIGHT OF WAY MARKER
	DRILL HOLE
	STATION MARKER
	SOIL BORING
	PROPERTY CORNER
TOP	SURVEY POINT ELEVATION

LEGEND
GENERAL SITE GRADING / EROSION CONTROL

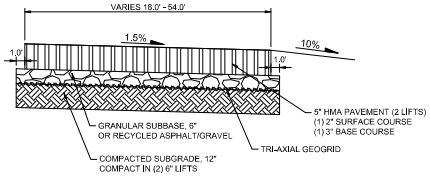
PLAN MARK	DESCRIPTION
2%	SLOPE ARROW
	FLOW ARROW
	SILT FENCE
	INLET PROTECTION
	COMPOST SOCK
	GRADING LIMITS



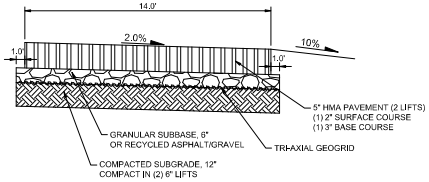
1 TYPICAL ROADWAY SECTION - LOOP ALIGNMENT
NO SCALE



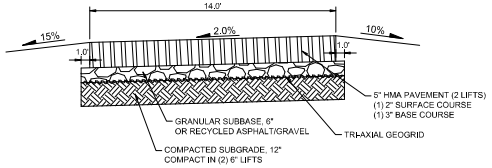
2 TYPICAL ROADWAY SECTION - MAIN ENTRANCE ALIGNMENT
NO SCALE



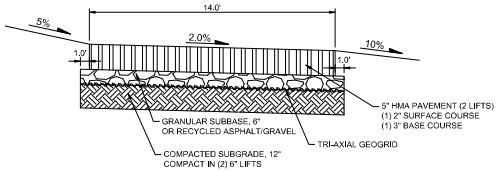
3 TYPICAL ROADWAY SECTION - PARKING ALIGNMENT
NO SCALE



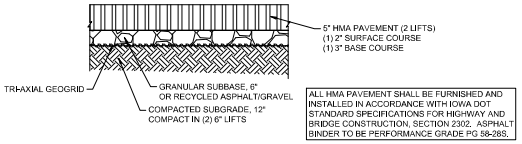
4 TYPICAL ROADWAY SECTION - CAMPING ENTRANCE ALIGNMENT
NO SCALE



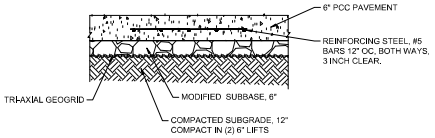
5 TYPICAL ROADWAY SECTION - CAMP CIRCULATORY ALIGNMENT
NO SCALE



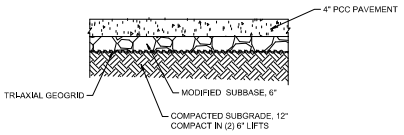
6 TYPICAL ROADWAY SECTION - CAMPING EXIT ALIGNMENT
NO SCALE



7 TYPICAL ASPHALT SECTION
NO SCALE

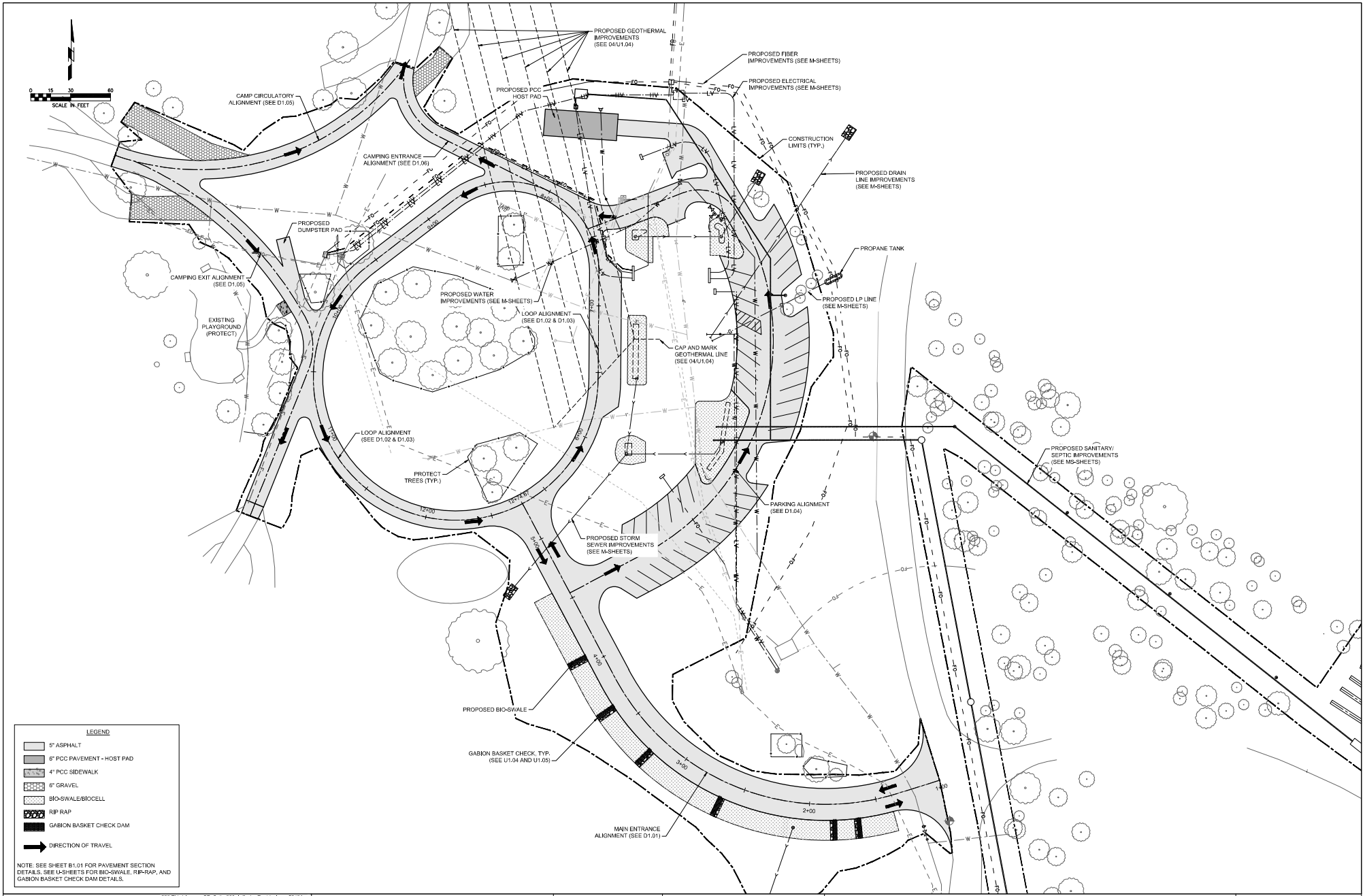


8 PCC HOST PAD SECTION
NO SCALE



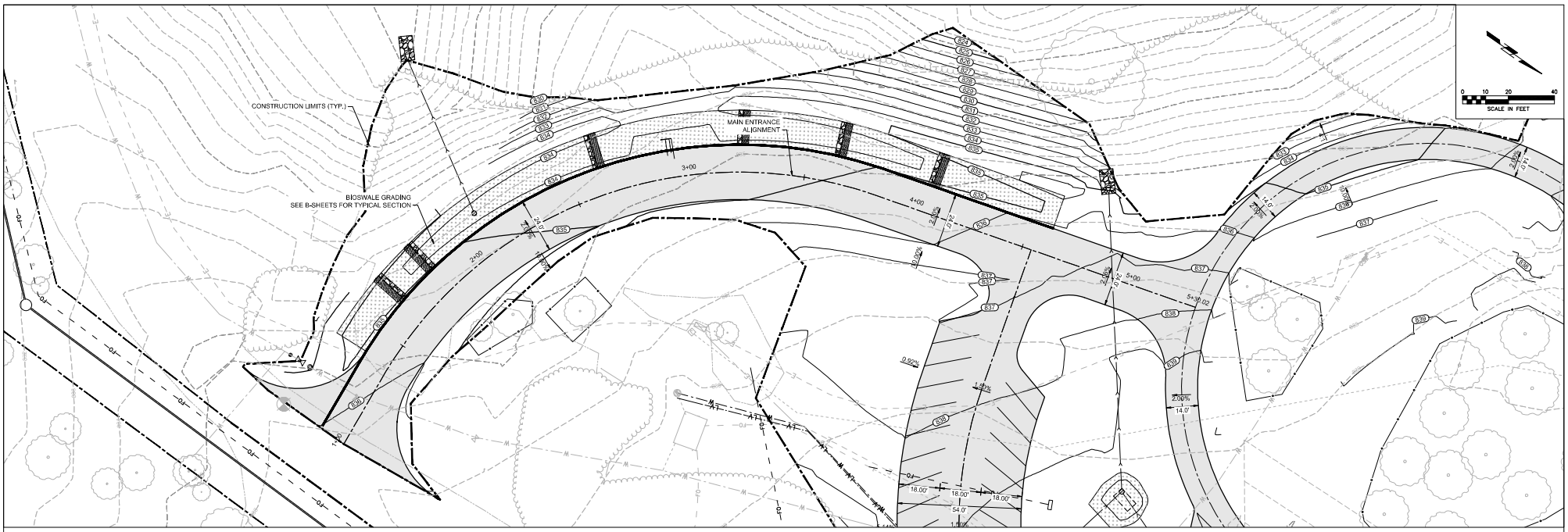
9 PCC SIDEWALK SECTION
NO SCALE

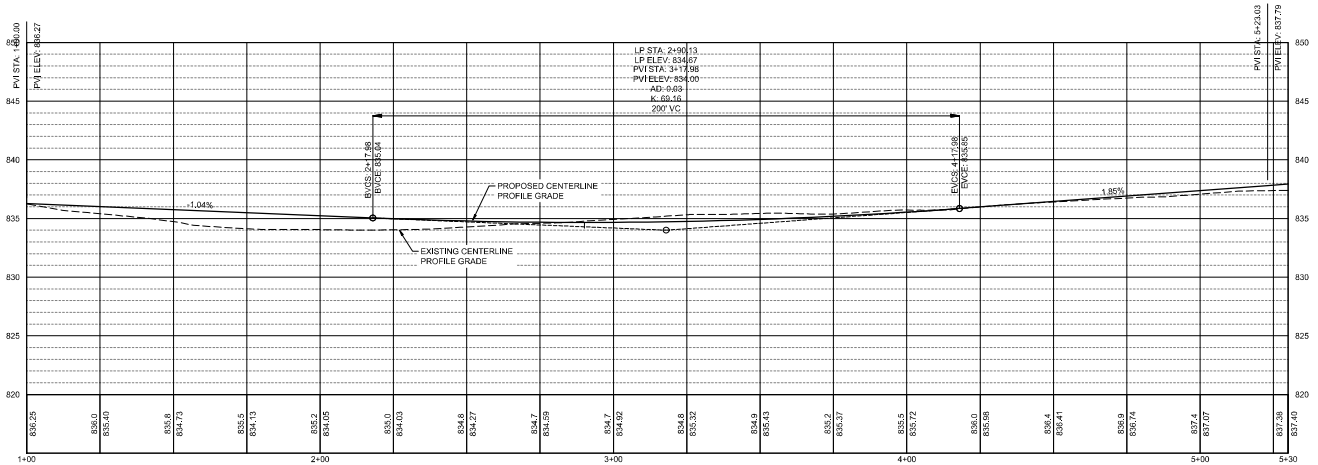
NOTE: CONTRACTOR SHALL REUSE SUITABLE EXISTING SEAL COAT AND GRAVEL REMOVED AND STRIPPED FROM THE SITE (SEE DEMOLITION PLAN) AS GRANULAR SUBBASE FOR THE NEW ASPHALT. IT IS ESTIMATED THAT APPROXIMATELY 4" OF EXISTING MATERIAL STRIPPED WILL BE SALVAGED AND REUSED (APPROXIMATELY 550 CY). ADDITIONAL VIRGIN MATERIAL MAY BE REQUIRED TO SUPPLEMENT RECYCLED MATERIAL. HOWEVER CONTRACTOR SHOULD FIRST REUSE ALL SALVAGED MATERIAL. THE SALVAGE AND REUSE OF APPROXIMATELY 550 CY OF MATERIAL SHOULD BE INCORPORATED INTO THE GRANULAR SUBBASE BID ITEM.



SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: OVERALL SITE PLAN | SHEET NO.: C1.01



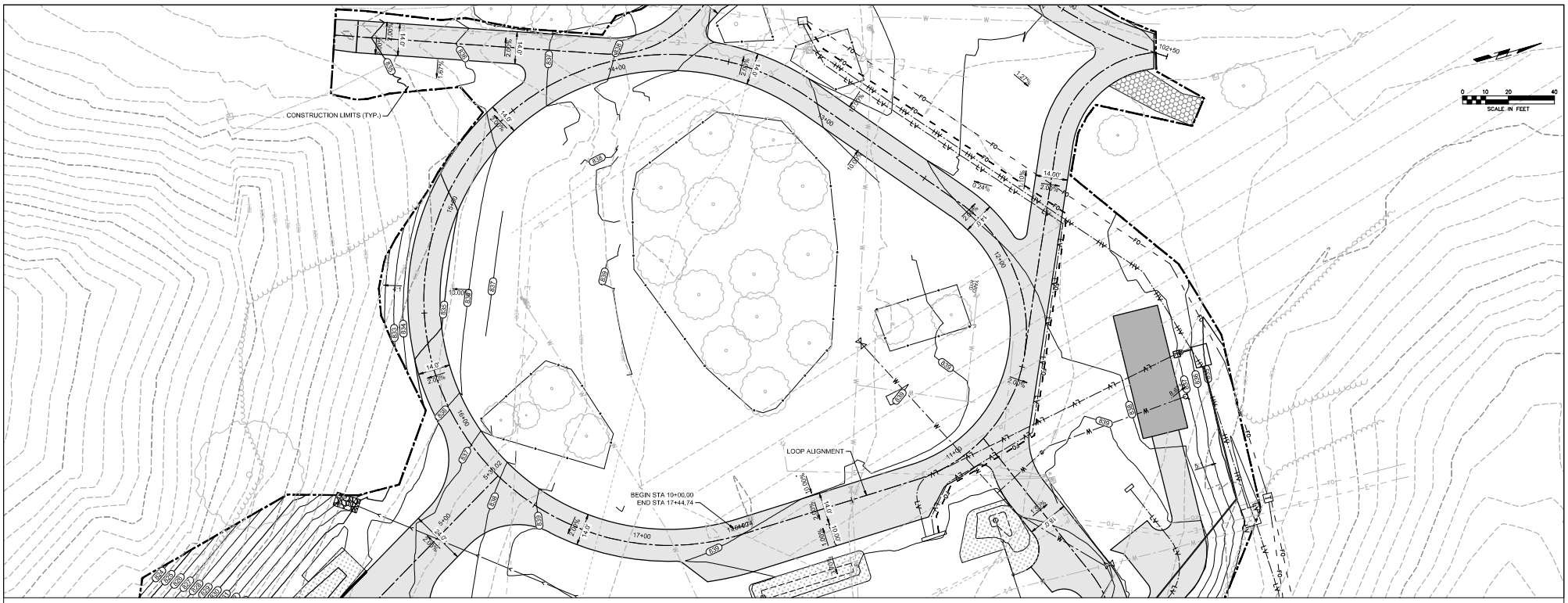


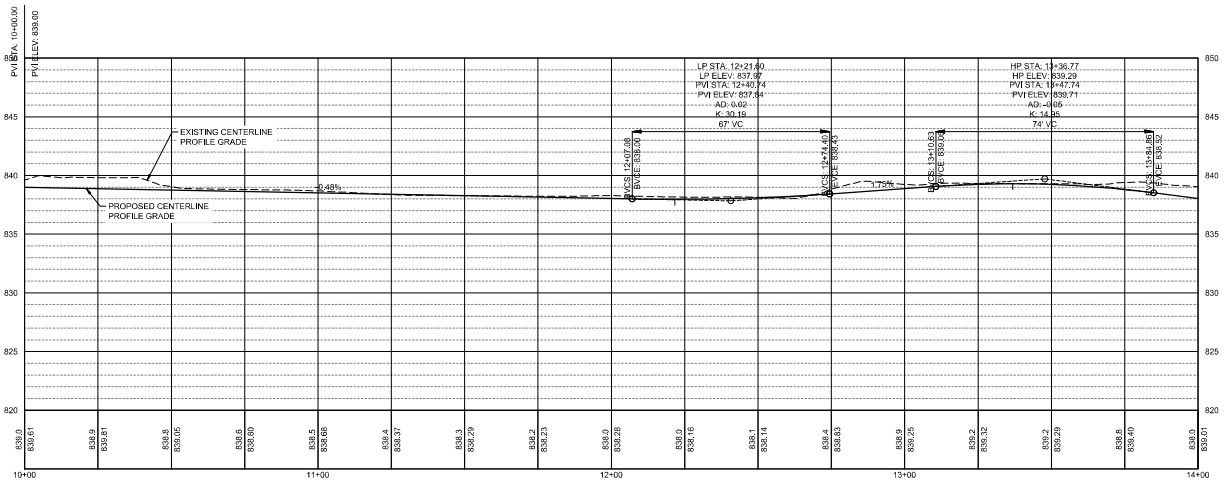
1 Main Entrance Section
H: 1" = 20' V: 1" = 5'

LEGEND
5" ASPHALT (SEE SHEET B1.01)

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.01



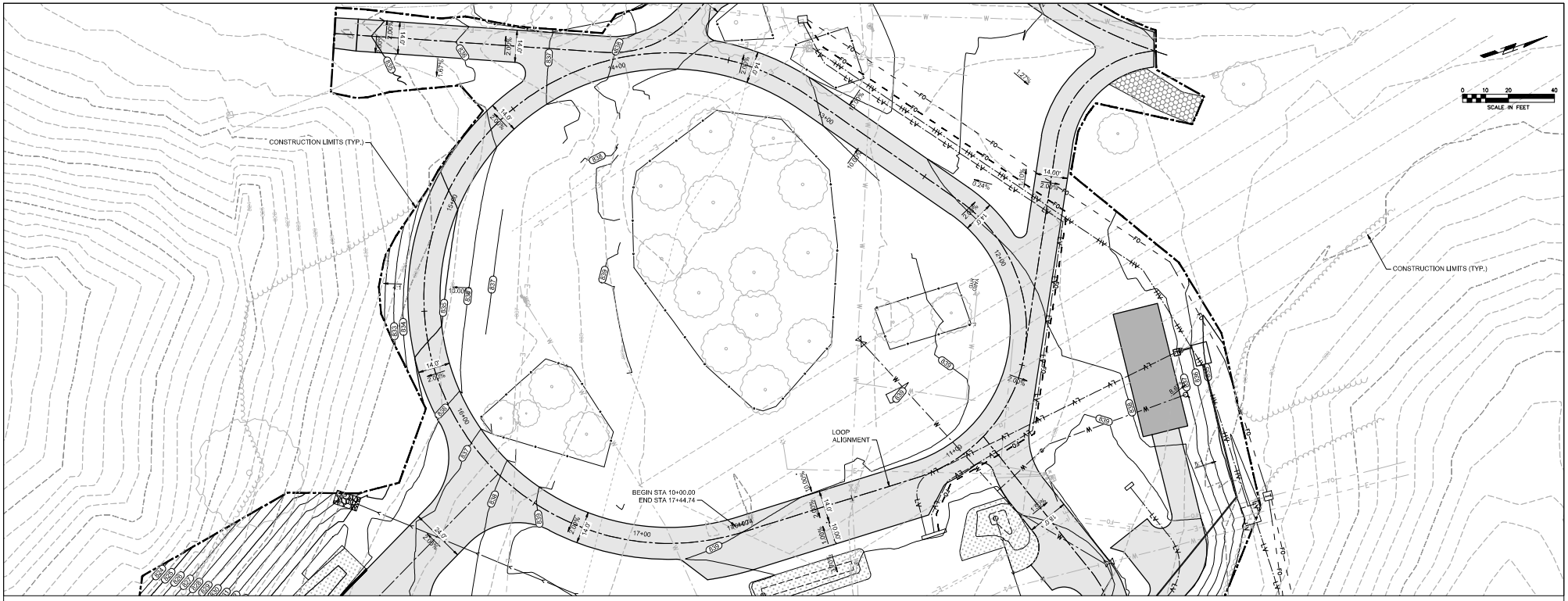


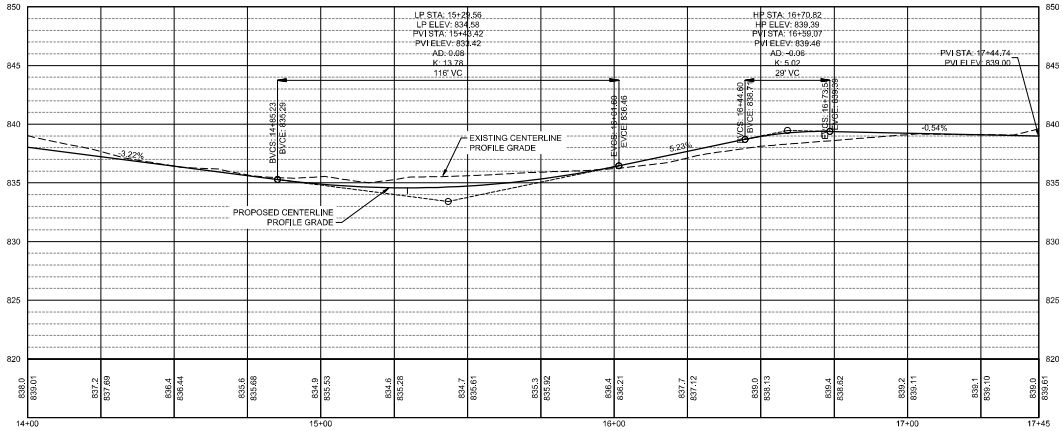
2 Main Loop Section 1
H: 1" = 20' V: 1" = 5'

LEGEND
5" ASPHALT (SEE SHEET B1.01)

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: MAINLINE PLAN & PROFILE | SHEET NO.: D1.02



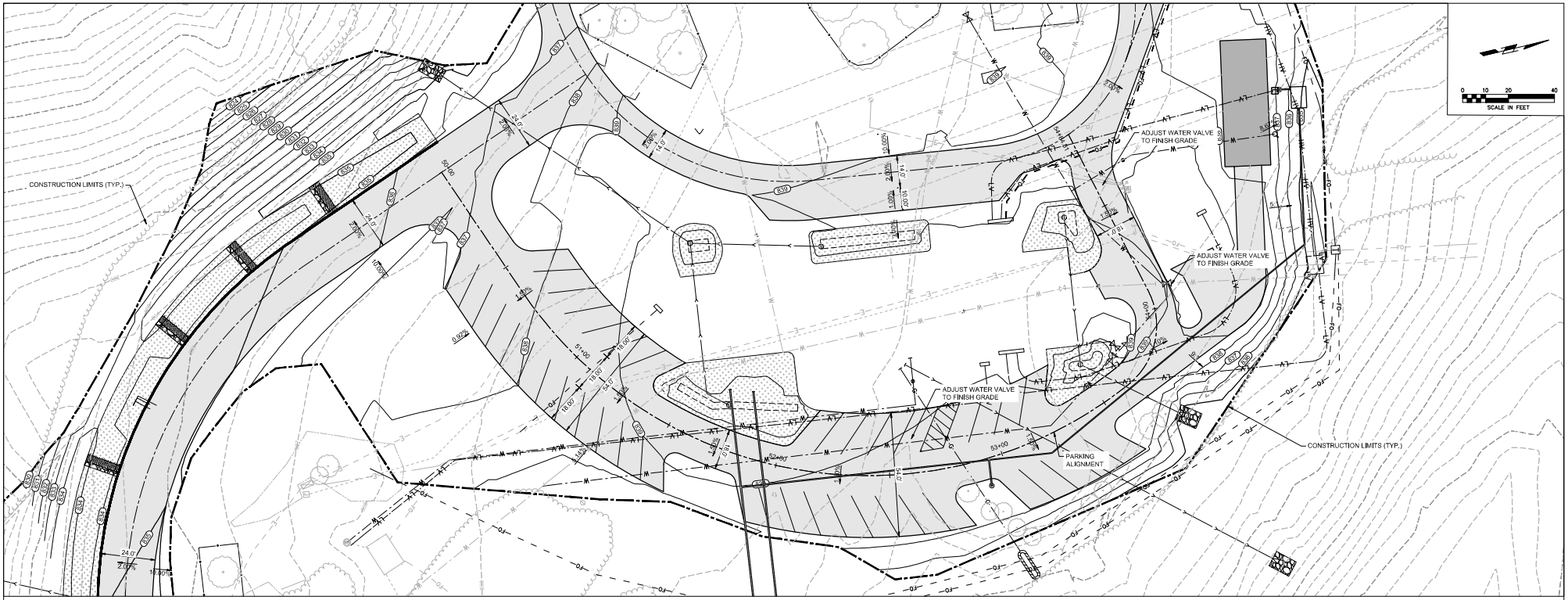


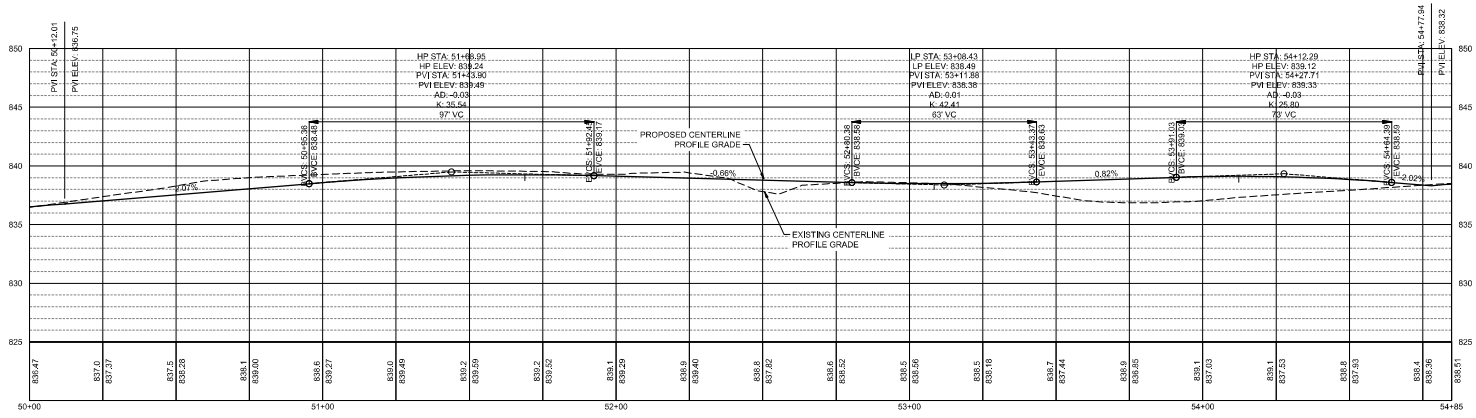
LEGEND

5" ASPHALT (SEE SHEET B1.01)

3 Main Loop Section 2

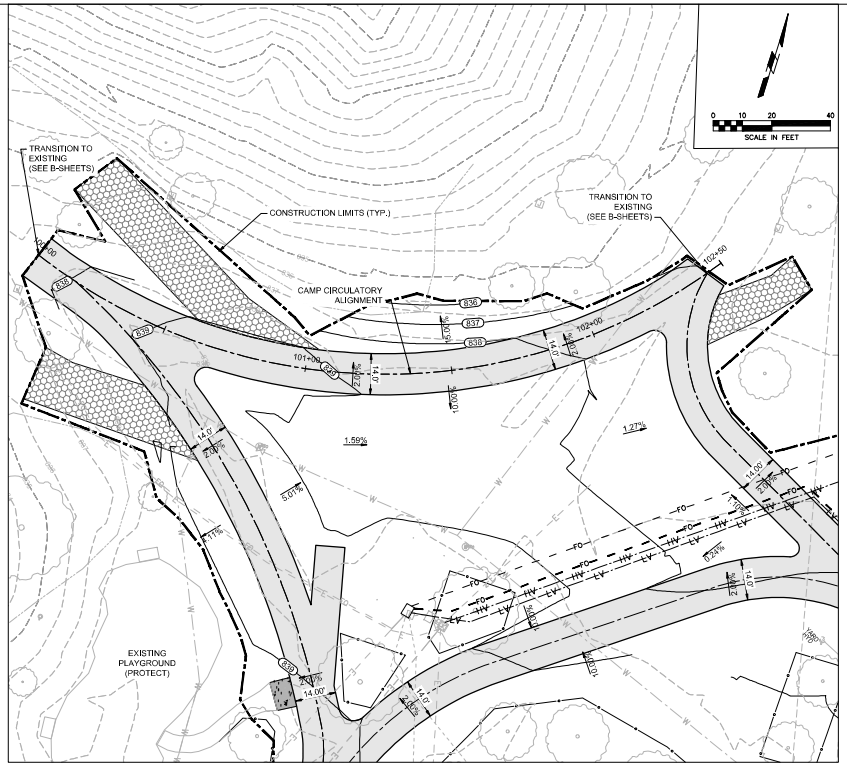
H: 1" = 20' V: 1" = 5'

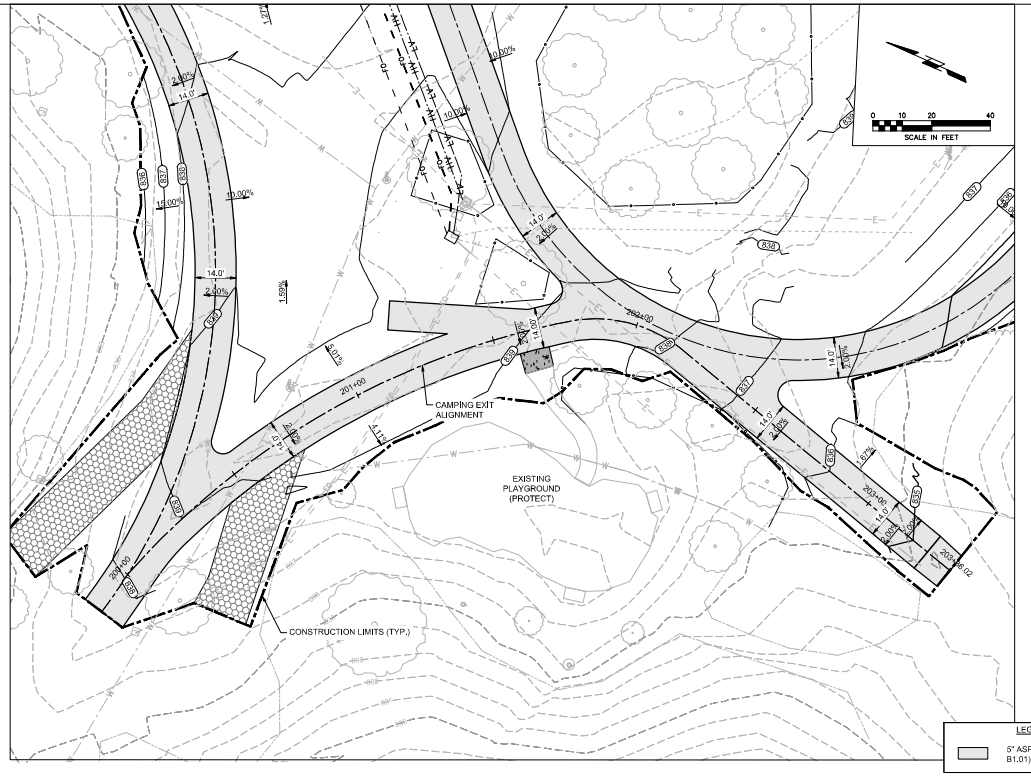


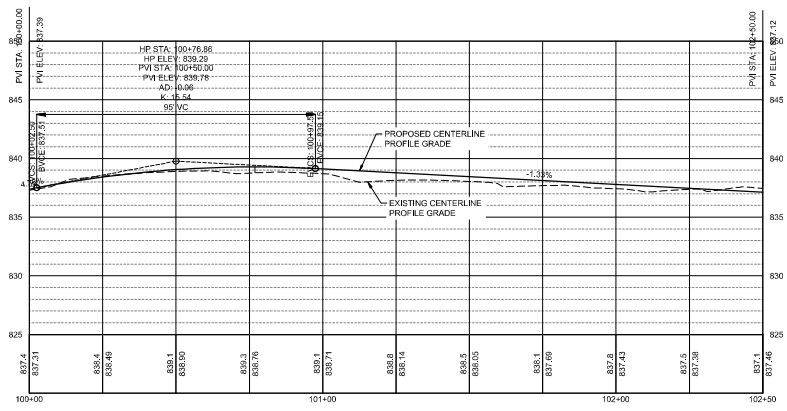


4 Parking Lot Section
H: 1" = 20' V: 1" = 5'

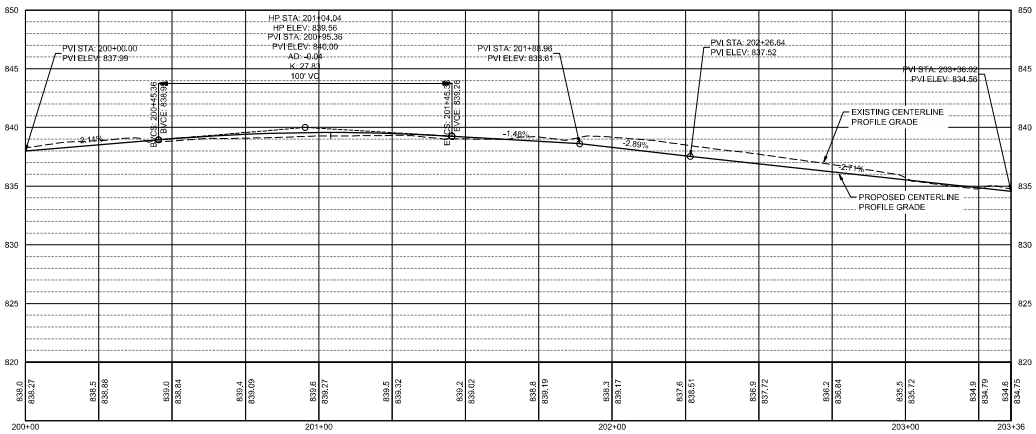
LEGEND
5" ASPHALT (SEE SHEET B1.01)



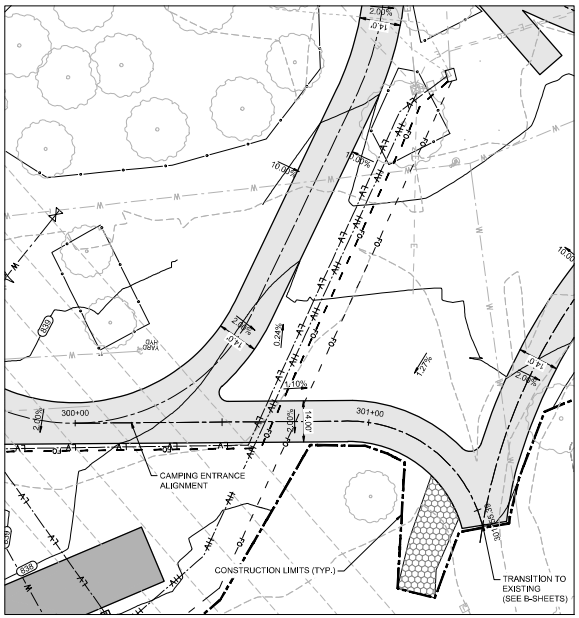


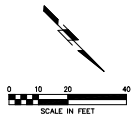


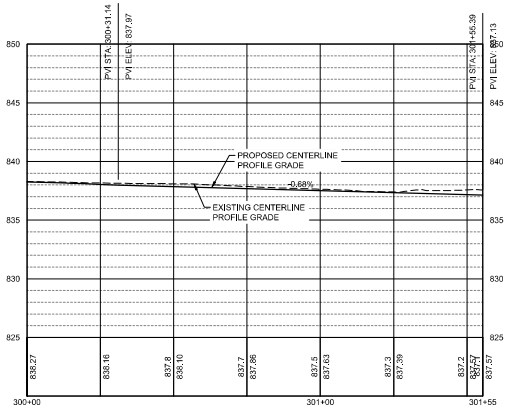
5 Camp Circulatory Section
H: 1" = 20' V: 1" = 5'



6 Camping Exit Section
H: 1" = 20' V: 1" = 5'

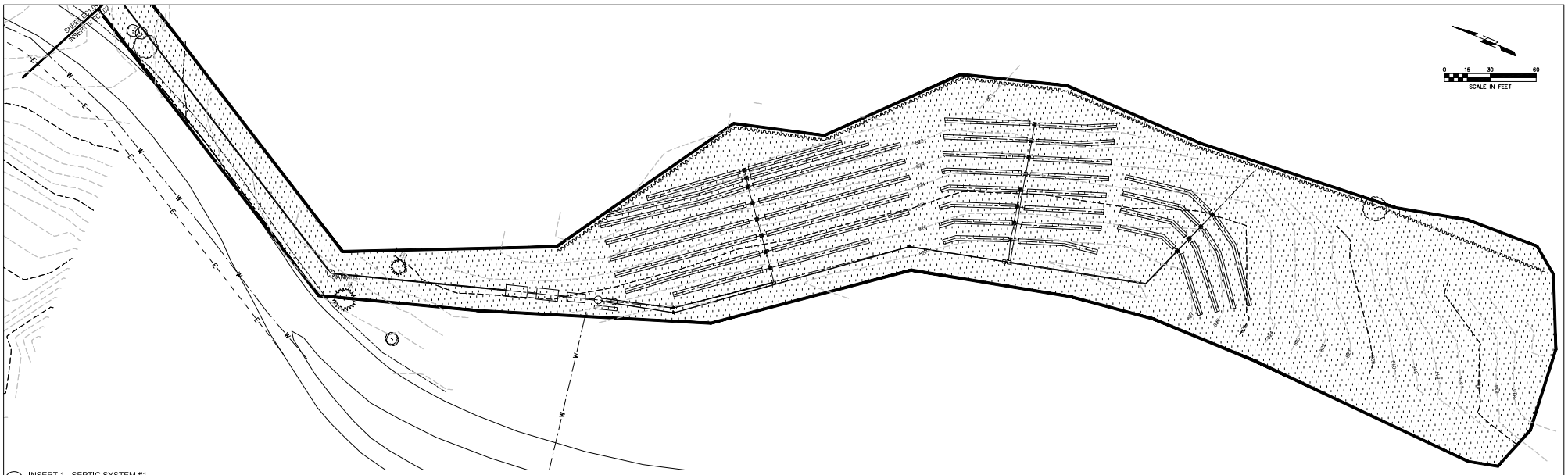






7 Camping Entrance Section
H: 1" = 20' V: 1" = 5'

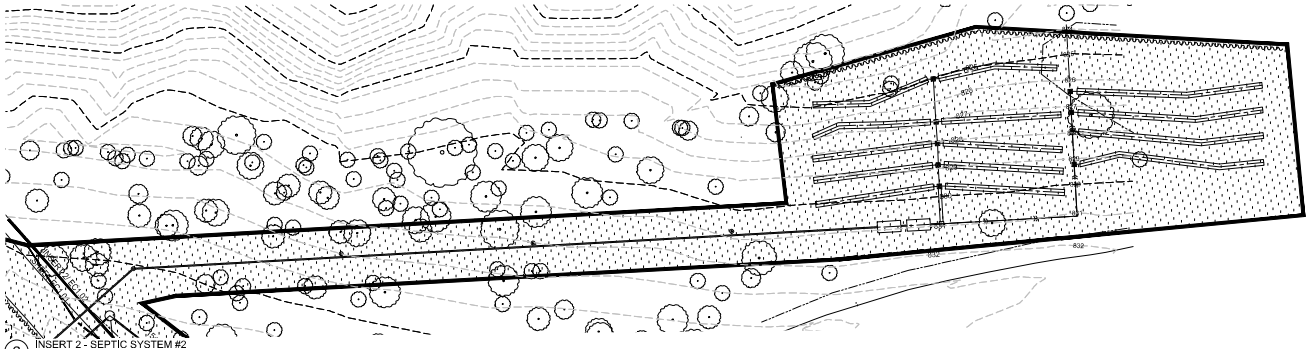
LEGEND
5" ASPHALT (SEE SHEET B1.01)



1 INSERT 1 - SEPTIC SYSTEM #1
1" = 30'

LEGEND

- PROJECT SITE/DISTURBED AREA
- INLET PROTECTION
- SILT FENCE SUDAS 9040.119 OR FILTER SOCKS SUDAS 9040.102 SHALL HAVE 'J' HOOKS AT MINIMUM 50' INCREMENTS
- STABILIZED CONSTRUCTION ENTRANCE/ EXIT SEE SUDAS 9040.120
- CONTRACTOR STAGING AREA FOR PORTABLE RESTROOM FACILITIES, TEMPORARY FUEL TANKS, WASTE CONTAINERS AND OTHER HAZARDOUS CHEMICALS. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- TEMPORARY TOPSOIL STOCKPILE
- AMERICAN EXCELSIOR COMPANY CURLEX NETFREE TEMPORARY ROLLED EROSION CONTROL PRODUCT
- CONCRETE, PAINT, AND GROUT WASHOUT AREA PER SUDAS SECT 11.050. CONTRACTOR TO HAUL OFF WASTE MATERIAL SUGGESTED LOCATION. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- SPILL KIT TO BE INSTALLED AND RELOCATED AS REQUIRED FOR CONSTRUCTION
- PORTABLE RESTROOM FACILITY LOCATION
- SWPPP DOCUMENT LOCATION
- EXISTING GRADE
- DIRECTION OF DRAINAGE



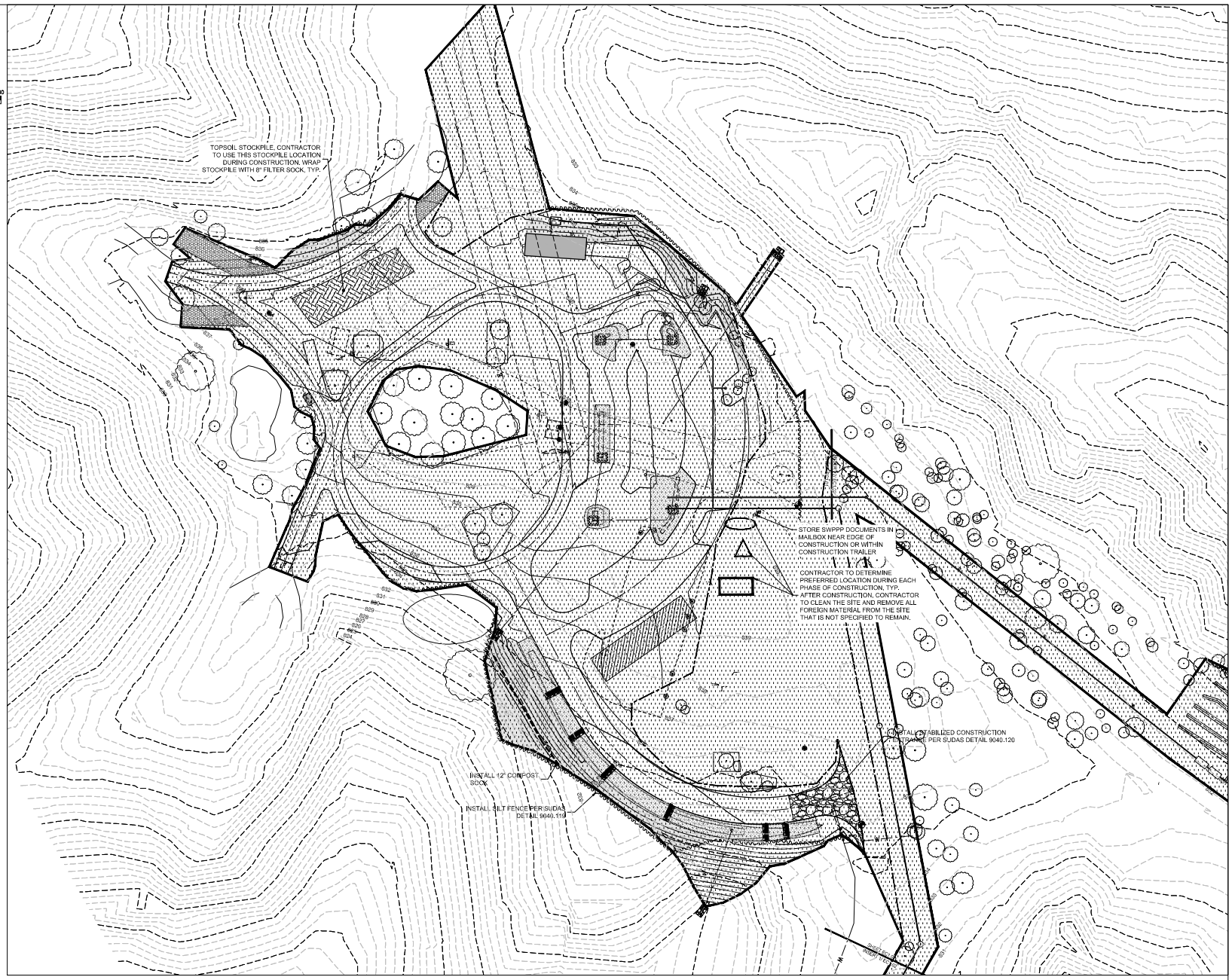
2 INSERT 2 - SEPTIC SYSTEM #2
1" = 30'

STORMWATER POLLUTION PREVENTION NOTES

1. EROSION/ SEDIMENTATION CONTROL MEASURES SHOULD BE INSTALLED BEFORE EARTH DISTURBING ACTIVITIES BEGIN AND ARE REQUIRED REGARDLESS OF THE TIME OF YEAR. THIS PLAN AND IT'S ASSOCIATED REQUIREMENTS FOR THE PERMIT MUST BE IMPLEMENTED DURING WINTER MONTHS AS WELL.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION/SEDIMENTATION ON THE SITE AT ALL TIMES. THE CONTROL MEASURES SHOWN ON THE PLAN ARE A MINIMUM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION/SEDIMENTATION CONTROL MEASURES AS NECESSARY TO FULFILL THIS REQUIREMENT. CONTRACTOR IS REQUIRED TO MAINTAIN SWPPP DOCUMENTATION.
3. THE CONTRACTOR IS REQUIRED TO USE STABILIZATION CONTROLS FOR AREAS THAT WILL NOT BE REDISTURBED FOR 14 DAYS OR MORE. STABILIZATION MEASURES WILL BE IMPLEMENTED IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS CEASED IN THAT AREA. STABILIZATION MEASURES ARE REQUIRED TO PREVENT BOTH SEDIMENTATION AND EROSION. THE CONTRACTOR IS STRONGLY ENCOURAGED TO PROVIDE STABILIZATION CONTROLS FOR ALL DISTURBED AREAS ON SITE REGARDLESS OF THE TIME PERIOD BEFORE THEY WILL BE DISTURBED AGAIN. THE CONTRACTOR SHALL SEED DISTURBED AREAS AS SOON AS WORK IS COMPLETED AS INDICATED ON THE PLANS AND PROJECT MANUAL.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES AS REQUIRED TO KEEP SOILS FROM LEAVING THE SITE.
5. CONTRACTOR SHALL IMPLEMENT SITE SPECIFIC BEST MANAGEMENT PRACTICES (BMPS) AS SHOWN AND REQUIRED BY THE SWPPP/SESC. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED BY THE CONTRACTOR AS DICTATED BY SITE CONDITIONS OR THE PROJECT GOVERNING AUTHORITIES AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
6. IF AFTER REPEATED FAILURE ON THE PART OF THE CONTRACTOR TO PROPERLY CONTROL SOIL EROSION, SEDIMENT AND/OR POLLUTION FROM THE PROJECT SITE, THE GOVERNING AUTHORITIES RESERVE THE RIGHT TO EFFECT NECESSARY CORRECTIVE MEASURES AND CHARGE ANY COSTS TO THE CONTRACTOR.
7. ALL BMPS AND CONTROLS SHALL CONFORM TO THE APPLICABLE FEDERAL, STATE, OR LOCAL REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OR MANUAL OF PRACTICE.
8. ALL BMPS AND CONTROLS INSTALLED ON GREEN INFRASTRUCTURE SHALL REMAIN UNTIL STABILIZATION IS APPROVED BY THE OWNER.
9. IN THE EVENT THAT SOILS LEAVE THE SITE, CLEANUP OF ALL SURROUNDING ROADS, DRIVES, AND PARKING LOTS SHALL BE PERFORMED ON A DAILY BASIS AT A MINIMUM AND UPON REQUEST BY OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST. PAVEMENT IS TO BE SCRAPED OF DEBRIS AND MUD AND BROOMED CLEAN. MUD TRACKS ARE TO BE REMOVED AS THEY ARE CREATED.
10. IF DURING CONSTRUCTION OPERATIONS ANY LOOSE MATERIALS ARE DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, OR DITCHES SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THIS LOOSE MATERIAL SHALL BE REMOVED.
11. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY EXISTING STORM DRAINAGE SYSTEMS BY THE USE OF INLET PROTECTION OR OTHER APPROVED FUNCTIONAL METHODS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT RESULTING FROM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
12. CONSTRUCTION ACCESS POINTS TO THE SITE SHALL BE PROTECTED IN SUCH A WAY AS TO PREVENT TRACKING OF MUD OR SOIL ONTO PUBLIC THOROUGHFARES. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
13. MAINTAIN SILT FENCING AT ALL TIMES IN AN UPRIGHT POSITION. CLEAN SILT FROM FENCING ON A REGULAR BASIS AS PER THE STANDARD SPECIFICATIONS. SILT FENCES MUST BE CLEANED OUT WHEN THEY ARE 50% FULL.
14. CONTRACTOR TO LOCATE/ RELOCATE SILT FENCING/ FILTER SOCKS AS NECESSARY THROUGHOUT THE PROJECT TO CONTROL EROSION/SEDIMENTATION. SILT FENCE INSTALLATION IS TO FOLLOW SUDAS 9040.119. FILTER SOCK INSTALLATION IS TO FOLLOW SUDAS 9040.102.
15. REMOVE ALL TEMPORARY EROSION/SEDIMENTATION CONTROLS NOT CALLED OUT TO REMAIN AFTER SITE HAS BEEN STABILIZED AND APPROVED BY THE OWNER'S REPRESENTATIVE. OWNER WILL REMOVE SILT FENCE AFTER SITE HAS STABILIZED.
16. CONTRACTOR TO USE EXTREME CAUTION WHILE INSTALLING SILT FENCE OR OTHER EROSION CONTROL DEVICES SO AS NOT TO DAMAGE UNDERGROUND UTILITIES.
17. EROSION CONTROL BLANKETS SHALL BE USED IN AREAS OF 4:1 SLOPE OR STEEPER AND ANY AREAS STABILIZED IN THE FALL FOR OVERWINTERING. OWNER WILL FURNISH AND INSTALL ALL EROSION CONTROL BLANKET AND SEEDING AFTER THE SITE IS FINAL GRADED AND SEEDED. OWNER WILL SEED ALL COVER CROPS AND PERMANENT VEGETATION.
18. SANITARY WASTE DISPOSAL: PORTABLE REST ROOM FACILITIES ARE ANTICIPATED TO BE PLACED ON-SITE. IN THE EVENT THAT PORTABLE REST ROOM FACILITIES ARE USED ON-SITE, THE CONTRACTOR IS REQUIRED TO INSTALL AN EROSION CONTROL DEVICE AROUND THE FACILITY TO MINIMIZE THE RADIUS OF THE AFFECTED ZONE IN THE EVENT OF A SPILL. WASTES SHALL BE COLLECTED AND DISPOSED OF IN COMPLETE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. PORTABLE RESTROOM FACILITIES MUST NOT BE LOCATED NEAR DRAINAGE WAYS AND SHALL BE STAKED INTO THE GROUND.
19. IDENTIFICATION OF ALLOWABLE NON-STORMWATER DISCHARGES: DURING CONSTRUCTION, WHICH INCLUDES WATER FLUSHED FROM WATER LINES, PAVEMENT AND EQUIPMENT WASHING, AND GROUNDWATER (DEWATERING), SHOULD BE FILTERED WITH APPROPRIATE METHODS AND DIRECTED AWAY FROM DRAINAGE WAY.
20. POLLUTION AND SPILL PREVENTION PLANNING: POTENTIALLY HAZARDOUS MATERIALS ON THE CONSTRUCTION SITE INCLUDE FUEL, LUBRICANTS, CURING COMPOUNDS, FERTILIZERS, GREASE AND CLEANING SOLVENTS. ALL REASONABLE PRECAUTIONS WILL BE TAKEN TO PREVENT SPILLS. ANY SPILLED MATERIAL WILL IMMEDIATELY BE DIRECTED AWAY FROM STORM WATER INTAKES, DETENTION BASINS, OR DRAINAGE WAYS. SPILLED MATERIALS WILL BE CLEANED AND, IF NECESSARY, SOIL REMEDIATION PRACTICES WILL BE USED. A RECORD OF SPILLS WILL BE MAINTAINED BY THE MAIN CONTRACTOR.
21. CONCRETE, PAINT AND GROUT WASHOUT AREA: THE WASHOUT AREA SHOULD BE AN APPROVED CONCRETE WASHOUT CONTAINER, COLLECTION BAG, OR WASHOUT BOX PER SUDAS 11.050. PROTECT WITH AN EROSION CONTROL DEVICE (IF USING FILTER SOCKS, STACK TWO (2) TALL). CONTRACTOR TO HAUL OFF ALL WASTE MATERIAL. ALL LOCATIONS OF CONCRETE, PAINT AND GROUT WASHOUT AREAS MUST BE PROVIDED BY THE CONTRACTOR AND IDENTIFIED ON THE PLAN (RELOCATE AS REQUIRED FOR CONSTRUCTION). THE CONTRACTOR IS REQUIRED TO INSTALL A SIGN THAT DESIGNATES THE WASHOUT AREA.
22. SPILL KIT: A SPILL KIT IS REQUIRED TO BE ON-SITE AND LOCATION NOTED ON THE STORMWATER POLLUTION PREVENTION PLAN. THE SPILL KIT SHOULD BE DESIGNED TO DEAL WITH ANY HAZARDOUS MATERIALS ON-SITE.
23. DUST CONTROL: THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES WHERE DUST IS GENERATED. FREQUENT WATERING OF THE SITE, SPRINKLED, VEGETATIVE COVER, MULCH, WINDBREAKS, TILLAGE, STONE AND SPRAY-ON CHEMICAL SOIL TREATMENTS (PALLIATIVES) ARE POSSIBLE DUST CONTROL MEASURES. IF THE DUST CONTROL IS NOT ACCEPTABLE IT SHALL BE CHANGED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
24. STOCKPILED MATERIALS: CONTRACTOR TO IDENTIFY ALL LOCATIONS OF STOCKPILED MATERIALS ON THE STORMWATER POLLUTION PREVENTION PLAN. CONTRACTOR SHALL PROVIDE ALL EROSION/SEDIMENTATION CONTROLS AS REQUIRED TO CONTAIN MATERIALS ON-SITE. AT A MINIMUM, THE CONTRACTOR IS REQUIRED TO PROVIDE SILT FENCE/FILTER SOCKS AROUND STOCKPILED SOILS BEFORE STOCKPILE IS RE-SPREAD. IF STOCKPILE SOILS WILL REMAIN INACTIVE FOR 14 DAYS OR MORE, THEY SHALL BE SEEDED OR TARPED BY THE CONTRACTOR.
25. THE CONTRACTOR SHALL AMEND THE SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE OF A STORMWATER BMP.

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: STORMWATER POLLUTION PREVENTION PLAN	SHEET NO.: EC1.01



0 20 40 80
SCALE IN FEET

THE CONTRACTOR IS THE CO-APPLICANT FOR THE NPDES PERMIT AND IS REQUIRED TO DO ALL REQUIRED RECORD KEEPING. ALL RECORDS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE AS THEY ARE PRODUCED.

SITE INFORMATION
TOTAL DISTURBED AREA: 8.69 AC

THE SEDIMENT CONTROLS IDENTIFIED ON THIS DRAWING MUST BE INSTALLED PRIOR TO SOIL-DISTURBING ACTIVITIES AND ARE TO REMAIN THROUGHOUT CONSTRUCTION. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, PERIMETER CONTROLS, STABILIZED CONSTRUCTION ENTRANCES, INTAKE PROTECTION, AREAS OF CONCENTRATED FLOW AND STOCKPILE PROTECTION.

SEED TYPE	PLANTING DATES
PERMANENT SEEDING	MARCH 1 - MAY 31 AUGUST 10 - SEPTEMBER 30
TEMPORARY SEEDING	JUNE 1 - AUGUST 9

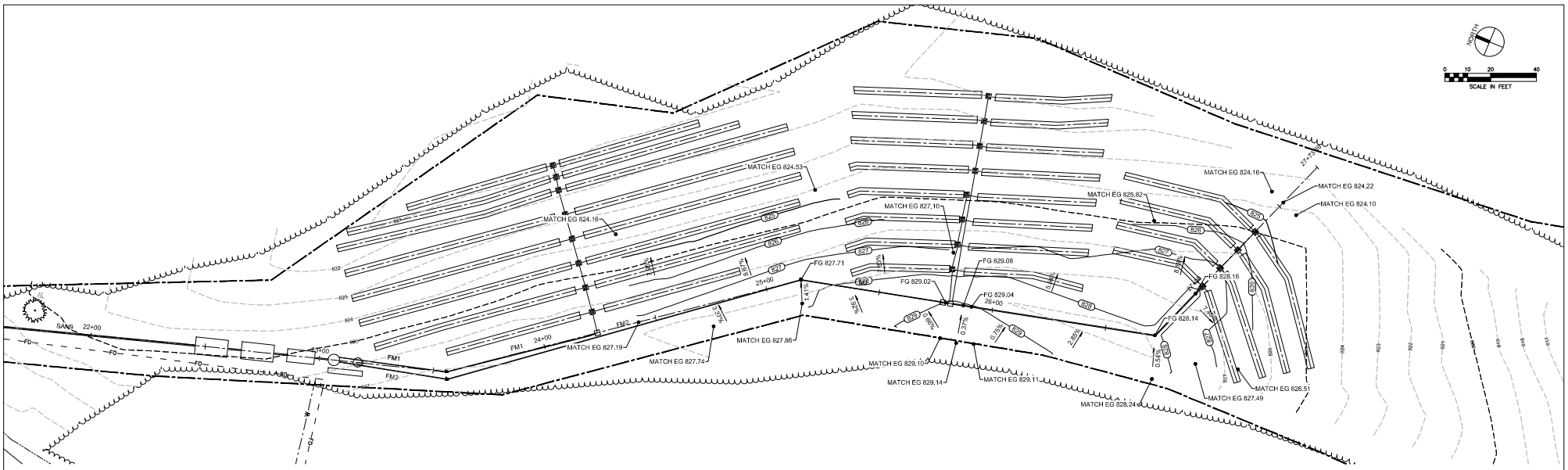
NOTE:
1) ALL DISTURBED AREAS SHALL RECEIVE HYDROSEEDING
2) ALL SLOPES THAT EXCEED 25% SHALL SODDING

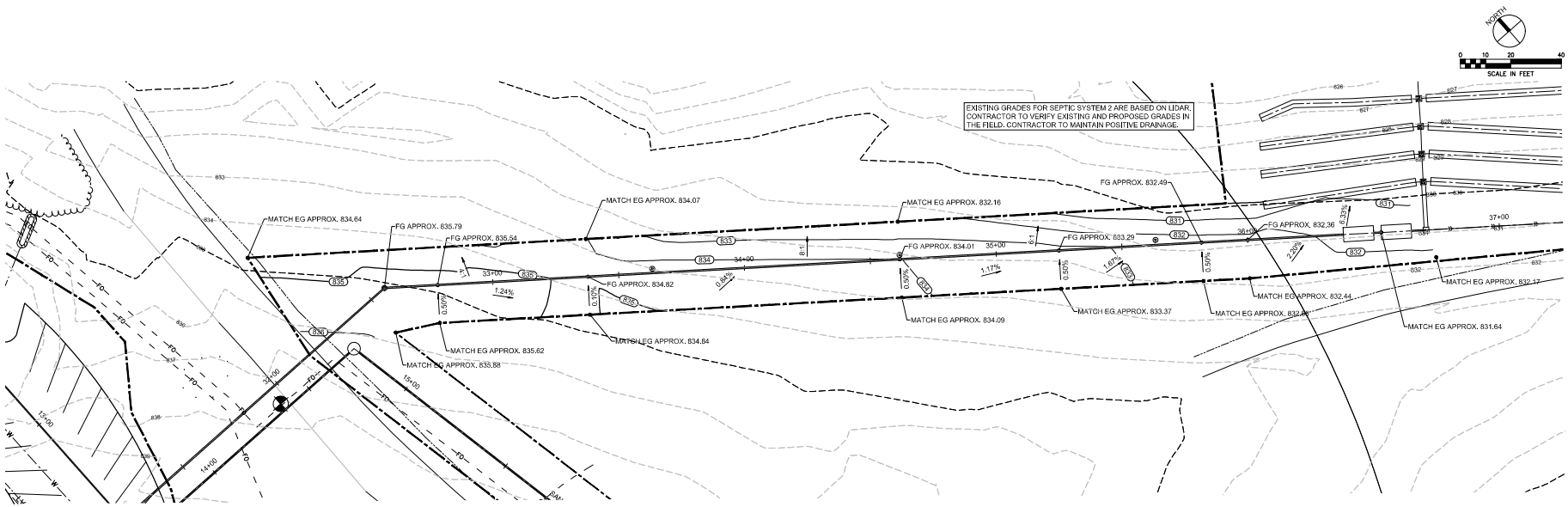
LEGEND

- PROJECT SITE/DISTURBED AREA
- INLET PROTECTION
- SILT FENCE SUDAS 9040.119 OR FILTER SOCKS SUDAS 9040.102 SHALL HAVE "J" HOOKS AT MINIMUM 50' INCREMENTS
- STABILIZED CONSTRUCTION ENTRANCE/ EXIT SEE SUDAS 9040.120
- CONTRACTOR STAGING AREA FOR PORTABLE RESTROOM FACILITIES, TEMPORARY FUEL TANKS, WASTE CONTAINERS AND OTHER HAZARDOUS CHEMICALS. RELOCATE AS REQUIRED FOR CONSTRUCTION.
- TEMPORARY TOPSOIL STOCKPILE
- TYPE 2 ROLLED EROSION CONTROL PRODUCT, 100% BIODEGRADABLE AREA = 1,955 SY
- CONCRETE, PAINT, AND GROUT WASHOUT AREA PER SUDAS SECT 11.050. CONTRACTOR TO HAUL OFF WASTE MATERIAL. SUGGESTED LOCATION, RELOCATE AS REQUIRED FOR CONSTRUCTION.
- SPILL KIT TO BE INSTALLED AND RELOCATED AS REQUIRED FOR CONSTRUCTION
- PORTABLE RESTROOM FACILITY LOCATION
- SWPPP DOCUMENT LOCATION
- 11.5% EXISTING GRADE
- DIRECTION OF DRAINAGE

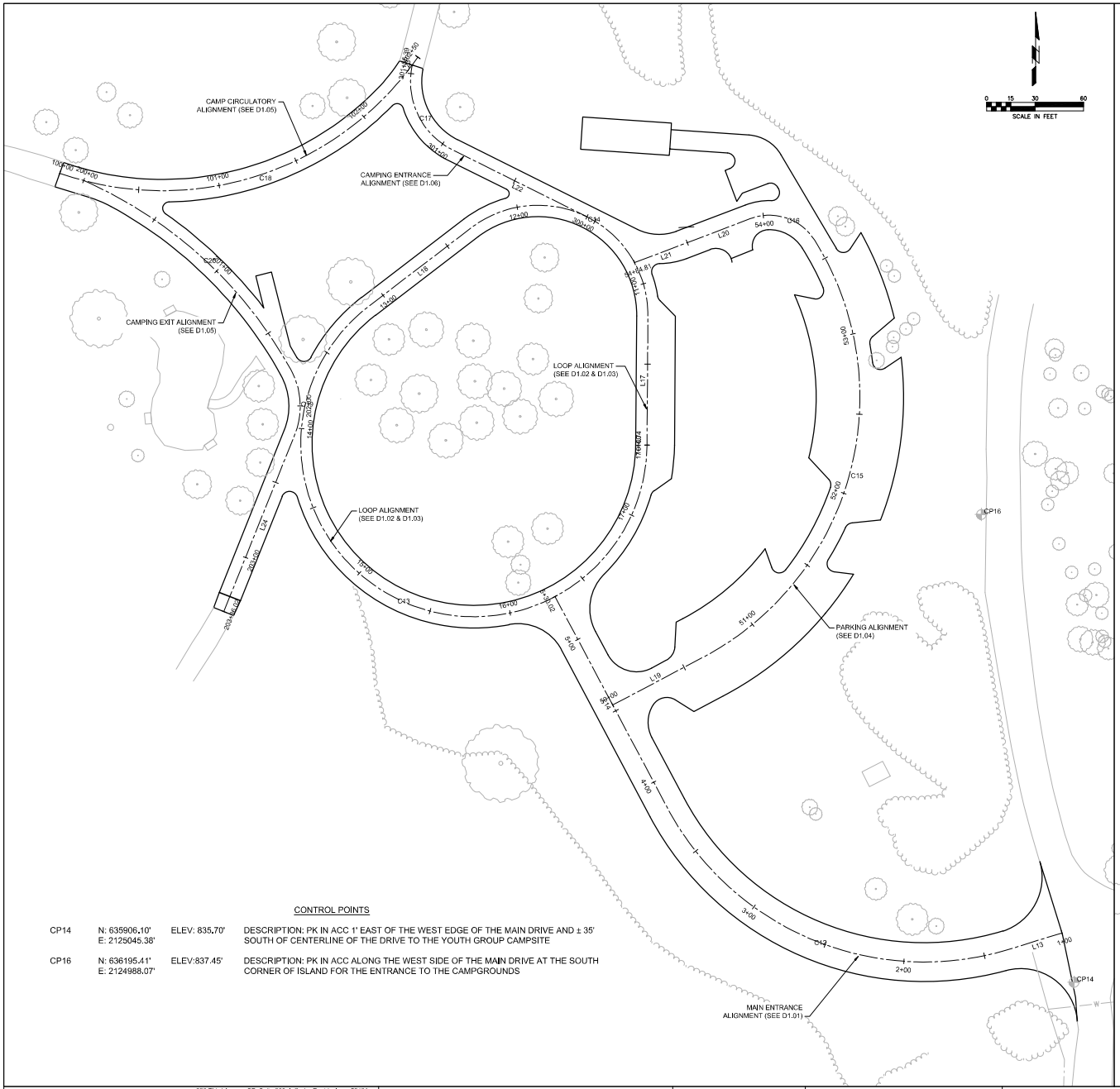
SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: STORMWATER POLLUTION PREVENTION PLAN | SHEET NO.: EC1.02





SHIVEHATTERY ARCHITECTURE + ENGINEERING 222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401 319.364.0227 | fax 319.364.4251 | www.shive-hattery.com Iowa | Illinois | Indiana | Nebraska | Wisconsin	JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: GRADING	SHEET NO.: F1.01



CONTROL POINTS

CP14	N: 635906.10' E: 2125045.38'	ELEV: 835.70'	DESCRIPTION: PK IN ACC 1' EAST OF THE WEST EDGE OF THE MAIN DRIVE AND ± 35' SOUTH OF CENTERLINE OF THE DRIVE TO THE YOUTH GROUP CAMPSITE
CP16	N: 636195.41' E: 2124988.07'	ELEV:837.45'	DESCRIPTION: PK IN ACC ALONG THE WEST SIDE OF THE MAIN DRIVE AT THE SOUTH CORNER OF ISLAND FOR THE ENTRANCE TO THE CAMPGROUNDS

MAIN ENTRANCE ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L13	33.30'		S72° 45' 37.89"W		N = 635936.63 E = 2125037.93	N = 635926.76 E = 2125006.13
C12	249.03'	180.00'	N67° 36' 15.81"W	79° 16' 12.60"	N = 635926.76 E = 2125006.13	N = 636014.25 E = 2124793.81
L14	147.69'		N27° 58' 09.50"W		N = 636014.25 E = 2124793.81	N = 636144.69 E = 2124724.54

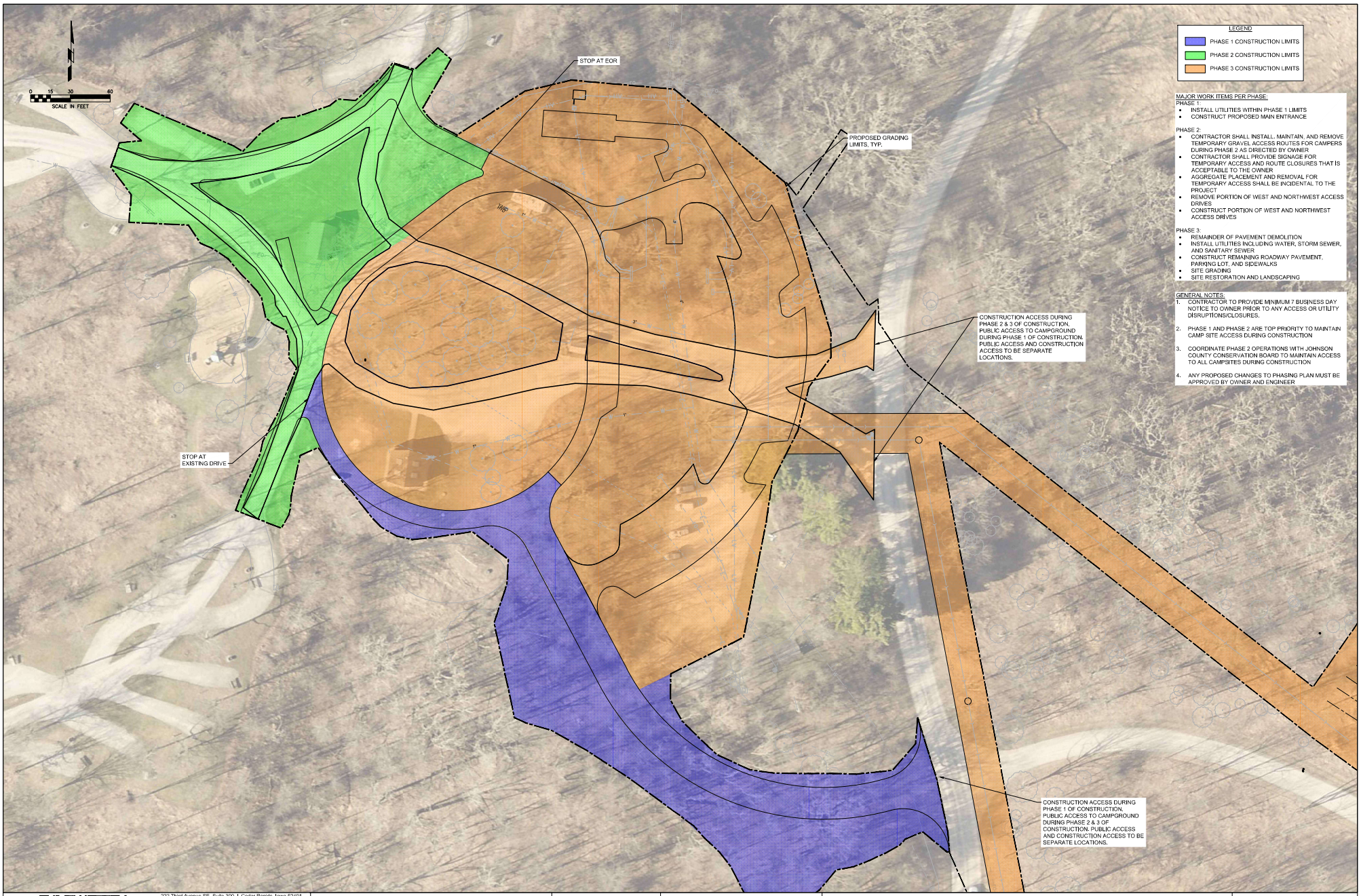
LOOP ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L17	79.74'		N00° 26' 20.18"E		N = 636238.37 E = 2124781.36	N = 636318.11 E = 2124781.57
C14	151.76'	68.00'	N63° 29' 52.53"W	127° 52' 25.42"	N = 636318.11 E = 2124781.57	N = 636372.83 E = 2124672.84
L18	79.74'		S52° 33' 54.76"W		N = 636372.63 E = 2124672.84	N = 636324.16 E = 2124609.32
C13	433.50'	107.00'	S63° 29' 52.53"E	232° 07' 34.58"	N = 636324.16 E = 2124609.32	N = 636238.37 E = 2124781.36

PARKING ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L19	63.06'		N62° 10' 35.52"E		N = 636077.59 E = 2124760.16	N = 636107.02 E = 2124815.93
C15	299.94'	182.00'	N14° 57' 53.39"E	94° 25' 24.26"	N = 636107.02 E = 2124815.93	N = 636365.09 E = 2124884.91
C16	45.23'	33.00'	N71° 30' 50.55"W	78° 32' 03.62"	N = 636365.09 E = 2124884.91	N = 636378.34 E = 2124845.29
L20	37.53'		S69° 13' 07.65"W		N = 636378.34 E = 2124845.29	N = 636365.02 E = 2124810.21
L21	39.06'		S69° 13' 07.65"W		N = 636365.02 E = 2124810.21	N = 636351.16 E = 2124773.69

CAMP CIRCULATORY ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
C18	250.00'	192.00'	N72° 01' 37.64"E	74° 36' 13.97"	N = 636406.47 E = 2124418.37	N = 636478.28 E = 2124639.73

CAMPING ENTRANCE ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
L22	92.81'		N63° 30' 31.86"W		N = 636379.50 E = 2124744.29	N = 636420.90 E = 2124661.22
C17	60.85'	47.00'	N26° 25' 11.79"W	74° 10' 40.13"	N = 636420.90 E = 2124661.22	N = 636471.66 E = 2124636.00
L23	1.73'		N10° 40' 08.28"E		N = 636471.66 E = 2124636.00	N = 636473.36 E = 2124636.32

CAMPING EXIT ALIGNMENT						
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT
C20	176.44'	271.00'	S47° 35' 53.26"E	37° 18' 09.90"	N = 636401.95 E = 2124433.13	N = 636285.06 E = 2124561.13
C19	41.64'	47.00'	S03° 33' 58.34"E	50° 45' 39.93"	N = 636285.06 E = 2124561.13	N = 636244.85 E = 2124563.63
L24	117.94'		S21° 48' 51.63"W		N = 636244.85 E = 2124563.63	N = 636135.36 E = 2124519.80



SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

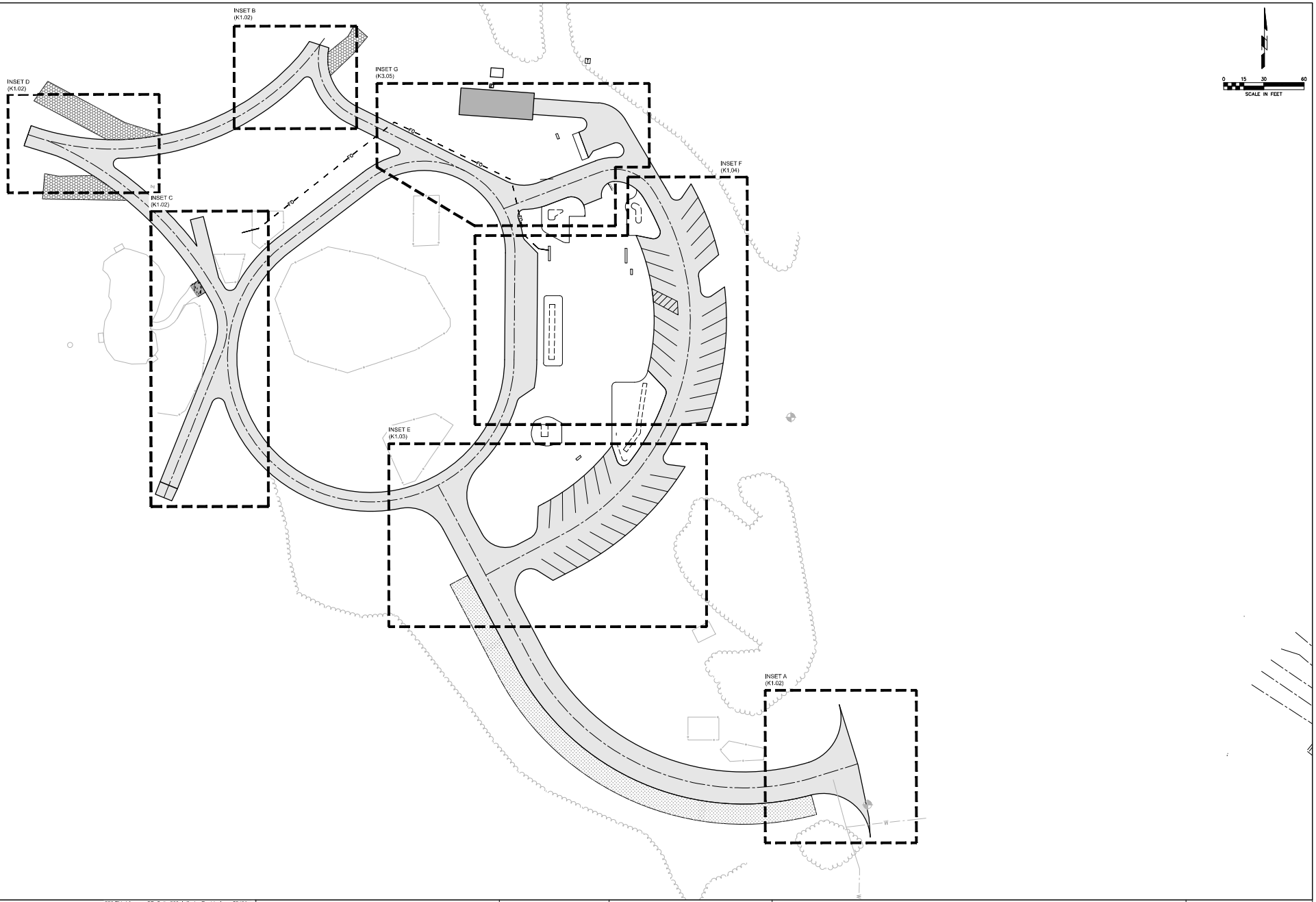
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217341

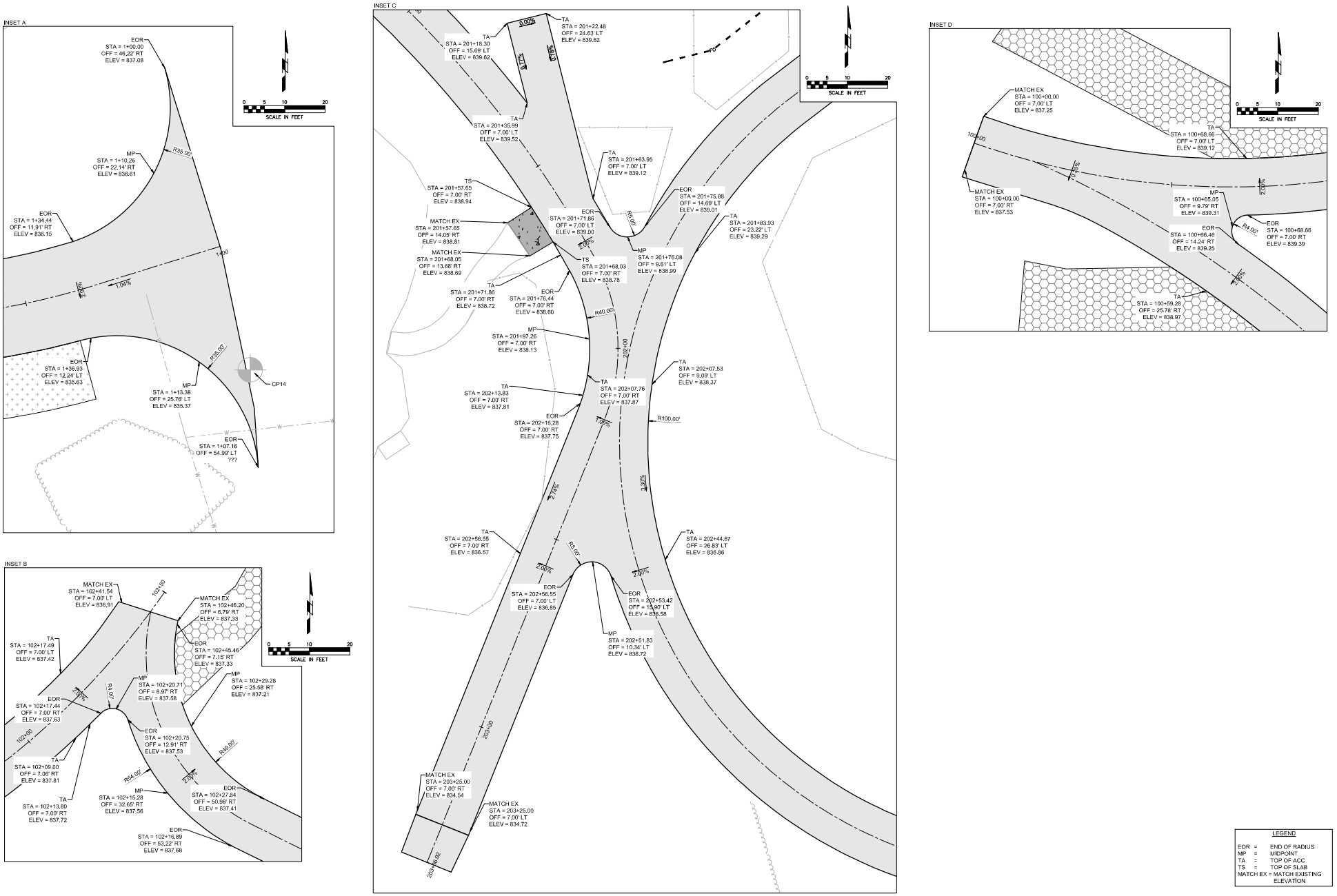
ISSUE FOR BID 01/26/2024

SHEET NAME: PHASING PLAN

SHEET NO.: J1.01

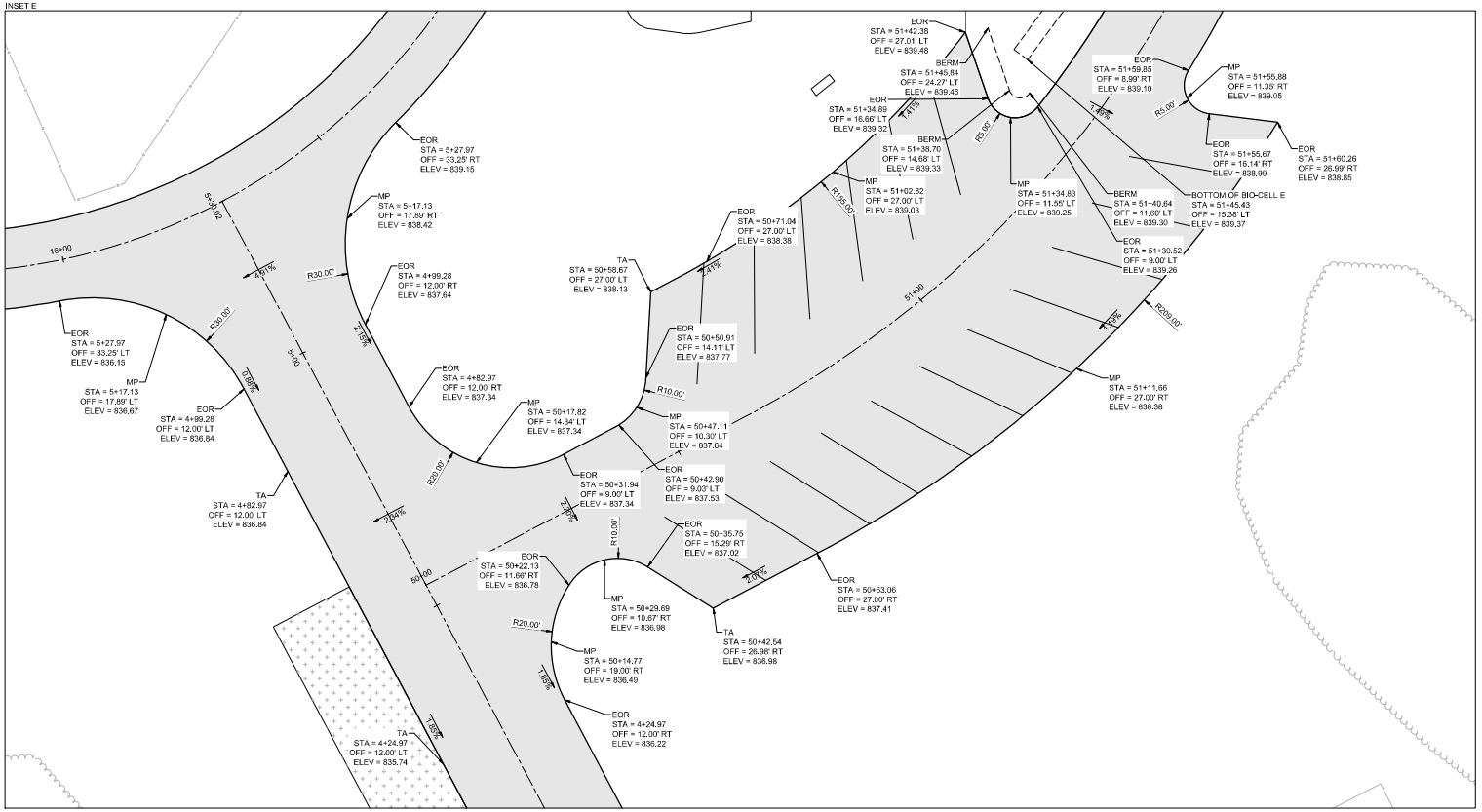


SHIVEHATTERY ARCHITECTURE + ENGINEERING	222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401 319.364.0227 | fax 319.364.4251 | www.shive-hattery.com Iowa | Illinois | Indiana | Nebraska | Wisconsin	JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME:INTERSECTION & PAVEMENT DETAILS	SHEET NO.: K1.01



SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME:INTERSECTION & PAVEMENT DETAILS | SHEET NO.: K1.02



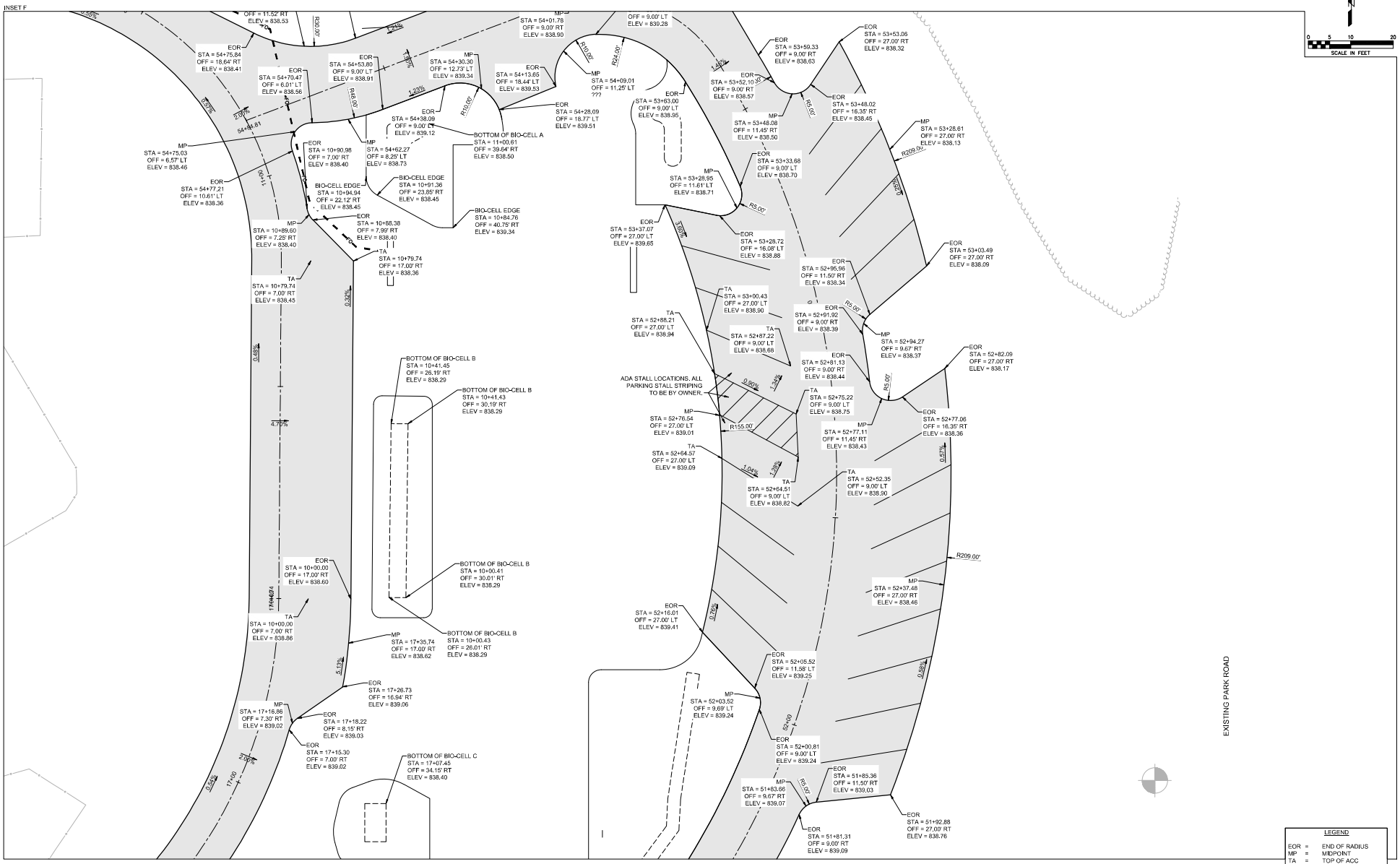
LEGEND

EOR	=	END OF RADIUS
MP	=	MIDPOINT
TA	=	TOP OF ACC
TS	=	TOP OF SLAB
MATCH EX	=	MATCH EXISTING ELEVATION

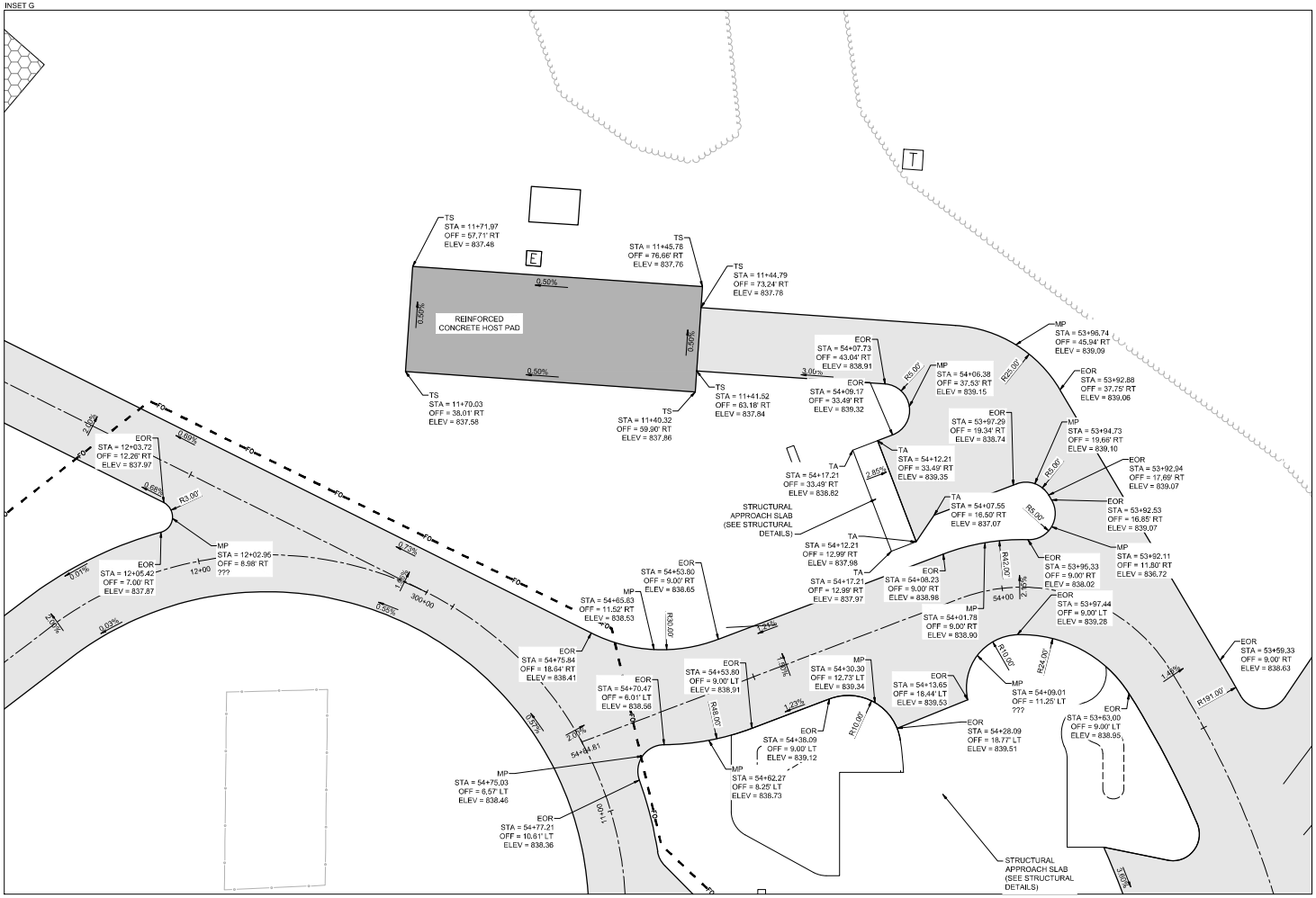
SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME:INTERSECTION & PAVEMENT DETAILS

SHEET NO.: K1.03

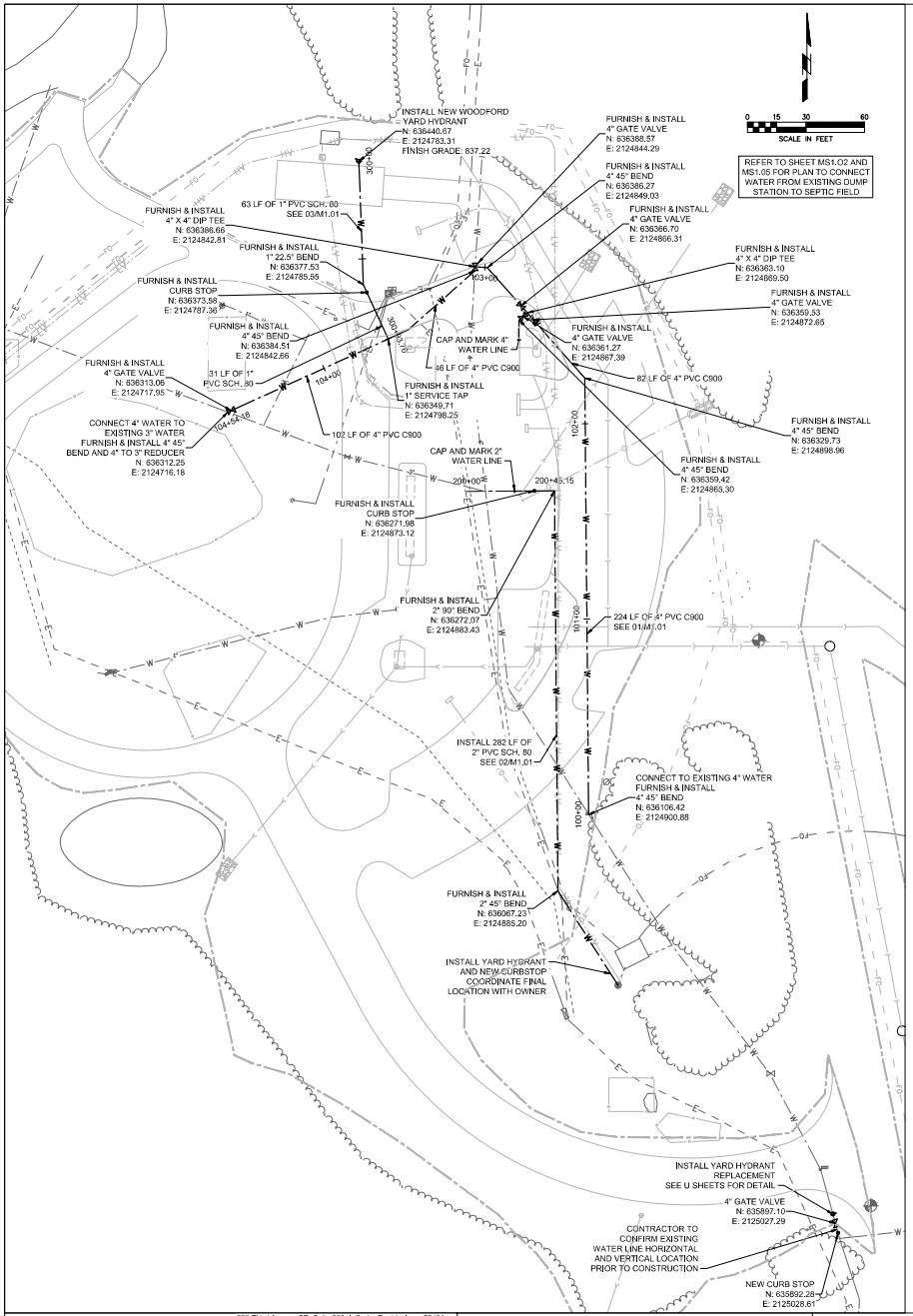


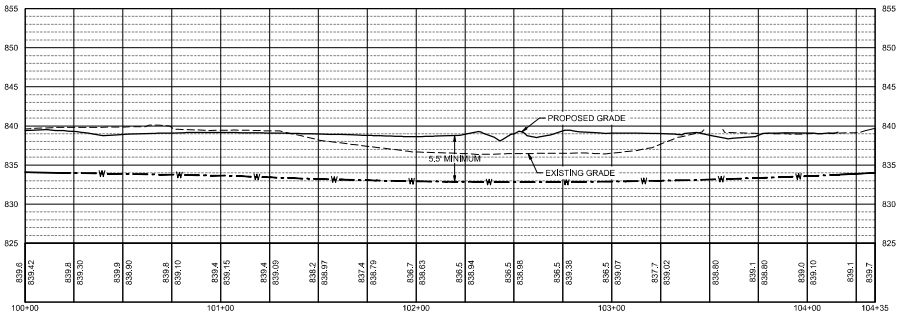
SHIVEHATTERY ARCHITECTURE + ENGINEERING	222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401 319.364.0227 | fax 319.364.4251 | www.shive-hattery.com Iowa | Illinois | Indiana | Nebraska | Wisconsin	JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME:INTERSECTION & PAVEMENT DETAILS	SHEET NO.: K1.04



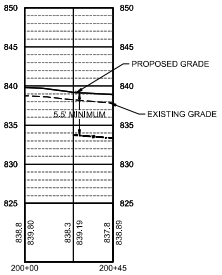
LEGEND

EOR = END OF RADIUS
MP = MIDPOINT
TA = TOP OF ACC
TS = TOP OF SLAB
MATCH EX = MATCH EXISTING ELEVATION

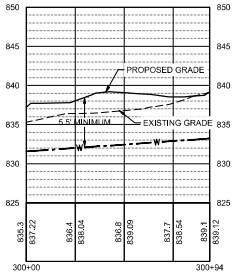




1 WATER MAIN SECTION
H: 1" = 30' V: 1" = 4'



2 BUILDING WATER SERVICE
H: 1" = 30' V: 1" = 4'



3 HOST PAD SERVICE
H: 1" = 30' V: 1" = 4'

WATER NOTES

1. ALL UNDERGROUND FITTINGS SHALL BE POLY-WRAPPED.
2. LEAD JOINTS ARE NOT PERMITTED.
3. MINIMUM HYDRANTS DEPTH OF BURY FOR WATER MAIN SHALL BE 5.5 FEET BELOW FINISHED GRADE. GATE VALVES AND CURB STOPS SHALL BE CONSTRUCTED TO MAINTAIN 5.5' TO 6' MAX. DEPTH UNLESS OTHERWISE NOTED.
4. INSTALL SINGLE THHN-12 GA. TRACER WIRE WITH WATER PIPING (TAPE TO PIPE). TRACER WIRE TO BE EXTENDED IN CONDUIT TO 1'-0" ABOVE GROUND SURFACE AT FIRE HYDRANTS AND SHALL BE CONNECTED TO A 6'-0" X 1/2"Ø GROUND ROD AT CONNECTION TO MAIN AND AT DEAD ENDS. TRACER WIRE TO EXTEND UP INTO BUILDING AT SERVICE CONNECTIONS.
5. ALL WATER MAIN, FILLINGS, VALVES, AND HYDRANTS SHALL BE INSTALLED WITH 8 MIL. POLYETHYLENE ENCASEMENT PER AWWA C105.
6. WATER MAIN TRENCHES AND WATER SERVICE UNDER EXISTING OR PROPOSED STREETS SHALL BE BACKFILLED WITH GRANULAR BACKFILL UP TO THE SURFACING SUBGRADE ELEVATION.
7. CONTRACTOR SHALL PERFORM HYDROSTATIC TEST, DISINFECTION, AND BACTERIOLOGICAL TESTS ON COMPLETED WATER MAIN ACCORDING TO SUDAS STANDARD SPECIFICATIONS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
8. SEPARATION BETWEEN WATER AND SEWER LINES SHALL BE A MINIMUM OF 10 FEET WHEN RUNNING PARALLEL. AT CROSSINGS, A MINIMUM OF 1.5 FEET SHALL BE MAINTAINED WITH A FULL 20-FOOT SECTION OF GASKETED PIPE CENTERED ABOVE OR BELOW THE WATER MAIN.
9. BASIS OF PAYMENT FOR ALL WATER MAINS AND FORCE MAINS SHALL BE BY THE LINEAL FOOT ALONG THE INSTALLED PIPELINE. ALL OPERATIONS, FITTINGS AND BEDDING SHALL BE INCIDENTAL TO THE IN-PLACE PIPE, UNLESS SPECIFICALLY EXCEPTED.
10. THE CONTRACTOR WILL MAINTAIN A RECORD DRAWING SET WITH WITNESS DIMENSIONS TO ALL SERVICE LINES, VALVES, EXISTING WATER LINES, ETC. THESE DRAWINGS WILL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.
11. ALL WATER MAIN TRENCHES WILL RECEIVE CAUTION TAPE 2'- 0" BELOW FINAL GRADE. THE 2" WIDE BLUE TAPE WILL READ "CAUTION - PIPELINE BURIED BELOW".
12. ALL VALVES SHALL BE PLACED IN A CONCRETE POURED TO SPRING LINE OF PIPE WITH A SIZE OF 8' X 16' RESTING ON A SUITABLY COMPACTED SUBGRADE. VALVES SHALL BE SET PLUMB AND LEVEL WITH VALVE BOXES COVERS ADJUSTED TO FINISHED GRADE.
13. ALL THRUST BLOCK JOINT RESTRAINTS WILL BE READY MIXED 3000 PSI PORTLAND CEMENT CONCRETE PLACED BETWEEN VALVE, BEND, ETC. AND UNDISTURBED EARTH. ALL APPURTENANCES SHALL BE COVERED WITH HEAVY DUTY POLYETHYLENE FILM PRIOR TO PCC PLACEMENT. NO BLOCKS, TIMBERS OR OTHER DEVICES WILL BE ALLOWED. CONSULT ENGINEER FOR NUMBER OF CUBIC YARDS OF PCC REQUIRED AT EACH LOCATION.

TESTING

A. GENERAL
   1. ENGINEER OR OWNER'S REPRESENTATIVE WILL OBSERVE ALL TESTS AND SAMPLINGS.
   2. THE CONTRACTOR WILL SUPPLY ALL PERSONNEL AND EQUIPMENT NECESSARY FOR ALL TESTING.
   3. CONTACT ENGINEER FOR SPECIFICS OF ANY TEST OR PROCEDURE.

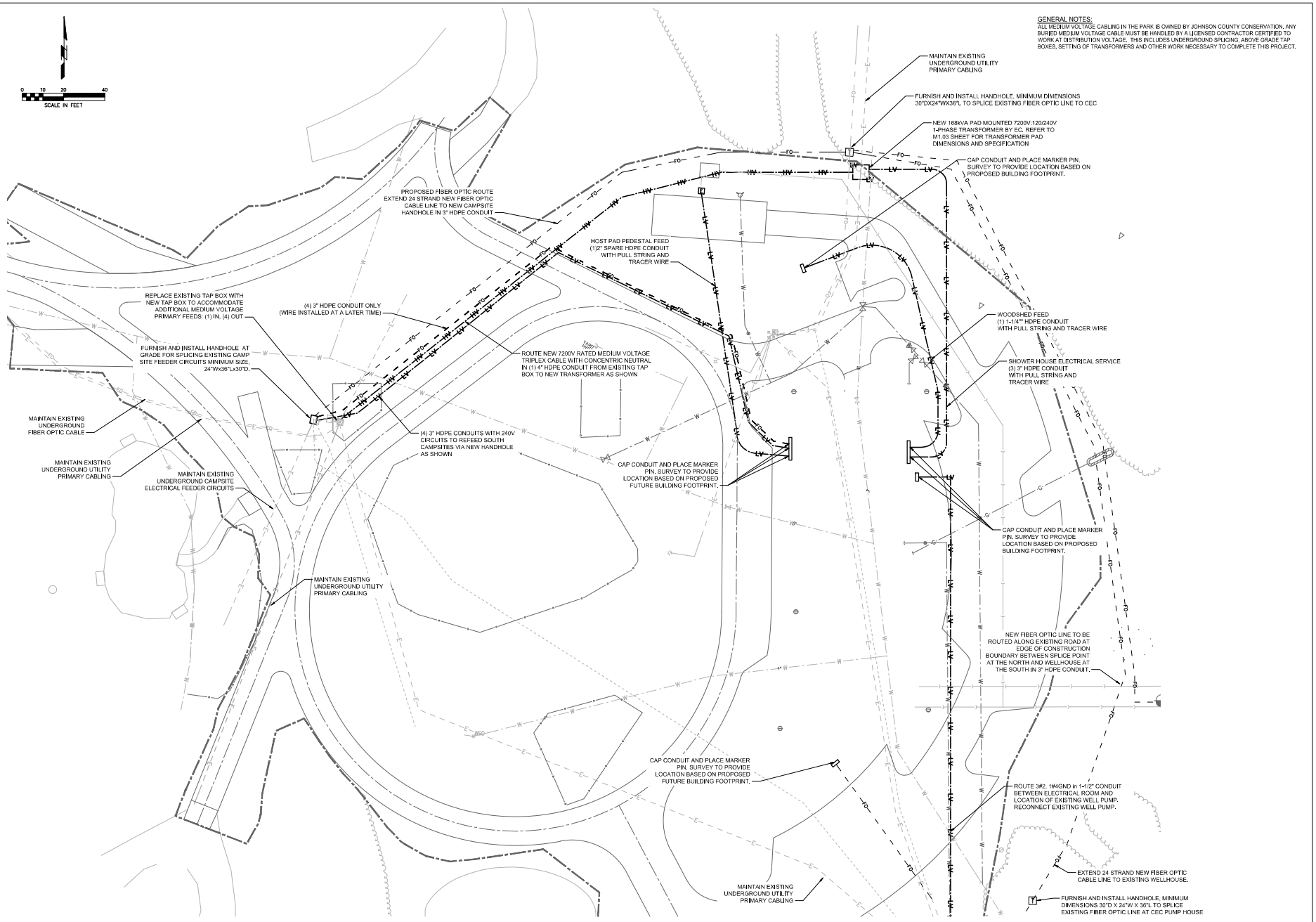
B. BACTERIOLOGICAL
   1. TEST SHALL BE IN ACCORDANCE WITH AWWA C651.
   2. SAMPLING TAPS SHALL BE A CORPORATION COCK WITH COPPER TUBE GOOSENECK OR AS SHOWN IN AWWA 651 (FIGURE 1).
   3. UPON SUCCESSFUL COMPLETION OF TEST, ENTIRE LINE SHALL BE FLUSHED UNTIL CHLORINE LEVELS REACH NORMAL EXISTING LEVELS.

C. PRESSURE
   1. WATER PRESSURE TEST AT 1.5 TIMES AREA OPERATING PRESSURE HELD FOR 1 HOUR.

D. LEAKAGE
   1. AS WITH PRESSURE TEST AND HELD FOR 2 HOURS (CONCURRENTLY). AMOUNT OF WATER ADDED TO MAINTAIN PRESSURE LEVEL FACTORED INTO FORMULA TO DETERMINE ALLOWABLE LEAKAGE AMOUNT. SEE ENGINEER FOR ADDITIONAL INFORMATION, IF REQUIRED.

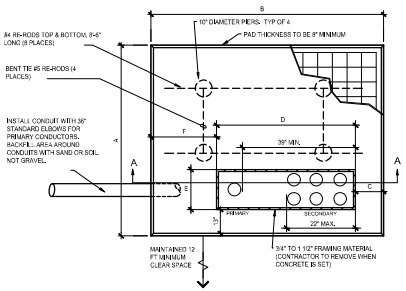
SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SITE UTILITIES - WATER	SHEET NO.: M1.01



SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: SITE ELECTRICAL PLAN | SHEET NO.: M1.02

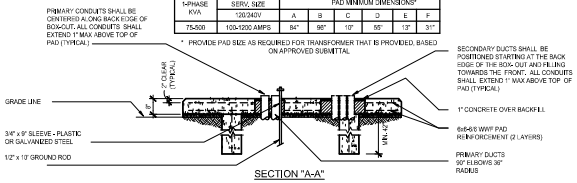


NOTES:

1. THE CONTRACTOR SHALL INSTALL A CONCRETE TRANSFORMER PAD FOR THE UNDERGROUND SERVICE SINGLE PHASE TRANSFORMER.
2. A CLEAR SPACE OF 12' SHALL BE MAINTAINED IN FRONT OF THE TRANSFORMER TO PROVIDE WORKING SPACE FOR HOT-STICK OPERATION OF THE TRANSFORMER.
3. ADDITIONAL TRANSFORMER PAD FOUNDATION WALL SHALL BE USED FOR LOCATIONS HAVING POOR SOIL CONDITIONS OR A LARGE NUMBER OF SECONDARY CABLES.
4. VERIFY EXACT SIZE OF TRANSFORMER WITH APPROVED SUBMITTAL PRIOR TO ANY PAD WORK.
5. ALL CONDUITS SHALL ENTER THROUGH THE WINDOW OPENING PROVIDED IN THE PAD FOUNDATION. THESE CONDUITS SHALL BE CUT OFF SO THE TOP OF THE CONDUIT IS FLUSH WITH THE SURFACE OF THE CONCRETE PAD.
6. ALL METALLIC CONDUITS SHALL BE FITTED WITH AN INSULATING BUSHING.
7. CONCRETE MIX SHALL HAVE A MINIMUM STRENGTH OF 4000 LB/SQ. IN. AFTER 28 DAYS.
8. THE TOP OF PAD SHALL BE LEVEL AND ALL EDGES AND CORNERS ROUNDED OFF.
9. THE PAD SHALL BE REINFORCED WITH #4 WIRE, 4'x 4' WELDED MESH OR EQUIVALENT MATERIALS WITH ADDITIONAL 3/8 REINFORCING RODS AROUND THE CABLE OPENING. THE MESH SHALL NOT BE LESS THAN 1" FROM THE EDGES AND OPENING, AND 3" BELOW THE SURFACE. IF THE #4 WIRE, 4'x 4' MESH IS NOT AVAILABLE, 2 LAYERS OF #10 WIRE, 6'x 6' MESH, HORIZONTALLY STAGGERED, MAY BE SUBSTITUTED FOR THE #4 WIRE.

PAD DIMENSION SCHEDULE							
1-PHASE KVA	SERV. SIZE	PAD MINIMUM DIMENSIONS*					
	120/240V	A	B	C	D	E	F
75-500	100-1200 AMPS	84"	96"	10"	66"	13"	31"

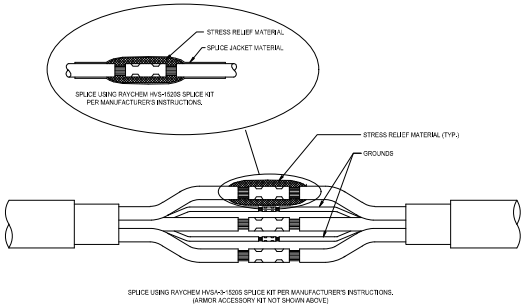
* PROVIDE PAD SIZE AS REQUIRED FOR TRANSFORMER THAT IS PROVIDED, BASED ON APPROVED SUBMITTAL



SECTION "A-A"

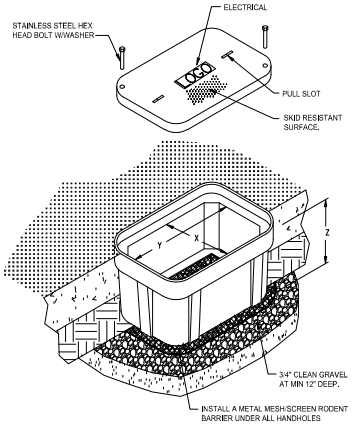
ACCEPTABLE OPTION TO OBTAIN AND INSTALL A SINGLE PHASE TRANSFORMER BOX FROM THE LOCAL REC UTILITY IN PLACE OF POUR-IN-PLACE TRANSFORMER PAD.

1 TYPICAL TRANSFORMER PAD DETAIL (FOR BIDDING PURPOSES)
SCALE: NONE



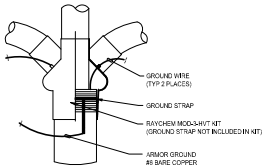
NOTE:
1: ALSO ACCEPTABLE TO PROVIDE AND INSTALL THREE (3) SINGLE MEDIUM VOLTAGE CABLES IN PLACE OF TRIPLEX CABLES.

2 TYPICAL 3Ø, ARMORED 15KV CABLE SPLICE DETAIL
SCALE: NONE



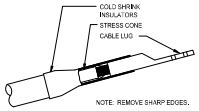
NOTES:
1. SWEEP CONDUITS UP THROUGH PEA GRAVEL AND OPEN BOTTOM OF HANDHOLE.
2. PULLBOX DIMENSIONS SHALL BE DETERMINED BY EC TO MEET NEC 314 FILL PERCENTAGES.

3 TYPICAL HANDHOLE DETAIL
SCALE: NONE



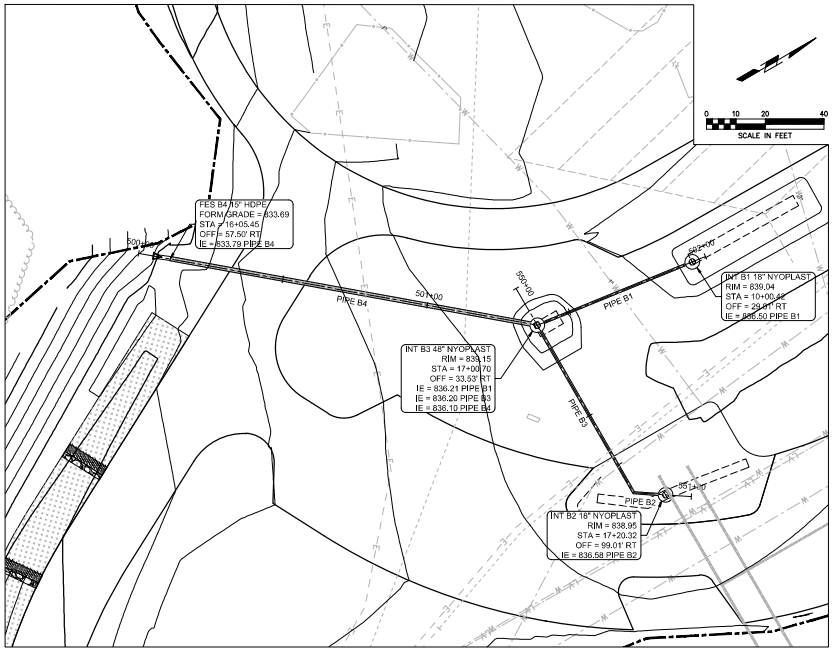
NOTE: REMOVE SHARP EDGES.

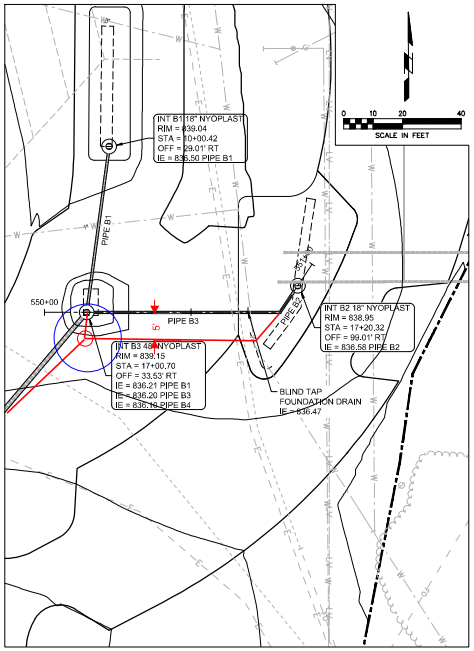
4 15KV MULTICONDUCTOR ARMORED CABLE BREAKOUT
SCALE: NONE

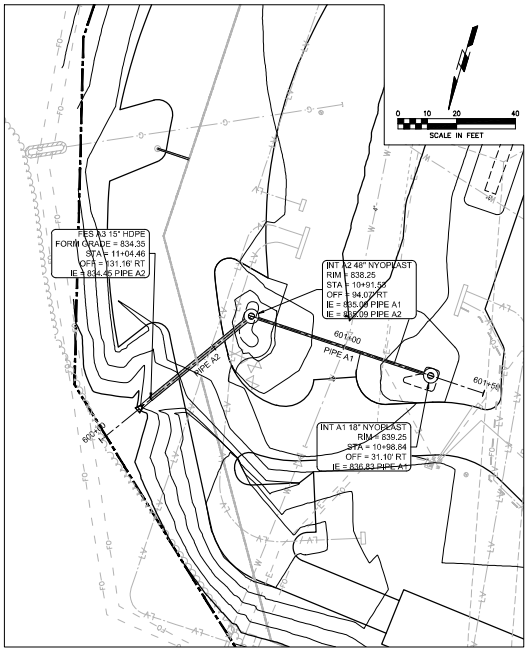


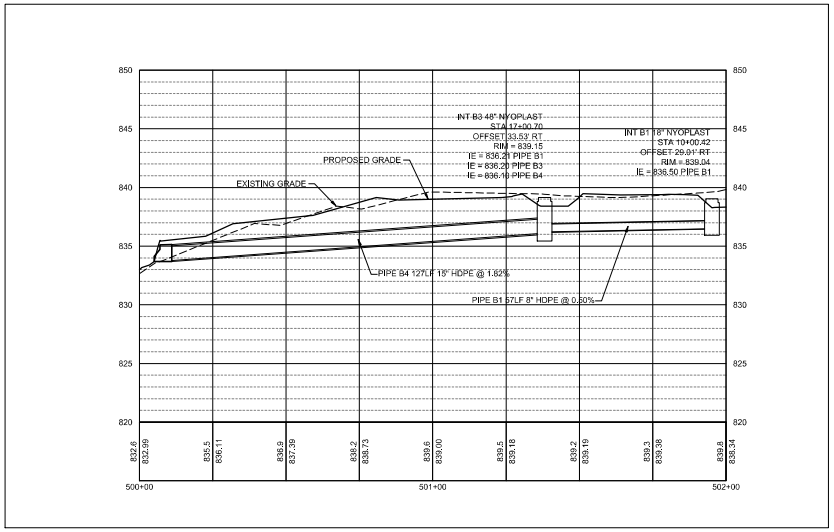
NOTE: REMOVE SHARP EDGES.

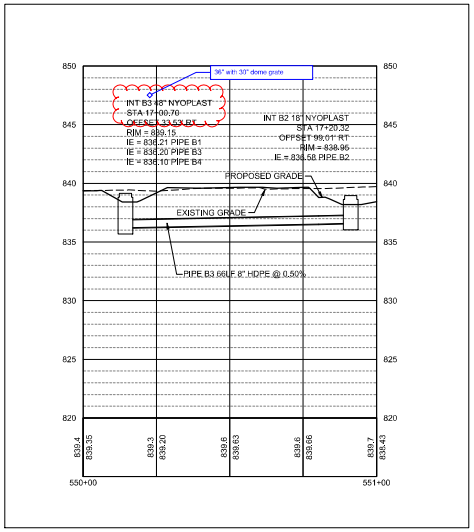
5 TYPICAL CABLE LUG TERMINATION
SCALE: NONE

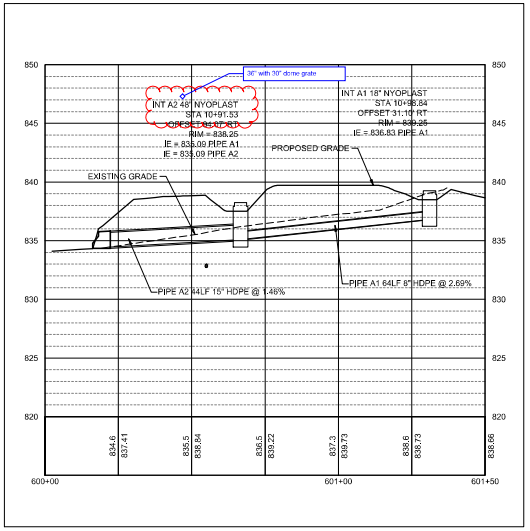




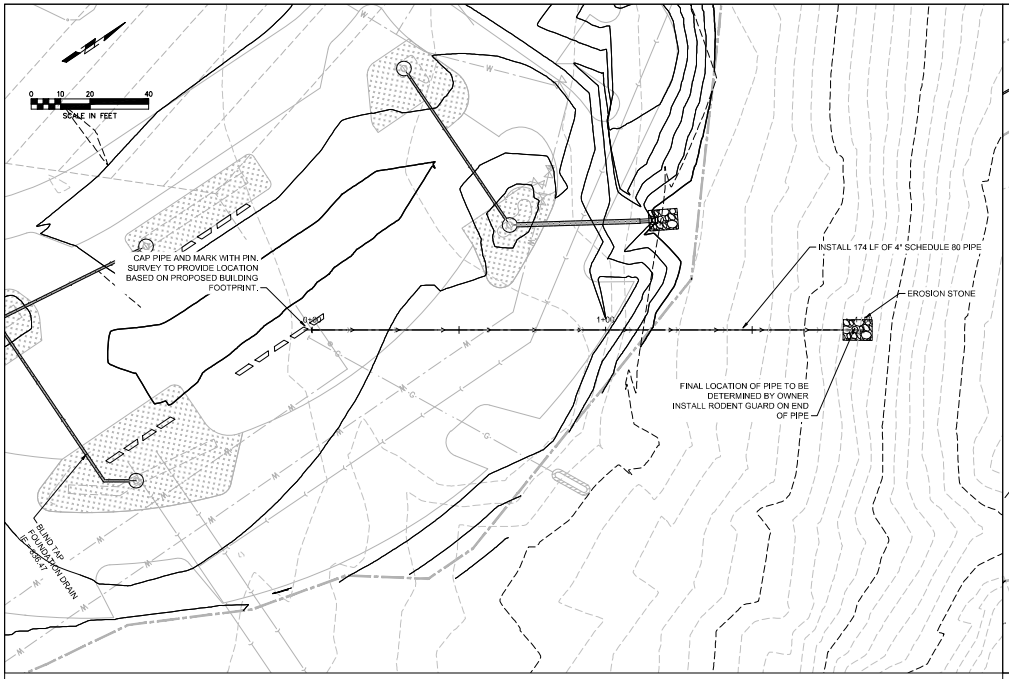


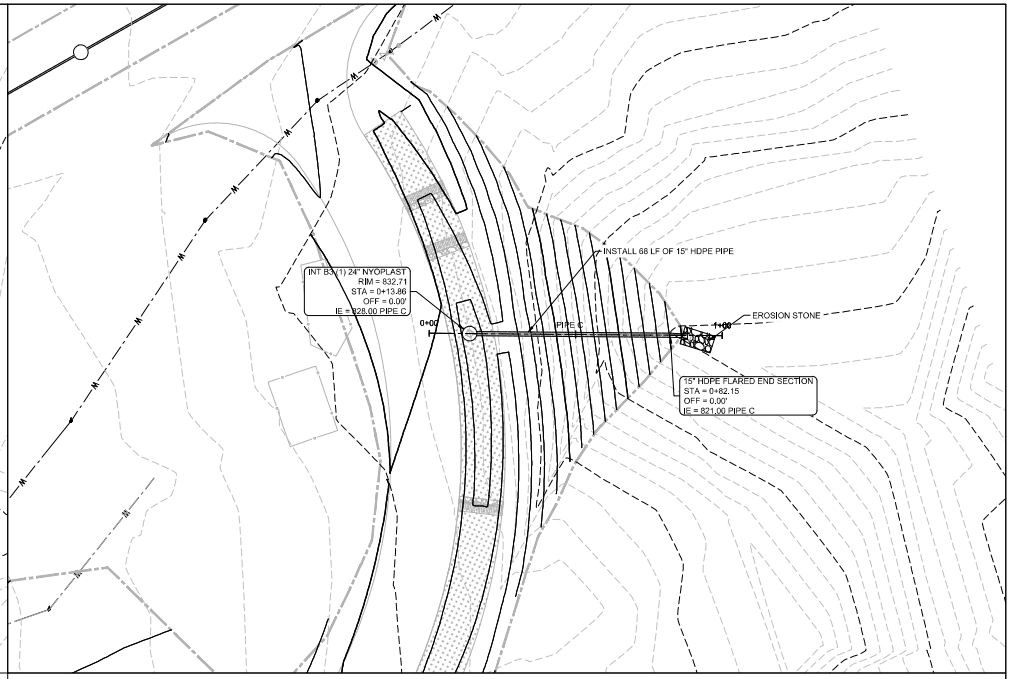


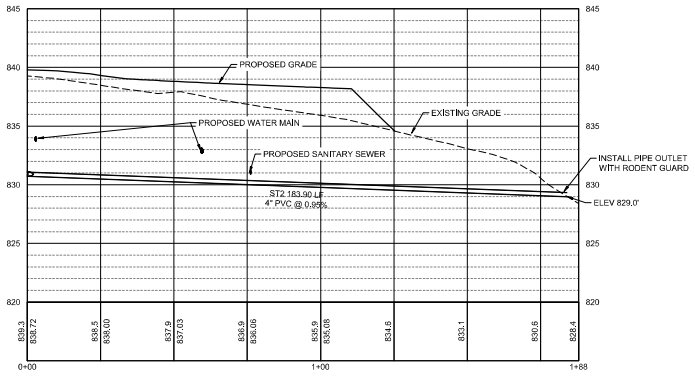


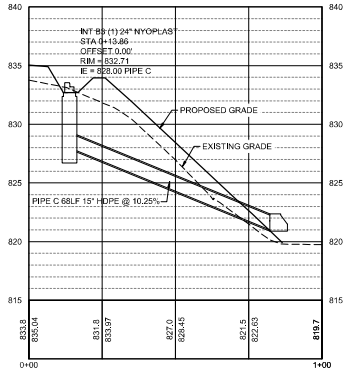


NOTE: SEE L-SHEETS FOR INTAKE DETAILS

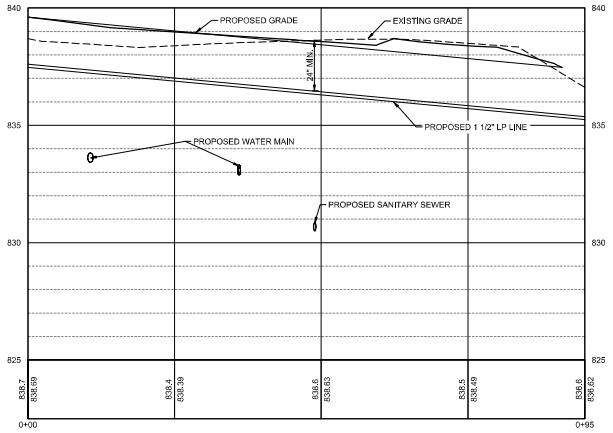








NOTE: SEE L-SHEETS FOR INTAKE DETAILS



NOTE: SEE L-SHEETS FOR INTAKE DETAILS

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217340 | ISSUE FOR CONSTRUCTION 01/26/2024 | SHEET NAME: SITE UTILITIES - GAS | SHEET NO.: M1.06

GENERAL INFORMATION

1. CONSTRUCTION NOT SPECIFICALLY DETAILED OR SPECIFIED WITHIN THE PLANS OR IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO THE IOWA DEPARTMENT OF NATURAL RESOURCES AND THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY SANITARY SEWERAGE SPECIFICATIONS.
2. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS
3. NOTIFY KENT PARK A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE TRAFFIC AND PEDESTRIAN CONTROL MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) THROUGH OUT ALL CONSTRUCTION.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN EXISTING FIELD CONDITIONS BEFORE BIDDING ON THIS PROJECT, ORDERING MATERIALS, AND BEGINNING CONSTRUCTION.
6. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITIES REGARDING RELOCATION, ADJUSTMENT OR TEMPORARY SUPPORT OF THEIR FACILITIES.
7. MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
8. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES. CONTROL DUST SPREADING FROM ALL WORK AND STAGING AREAS.
9. ALL OPEN EXCAVATIONS SHALL BE PROTECTED AS PER REGULATORY REQUIREMENTS.
10. KEEP ADJACENT PUBLIC STREETS FREE FROM SOIL AND DEBRIS GENERATED BY THE PROJECT.
11. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
12. PROTECT ALL EXISTING FEATURES (INCLUDING BUT NOT LIMITED TO WALLS, TREES, LANDSCAPING, DRIVEWAYS, SIDEWALKS, CURBS, PAVEMENT, UTILITIES, ETC.) NOT SPECIFICALLY NOTED FOR REMOVAL. FEATURES NOT DESIGNATED FOR REMOVAL THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
13. THE MEANS AND METHODS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
14. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
15. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION, EXISTENCE, AND THE DETERMINATION OF THE EXACT LOCATION OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE COMPLETED PRIOR TO ANY CONSTRUCTION.
16. NOTIFY UTILITY COMPANIES WITH FACILITIES SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
17. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK.
18. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SET FORTH AS A SPECIFIC BID ITEM, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THE COMPLETION OF THIS WORK.
19. IT IS INTENDED THAT ALL COSTS OF MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS BE PAID FOR UNDER THE ITEMS LISTED ON THE BIDDERS PROPOSAL., THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, SPECIAL PROVISIONS AND THE JOB SITE. IF ANY DISCREPANCIES OR DELETIONS OCCUR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPORT TO SHIVE-HATTERY, INC. IN WRITING AND OBTAIN WRITTEN CLARIFICATION AND/OR INSTRUCTIONS ON HOW TO PROCEED.
20. FOR ITEMS SPECIFIED WITH AN "APPROVED EQUIVALENT" OR "APPROVED EQUAL", THE APPROVAL SHALL BE BY THE ENGINEER.
21. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL GRADING AND SEEDING ACTIVITIES. ENSURE AREA TO BE SEEDED IS RELATIVELY SMOOTH. SOW SEED ONLY AT TIMES OF THE YEAR WHEN TEMPERATURE, MOISTURE, AND CLIMATIC CONDITIONS WILL PROMOTE GERMINATION AND PLANT GROWTH.

SANITARY SEWERAGE INFORMATION

1. FORCE MAIN MATERIAL SHALL BE PVC 2"-SCH 80 PVC.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ANY EXISTING UTILITIES IN THE PROJECT AREA PRIOR TO ANY CONSTRUCTION. CONTRACTOR WILL PROTECT ALL EXISTING UTILITIES FROM CONSTRUCTION WORK.

SPECIFICATIONS

1. MANHOLES SHALL CONFORM TO APPLICABLE SECTIONS OF SUDAS DIVISION 6, SECTION 6010 (MATERIAL AND INSTALLATION) AND SECTION 6030 (TESTING).
2. SEPTIC TANKS AND PUMP TANKS SHALL MEET IDNR 567 CHAPTER 69 REQUIREMENTS.
3. SOIL ABSORPTION TRENCHES (LATERALS) SHALL MEET IDNR CHAPTER 69.3(3) AND 69.9 (4). IF LIMESTONE OR CRUSHED ROCK IS PROPOSED THE MATERIAL SHALL BE WASHED TO REMOVED FINES NO MORE THAN 5% SHALL PASS #100 SIEVE. A SIEVE ANALYSIS SHALL BE SUBMITTED BEFORE ANY MATERIAL IS DELIVERED TO THE PROJECT LOCATION. IF LIMESTONE OR CRUSHED ROCK IS USED THE CONTRACTOR SHALL PROVIDE TESTING DATA AS NOTED IN 69.9(4)A.
4. CHAMBERS, GRAVEL-LESS PIPE, AND ESP SHALL NOT BE USED.
5. DROP BOXES WILL BE TUFF-TITE WITH INSPECTION LIDS, OR APPROVED EQUAL. THE INSPECTION PIPE SHALL BE 4-INCH SCH 80 WITH A FLAT TOP CAP FLUSH WITH GRADE. PLACE A 6"X 6"X 2" CONCRETE PATIO BLOCK OVER THE CAP
6. ALL PIPE BETWEEN DROP BOXES, AND FROM DROP BOX TO LATERAL PIPE SHALL BE 4" SCH 80 PVC.
7. LATERAL PIPE SHALL MEET CHAPTER 69.3(4)D REQUIREMENTS.
8. GRAVEL COVER SHALL BE SYNTHETIC FABRIC.
9. SEPTIC TANK ADAPTER KIT, RISERS, AND HEAVY DUTY LIDS SHALL BE POLYLOK, TUF-TITE, OR EZ-SET. LIDS SHALL BE HEAVY DUTY WITH SS SCREWS. ALL WATERTIGHT CONNECTIONS.

PUMP TANK, PUMP AND CONTROL NOTES:

1. PUMP TANK SHALL BE A CONCRETE 2,500 GALLON DOUBLE COMPARTMENT SEPTIC TANK MEETING CHAPTER 69 REQUIREMENTS. THE DIVIDING WALL SHALL HAVE A 6 INCH DIAMETER OR SQUARE HOLE 12 INCHES ABOVE THE INSIDE BOTTOM OF THE TANK.
2. PUMP RISER SHALL BE 30 INCHES IN DIAMETER.
3. PUMPS SHALL BE LIBERTY FL31M WITH ENOUGH ELECTRIC CABLE INSIDE TANK TO BE ABLE TO PULL PUMP OUT OF TANK WITHOUT DISCONNECTING ANY WIRES.
4. 115V, 10.5 FLA, PUMP CONTROL. CSI CONTROLS RK SERIES SINGLE PHASE DUPLEX 4-20mA CONTROL PANEL.
5. FLOAT TREE SHALL BE FOR 3 FLOATS (OFF, TIMER ON, ALARM). THERE SHALL BE ENOUGH FLOAT CORD INSIDE TANK TO ALLOW FLOAT TREE TO BE REMOVED WITHOUT DISCONNECTING ANY WIRES. FLOAT SETTINGS:
   - 5.1. OFF – 3 INCHES ABOVE PUMP.
   - 5.2. TIMER ON - SET AT 100 GALLONS ABOVE OFF.
   - 5.3. ALARM - SET AT 12 INCHES BELOW INLET.
6. SET TIMER:
   - 6.1. ON - 4 MINUTES
   - 6.2. OFF - 26 MINUTES
   - 6.3. ALTERNATE THE PUMPS EACH TIME THE PUMP COMES ON.
7. USE 2 INCH ELECTRICAL CONDUIT FROM PUMP RISER TO CONTROL PANEL. SEAL BOTH ENDS WATER AND GAS TIGHT.

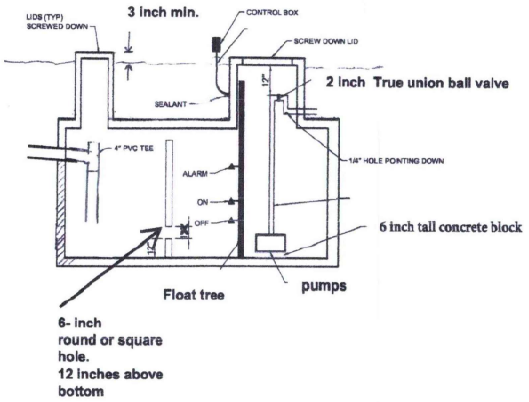
LATERAL FIELD INSTALLATION

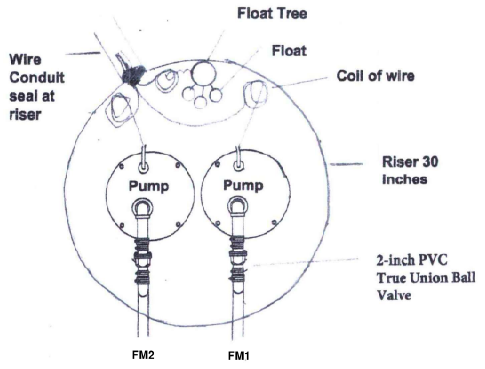
1. THE SEPTIC TANK AND LATERAL FIELD INSTALLER MUST HAVE A CERTIFIED INSTALLER OF ONSITE WASTEWATER TREATMENT SYSTEMS (CIOWTS) CREDENTIAL.
2. CONTRACTOR IS RESPONSIBLE TO LAYOUT/STAKE THE LATERAL LINES AND D-BOXES. THE LATERAL FIELDS ARE SHOWN GENERALLY WHERE THEY WILL BE PLACED. THE SITE SLOPES DOWN AND HAS A ROLLING SURFACE IN SOME AREAS. FIELD ADJUSTMENTS WILL BE REQUIRED. CONTACT THE ENGINEER A MINIMUM 1 WEEK PRIOR TO LATERAL FIELD STAKING. THE ENGINEER WILL PROVIDE GUIDANCE IN THE STAKING THE LATERALS AND D-BOXES.
3. ONLY INSTALL THE LATERALS WHEN THE SOIL MOISTURE IS SATISFACTORY. THE SATISFACTORY MOISTURE SHALL BE CHECKED 2-3 INCHES BELOW THE BOTTOM OF THE TRENCH. TAKE A SAMPLE OF TEH SOIL AT THIS DEPTH AND WORK THE SOIL TO MAKE THE SOIL A UNIFORM SAMPLE. ROLL INTO A SMALL BALL ABOUT THE SIZE OF A MARBLE. TRY TO ROLL THE BALL INTO A SMALL PENCIL SHAPE WIRE ABOUT ⅛ INCH IN DIAMETER. IF THE WIRE CAN BE FORMED AND NOT CRUMBLE APART THE SOIL IS TOO WET AND THE LATERAL TRENCHES MUST NOT BE EXCAVATED AT THIS TIME. IF THE WIRE CRUMBLES APART BEFORE REACHING ⅛ INCH THE SOIL IS OKAY TO EXCAVATE THE TRENCHES.
4. NEVER INSTALL THE LATERALS WHEN THERE IS FROST IN THE GROUND.

SANITARY SEWER INFORMATION

PIPE NUMBER	PIPE SIZE	FROM	TO	SLOPE	LENGTH
SAN 1	4" PVC	CLEANOUT	SEPTIC TANK 1	-2.00%	4.00'
SAN 2	4" PVC	SEPTIC TANK 1	BEND 1-2	-1.00%	59.55'
SAN 3	4" PVC	BEND 1-2	BEND 1-3	-0.87%	142.78'
SAN 4	4" PVC	BEND 1-3	WYE 1-5	-0.90%	136.42'
SAN 5	6" PVC	WYE 1-5	SANMH5	-1.00%	113.54'
SAN 6	6" PVC	SAN MH5	SAN MH4	-1.00%	200.38'
SAN 7	6" PVC	SAN MH4	SAN MH3	-1.00%	201.07'
SAN 8	6" PVC	SAN MH3	SAN MH2	-1.00%	255.32'
SAN 9	6" PVC	SAN MH2	SEPTIC TANK	-1.30%	114.96'
SAN 10	4" PVC	SHOWER HOUSE	BEND 2-1	-1.00%	14.42'
SAN 11	6" PVC	BEND 2-1	BEND 2-2	-2.27%	57.82'
SAN 12	6" PVC	BEND 2-2	SAN CO 2-1	-0.80%	179.19'
SAN 13	6" PVC	SAN CO 2-1	SEPTIC TANK 2	-0.80%	381.10'
SAN 14	4" PVC	SHOWER HOUSE	BEND 1-1	-3.77%	12.42'
SAN 15	6" PVC	BEND 1-1	WYE 1-1	-1.00%	12.17'
SAN 16	6" PVC	WYE 1-1	WYE 1-2	-1.00%	14.50'
SAN 17	6" PVC	WYE 1-2	WYE 1-3	-1.00%	12.17'
SAN 18	6" PVC	WYE 1-3	WYE 1-4	-1.00%	14.50'
SAN 19	4" PVC	SHOWER HOUSE	WYE 1-1	-4.42%	13.33'
SAN 20	4" PVC	SHOWER HOUSE	WYE 1-2	-5.55%	13.33'
SAN 21	4" PVC	SHOWER HOUSE	WYE 1-3	-6.93%	12.42'
SAN 22	4" PVC	SHOWER HOUSE	WYE 1-4	-8.33%	12.00'
SAN 23	6" PVC	WYE 1-4	WYE 1-5	-7.86%	42.70'
SAN 24	4" PVC	FM 2	SAN25	-1.00%	89.74'
SAN 25	4" PVC	SAN24	DRAINAGE FIELD	-1.00%	28.80'
FM 1	2" PVC	PUMP	D-BOX	BACK TO PUMP	112.00'
FM 2	2" PVC	PUMP	D-BOX	BACK TO PUMP	272.00'

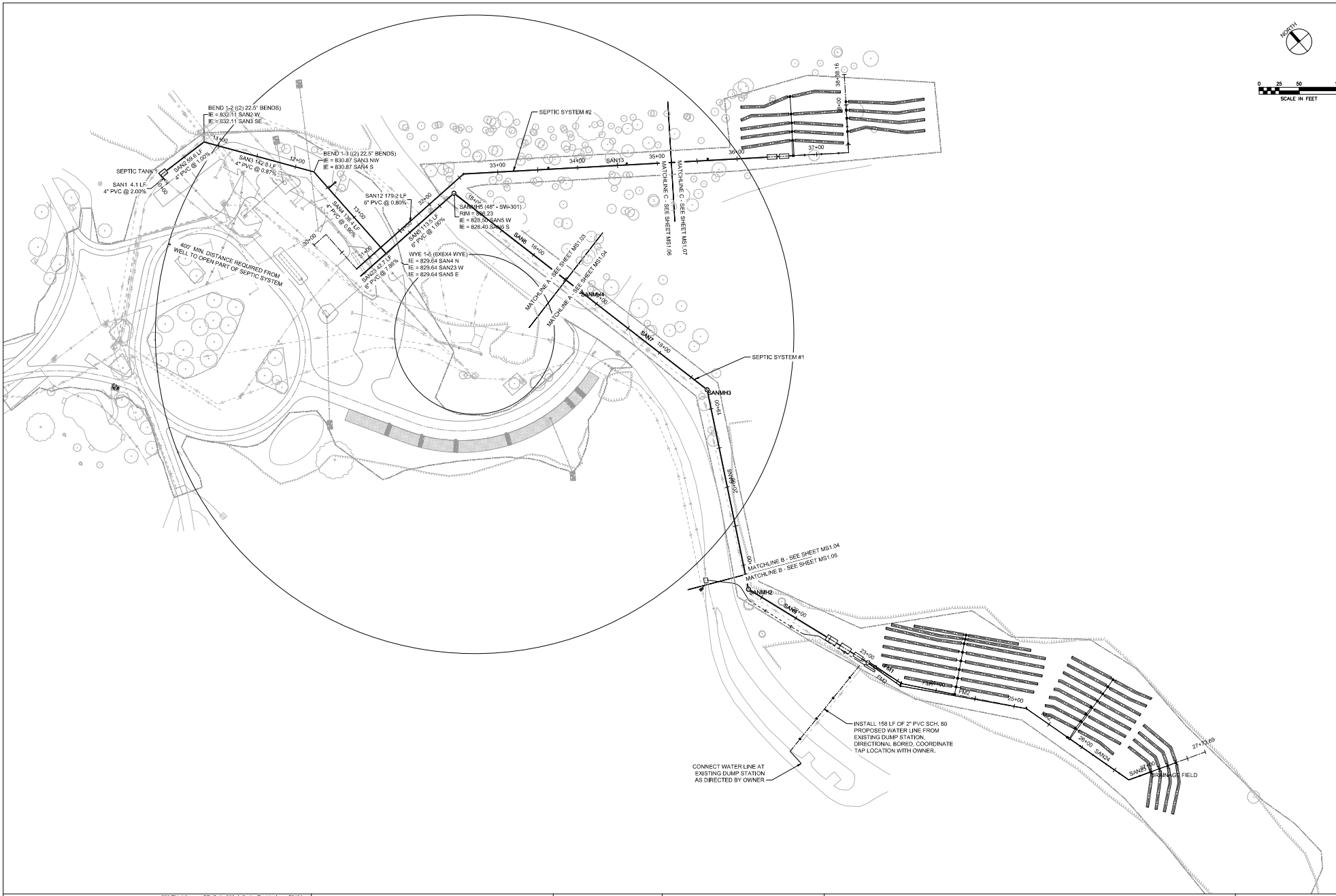
*MINIMUM 42" BURY DEPTH. SLOPE BACK TO PUMP TANK.





TOP VIEW

1 PUMP DETAIL
N.T.S.



SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

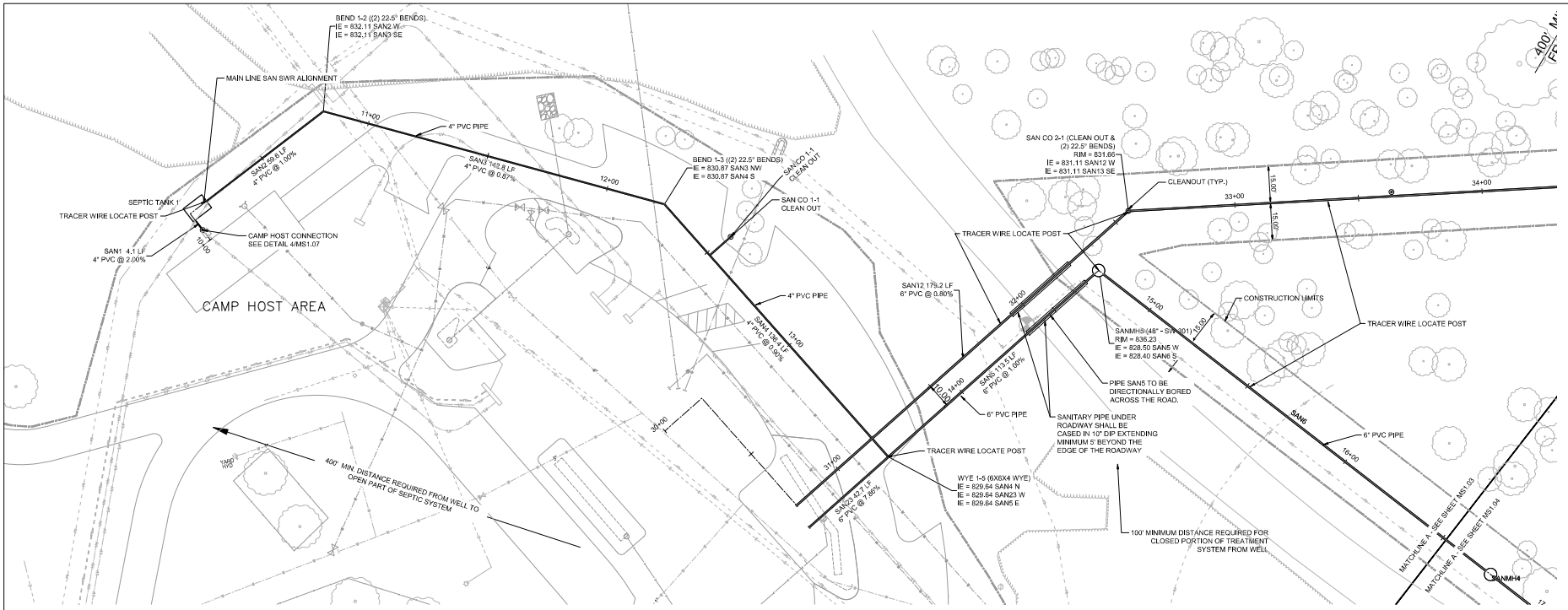
JOHNSON COUNTY CONSERVATION BOARD

PROJECT NO.: 4217341

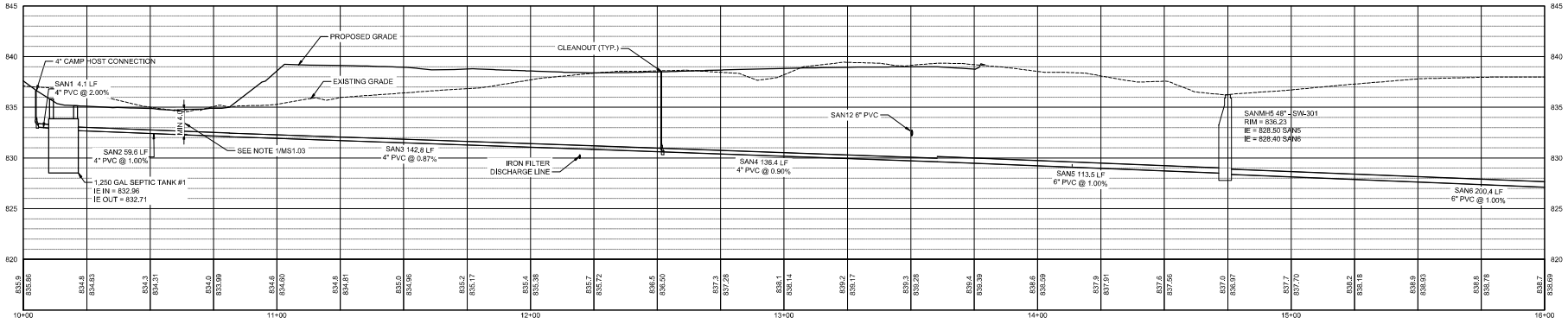
ISSUE FOR BID 01/26/2024

SHEET NAME: SEPTIC SYSTEM INDEX

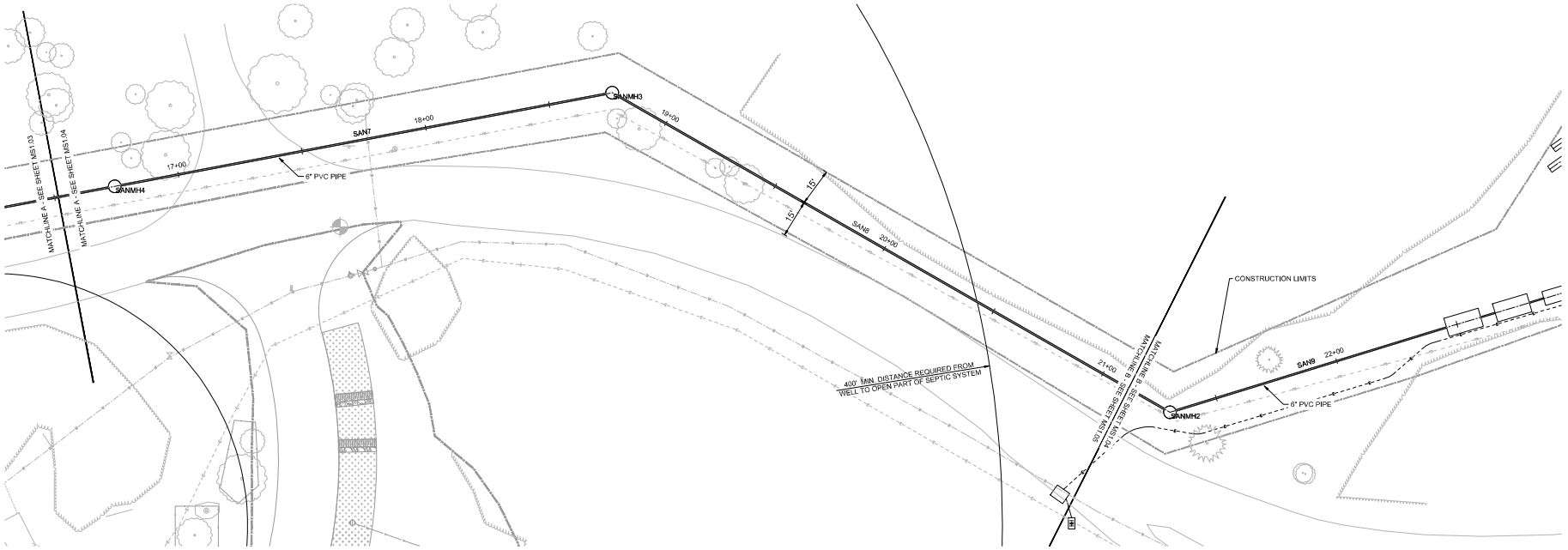
SHEET NO.: MS1.02

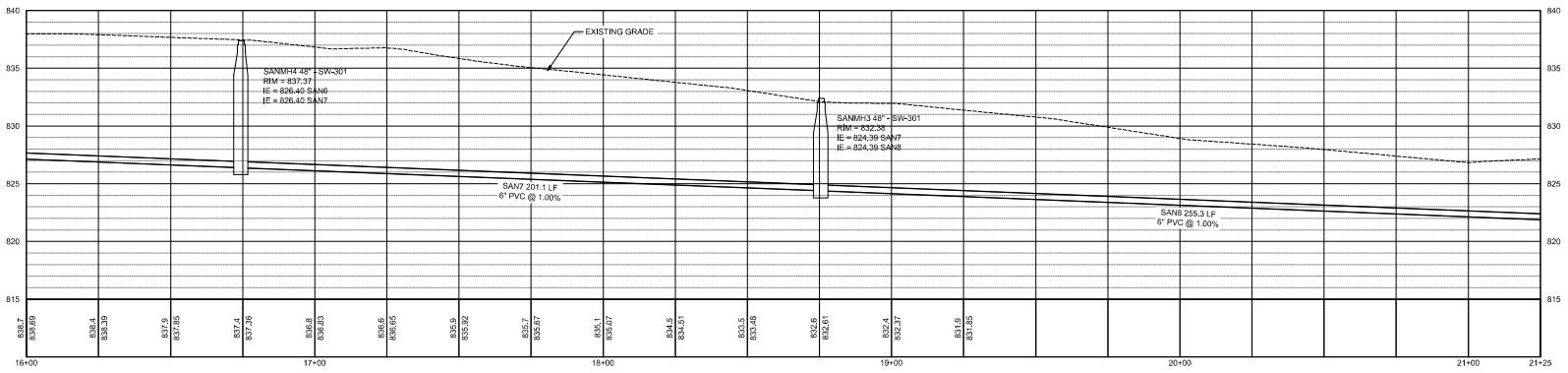


GENERAL NOTES:
1. FROM SEPTIC TANK 1 TO STATION 10+88, CONTRACTOR SHALL PLACE 2 INCH X 48 INCH POLYSTYRENE CENTERED OVER PIPE (APPROXIMATELY 68 LF).
2. SEPTIC TANK #1 IS 1,250 GALLON CONCRETE TANK WITH POLYLOK FILTER ON OUTLET PL-122.



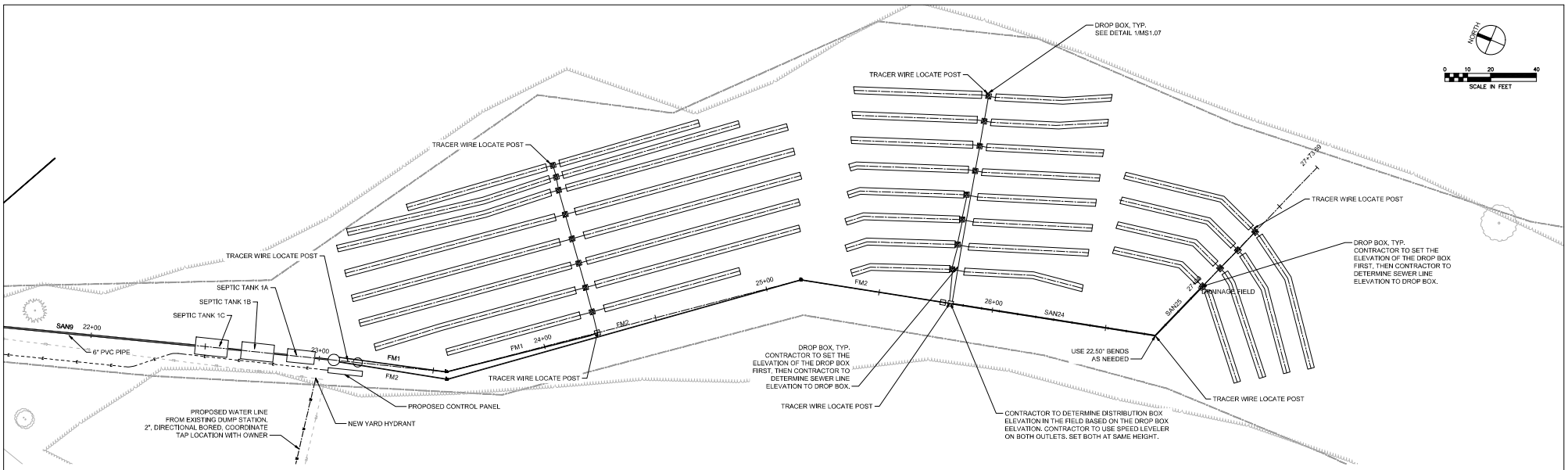
SHIVEHATTERY ARCHITECTURE + ENGINEERING	222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401 319.364.0227 | fax 319.364.4251 | www.shive-hattery.com Iowa | Illinois | Indiana | Nebraska | Wisconsin	JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM 1 STA 10+00 TO STA 16+00	SHEET NO.: MS1.03





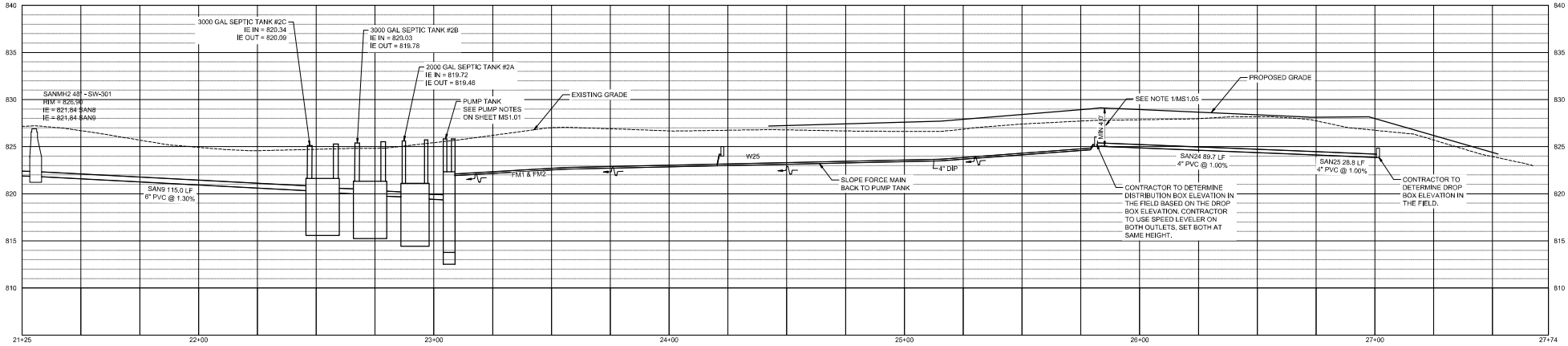
SHIVEHATTERY
ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM 1 STA 16+00 TO 21+25	SHEET NO.: MS1.04



GENERAL NOTES:

1. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 24+43 - 27+50 IS ANTICIPATED TO NEED FILL TO MEET MINIMUM COVER REQUIREMENT.

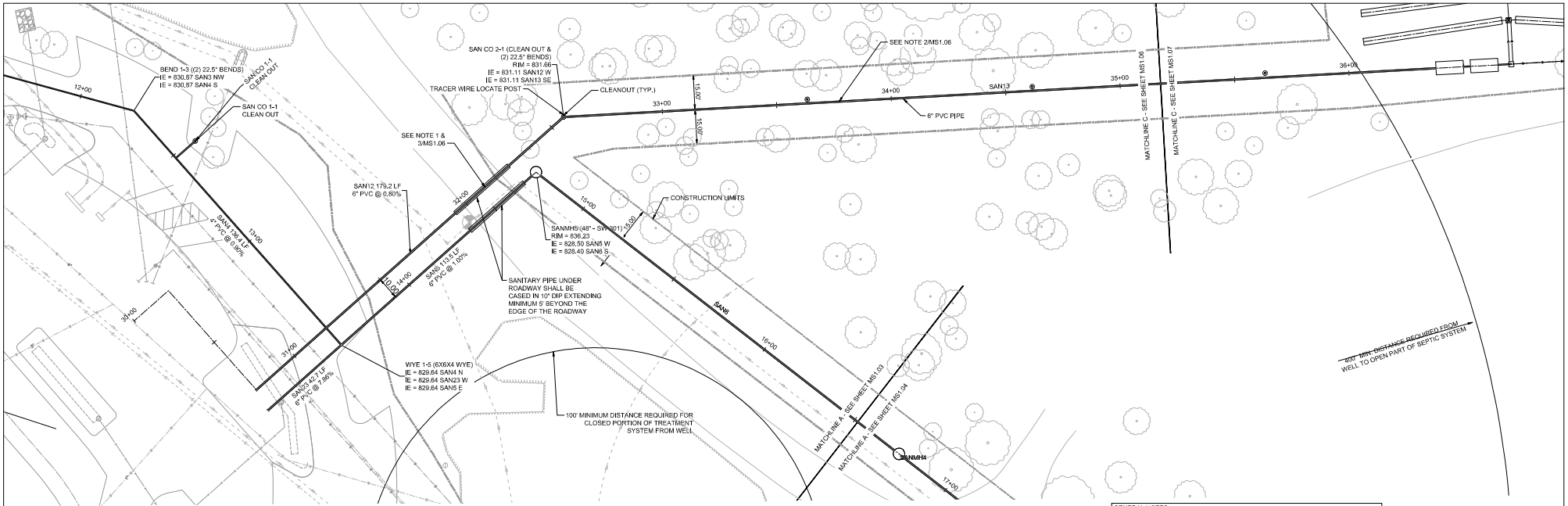


VERTICAL SCALE
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM 1 STA 21+25 TO 27+00	SHEET NO.: MS1.05

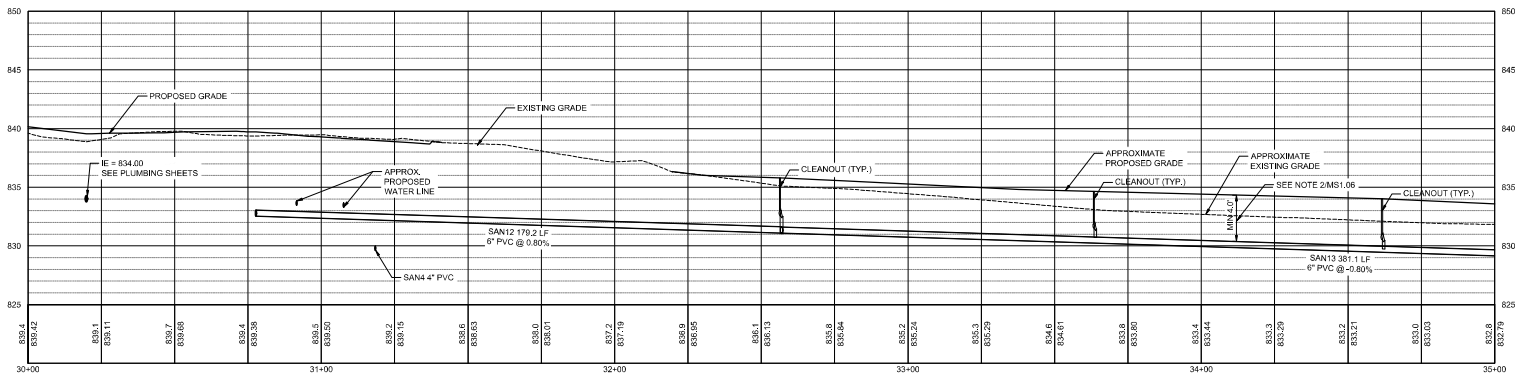


GENERAL NOTES:

1. FROM STATION 32+00 - 35+00, CONTRACTOR SHALL PLACE 2 INCH X 48 INCH POLYSTYRENE CENTERED OVER PIPE (APPROXIMATELY 300 LF).
2. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 32+20 - 35+00 IS ANTICIPATED TO NEED FILL TO MEET MININUM COVER REQUIREMENT.
3. CONTRACTOR TO REMOVE AND REPLACE APPROXIMATELY 25 SY OF ASPHALT PARK ROAD AND SUBBASE TO INSTALL PIPE SAN 12. MATCH EXISTING SUBBASE AND PAVEMENT SECTIONS. CONTRACTOR TO PROVIDE OWNER MINIMUM 7 BUSINESS DAYS NOTICE PRIOR TO CLOSING THE PARK ROAD FOR PIPE SAN 12 INSTALLATION. CONTRACTOR TO COORDINATE WITH OWNER ON CLOSURE OF THE ROAD AND LENGTH OF CLOSURE PRIOR TO CONSTRUCTION.

NORTH

HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

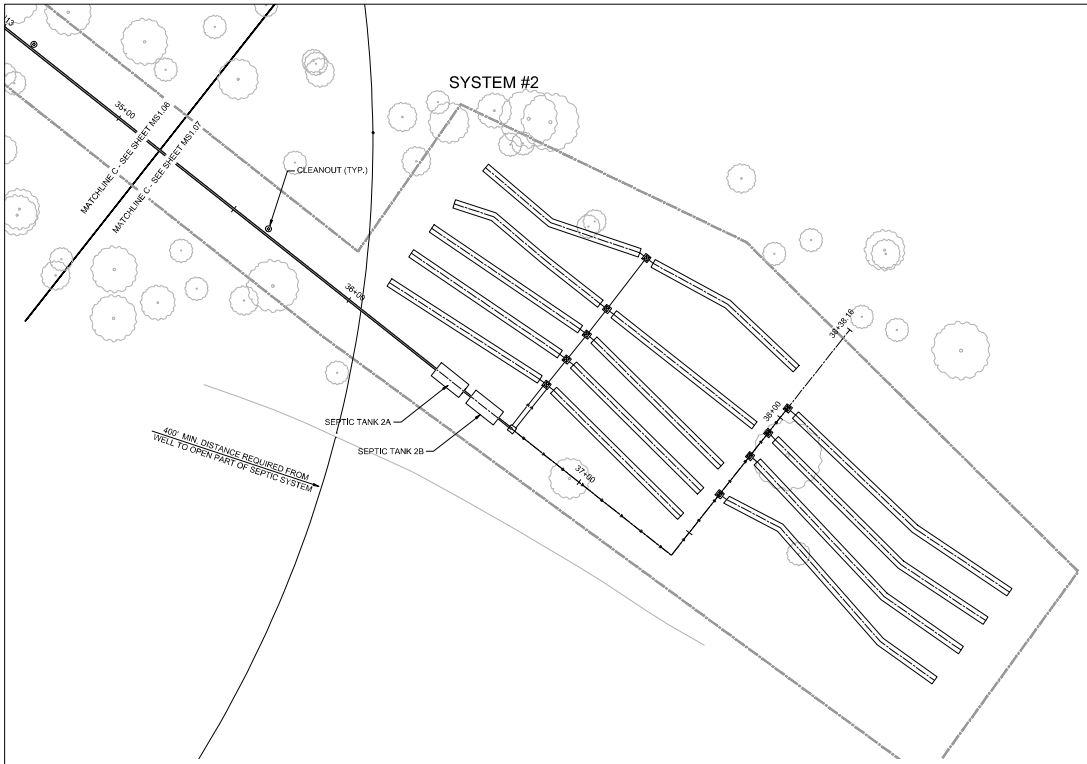


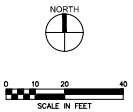
VERTICAL SCALE
0 2.5 5 10
SCALE IN FEET

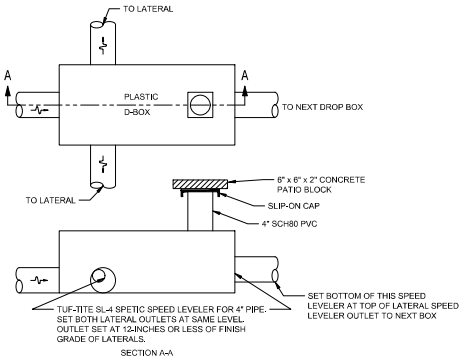
HORIZONTAL SCALE
0 10 20 40
SCALE IN FEET

SHIVEHATTERY
ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

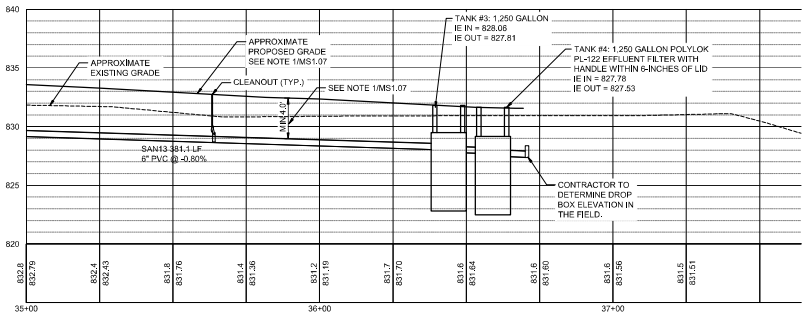
JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM 2 STA 30+00 TO 35+00	SHEET NO.: MS1.06



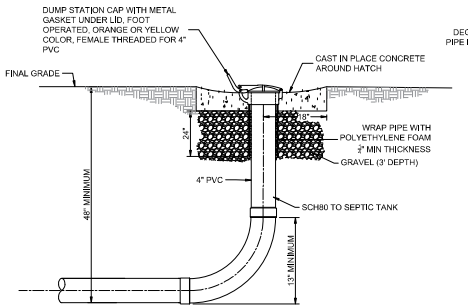




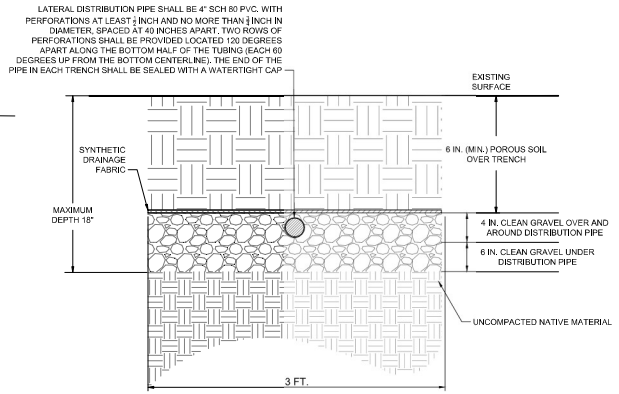
1 DROP BOX DETAIL
N.T.S.



GENERAL NOTES:
1. WHERE THERE IS LESS THAN 4 FEET OF SOIL COVER OVER PIPE, CONTRACTOR TO PLACE FILL ON TOP OF EXISTING GROUND OVER TOP OF PIPE TO BRING COVER TO 4 FOOT MINIMUM. CONTRACTOR TO FEATHER SOIL DOWN FROM CENTER OF PIPE TO TREE LINE ON EACH SIDE. REFER TO F SHEETS FOR GRADING DETAILS. GRADING NOTES ON SHEET A1.01 APPLIES. AREA FROM APPROXIMATELY STATION 35+00 - 38+53 IS ANTICIPATED TO NEED FILL TO MEET MINIMUM COVER REQUIREMENT.
2. TANKS #3 AND #4 SHALL BE 1,250 GALLON PLASTIC TANK AND SHALL BE ROTH, INFILTRATOR OR COON TANK. BACKFILL WITH CRUSHED ROCK OR CRUSHED CONCRETE MINIMUM 24" UP ALL SIDES WITH 12" UNDER TANK. USE HEAVY DUTY FLAT TOP SCREW DOWN LIDS PLACED FLUSH WITH FINAL GRADE.



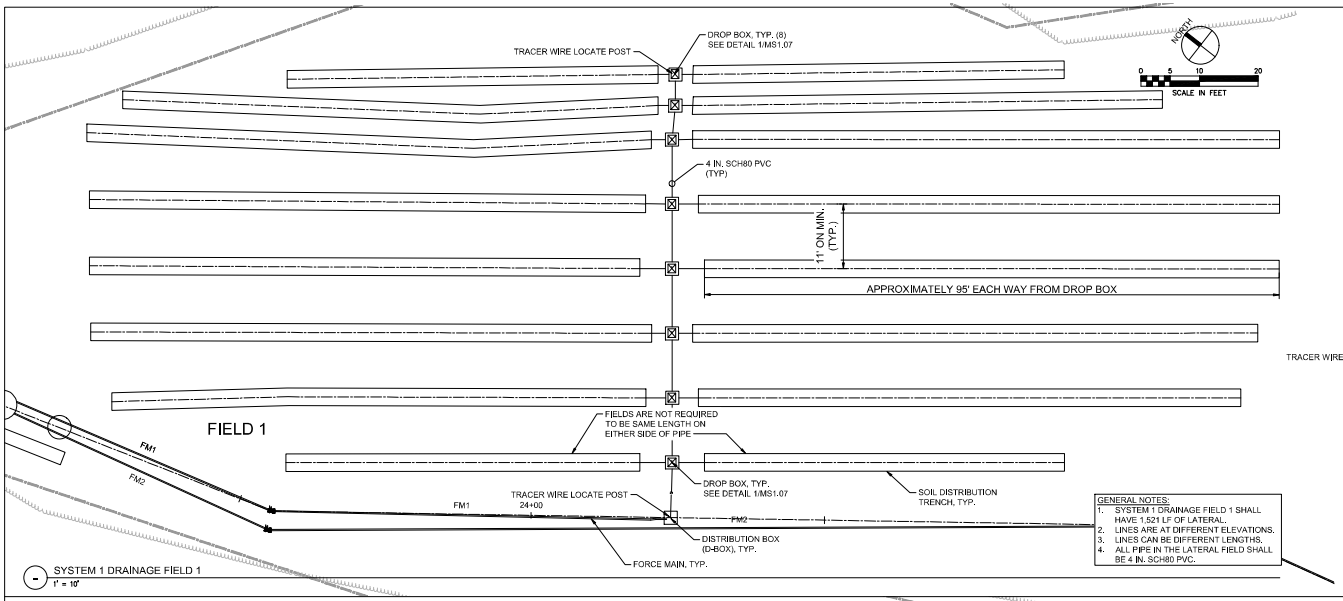
4 CAMPSITE SEWER DROP
NOT TO SCALE



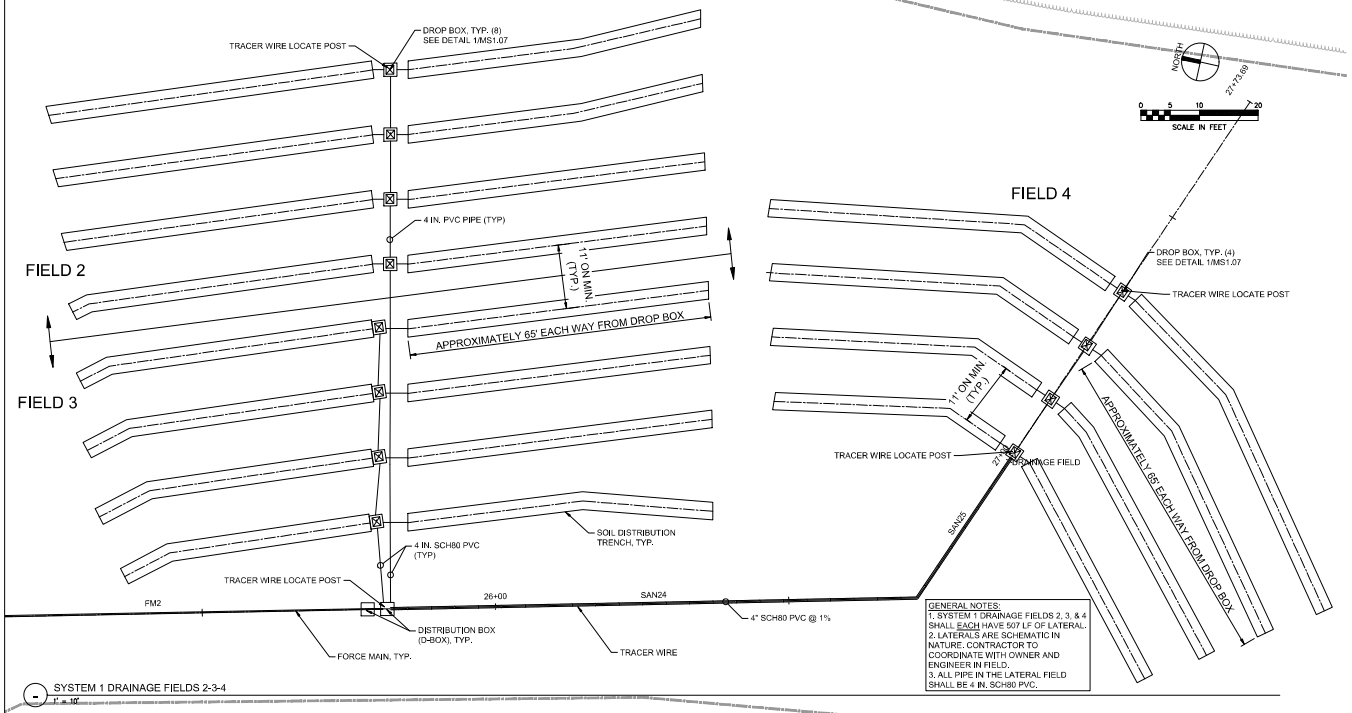
3 SOIL ABSORPTION TRENCH DETAIL
NOT TO SCALE

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

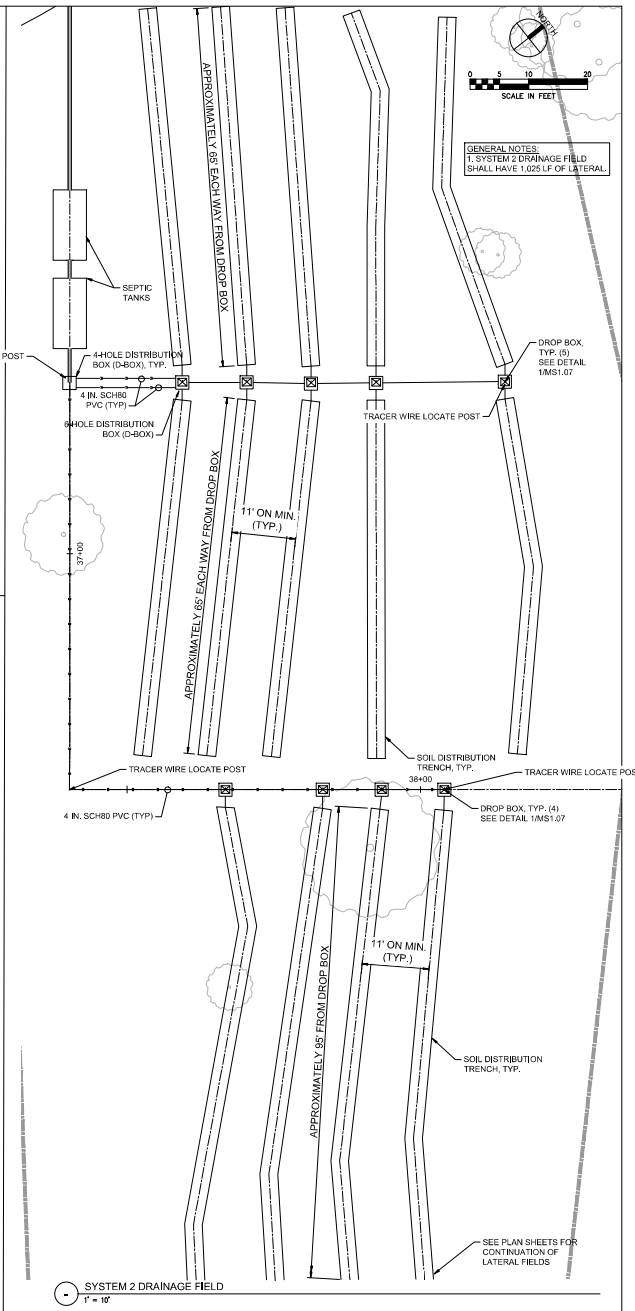
JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM 2 STA 35+00 TO 37+37 AND DETAILS	SHEET NO.: MS1.07



SYSTEM 1 DRAINAGE FIELD 1
1" = 10'



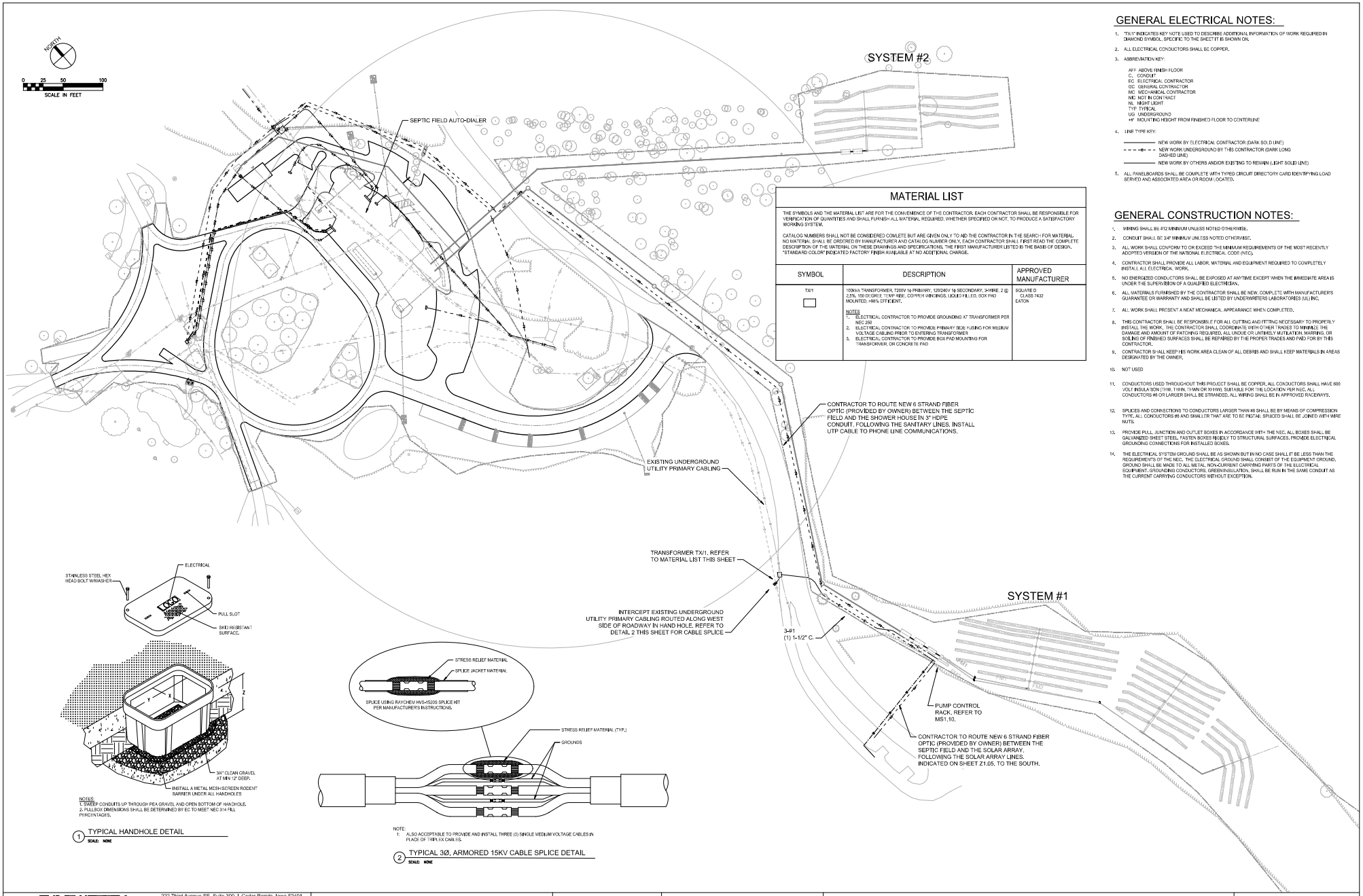
SYSTEM 1 DRAINAGE FIELDS 2-3-4
1" = 10'



SYSTEM 2 DRAINAGE FIELD
1" = 10'

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: SEPTIC SYSTEM FIELD DETAILS	SHEET NO.: MS1.08



MATERIAL LIST

THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS SHALL NOT BE CONSIDERED COMLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATED FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

SYMBOL	DESCRIPTION	APPROVED MANUFACTURER
TX/1	100kVA TRANSFORMER, 7200V to PRIMARY, 120/240V to SECONDARY, 3-WIRE 2 @ 2.5%, 150 DEGREE TEMP RISE, COPPER WINDINGS, LIQUID FILLED, BOX PAD MOUNTED, >98% EFFICIENT. NOTES 1. ELECTRICAL CONTRACTOR TO PROVIDE GROUNDING AT TRANSFORMER PER NEC 250 2. ELECTRICAL CONTRACTOR TO PROVIDE PRIMARY SIDE FUSING FOR MEDIUM VOLTAGE CABLING PRIOR TO ENTERING TRANSFORMER 3. ELECTRICAL CONTRACTOR TO PROVIDE BOX PAD MOUNTING FOR TRANSFORMER, OR CONCRETE PAD	SQUARE D CLASS 7432 EATON

GENERAL ELECTRICAL NOTES:

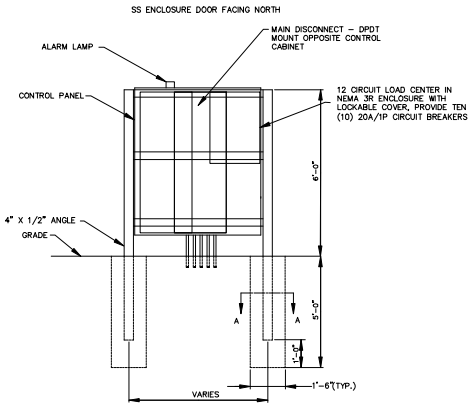
1. "TX/1" INDICATES KEY NOTE USED TO DESCRIBE ADDITIONAL INFORMATION OF WORK REQUIRED IN DIAMOND SYMBOL, SPECIFIC TO THE SHEET IT IS SHOWN ON.
2. ALL ELECTRICAL CONDUCTORS SHALL BE COPPER.
3. ABBREVIATION KEY:
   - AFF ABOVE FINISH FLOOR
   - C. CONDUIT
   - EC ELECTRICAL CONTRACTOR
   - GC GENERAL CONTRACTOR
   - MC MECHANICAL CONTRACTOR
   - NIC NOT IN CONTRACT
   - NL NIGHT LIGHT
   - TYP TYPICAL
   - UG UNDERGROUND
   - +#' MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE
4. LINE TYPE KEY:
   - ——— NEW WORK BY ELECTRICAL CONTRACTOR (DARK SOLID LINE)
   - - - - - NEW WORK UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
   - ——— NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
5. ALL PANELBOARDS SHALL BE COMPLETE WITH TYPED CIRCUIT DIRECTORY CARD IDENTIFYING LOAD SERVED AND ASSOCIATED AREA OR ROOM LOCATED.

GENERAL CONSTRUCTION NOTES:

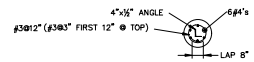
1. WIRING SHALL BE #12 MINIMUM UNLESS NOTED OTHERWISE.
2. CONDUIT SHALL BE 3/4" MINIMUM UNLESS NOTED OTHERWISE.
3. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE MOST RECENTLY ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
4. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETELY INSTALL ALL ELECTRICAL WORK.
5. NO ENERGIZED CONDUCTORS SHALL BE EXPOSED AT ANYTIME EXCEPT WHEN THE IMMEDIATE AREA IS UNDER THE SUPERVISION OF A QUALIFIED ELECTRICIAN.
6. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, COMPLETE WITH MANUFACTURER'S GUARANTEE OR WARRANTY AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) INC.
7. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
8. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND FITTING NECESSARY TO PROPERLY INSTALL THE WORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO MINIMIZE THE DAMAGE AND AMOUNT OF PATCHING REQUIRED, ALL UNDUE OR UNTIMELY MUTILATION, MARRING, OR SOILING OF FINISHED SURFACES SHALL BE REPAIRED BY THE PROPER TRADES AND PAID FOR BY THIS CONTRACTOR.
9. CONTRACTOR SHALL KEEP HIS WORK AREA CLEAN OF ALL DEBRIS AND SHALL KEEP MATERIALS IN AREAS DESIGNATED BY THE OWNER.
10. NOT USED
11. CONDUCTORS USED THROUGHOUT THIS PROJECT SHALL BE COPPER. ALL CONDUCTORS SHALL HAVE 600 VOLT INSULATION (THW, THHN, THWN OR XHHW). SUITABLE FOR THE LOCATION PER NEC. ALL CONDUCTORS #8 OR LARGER SHALL BE STRANDED. ALL WIRING SHALL BE IN APPROVED RACEWAYS.
12. SPLICES AND CONNECTIONS TO CONDUCTORS LARGER THAN #8 SHALL BE BY MEANS OF COMPRESSION TYPE. ALL CONDUCTORS #8 AND SMALLER THAT ARE TO BE PIGTAIL SPLICED SHALL BE JOINED WITH WIRE NUTS.
13. PROVIDE PULL, JUNCTION AND OUTLET BOXES IN ACCORDANCE WITH THE NEC. ALL BOXES SHALL BE GALVANIZED SHEET STEEL. FASTEN BOXES RIGIDLY TO STRUCTURAL SURFACES. PROVIDE ELECTRICAL GROUNDING CONNECTIONS FOR INSTALLED BOXES.
14. THE ELECTRICAL SYSTEM GROUND SHALL BE AS SHOWN BUT IN NO CASE SHALL IT BE LESS THAN THE REQUIREMENTS OF THE NEC. THE ELECTRICAL GROUND SHALL CONSIST OF THE EQUIPMENT GROUND. GROUND SHALL BE MADE TO ALL METAL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL EQUIPMENT. GROUNDING CONDUCTORS, GREEN INSULATION, SHALL BE RUN IN THE SAME CONDUIT AS THE CURRENT CARRYING CONDUCTORS WITHOUT EXCEPTION.

CODED NOTES: ◯

1. PROVIDE CONNECTION TO SITE DISTRIBUTION POWER SYSTEM.
2. PROVIDE 200A CAM-lok RECPTS FOR CONNECTION OF PORTABLE GENERATOR. COORDINATE WITH OWNER FOR ACTUAL RECEPTACLE REQUIREMENTS.
3. INTERFACE EQUIPMENT FOR SENSORS TO BE FURNISHED BY OTHERS. PROVIDE CONTROL CONNECTIONS AS RECOMMENDED BY THE SUPPLIER.
4. SEE WET WELL PLAN FOR FLOAT ELEVATIONS
5. PROVIDE GROUNDING AND BONDING AT MAIN DISCONNECT PER NEC ARTICLE 250.



NORTH



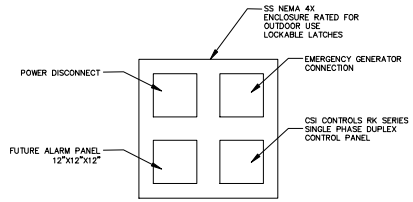
SECTION A–A

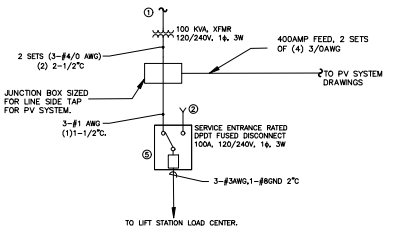
NOTES:

1. COORDINATE EXACT MOUNTING CONFIGURATION, FRAME HEIGHT AND WIDTH WITH COMPONENT SHOP DRAWINGS. PROVIDE SHOP DRAWINGS FOR APPROVAL OF FINAL ARRANGEMENT BY THE ENGINEER.
2. FASTENING HARDWARE SHALL BE 304 STAINLESS STEEL BOLTS AND STEEL ANGLE IRON AS REQUIRED. ALL ANGLE IRON SHALL BE PRIMED, AND PAINTED WITH GRAY ZINC CHROMATE RUST-RESISTING PAINT.

CONTROL PANEL NORTH & SOUTH ELEVATIONS

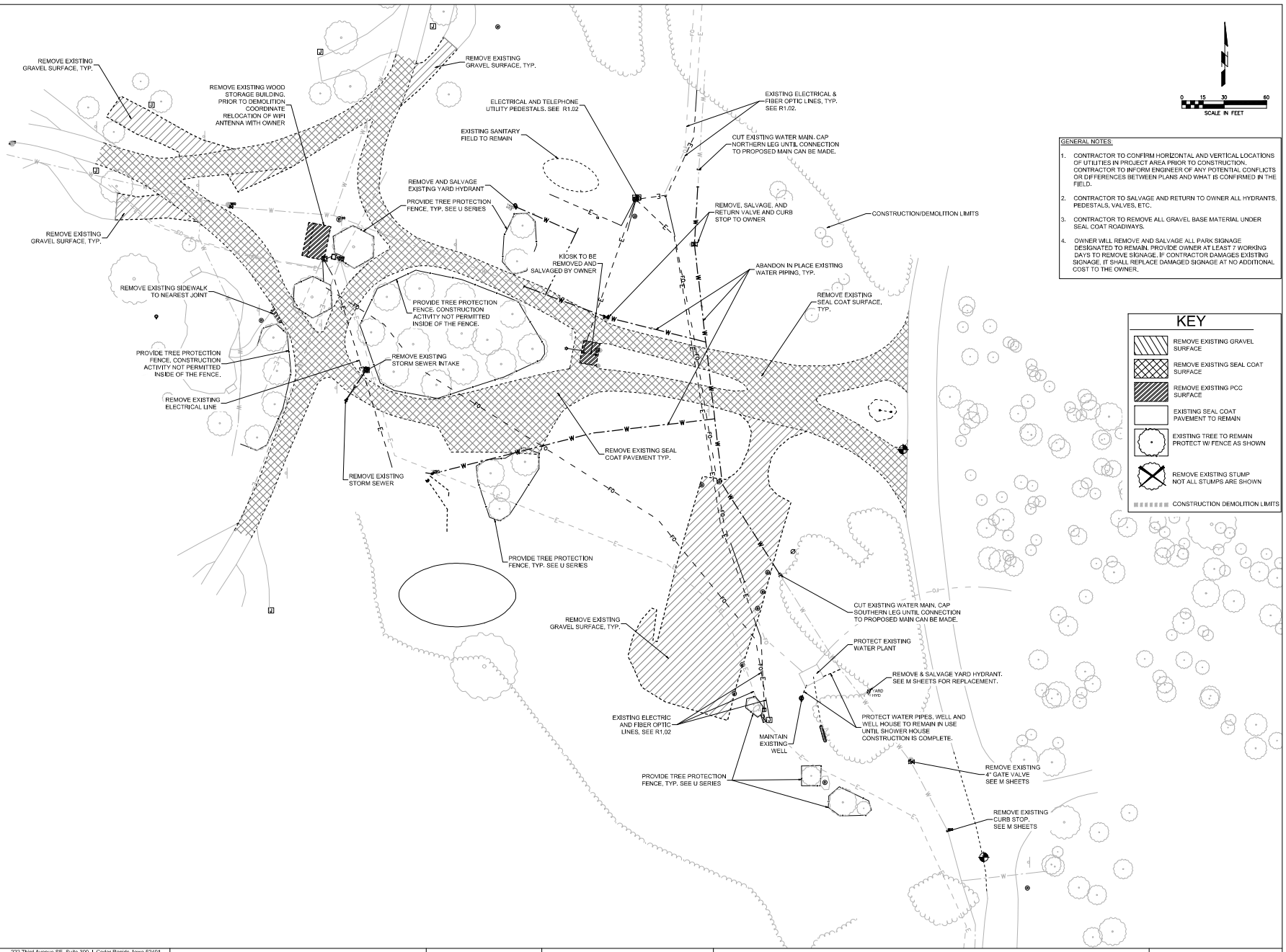
SCALE: 1/8" = 1'-0"





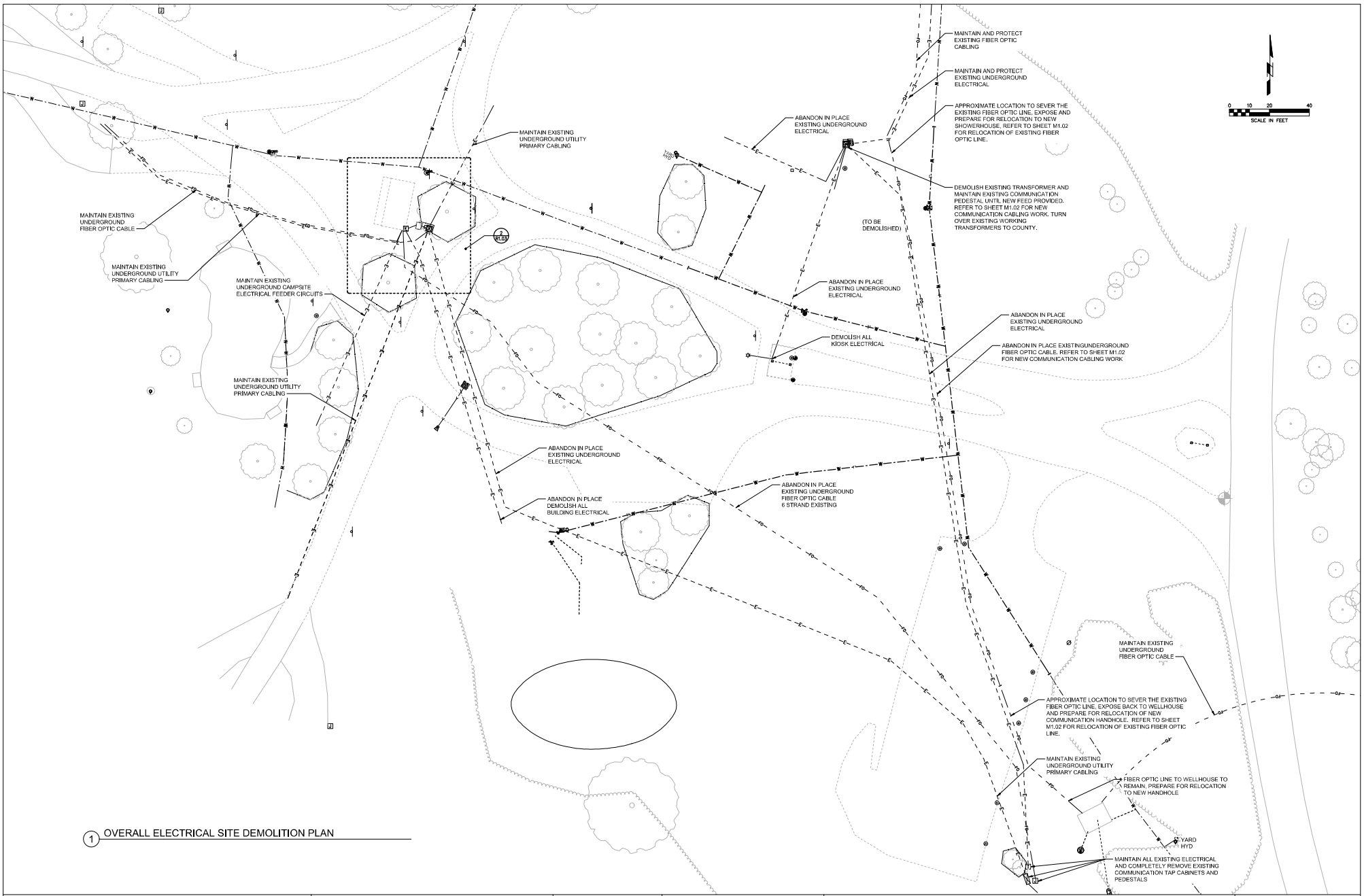
ONE LINE DIAGRAM

SCALE: NOT TO SCALE



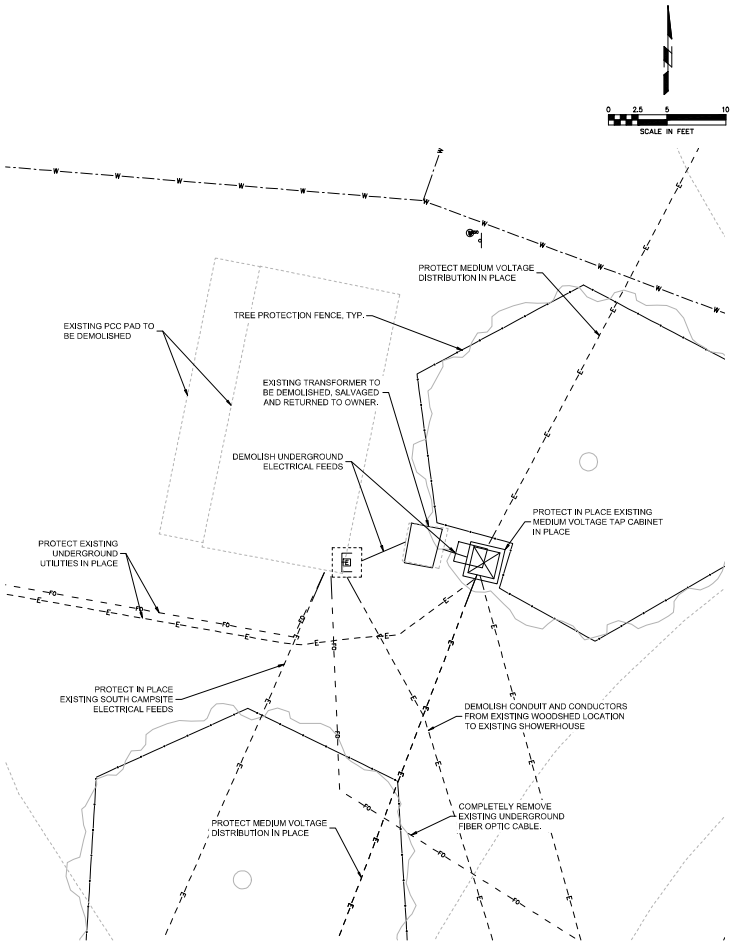
SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: REMOVALS | SHEET NO.: R1.01

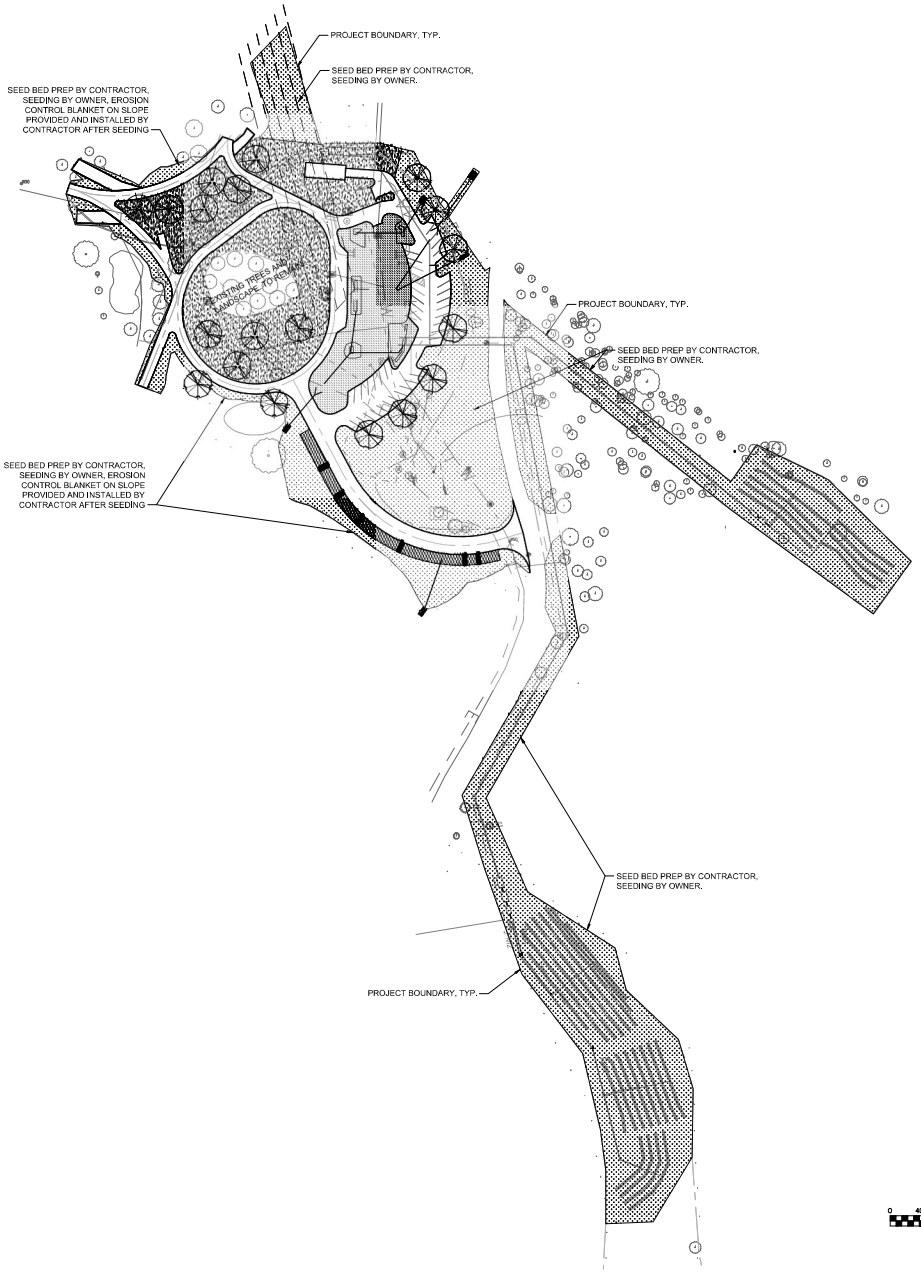


1 OVERALL ELECTRICAL SITE DEMOLITION PLAN

SHIVEHATTERY ARCHITECTURE + ENGINEERING	222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401 319.364.0227 | fax 319.364.4251 | www.shive-hattery.com Iowa | Illinois | Indiana | Nebraska | Wisconsin	JOHNSON COUNTY CONSERVATION BOARD	PROJECT NO.: 4217341	ISSUE FOR BID 01/26/2024	SHEET NAME: OVERALL ELECTRICAL SITE DEMOLITION PLAN	SHEET NO.: R1.02



2 ENLARGED ELECTRICAL SITE DEMOLITION PLAN - WOOD SHED



CONTRACTOR PROVIDED

BIO-SWALE SEED MIX

OWNER PROVIDED SEED AND OWNER INSTALLED. CONTRACTOR SHALL PROVIDE SEEDBED PREPARATION, AND EROSION CONTROL BLANKET AFTER SEEDING

ATHLETIC TURF SEED MIX -
OWNER APPROVAL REQUIRED
CONTRACTOR PROVIDED

HIGH TRAFFIC AREAS SUN OR SHADE LAWN MIX
1. 40% BOREAL CREEPING RED FESCUE
2. 30% PIROUET'E II PERENNIAL RYEGRASS
3. 20% BRIDGEPORT CHEWINGS FESCUE
4. 10% BARRISTER KENTUCKY BLUEGRASS

SUDAS TYPE 4 SEED

SEE SUDAS SPECIFICATION FOR SEED MIX

OWNER PROVIDED - FOR REFERENCE ONLY

NATIVE GRASSES - OWNER PROVIDED AND SEEDED
139,748 SF

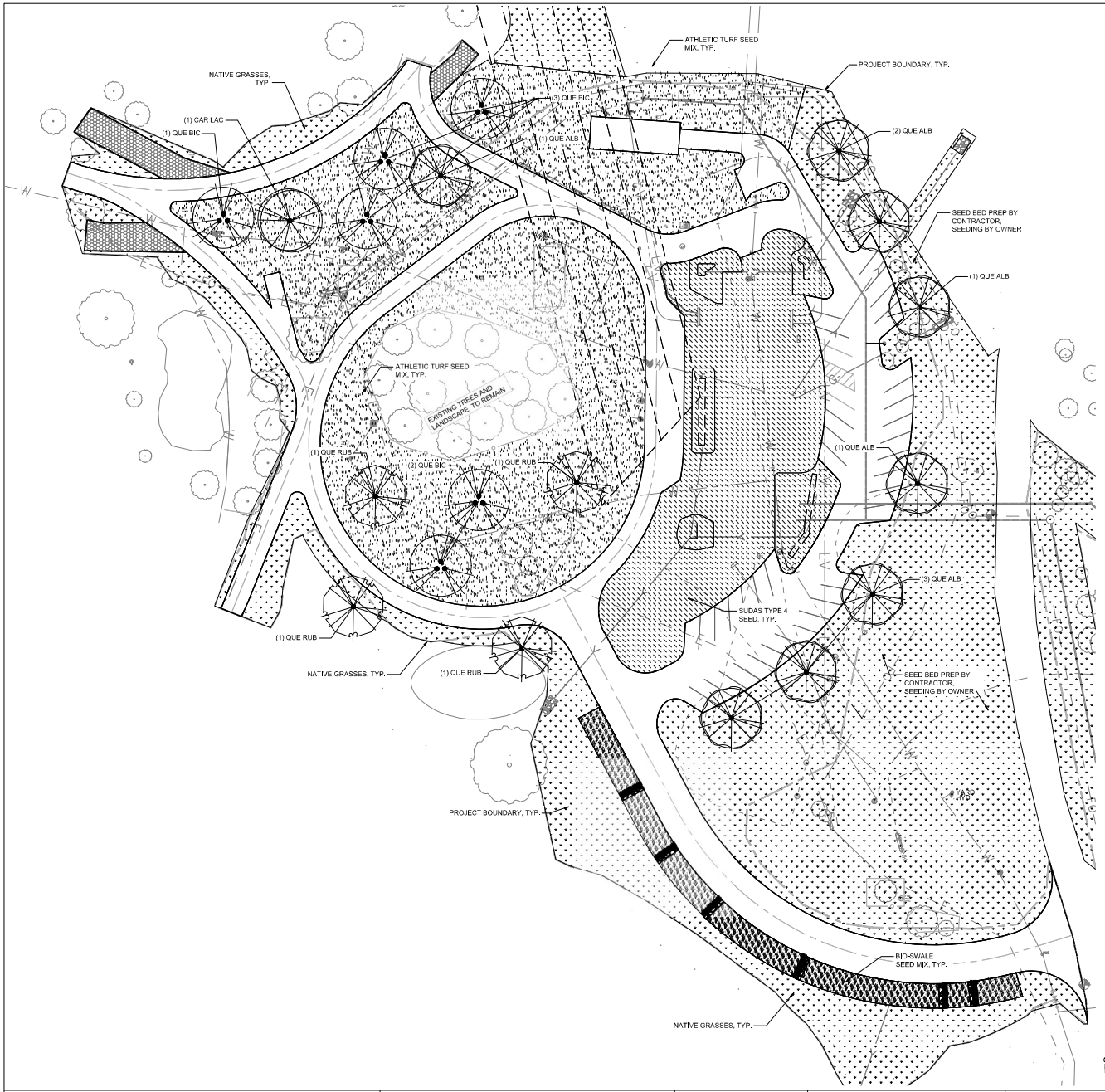
GRASSES
30% VIRGINIA WILD RYE
30% SILKY WILD RYE
20% SIDE OATS GRAMMA
10% LITTLE BLUESTEM
10% ROUGH DROPSEED

PLANT SCHEDULE :CONTRACTOR PROVIDED AND PLANTED

CODE	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE
TREES					
CAR LAC	1	Carya laciniosa	Shellbark Hickory	B & B	2"Cal
QUE ALB	8	Quercus alba	White Oak	B & B	2.5"Cal
QUE BIC	6	Quercus bicolor	Swamp White Oak	B & B	2"Cal
QUE RUB	4	Quercus rubra	Northern Red Oak	B & B	2"Cal
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	
SEED					
ATH TUR	55,922 sf	Athletic Turf Seed Mix	Athletic Turf Seed Mix	SF	
BIO MIX	4,752 sf	Bio-Swale Seed Mix	Bio-Swale Seed Mix	SF	
SUD SEE	22,224 sf	SUDAS Type 4 Seed	SUDAS Type 4 Seed	SF	

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: OVERALL LANDSCAPE PLAN | SHEET NO.: T1.00



PLANTING NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND PROTECT ALL UTILITIES AND STRUCTURES PRIOR TO PLANT INSTALLATION. DAMAGE TO UTILITIES AND STRUCTURES SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER.
2. FIELD ADJUSTMENTS OF PROPOSED PLANT LOCATIONS MAY BE REQUIRED TO MINIMIZE POTENTIAL INTERFERENCE WITH EXISTING UTILITIES, TO MINIMIZE HAZARDS TO PLANT GROWTH AND TO IMPROVE MAINTENANCE CONDITIONS. PLANT LOCATIONS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLANT MATERIAL INSTALLATION.
3. ALL PLANT MATERIAL SHALL AT LEAST MEET MINIMUM REQUIREMENTS SHOWN IN THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANZI Z80.1 - LATEST EDITION): PLANTS SHALL BE FRESHLY DUG OR WELL-ESTABLISHED IN CONTAINER AS APPLICABLE; NOT ROOT-BOUND IN THE CONTAINER.
4. NO PLANT MATERIAL SHALL BE SUBSTITUTED WITHOUT THE AUTHORIZATION OF LANDSCAPE ARCHITECT.
5. PLANT QUANTITIES ARE FOR CONTRACTOR'S CONVENIENCE. DRAWINGS SHALL PREVAIL WHERE CONFLICT OCCURS.
6. WOOD MULCH SHALL BE 4" DEEP, COMPOSED OF CEDAR OR CYPRESS WOOD OF UNIFORM COLOR AND LONG FIBROUS NATURE (2-4 INCHES IN LENGTH). DO NOT USE WALNUT. APPLY PRE-EMERGENCE HERBICIDE OVER THE TOP OF ALL WOOD MULCH AREAS.
7. MULCH ALL TREES LOCATED OUTSIDE OF DESIGNATED MULCH BEDS WITH A 4" DEPTH CIRCULAR (3-FOOT DIAMETER FOR SHRUBS AND 6-FOOT DIAMETER FOR TREES) OF WOOD MULCH. MULCHING SHALL BE LIMITED TO PLANTING BEDS AS DESIGNATE ON PLANS OR IN THE IMMEDIATE 3' -6' DIAMETER AT THE BASE OF THE PLANT.
8. OWNER WILL SEED ALL DISTURBED AREAS (OUT TO PROPERTY LINE AND IN RIGHT-OF-WAY AS REQUIRED) OUTSIDE PLANTING BEDS AND PAVEMENT AREAS WITH PERMANENT SEED MIXTURE FOR URBAN AREAS PER IDOT SPECIFICATIONS SECTION 2601.03B.4) OR APPROVED EQUIVALENT. FOLLOW IDOT AND SEED SUPPLIER'S RECOMMENDATIONS ON SOIL PREPARATION, SEEDING, APPLICATION RATE, MULCHING, WATERING, AND MAINTENANCE.
9. LANDSCAPE CONTRACTOR SHALL MAINTAIN PLANTING BEDS, PLANT MATERIAL, AND NEW TURF AREAS UNTIL SUBSTANTIAL COMPLETION. WEEDING, WATERING, MOWING, AND REPLACEMENT OF DEAD/DYING PLANTS ARE INCLUDED IN THIS MAINTENANCE.
10. ALL EXISTING GROUNDCOVER SHALL RECEIVE HERBICIDE PRIOR TO INSTALLATION IF OTHER PLANT MATERIAL/ GROUND COVER THAN WHAT IS SHOWN IS EXISTING.
11. LANDSCAPE CONTRACTOR SHALL MAINTAIN TURF AREAS UNTIL SUBSTANTIAL COMPLETION. WEEDING, WATERING, MOWING AND REPLACEMENT OF DEAD/DYING TURF IS INCLUDED IN THIS MAINTENANCE.
12. ALL SEPTIC SYSTEM AND TRENCHES OUTSIDE OF THIS PLAN VIEW WILL BE DONE BY CONTRACTOR. OWNER WILL SEED.
13. REFER TO SUDAS STANDARD SPECIFICATIONS FOR SEEDBED PREPARATION.

GENERAL LANDSCAPE NOTES

1. LANDSCAPE CONTRACTOR SHALL REVIEW AND FINISH ROUGH GRADING AND EROSION CONTROL MEASURES WITH GENERAL CONTRACTOR AND GRADING CONTRACTOR PRIOR TO COMMENCING LANDSCAPE WORK. GRADING CONTRACTOR SHALL CORRECT DEFICIENCIES IN ROUGH GRADING AND EROSION CONTROL TO A CONDITION ACCEPTABLE TO THE LANDSCAPE CONTRACTOR AND GENERAL CONTRACTOR. COMMENCEMENT OF WORK BY LANDSCAPE CONTRACTOR IMPLIES ACCEPTANCE OF GRADING CONDITIONS AND EROSION CONTROL MEASURES, AND RESPONSIBILITY FOR CONTROL AND REPAIR OF SUBSEQUENT DEFICIENCIES.
2. LANDSCAPE CONTRACTOR IS REQUIRED TO MAINTAIN POSITIVE DRAINAGE ON THE SITE FOLLOWING ACCEPTANCE OF GRADING CONDITIONS. REFER TO GRADING PLAN FOR CONTOURS AND SPOT ELEVATIONS.
3. LANDSCAPE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE ANY CONFLICTS BETWEEN GRADING DESIGN AND ANY ON-SITE UTILITIES. WORK SHALL NOT COMMENCE UNTIL ISSUE IS RESOLVED AND DOCUMENTED IN WRITING BY OWNER'S REPRESENTATIVE.
4. SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, ETC. SHALL BE KEPT CLEAN AT ALL TIMES.
5. EXCESS AND WASTE MATERIALS SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH APPLICABLE GOVERNMENTAL REGULATIONS.
6. ALL OPEN EXCAVATIONS SHALL BE PROTECTED WITH SAFETY FENCE, BARRIERS, OR BARRICADES IN ACCORDANCE WITH OSHA.
7. MAINTENANCE OF PLANTING ADJACENT TO PUBLIC RIGHT-OF-WAY SHALL BE THE RESPONSIBILITY OF THE OWNER.
8. ALL TREES SHALL BE SINGLE STEM
9. ALL TREES SHALL HAVE STRAIGHT, MAIN LEADING TRUNK AND SHALL BE FREE OF DISEASES.
10. TREE PROTECTION FENCING SHALL BE PLACED EQUAL TO THE DRIPLINE EDGE DURING CONSTRUCTION. ALLOW NO CONSTRUCTION EQUIPMENT OR STORAGE WITHIN THE DRIPLINE DURING CONSTRUCTION.

CONTRACTOR PROVIDED

BIO-SWALE SEED MIX

OWNER PROVIDED SEED AND OWNER INSTALLED, CONTRACTOR SHALL PROVIDE SEEDBED PREPARATION, AND EROSION CONTROL BLANKET AFTER SEEDING

ATHLETIC TURF SEED MIX - OWNER APPROVAL REQUIRED CONTRACTOR PROVIDED

HIGH TRAFFIC AREAS SUN OR SHADE LAWN MIX
1. 40% BOREAL CREEPING RED FESCUE
2. 30% PROQUETTE II PERENNIAL RYEGRASS
3. 20% BRIDGEPORT CHEWINGS FESCUE
4. 10% BARRISTER KENTUCKY BLUEGRASS

SUDAS TYPE 4 SEED

SEE SUDAS SPECIFICATION FOR SEED MIX

OWNER PROVIDED

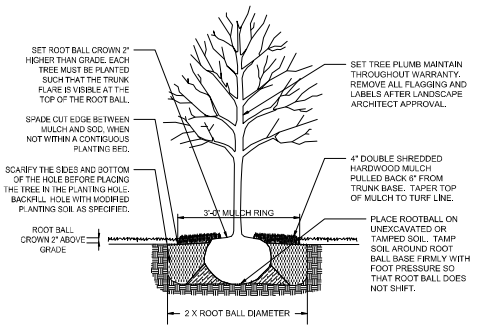
NATIVE GRASSES - OWNER PROVIDED AND SEEDED
199,749 SF

GRASSES
30% VIRGINIA WILD RYE
30% SILKY WILD RYE
20% SIDE OATS GRAMMA
10% LITTLE BLUESTEM
10% ROUGH DROPSEED

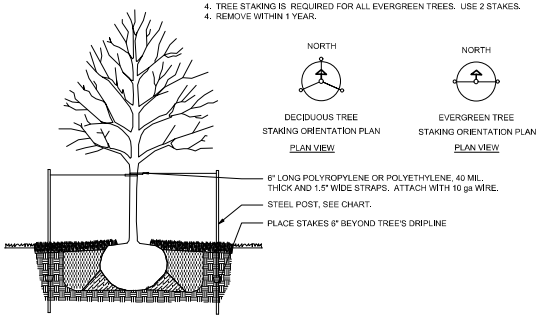
0 15 30 60
SCALE IN FEET

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

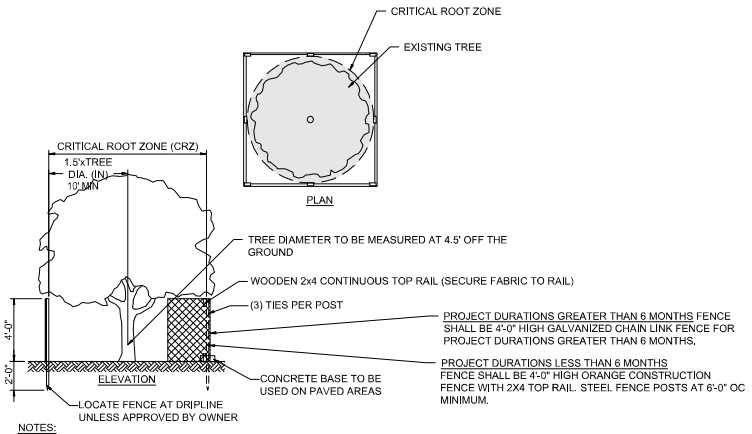
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: LANDSCAPE PLAN AND NOTES | SHEET NO.: T1.01



1 DECIDUOUS TREE PLANTING
NTS



2 TREE STAKING DETAIL
NTS

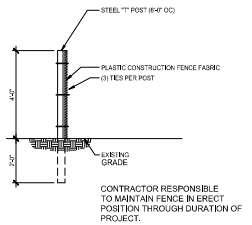


NOTES:
1. TYPICAL ALL TREES INSIDE WORK AREA
2. FENCE LOCATION TO BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION ACTIVITIES.
3. THE SOIL WITHIN THE CRZ SHALL NOT BE DISTURBED IN ANY MANNER DURING CONSTRUCTION. NO EQUIPMENT, MATERIALS, SUPPLIES, AND/ORSALVAGE SHALL BE STORED OR PLACED WITHIN THE ZONE. NO VEHICULAR OR EQUIPMENT TRAFFIC SHALL BE PERMITTED WITHIN THE CRZ. NO FILLING OR CURING OF EXISTING SOILS SHALL BE PERMITTED WITHIN THE CRZ. THE OWNER'S REPRESENTATIVE AND/OR LANDSCAPE SERVICES MUST APPROVE ANY DEVIATION FROM THE STANDARD.

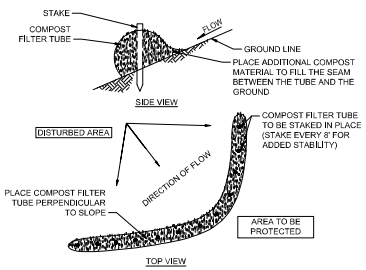
3 TREE PROTECTION DETAIL
NTS

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

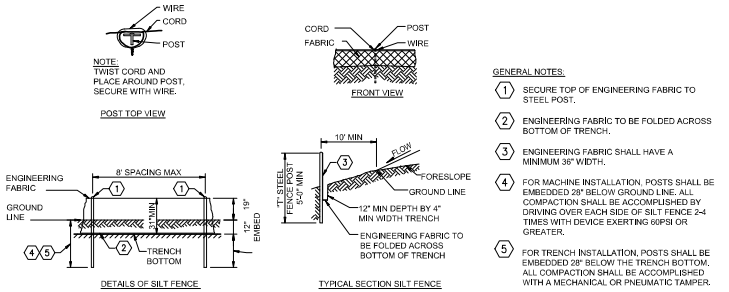
JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID | 01/26/2024 | SHEET NAME: LANDSCAPE DETAILS | SHEET NO.: T1.02



1 CONSTRUCTION FENCE DETAIL
NOT TO SCALE



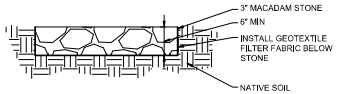
2 COMPOST FILTER SOCK DETAIL
NOT TO SCALE



GENERAL NOTES:

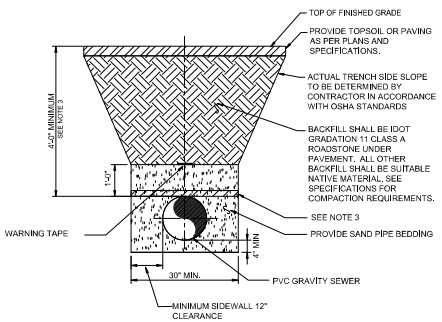
1. SECURE TOP OF ENGINEERING FABRIC TO STEEL POST.
2. ENGINEERING FABRIC TO BE FOLDED ACROSS BOTTOM OF TRENCH.
3. ENGINEERING FABRIC SHALL HAVE A MINIMUM 36" WIDTH.
4. FOR MACHINE INSTALLATION, POSTS SHALL BE EMBEDDED 28" BELOW GROUND LINE. ALL COMPACTION SHALL BE ACCOMPLISHED BY DRIVING OVER EACH SIDE OF SILT FENCE 2-4 TIMES WITH DEVICE EXERTING 60PSI OR GREATER.
5. FOR TRENCH INSTALLATION, POSTS SHALL BE EMBEDDED 28" BELOW THE TRENCH BOTTOM. ALL COMPACTION SHALL BE ACCOMPLISHED WITH A MECHANICAL OR PNEUMATIC TAMPER.

3 SILT FENCE DETAIL
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE/ CONTRACTOR STAGING AND LAYDOWN AREA

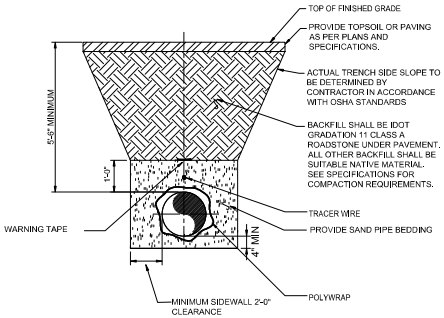
4 NOT TO SCALE



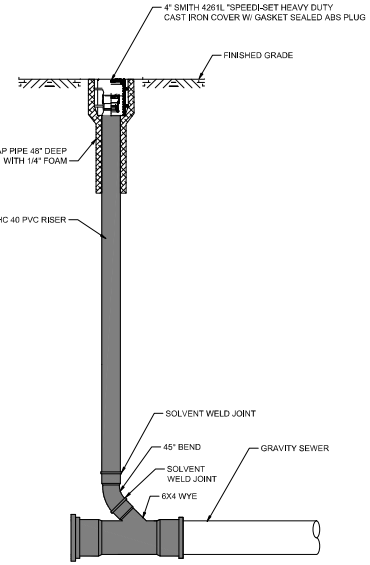
NOTE:

1. PIPING DIAMETER AS CALLED OUT ON PLANS. PIPING SHALL BE NORTH AMERICAN SPECIALTY PRODUCTS CERTA-FLO GREENLINE SDR 21 OR EQUAL.
2. GRAVITY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A HORIZONTAL DISTANCE OF AT LEAST 10 FEET UNLESS:
   1) THE TOP OF A SEWER MAIN IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, AND,
   2) THE SEWER IS PLACED IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH AT A MINIMUM HORIZONTAL SEPARATION OF 3 FEET FROM THE WATER MAIN.
3. IF LESS THAN 48" OF COVER OVER PIPE, PLACE 2" THICK X 48" WIDE CENTERED OVER PIPE OF POLYSTYRENE.

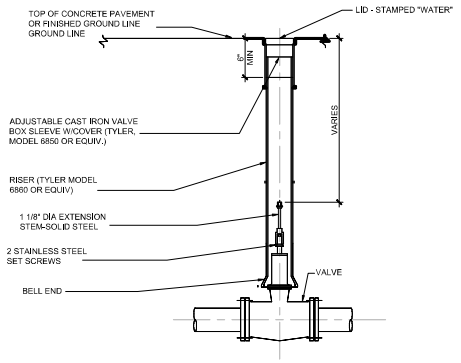
1 TYPICAL GRAVITY SEWER PIPE EMBEDMENT AND INSTALLATION DETAIL
NOT TO SCALE



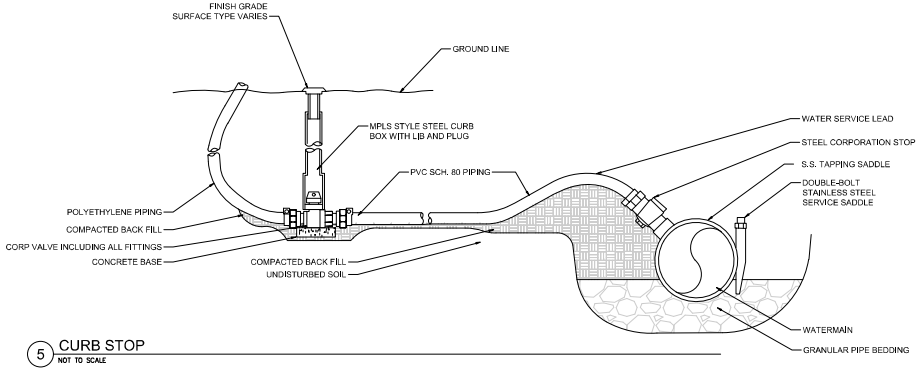
TYPICAL WATER PIPE EMBEDMENT AND INSTALLATION DETAIL
4 NOT TO SCALE



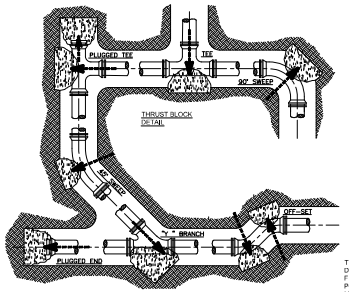
2 CLEANOUT DETAIL
NOT TO SCALE



3 VALVE BOX
NOT TO SCALE



5 CURB STOP
NOT TO SCALE



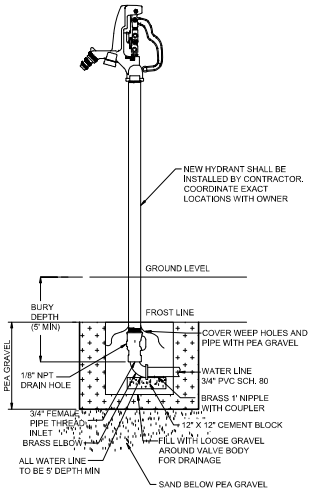
SIZE INCHES	TEE OR DEAD END	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	1.4	1.9	1.0	1.0	1.0
6"	2.8	4.0	2.1	1.1	1.0
8"	4.8	6.8	3.7	1.9	1.0
10"	7.3	10.3	5.4	2.8	1.4
12"	10.3	14.5	7.9	4.0	2.0
16"	17.8	25.2	13.8	7.0	3.5
20"	27.5	38.9	21.0	10.7	5.4
24"	39.2	55.5	30.0	15.3	7.7
30"	60.3	85.3	46.2	23.5	11.8
36"	86.4	122.2	66.1	33.7	16.9
42"	116.6	165.0	89.3	45.5	22.9
48"	152.0	215.0	116.3	59.3	29.8
54"	192.1	271.6	147.0	74.9	37.6

THE ABOVE AREAS ARE BASED UPON A SOIL BEARING CAPACITY OF 2000 PSF OF UNDISTURBED SOIL. IF ACTUAL SOIL BEARING STRENGTH IS LESS THAN 2000 PSF, THE THRUST BEARING AREA SHALL BE INCREASED BASED ON THE ACTUAL SOIL BEARING STRENGTH.

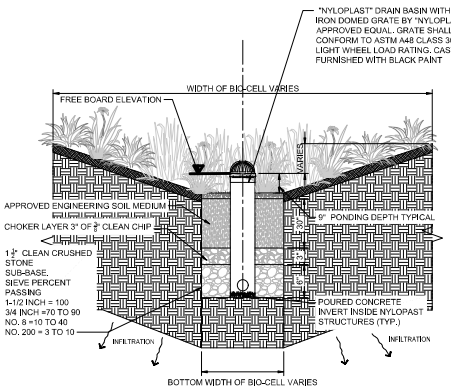
THRUST BLOCKS ARE REQUIRED AT PIPING DIRECTION CHANGES, AT DEAD ENDS, AND AT FIRE HYDRANTS. THRUST BLOCKS SHALL BE POURED-IN-PLACE CONCRETE 2,500 P.S.I. MINIMUM STRENGTH, A MINIMUM OF 12 INCHES THICK, AND SHALL BE CAST AGAINST A SOLID, UNDISTURBED EDGE OF TRENCH FOR BEARING. NO BOLTS, JOINTS OR DRAIN HOLES SHALL COME INTO CONTACT WITH THE CONCRETE THRUST BLOCK AND THE PIPE SHALL BE WRAPPED WITH A PLASTIC SHEET AT THE CONCRETE BEARING SURFACES. THE MINIMUM THICKNESS OF ANY THRUST BLOCK SHALL BE 18 INCHES.

6 THRUST BLOCK BEARING AREA (in sq ft)
NOT TO SCALE

02510-F-01



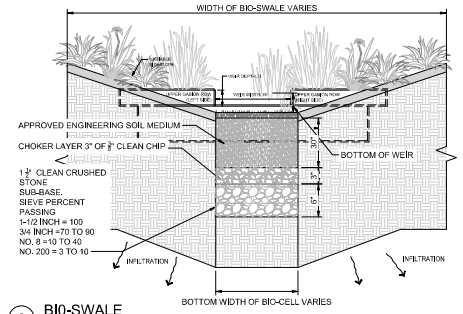
7 YARD HYDRANT DETAIL
NOT TO SCALE



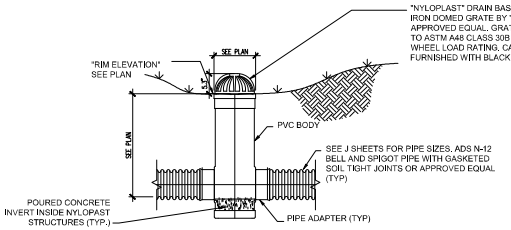
APPROVED ENGINEERING SOIL MEDIUM NOTES:

1. THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED;
2. COMPOST MEDIUM SHALL BE WELL MIXED ON SITE AND SHALL CONSIST OF:
   A. 60% CONSTRUCTION SAND
   B. 30 % ORGANIC COMPOST
   C. 10% QUALITY TOPSOIL W/ LESS THAN 5% MAX. CLAY CONTENT
3. ALL COSTS FOR MATERIALS, DELIVERY TO SITE, AND REQUIRED TEST ANALYSIS TO BE PAID FOR BY THE CONTRACTOR.
4. ENGINEERED COMPOST MEDIUM SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. 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. THE PLANTING SHALL BE FREE OF NOXIOUS WEEDS.
5. FINAL ENGINEERED COMPOST MEDIUM SHALL MEET THE THE FOLLOWING CRITERIA:
   A. pH RANGE : 5.2-7.0
   B. ORGANIC MATTER 5-10%
   C. SOLUBLE SALTS NOT TO EXCEED 500 PPM
   CONTRACTOR SHALL PROVIDE TEST RESULTS FOR MATERIAL FOR APPROVAL.
6. WHEN BACKFILLING THE BIOSWALE CELL, PLACE COMPOST MEDIUM LIFTS IN 12" OR GREATER, DO NOT USE HEAVY EQUIPMENT WITHIN THE CELL. LIGHTWEIGHT EQUIPMENT SHALL BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SANDS.

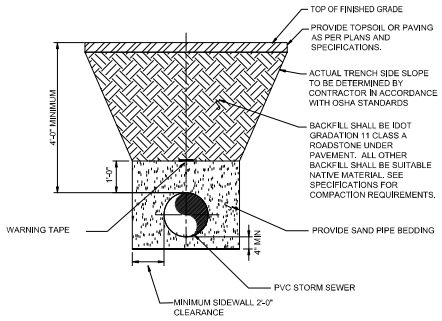
1 BIO-RETENTION CELL AND BIOSWALE OUTLET
NOT TO SCALE



2 BIO-SWALE
NOT TO SCALE



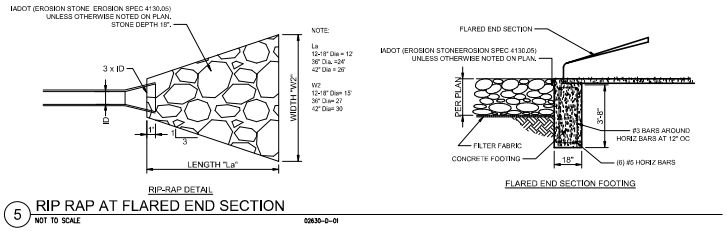
3 NYLOPLAST DRAIN BASIN
NOT TO SCALE



NOTE:

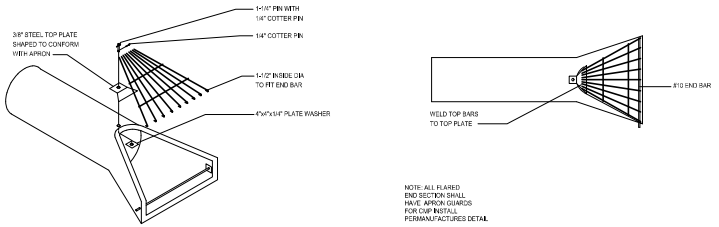
1. PIPING DIAMETER AS CALLED OUT ON PLANS. PIPING SHALL BE NORTH AMERICAN SPECIALTY PRODUCTS CERTA-FLO GREENLINE SDR 21 OR EQUAL.
2. GRAVITY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A HORIZONTAL DISTANCE OF AT LEAST 10 FEET UNLESS:
   1) THE TOP OF A STORM MAIN IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, AND,
   2) THE SEWER IS PLACED IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH AT A MINIMUM HORIZONTAL SEPARATION OF 3 FEET FROM THE WATER MAIN.

4 TYPICAL GRAVITY STORM PIPE EMBEDMENT AND INSTALLATION DETAIL
NOT TO SCALE



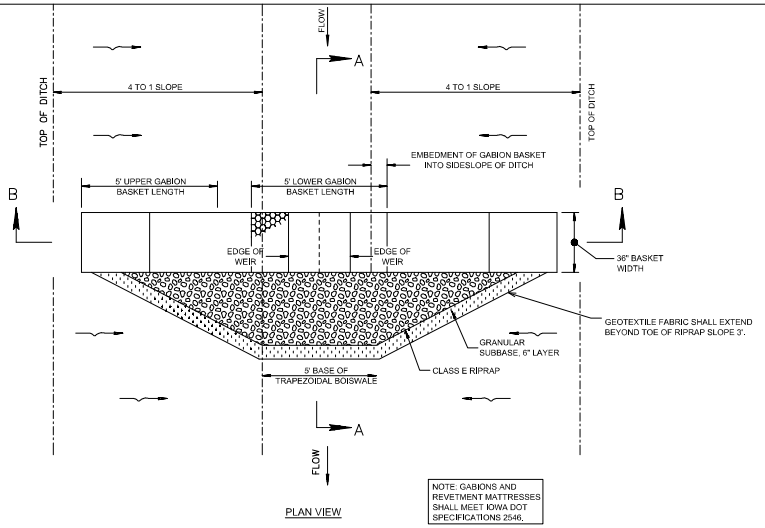
5 RIP RAP AT FLARED END SECTION
NOT TO SCALE

02630-D-01

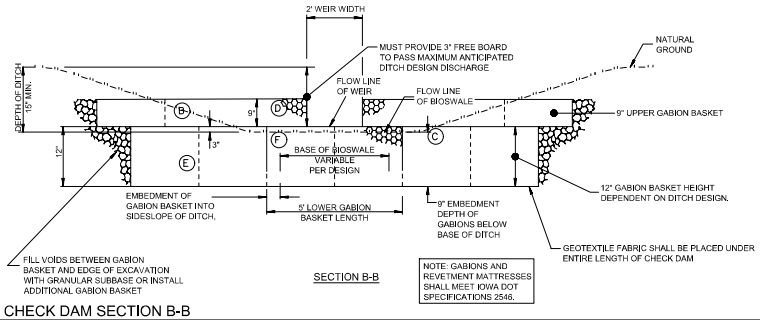


6 FLARED END SECTION APRON GAURD
NOT TO SCALE

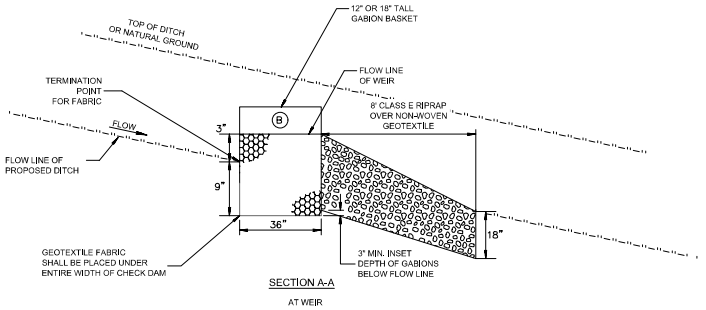
02630-D-01



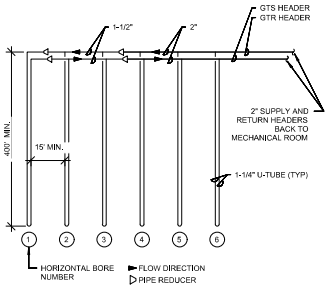
1 CHECKDAM DETAIL PLAN
NOT TO SCALE



3 CHECK DAM SECTION B-B
NOT TO SCALE

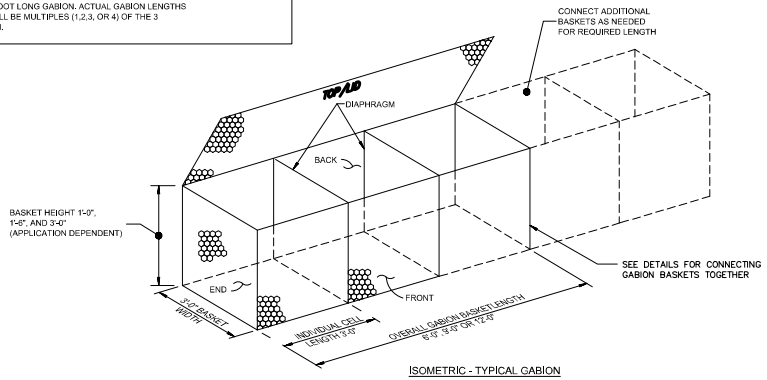


2 CHECK DAM SECTION A-A
NOT TO SCALE



4 HORIZONTAL LOOP/HEADER LAYOUT (GEOTHERMAL SYSTEM)
NOT TO SCALE

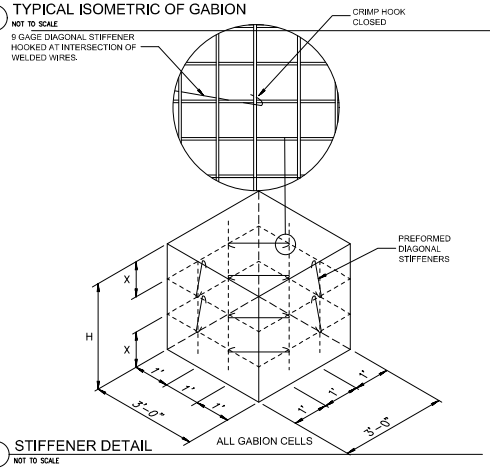
EXAMPLE BELOW SHOWS 3-CELLED, 9 FOOT LONG GABION BASKET WITH ATTACHED 6 FOOT LONG GABION. ACTUAL GABION LENGTHS WILL VARY, BUT SHALL BE MULTIPLES (1,2,3, OR 4) OF THE 3 FOOT BASKET WIDTH.



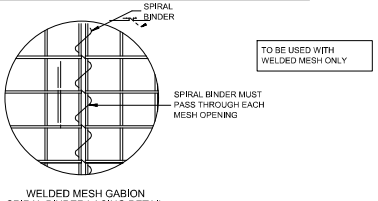
ISOMETRIC - TYPICAL GABION

N.T.S.

1 TYPICAL ISOMETRIC OF GABION
NOT TO SCALE

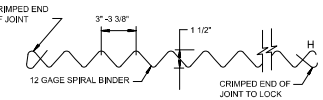


3 STIFFENER DETAIL
NOT TO SCALE



TO BE USED WITH WELDED MESH ONLY

WELDED MESH GABION
SPIRAL BINDER LACING DETAIL

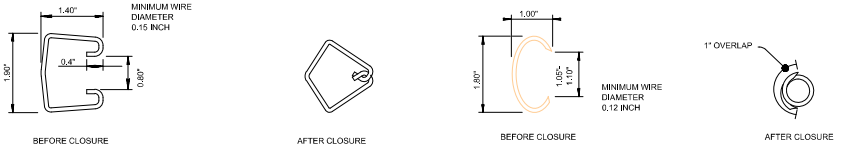


TYPE 4 FASTENER SPIRAL BINDER

CELL HEIGHT H (FT)	DIAGONAL STIFFENER SPACING, X
3'-0"	1/3H & 2/3H
1'-6"	1/2H
1'-0"	NONE

OPTIONAL DIAGONAL CORNER STIFFENERS FOR WELDED WIRE GABION BASKETS

N.T.S.



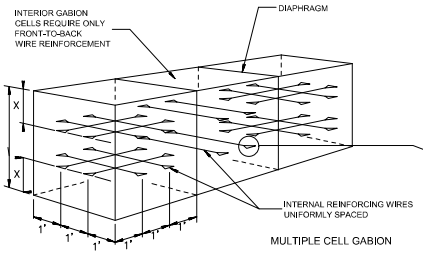
TYPE 1 FASTENER INTERLOCKING WIRE

TYPE 2 FASTENER OVERLAPPING RING

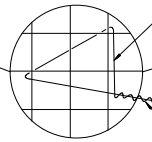
NOTE: DIMENSIONS SHOWN ARE NOMINAL

INSTALL TYPE 1 OR TYPE 2 FASTENERS AT EACH MESH OPENING ALONG GABION BASKET EDGE.

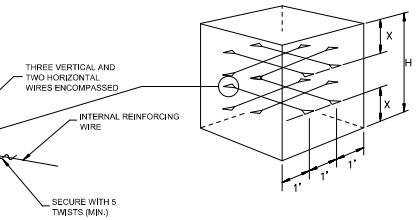
2 FASTENER WIRE DETAIL
NOT TO SCALE



MULTIPLE CELL GABION



WELDED MESH FABRIC



4 MULTIPLE CELL GABION DETAIL
NOT TO SCALE

GABION CHECK DAM COMPONENT PROPERTIES *

TYPE OF WIRE	MESH SIZE (INCHES)	U.S WIRE (GAGE)	GALVANIZED ZINC COATING (OZ/S.F.)	TOTAL DIAMETER CORE WIRE (INCHES)
WELDED WIRE MESH	3.00 X 3.00	12	0.8	0.105
SELVEDGE	—	10	0.8	0.130
LACING WIRE	—	13.5	0.8	0.087
INTERNAL REINFORCING WIRE	—	13.5	0.8	0.087
SPIRAL BINDER	—	12	0.8	0.105

* ALL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED STEEL

SINGLE CELL GABION

CELL HEIGHT H (FT)	TIE WIRE SPACING, X
3'-0"	1/3H & 2/3H
1'-6"	1/2H
1'-0"	NONE

PLACEMENT OF INTERNAL CONNECTING WIRE REINFORCEMENT

N.T.S.

GENERAL NOTES:

A. **REFER TO THE SEPTIC DRAWINGS FOR ADDITIONAL ELECTRICAL AND SITE COORDINATION.**

B. **REFER TO SHEET MS1.09 FOR OVERALL SITE PLAN AND ARRAY LOCATION.**

C. MAINTAIN SERVICE CLEARANCE AROUND ALL MECHANICAL & ELECTRICAL EQUIPMENT. DO NOT ROUTE PIPING OR CONDUIT IN CLEARANCE SPACE.

D. PROVIDE AND INSTALL ALL ELECTRICAL CONTROL AND DISCONNECTING MEANS FOR ALL PHOTOVOLTAIC EQUIPMENT. COORDINATE AND VERIFY REQUIREMENTS WITH SCHEDULES AND SHOP DRAWINGS.

E. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH OWNER REQUIREMENTS PRIOR TO ROUGH-IN.

F. INSTALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

G. GROUND PV SYSTEM PER NEC 690.

REFERENCED NOTES:

(NOT ALL NOTES MAY BE APPLICABLE TO THIS SHEET)

1. PROVIDE (1) POWER OPTIMIZER PER EVERY (2) MODULES. THE INVERTER AND OPTIMIZERS SHALL BE EQUIPPED WITH A RAPID SHUTDOWN FEATURE THAT CONFORMS TO NEC 690.12. THE OUTPUT VOLTAGE OF THE POWER OPTIMIZERS ARE REGULATED BY THE INVERTER. THEY ARE NOT IMPACTED BY THE NUMBER OF MODULES IN THE STRING. THE CONTINUOUS CURRENT OF A SINGLE STRING IS EQUAL TO THE MAXIMUM OUTPUT CURRENT OF THE OPTIMIZER.
2. COORDINATE EXACT LOCATION OF UTILITY PV DISCONNECT WITH OWNER/AHJ PRIOR TO ROUGH-IN. AT LOCATION OF PV UTILITY DISCONNECT SHALL BE A PERMANENT PLAQUE READING "INTERCONNECTION DISCONNECT SWITCH". DISCONNECT SHALL NOT OPEN THE NEUTRAL. COORDINATE ALL UTILITY REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
3. CONDUIT FROM AC COMBINER TO PV DISCONNECT SHALL BE BORED CONDUIT TYPE. BORING LOCATION SHOWN SCHEMATICALLY ONLY. COORDINATE EXACT LOCATION CLOSELY WITH EXISTING UNDERGROUND LINES AND SEPTIC SYSTEM. REFER TO ONE-LINE FOR ADDITIONAL DETAILS.
4. REFER TO PILE DRIVEN PV ARRAY DETAILS ON SHEET Z1.06 AND SPECIFICATIONS FOR ADDITIONAL DETAILS ON RACKING SYSTEM. ADJUST RACKING MATERIAL TO FIT PV MODULE SPACING AS INDICATED ON THIS DRAWING. MODULES SHALL BE RACKED WITH 30 DEGREE TILT.
5. PROVIDE STRINGS OF 12 PANELS WITH PARALLEL CONNECTIONS TO INVERTER. ROUTE ALL DC WIRING FROM SOLAR ARRAY PANELS ALONG RACKING AND DOWN POST TO INVERTER AT GROUND LEVEL.
6. CONDUIT FROM INVERTERS TO AC COMBINER SHALL BE TRENCHED CONDUIT TYPE.
7. ROUTE (2) #8 AWG WIRE & (1) #12 AWG GROUND IN A 1" CONDUIT FROM A 20A/1P BREAKER IN THE SEPTIC SYSTEM LOAD CENTER TO THE PV SYSTEM FOR CONVERTING ETHERNET TO FIBER. REFER TO THE UNISTRUT DETAIL (THIS SHEET) AND THE 'MS' DRAWINGS FOR ADDITIONAL INFORMATION.
8. CONTRACTOR SHALL ROUTE AN ADDITIONAL 1" CONDUIT AND PROVIDE FIBER OPTIC CABLE FOR THE PV WEB BASED MONITORING SYSTEM. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE OS2 SINGLE MODE 2-STRAND FIBER MATCHING THE SAME MANUFACTURER AND CABLE TYPE BEING PROVIDED FOR THE LARGER 48-STRAND PULL. REFER TO THIS SHEET FOR ETHERNET TO FIBER CONVERSION. REFER TO SHEET MS1..10 FOR FIBER SPLICE LOCATION AND DETAILS.

ELECTRICAL SYMBOLS LIST

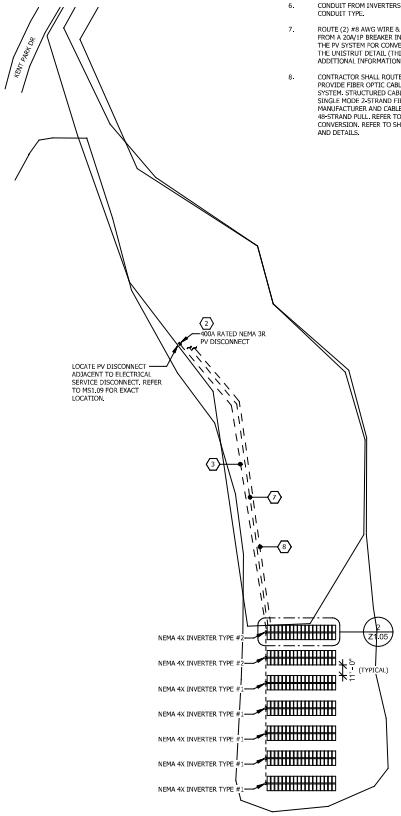
NOTE: NOT ALL SYMBOLS SHOWN MAY BE REQUIRED FOR THIS PROJECT

WIRING DEVICES
- JUNCTION BOX

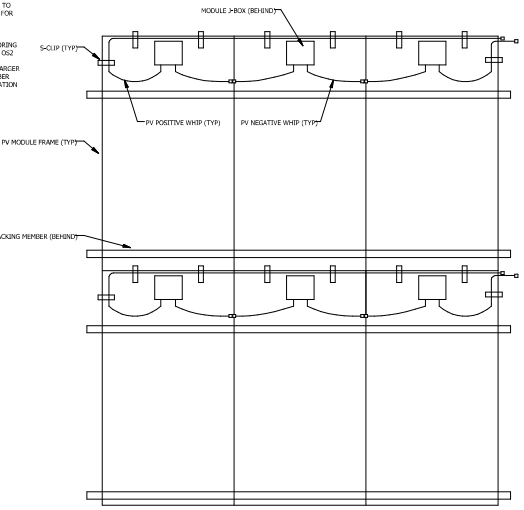
EQUIPMENT WIRING
- DISCONNECTING MEANS
- WP WEATHERPROOF DISCONNECTING MEANS

DISTRIBUTION
- UNISTRUT MOUNT PANEL
- INVERTER

MISCELLANEOUS
- EX EXISTING - TO REMAIN
- EXR EXISTING - TO BE RELOCATED
- EX EXISTING - TO BE REMOVED
- CONDUIT
- UGC UNDER GROUND CONDUIT
- POINT OF NEW CONNECTION
- WP WEATHERPROOF



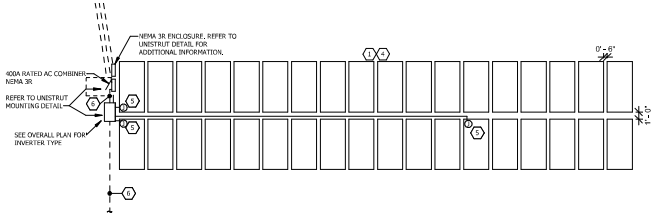
1 SEPTIC PV SITE PLAN - ELECTRICAL
1" = 60'-0"



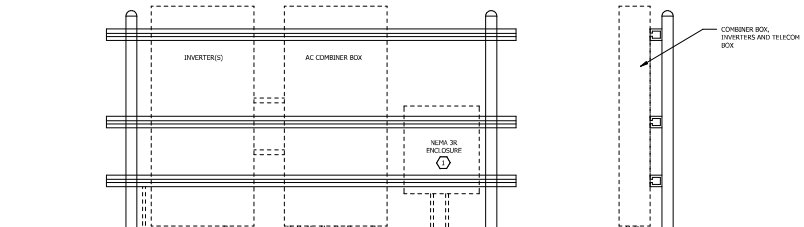
GENERAL NOTES:

A. REFER TO PLANS AND ONE-LINE FOR NUMBER OF PANELS PER STRING.

2 PV ARRAY RACKING (TYPICAL)
1/8" = 1'-0"



3 SEPTIC PV-WHIP MODULE
No Scale



GENERAL NOTES:

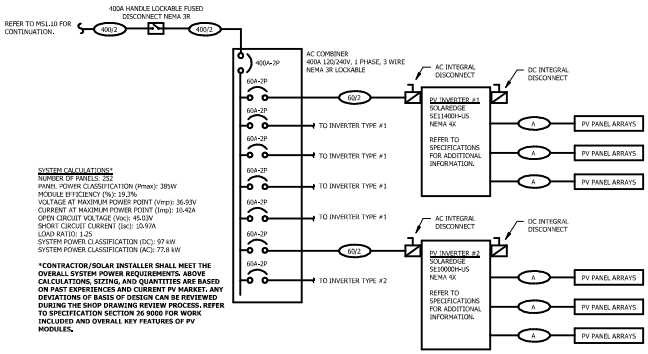
A. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE AND WORKING UNISTRUT SYSTEM.

B. ALL GROUNDING SHALL FOR PV SHALL MEET NEC 690. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFERENCE NOTES:

1. CONTRACTOR SHALL PROVIDE A 12"X10"X5" NEMA 3R ENCLOSURE (LCOM NBJ121005-10F OR SIMILAR) WITH A 120V POWER CONNECTION FOR INTEGRAL DUPLEX RECEPTACLE AND THERMOSTAT CONTROLLED COOLING SYSTEM FOR HOUSING AN ETHERNET TO FIBER CONVERTER. CONTRACTOR SHALL PROVIDE A TEMPERATURE HARDENED COPPER TO FIBER CONVERTER EQUIVALENT TO BLACK BOX LMC2/0A-SFP-20A-SC AND POWER SUPPLY.

4 UNISTRUT TERMINATION & CABINET MOUNT DETAIL
No Scale



SYSTEM CALCULATIONS*
NUMBER OF PANELS: 252
PANEL POWER CLASSIFICATION (Pmax): 385W
MODULE EFFICIENCY (%): 19.3%
VOLTAGE AT MAXIMUM POWER POINT (Vmp): 36.93V
CURRENT AT MAXIMUM POWER POINT (Imp): 10.42A
OPEN CIRCUIT VOLTAGE (Voc): 45.03V
SHORT CIRCUIT CURRENT (Isc): 10.97A
LOAD RATIO: 1.25
SYSTEM POWER CLASSIFICATION (DC): 97 kW
SYSTEM POWER CLASSIFICATION (AC): 77.8 kW

***CONTRACTOR/SOLAR INSTALLER SHALL MEET THE OVERALL SYSTEM POWER REQUIREMENTS. ABOVE CALCULATIONS, SIZING, AND QUANTITIES ARE BASED ON PAST EXPERIENCES AND CURRENT PV MARKET. ANY DEVIATIONS OF BASIS OF DESIGN CAN BE REVIEWED DURING THE SHOP DRAWING REVIEW PROCESS. REFER TO SPECIFICATION SECTION 26 9000 FOR WORK INCLUDED AND OVERALL KEY FEATURES OF PV MODULES.**

5 SEPTIC ELECTRICAL ONE-LINE DIAGRAM
No Scale

COPPER CONDUCTOR AND CONDUIT SIZING CHART - DC VOLTAGE

	CONDUCTORS (TWHN-2)			CONDUIT		PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	SCH 40	
A	(2) #10 AWG	-	#10 AWG	2"	2"	1

COPPER CONDUCTOR AND CONDUIT SIZING CHART - AC VOLTAGE

	CONDUCTORS (TWHN-2)			CONDUIT		PARALLEL RUNS
	PHASE	NEUTRAL	GROUND	EMT	SCH 40	
60/2	(2) #6 AWG	#6 AWG	#10 AWG	3/4"	3/4"	1
400/2	(2) 3/0 AWG	3/0 AWG	#3 AWG	2"	2"	2

GENERAL NOTES:

A. ELECTRICAL POWER OUTAGES, IF REQUIRED, SHOULD BE STRATEGICALLY MINIMIZED AND SCHEDULED CLOSELY WITH OWNER. CHANGEOVERS COULD BE REQUIRED TO OCCUR AT ANY HOUR.

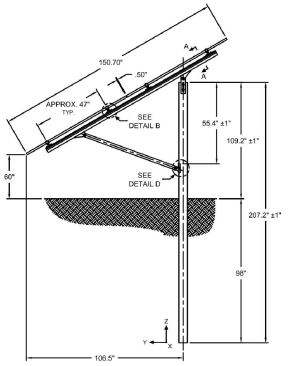
B. MAINTAIN ALL SERVICE CLEARANCES REQUIRED BY THE UTILITY AND NEC. COORDINATE INSTALLATION WITH UTILITY REQUIREMENTS PRIOR TO ROUGH-IN.

C. INSTALL ALL CONDUCTORS AS PER MANUFACTURER'S RECOMMENDATIONS.

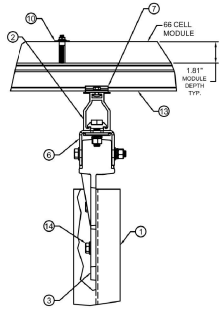
MODUS ENGINEERING
214 EAST FOURTH, WATERLOO, IOWA — 319 | 235 0650 TEL | 235 0644 FAX
130 EAST 3RD STREET STE., DES MOINES, IOWA — 515 | 251 7280 TEL | 251 7349 FAX
118 EAST COLLEGE ST. STE., IOWA CITY, IOWA — 319 | 248 4600 TEL | 248 0141 FAX
MODUS-ENG.COM

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: SEPTIC ELECTRICAL PV PLAN | SHEET NO.: Z1.05

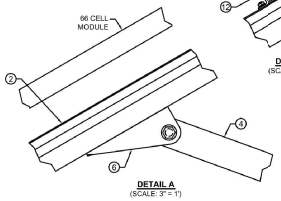


TYPICAL PV ARRAY
N-S ELEVATION (PILE DRIVEN)
(SCALE: 3/8" = 1')

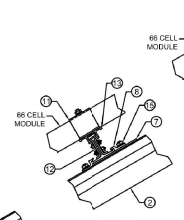


VIEW A-A
(SCALE: 3" = 1')

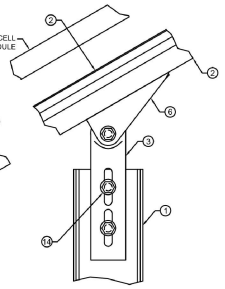
PLEASE NOTE:
VIEW A-A SHOWN @ 0° FOR RACKING CLARITY AND DETAILS A-D ARE SHOWN @ 30°



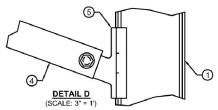
DETAIL A
(SCALE: 3" = 1')



DETAIL B
(SCALE: 3" = 1')

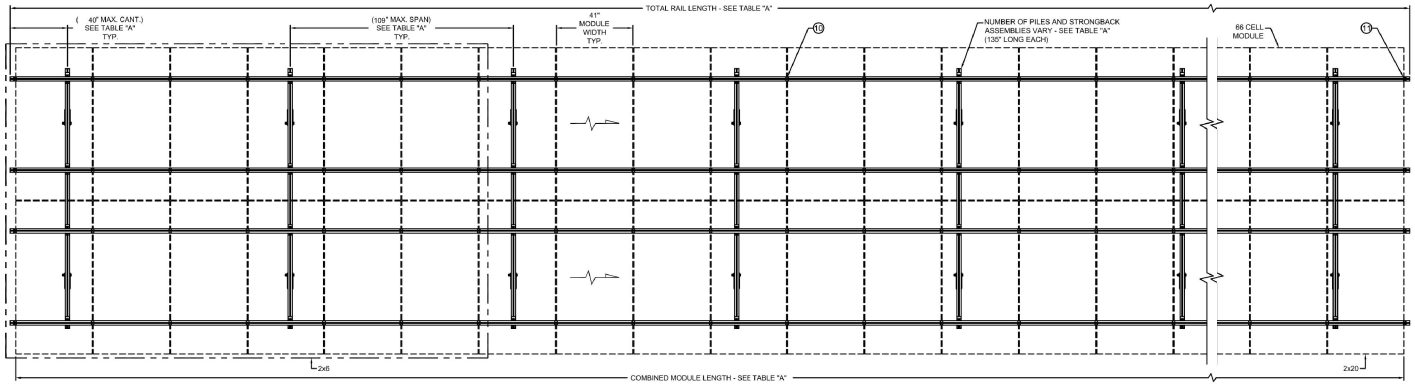


DETAIL C
(SCALE: 3" = 1')



DETAIL D
(SCALE: 3" = 1')

BILL OF MATERIALS			
SYM	DESCRIPTION	MATERIAL	FINISH
1	I-BEAM	50ksi STEEL	HDG
2	STRONGBACK	ALUMINUM	N/A
3	STRONGBACK ATTACHMENT	A36 STEEL	HDG
4	STRUT	ALUMINUM	N/A
5	STRUT ARM ATTACHMENT	A36 STEEL	HDG
6	SLIDE ATTACHMENT	ALUMINUM	N/A
7	RAIL BRACKET	ALUMINUM	N/A
8	RAIL CLAMP	ALUMINUM	N/A
10	MODULE MID-CLAMP ASSY.	STAINLESS	N/A
11	MODULE END-CLAMP ASSY.	STAINLESS	N/A
12	SPLICE PLATE	ALUMINUM	N/A
13	UD RAIL	ALUMINUM	N/A
14	1/2" - 13x1-1/2"	GRD 5	HDG
15	5/16" HARDWARE	GRD 5	HDG



TOP VIEW
(PERPENDICULAR TO MODULE)
(SCALE: 1/2" = 1')

TABLE A - RAIL LENGTHS, MAXIMUM SPAN AND CANTILEVER					DRIVEN PILE		
TABLE	COMBINED MODULE LENGTH	TOTAL RAIL LENGTH	QTY. OF 166" RAIL	QTY. OF 246" RAIL	SPAN	CANTILEVER	QTY. OF PILES
2x6	236.5"	242.5"	-	4	72"	13.25"	4
2x7	276"	282"	8	-	66"	9"	5
2x8	315.5"	321.5"	8	-	70"	20.75"	5
2x9	355"	361"	4	4	66"	15.5"	6
2x10	394.5"	400.5"	4	4	72"	20.25"	6
2x11	434"	440"	-	8	66"	22"	7
2x12	473.5"	479.5"	-	8	72"	23.75"	7
2x13	513"	519"	8	4	70"	14.5"	8

TABLE A - RAIL LENGTHS, MAXIMUM SPAN AND CANTILEVER					DRIVEN PILE		
TABLE	COMBINED MODULE LENGTH	TOTAL RAIL LENGTH	QTY. OF 166" RAIL	QTY. OF 246" RAIL	SPAN	CANTILEVER	QTY. OF PILES
2x14	552.5"	558.5"	8	4	72"	27.25"	8
2x15	592"	598"	4	8	72"	11"	9
2x16	631.5"	637.5"	4	8	66"	21.75"	10
2x17	671"	677"	-	12	72"	14.5"	10
2x18	710.5"	716.5"	12	4	68"	18.25"	11
2x19	750"	756"	8	8	72"	18"	11
2x20	789.5"	795.5"	8	8	68"	1.75"	12

NOTE: CONTRACTOR SHALL ADJUST DIMENSIONS OF RACKING SYSTEM TO FIT PV SPACING AS INDICATED IN DETAIL 2 ON DRAWING Z1.05 AND EQUIPMENT FOR THE APPOVED PV SYSTEM.

MODUS ENGINEERING
214 EAST FOURTH, WATERLOO, IOWA 319 235 0650 TEL / 235 0644 FAX
130 EAST 3RD STREET STE., DES MOINES, IOWA 515 251 7280 TEL / 251 7349 FAX
118 EAST COLLEGE ST. STE., IOWA CITY, IOWA 319 248 4600 TEL / 248 0141 FAX
MODUS-ENG.COM

SHIVEHATTERY ARCHITECTURE + ENGINEERING
222 Third Avenue SE, Suite 300 | Cedar Rapids, Iowa 52401
319.364.0227 | fax 319.364.4251 | www.shive-hattery.com
Iowa | Illinois | Indiana | Nebraska | Wisconsin

JOHNSON COUNTY CONSERVATION BOARD | PROJECT NO.: 4217341 | ISSUE FOR BID 01/26/2024 | SHEET NAME: SEPTIC ELECTRICAL PV DETAILS | SHEET NO.: Z1.06