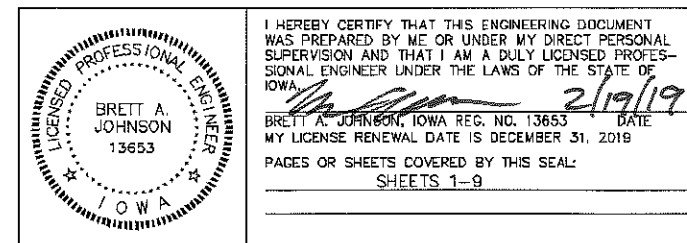
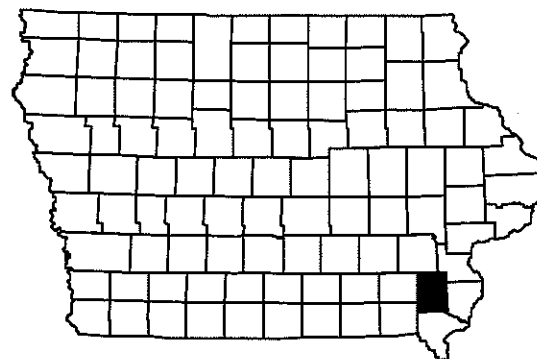


IOWA DEPARTMENT OF NATURAL RESOURCES

CONSTRUCTION DOCUMENTS
FOR GEODE STATE PARK
CAMPGROUND ELECTRICAL UPGRADE PROJECT
HENRY COUNTY, IOWA

DNR PROJECT #18-06-44-06



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

[Signature] 2/19/19
BRETT A. JOHNSON, IOWA REG. NO. 13653 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2019
PAGES OR SHEETS COVERED BY THIS SEAL:
SHEETS 1-9

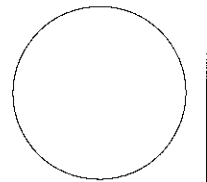
AUTHORIZATION TO BID

[Signature] 2-19-19
AUTHORIZATION: PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE
[Signature] 2/19/19
ENGINEERING BUREAU CHIEF DATE

SHEET INDEX

1	COVER SHEET
2	VICINITY MAPS
3	QUANTITIES & GENERAL NOTES
4	SURVEY CONTROL
5	OVERALL ELECTRIC PLAN
6	ELECTRICAL PLAN (NORTHWEST)
7	ELECTRICAL PLAN (SOUTHWEST)
8	ELECTRICAL DETAILS
9	ELECTRICAL DETAILS

CONSULTANT:



IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-5034



COVER SHEET

CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

GEODE STATE PARK

HENRY COUNTY, IOWA

DIRECTORY

PROJECT MANAGER		CONSTRUCTION INSPECTOR	
COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES	COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES
ADDRESS	502 EAST 9TH STREET	ADDRESS	502 EAST 9TH STREET
CITY, STATE, ZIP	DES MOINES, IA 50319	CITY, STATE, ZIP	DES MOINES, IA 50319
CONTACT	BRETT JOHNSON	CONTACT	MICHAEL DUFOE
TELEPHONE	515-280-3711	TELEPHONE	515-285-8196
FAX	515-281-8085	FAX	
EMAIL	brett.johnson@dnr.iowa.gov	EMAIL	michael.dufoe@dnr.iowa.gov

PROJECT DESCRIPTION

This project consists of installing 50 amp electrical services to 14 existing campsites located at Geode State Park in Henry County, Iowa and includes trenching and boring new electric lines, installing a new 600 amp distribution panel, 14 new 50 amp campsite electric pedestals, and replacing a non-metered campsite pedestal with a new metered campsite pedestal.

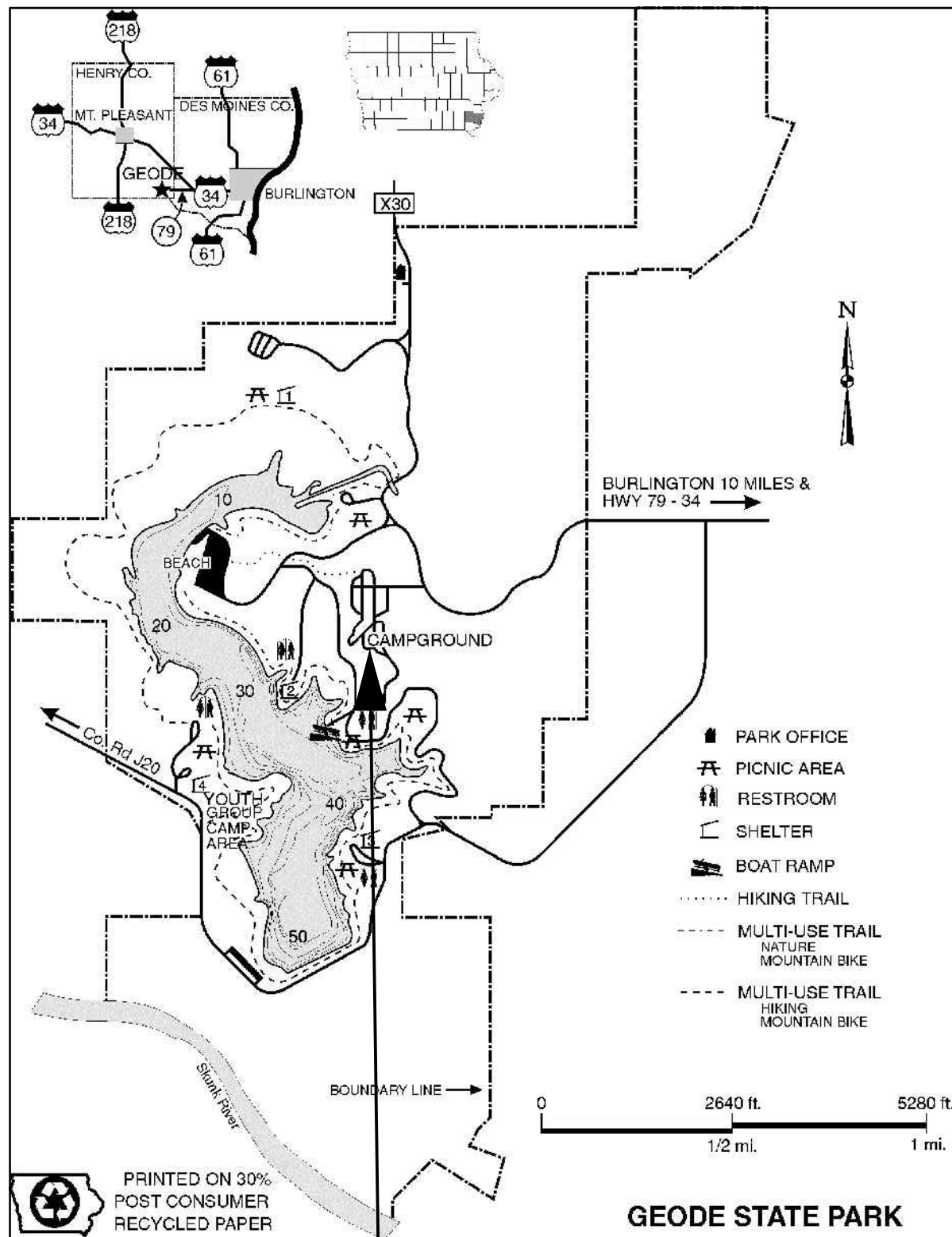
NO. BY DATE REVISION

DRAWN BY: PROJECT NUMBER:
18-06-44-06

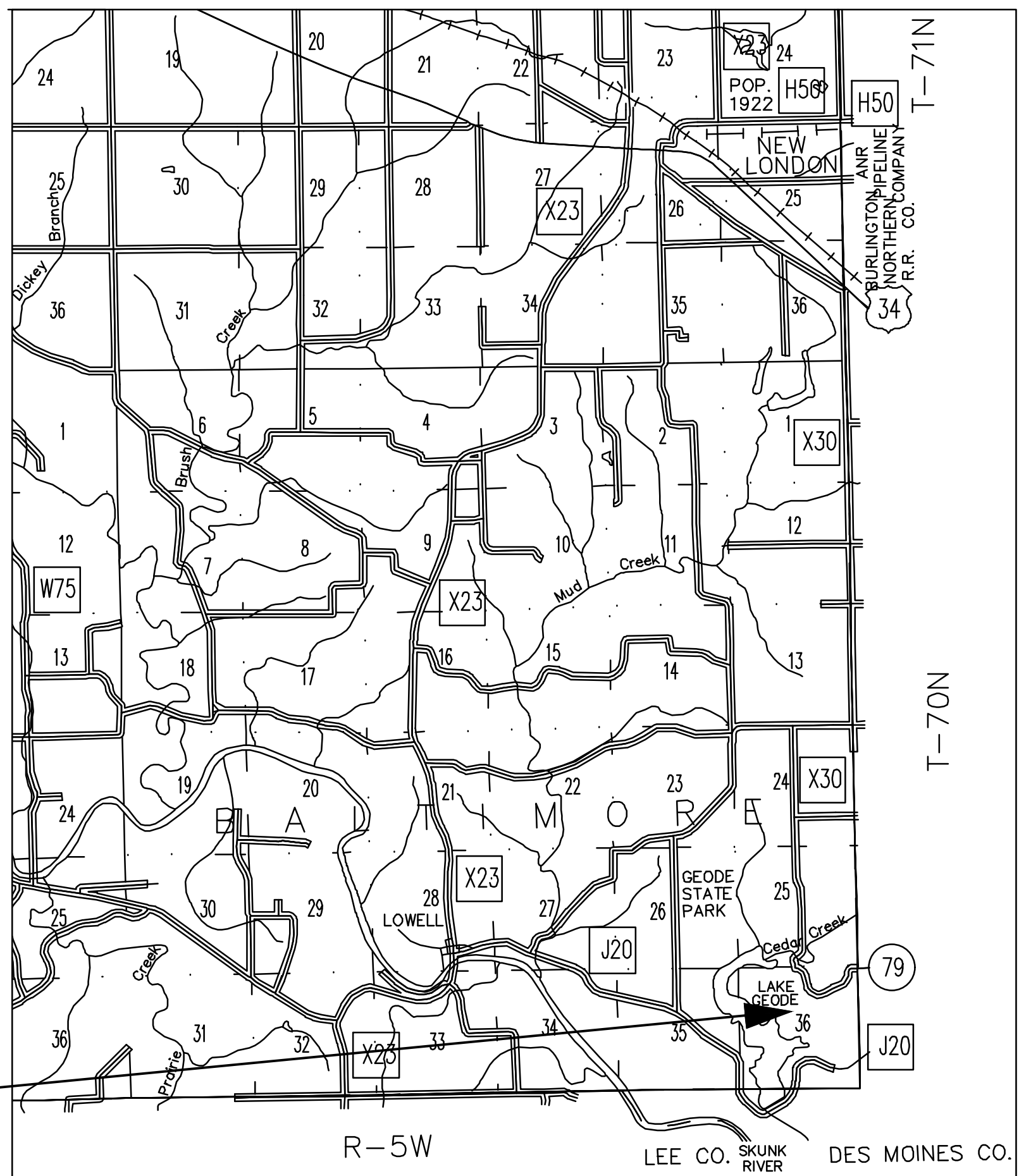
CHK'D BY: DATE:
02/27/2019

SHEET NO.

1



PROJECT LOCATION



CONSULTANT:

IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST. DES MOINES, IA 50319-0034



VICINITY MAPS

CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

GEODE STATE PARK

HENRY COUNTY, IOWA

NO. BY DATE REVISION

DRAWN BY: PROJECT NUMBER:

18-06-44-06

CHECKED BY: DATE:

02/27/2019

SHEET No:

ESTIMATED PROJECT QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITY
1	SINGLE CAMPSITE OUTLET POST-50 AMP	EA	14
2	NO. 2 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE	LF	1,480
3	NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE	LF	4,440
4	ROADWAY CROSSING CONDUIT-SCHEDULE 80 PVC	LF	71
5	DETECTABLE WARNING TAPE, 3" ELECTRIC	LF	882
6	TRENCH, SINGLE CIRCUIT SECONDARY	LF	477
7	TRENCH, DOUBLE CIRCUIT SECONDARY	LF	375
8	INSTALL 600 AMP DISTRIBUTION PANEL	EA	1
9	INSTALL 125 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL	EA	1
10	INSTALL 175 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL	EA	1
11	INSTALL 200 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL	EA	1
12	REPLACE EXISTING CAMPPAD PEDESTAL WITH NEW METERED PEDESTAL	LS	1
13	MOBILIZATION	LS	1

ESTIMATE REFERENCE INFORMATION	
ITEM NO.	DESCRIPTION
1	SINGLE CAMPSITE OUTLET POST, 50 AMP – CONTRACTOR TO INSTALL 50-AMP OUTLET POSTS AS DETAILED ON SHEETS #5-9.
2	NO. 2 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE – CONTRACTOR TO INSTALL NO. 2 AWG GROUNDING CONDUCTOR CABLE AS DETAILED ON SHEETS #5-9.
3	NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE – CONTRACTOR TO INSTALL NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE AS DETAILED ON SHEETS #5-9.
4	ROADWAY CROSSING CONDUIT-SCHEDULE 80 PVC – CONTRACTOR TO INSTALL CONDUIT FOR EXISTING ROAD CROSSINGS AS DETAILED ON SHEETS #5-9.
5	DETECTABLE WARNING TAPE, 3" ELECTRIC – CONTRACTOR TO INSTALL DETECTABLE WARNING TAPE, 3" ELECTRIC AS DETAILED ON SHEETS #5-9.
6	TRENCH, SINGLE CIRCUIT SECONDARY – CONTRACTOR TO TRENCH FOR ELECTRIC CABLE LINES AS DETAILED ON SHEETS #5-9.
7	TRENCH, DOUBLE CIRCUIT SECONDARY – CONTRACTOR TO TRENCH FOR ELECTRIC CABLE LINES AS DETAILED ON SHEETS #5-9.
8	INSTALL 600 AMP DISTRIBUTION PANEL – CONTRACTOR TO INSTALL 600 AMP DISTRIBUTION PANEL AS DETAILED ON SHEETS #5-9.
9	INSTALL 125 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL – CONTRACTOR TO INSTALL 125 AMP CIRCUIT BREAKER AS DETAILED ON SHEETS #5-9.
10	INSTALL 175 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL – CONTRACTOR TO INSTALL 175 AMP CIRCUIT BREAKER AS DETAILED ON SHEETS #5-9.
11	INSTALL 200 AMP CIRCUIT BREAKER INTO DISTRIBUTION PANEL – CONTRACTOR TO INSTALL 200 AMP CIRCUIT BREAKER AS DETAILED ON SHEETS #5-9.
12	REPLACE EXISTING CAMPPAD PEDESTAL WITH NEW METERED PEDESTAL – CONTRACTOR TO REPLACE EXISTING PEDESTAL WITH NEW METERED PEDESTAL AS DETAILED ON SHEET #5. SALVAGE REPLACED PEDESTAL FOR PARK STAFF'S USE.
13	MOBILIZATION – COST FOR CONTRACTOR TO MOBILIZE.

GENERAL NOTES

1. TWO WEEKS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY:
 - A. IOWA DNR PROJECT MANAGER: BRETT JOHNSON 515-250-3711
 - B. DISTRICT INSPECTOR: MICHAEL DUFOE 515-985-9196
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS). ALL CONSTRUCTION TESTING TO BE IN ACCORDANCE WITH SUDAS AND IS THE EXPENSE OF THE CONTRACTORS.
3. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ABOVE MENTIONED CONTACTS OF ANY DISCREPANCIES.
4. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL PUBLIC AND/OR PRIVATE UTILITIES SERVING THE AREA TO DETERMINE THE PRESENT EXTENT AND LOCATION OF THEIR FACILITIES BEFORE BEGINNING WORK.
5. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROPER UTILITY IMMEDIATELY UPON BREAKING OR DAMAGE TO ANY UTILITY LINE OR APPURTENANCE, OR THE INTERRUPTION OF THEIR SERVICE. HE SHALL NOTIFY THE PROPER UTILITY INVOLVED. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED.
6. CONTRACTOR TO PROTECT ALL UTILITY, PAVING, BUILDINGS, ETC. OUTSIDE OF LIMITS OF PROPOSED CONSTRUCTION.
7. PROTECT EXISTING TREES AND VEGETATION OUTSIDE OF CONSTRUCTION AREAS.



ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

HENRY COUNTY, IOWA

3

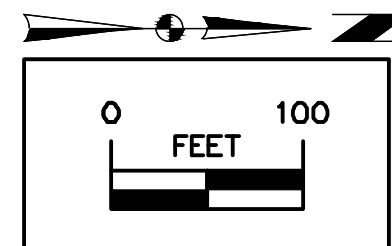
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N: 307732.607C	N: 307706.5900	N: 307361.4183	N: 307097.3593	N: 306778.9530	N: 307562.8760	N: 306402.694C	N: 306050.7550
E: 2226614.4820	E: 2226370.1920	E: 2226323.9590	E: 2226356.8230	E: 2226393.670C	E: 2226147.251C	E: 2226557.5960	E: 2226490.8830
ELEV: 700.402	ELEV: 700.903	ELEV: 699.876	ELEV: 695.170	ELEV: 687.871	ELEV: 698.850	ELEV: 675.528	ELEV: 665.743
CUT X'	SET PK NAIL	CUT X'	SET PK NAIL	ELEV:	SET NAIL	SET NAIL	SET NAIL

1. SURVEY CONTROL POINT COORDINATES ARE STATE PLANE.

SEE BELOW FOR CONTINUATION



SEE ABOVE FOR CONTINUATION



CONSULTANT:

IOWA DEPARTMENT OF
NATURAL RESOURCES

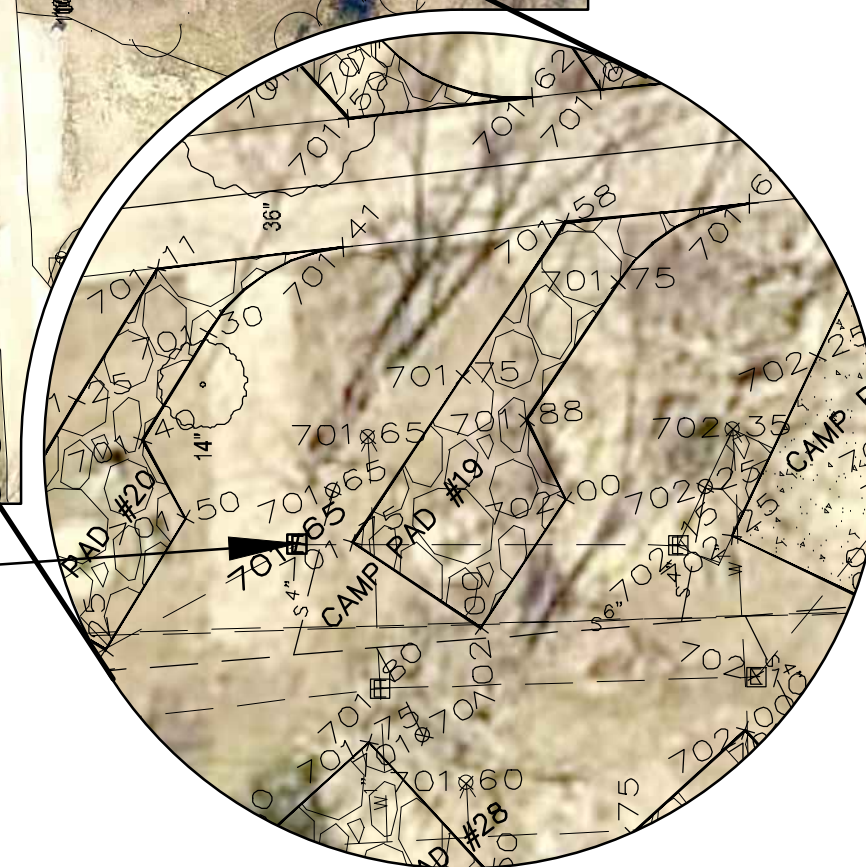
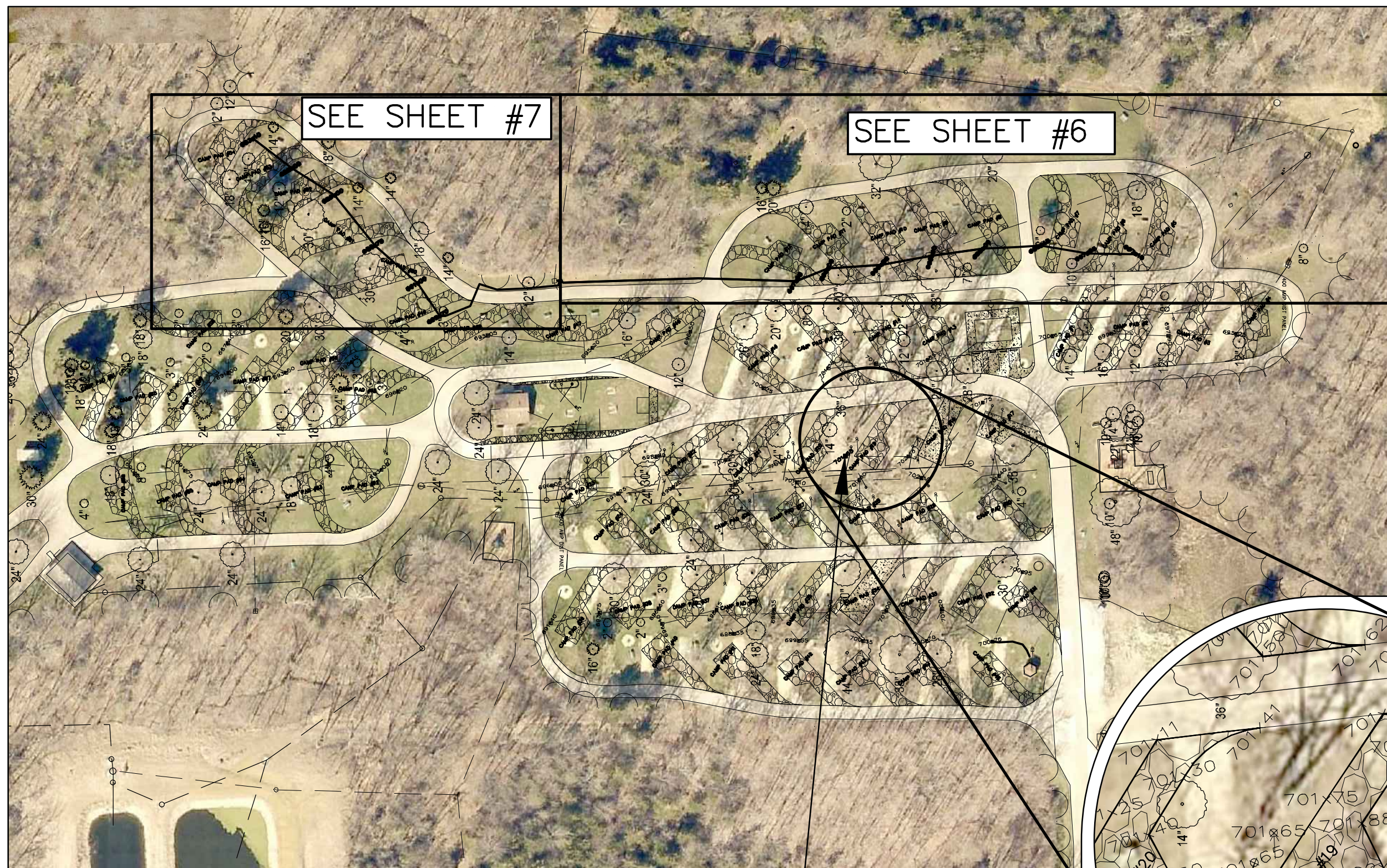
SURVEY CONTROL

CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

GEODE STATE PARK

HENRY COUNTY, IOWA

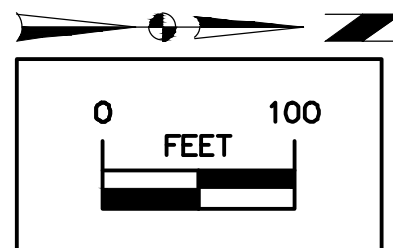
NO.	BY DATE	REVISION
DRAWN BY:		PROJECT NUMBER: 18-06-44-06
CHK'D BY:		DATE: 02/27/2019
SHEET No. _____		



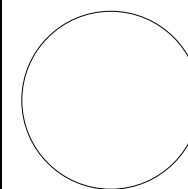
LEGEND

EXISTING/PROPOSED

— — — — —	SAN ^{8"}	SANITARY SEWER
— — — — —	ST ^{8"}	STORM SEWER
— — — — —	E — — — — —	ELECTRIC LINE
— — — — —	W ^{2"}	WATER MAIN
○		MANHOLE/CLEANOUT
⊗		HYDRANT
○	●	50 AMP CAMPOST
~~~~~		TREE LINE



REPLACE EXISTING 50 AMP CAMPPAD #19 OUTLET  
POST WITH MILLBANK MODEL #U5300-O-75  
METERED 50 AMP OUTLET POST (OR EQUIVELANT)  
AND MILLBANK MODEL #CL200 METER (ANALOG).  
CONTRACTOR TO SALVAGE REMOVED OUTLET POST  
FOR PARK STAFF. ALL ITEMS/CONSTRUCTION/WIRING  
TO BE INCLUDED IN LUMP SUM BID ITEM #12.  
FINISH GRADE=701.65

IOWA DEPARTMENT OF  
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING  
502 E. 9TH ST., DES MOINES, IA 50319-0634



## OVERALL ELECTRICAL PLAN

CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

# GEODE STATE PARK

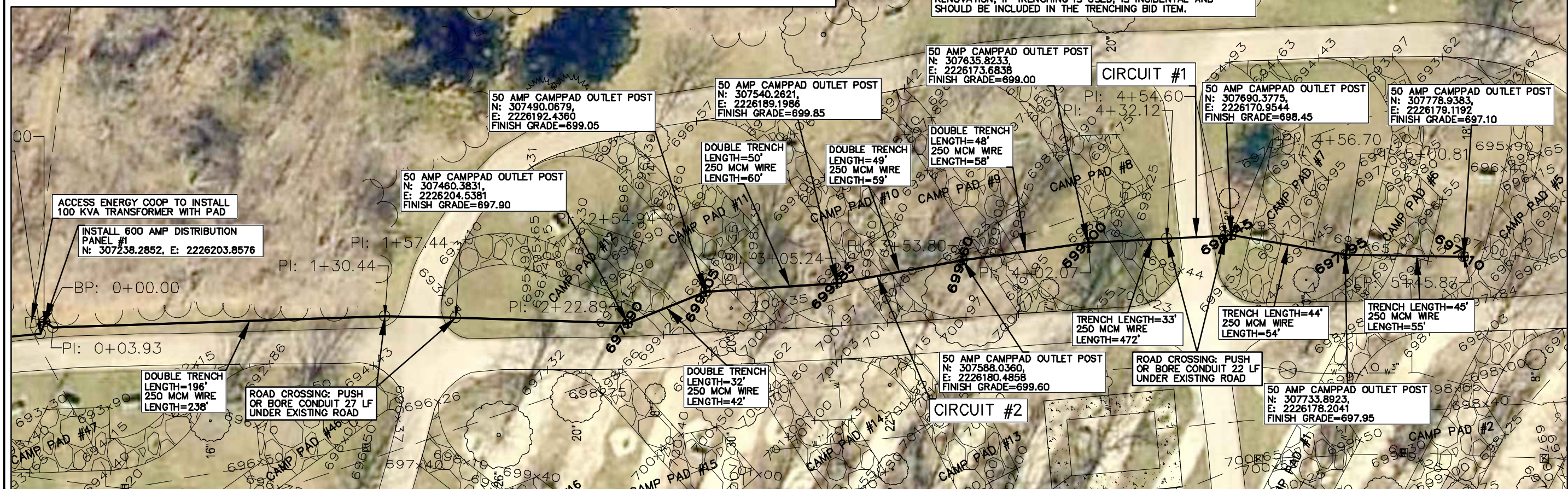
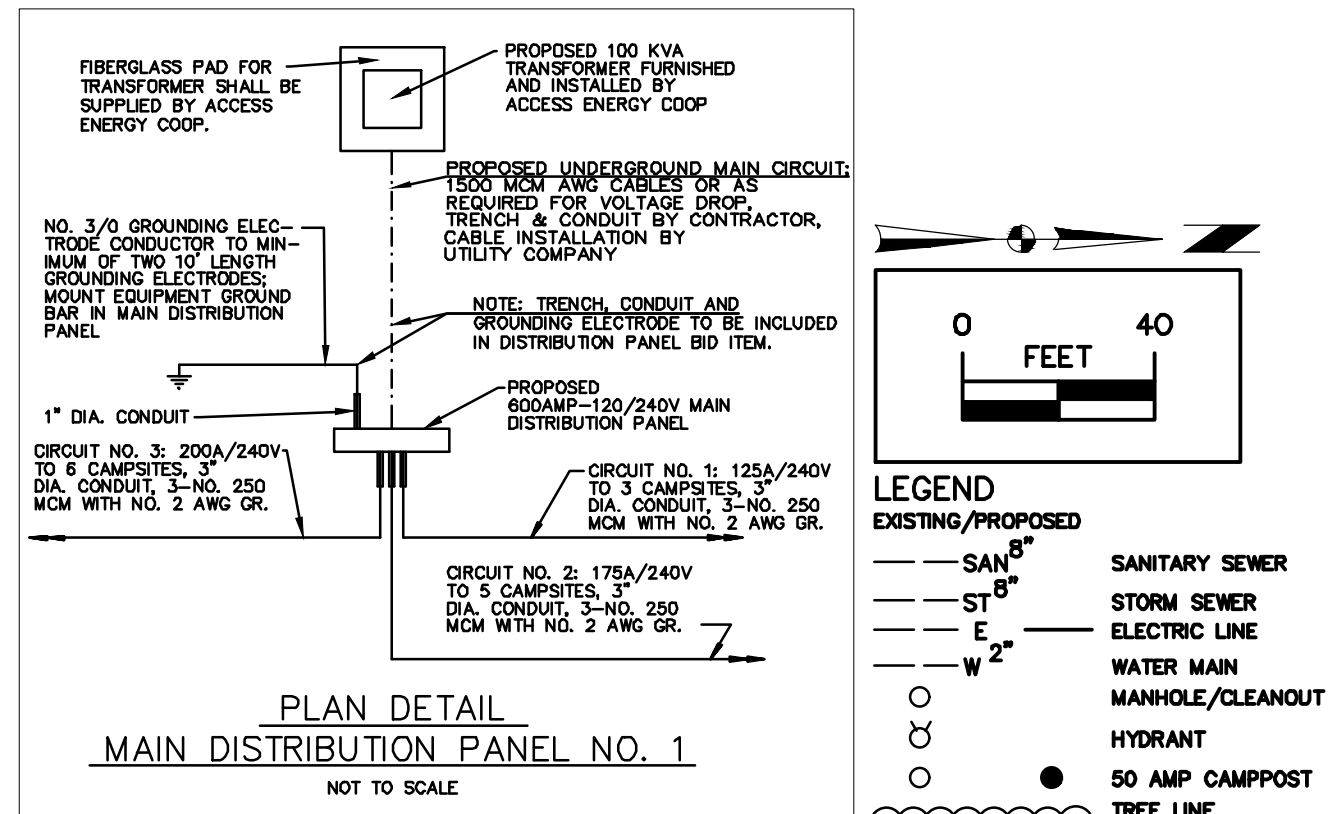
HENRY COUNTY, IOWA

	NO.	BY DATE	REVISION
DRAWN BY:	PROJECT NUMBER: <b>18-06-44-06</b>		
CHECK'D BY:	DATE: <b>02/27/2019</b>		
SHEET No-			



No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	3.93'	N33° 49' 20"E	0+00.00'	0+03.93'	(2226203.8576',307238.2852')	(2226206.0475',307241.5537')
2	Line	126.50'	N1° 59' 21"W	0+03.93'	1+30.44'	(2226206.0475',307241.5537')	(2226201.6563',307367.9801')
3	Line	27.01'	N1° 09' 56"E	1+30.44'	1+57.44'	(2226201.6563',307367.9801')	(2226202.2057',307394.9815')
4	Line	65.44'	N2° 02' 33"E	1+57.44'	2+22.89'	(2226202.2057',307394.9815')	(2226204.5381',307460.3831')
5	Line	32.06'	N22° 10' 48"W	2+22.89'	2+54.94'	(2226204.5381',307460.3831')	(2226192.4360',307490.0679')
6	Line	50.30'	N3° 41' 25"W	2+54.94'	3+05.24'	(2226192.4360',307490.0679')	(2226189.1986',307540.2621')
7	Line	48.56'	N10° 20' 08"W	3+05.24'	3+53.80'	(2226189.1986',307540.2621')	(2226180.4858',307588.0360')
8	Line	48.27'	N8° 06' 04"W	3+53.80'	4+02.07'	(2226180.4858',307588.0360')	(2226173.6838',307635.8233')
9	Line	30.05'	N2° 51' 51"W	4+02.07'	4+32.12'	(2226173.6838',307635.8233')	(2226172.1824',307665.8331')
10	Line	22.48'	N2° 51' 51"W	4+32.12'	4+54.60'	(2226172.1824',307665.8331')	(2226171.0593',307688.2819')
11	Line	2.10'	N2° 51' 51"W	4+54.60'	4+56.70'	(2226171.0593',307688.2819')	(2226170.9544',307690.3775')
12	Line	44.11'	N9° 27' 32"E	4+56.70'	5+00.81'	(2226170.9544',307690.3775')	(2226178.2041',307733.8923')
13	Line	45.06'	N1° 09' 49"E	5+00.81'	5+45.87'	(2226178.2041',307733.8923')	(2226179.1192',307778.9383')

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	3.93'	N33° 49' 20"E	0+00.00'	0+03.93'	(2226203.8576',307238.2852')	(2226206.0475',307241.5537')
2	Line	126.50'	N1° 59' 21"W	0+03.93'	1+30.44'	(2226206.0475',307241.5537')	(2226201.6563',307367.9801')
3	Line	27.01'	N1° 09' 56"E	1+30.44'	1+57.44'	(2226201.6563',307367.9801')	(2226202.2057',307394.9815')
4	Line	65.44'	N2° 02' 33"E	1+57.44'	2+22.89'	(2226202.2057',307394.9815')	(2226204.5381',307460.3831')
5	Line	32.06'	N22° 10' 48"W	2+22.89'	2+54.94'	(2226204.5381',307460.3831')	(2226192.4360',307490.0679')
6	Line	50.30'	N3° 41' 25"W	2+54.94'	3+05.24'	(2226192.4360',307490.0679')	(2226189.1986',307540.2621')
7	Line	48.56'	N10° 20' 08"W	3+05.24'	3+53.80'	(2226189.1986',307540.2621')	(2226180.4858',307588.0360')
8	Line	48.27'	N8° 06' 04"W	3+53.80'	4+02.07'	(2226180.4858',307588.0360')	(2226173.6838',307635.8233')



**CONSULTANT:**

IOWA DEPARTMENT OF  
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING  
502 E. 9TH ST., DES MOINES, IA 50319-0034



HENRY COUNTY, IOWA

ELECTRICAL PLAN (NORTHWEST)

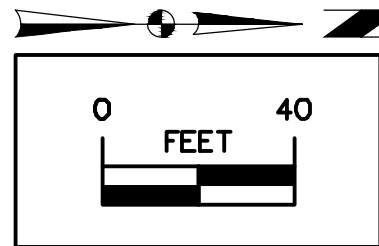
CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

NO.	BY DATE	REVISION
DRAWN BY:	PROJECT NUMBER: <b>18-06-44-01</b>	
CHKD BY:	DATE: <b>02/27/2019</b>	
SHEET No-		



## ELECTRICAL CIRCUIT #3 ALIGNMENT

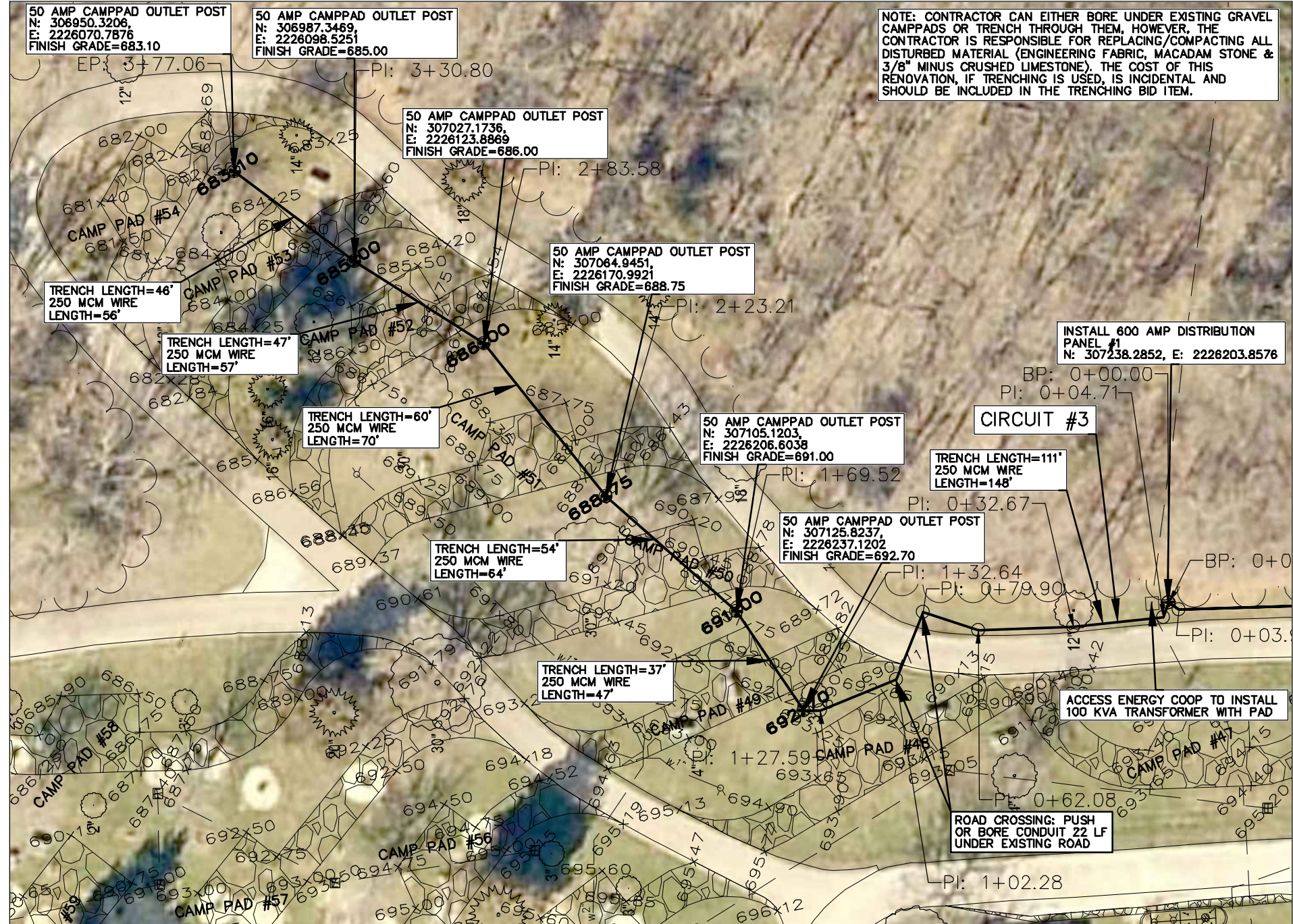
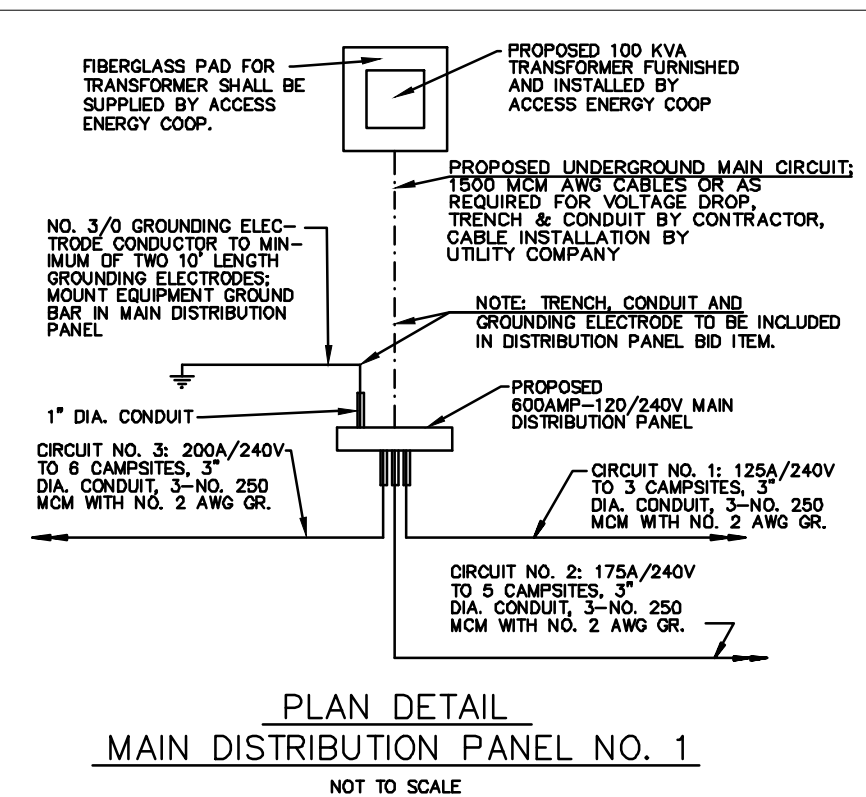
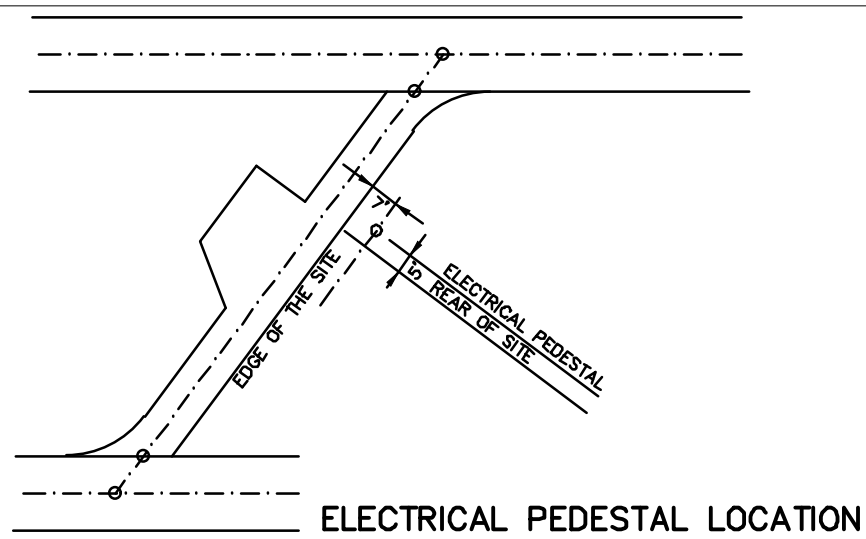
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	4.71'	S71° 24' 17"E	0+00.00'	0+04.71'	{2226203.8576',307238.2852'}	{2226208.3248',307236.7822'}
2	Line	27.96'	S6° 01' 21"E	0+04.71'	0+32.67'	{2226208.3248',307236.7822'}	{2226211.2584',307208.9760'}
3	Line	29.41'	S2° 03' 54"E	0+32.67'	0+62.08'	{2226211.2584',307208.9760'}	{2226212.3181',307179.5864'}
4	Line	17.82'	S17° 58' 05"W	0+62.08'	0+79.90'	{2226212.3181',307179.5864'}	{2226206.8208',307162.6353'}
5	Line	22.38'	S68° 04' 07"E	0+79.90'	1+02.28'	{2226206.8208',307162.6353'}	{2226227.5829',307154.2758'}
6	Line	25.31'	S22° 22' 28"E	1+02.28'	1+27.59'	{2226227.5829',307154.2758'}	{2226237.2175',307130.8710'}
7	Line	5.05'	S1° 06' 17"W	1+27.59'	1+32.64'	{2226237.2175',307130.8710'}	{2226237.1202',307125.8237'}
8	Line	36.88'	S55° 50' 44"W	1+32.64'	1+69.52'	{2226237.1202',307125.8237'}	{2226206.6038',307105.1203'}
9	Line	53.69'	S41° 33' 15"W	1+69.52'	2+23.21'	{2226206.6038',307105.1203'}	{2226170.9921',307064.9451'}
10	Line	60.38'	S51° 16' 32"W	2+23.21'	2+83.58'	{2226170.9921',307064.9451'}	{2226123.8869',307027.1736'}
11	Line	47.22'	S32° 29' 21"W	2+83.58'	3+30.80'	{2226123.8869',307027.1736'}	{2226098.5251',306987.3469'}
12	Line	46.26'	S36° 50' 17"W	3+30.80'	3+77.06'	{2226098.5251',306987.3469'}	{2226070.7876',306950.3206'}



## LEGEND

EXISTING/PROPOSED

- SAN 8" SANITARY SEWER
- ST 8" STORM SEWER
- E ELECTRIC LINE
- W 2" WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- 50 AMP CAMPPAD
- TREE LINE









[illegible]

1. CONSISTENTLY THROUGHOUT THE PROJECT, THE PHASE "A" CONDUCTOR, THE PHASE "B" CONDUCTOR, AND THE NEUTRAL CONDUCTOR SHALL BE DISTINGUISHED FROM EACH OTHER BY COLOR CODING, OR BY SURFACE DEFORMATIONS OR OTHER MARKINGS IN THE CONDUCTOR INSULATION. THE GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION.
2. THE CONDUCTOR SIZES AND THE PLAN ARRANGEMENT OF THE LOADS ON EACH CIRCUIT WERE SELECTED TO LIMIT THE MAXIMUM CIRCUIT VOLTAGE DROP, FROM THE TRANSFORMER TO THE FURTHEST CAMPSITE OUTLET ON THE CIRCUIT, TO 3% (6 VOLTS ON EACH 120V PHASE).
3. ALL CONDUCTORS SHALL BE COPPER



**ELECTRICAL DETAILS**

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CAMPGROUND ELECTRICAL UPGRADE PROJECT FOR:

**GEODE STATE PARK**

HENRY COUNTY, IOWA

9