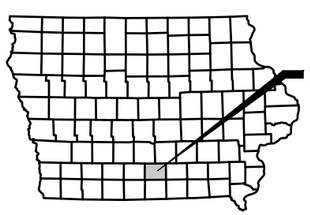
IOWA DEPARTMENT OF NATURAL RESOURCES

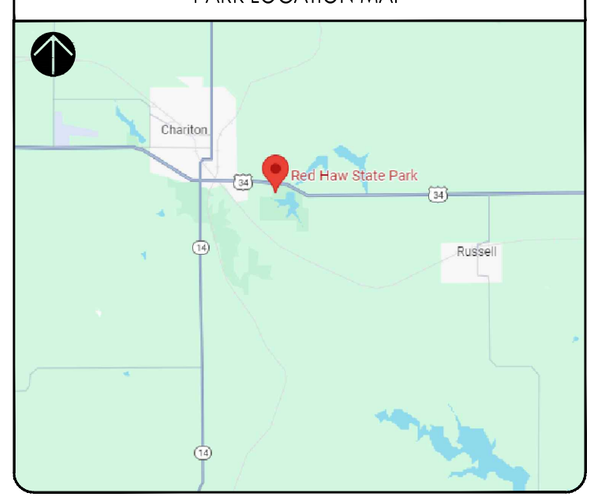
CONSTRUCTION DOCUMENTS
FOR
RED HAW STATE PARK
CAMPGROUND IMPROVEMENTS
LUCAS COUNTY, IOWA

PROJECT #23-05-59-02



IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

PARK LOCATION MAP



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CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DIRECTORY

PROJECT MANAGER		CONSTRUCTION INSPECTOR	
COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES	COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES
ADDRESS	502 EAST 9TH STREET	ADDRESS	
CITY,STATE,ZIP	DES MOINES, IA 50319	CITY,STATE,ZIP	DES MOINES, IA 50319
CONTACT	MICHAEL DUFOE	CONTACT	JASON KRUSE, P.E.
TELEPHONE	515-985-9196	TELEPHONE	(515) 250-3707
FAX		FAX	
EMAIL	michael.dufoe@dnr.iowa.gov	EMAIL	jason.kruse@dnr.iowa.gov

PROJECT DESCRIPTION

THIS PROJECT INCLUDES CONSTRUCTING 30 NEW GRAVEL CAMP PADS, PAVING 4 PCC CAMP PADS, INSTALLING 34 NEW 50 AMP ELECTRICAL OUT POSTS AND ASSOCIATED MISCELLANEOUS WORK.

CONSTRUCTION PER IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS).

AUTHORIZATION TO BID

Seth Moore — Digitally signed by Seth Moore Date: 2024.04.25 13:33:37 -05'00'
AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE

Travis Baker — Digitally signed by Travis Baker Date: 2024.05.01 09:06:53 -05'00'
ENGINEERING BUREAU CHIEF DATE

LICENSED PROFESSIONAL ENGINEER MICHAEL D. DUFOE 17753 IOWA

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.

Michael Dufoe — Digitally signed by Michael Dufoe Date: 2024.05.02 08:09:25 -05'00'

MICHAEL D. DUFOE, IOWA REG. NO. 17753 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2025

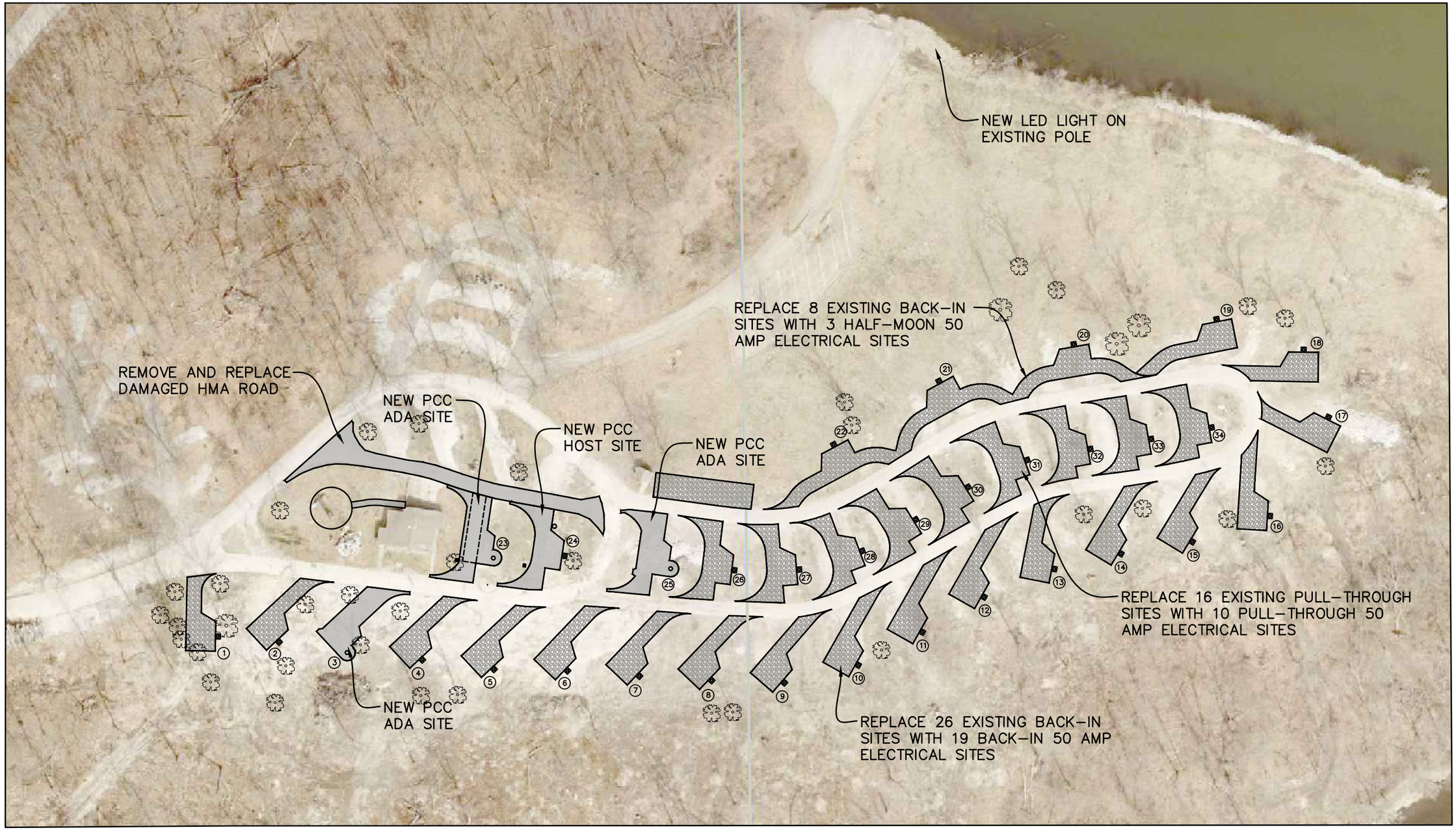
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL

COVER SHEET

CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 1



SCALE: 1" = 80'

0' 80' 160'

OVERALL PROJECT MAP

NORTH

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

OVERALL PROJECT MAP

CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

LUCAS COUNTY

NO.	BY / DATE	REVISION
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DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: FEBRUARY 22, 2024
SHEET No: 2

ESTIMATED PROJECT QUANTITIES

Item No.	Description	Quantity	Unit
1	Mobilization	1	LS
2	Construction Staking	1	LS
3	Filter Sock, 8"	1,740	LF
4	Demolition	1	LS
5	Clearing and Grubbing	1	LS
6	Grading	1	LS
7	Single Campsite Outlet Post-50 Amp	34	EA
8	No. 2 AWG Grounding Conductor Cable, Type THW or USE	2,735	LF
9	No. 4/0 AWG Single Conductor Cable, Type USE	3,099	LF
10	No. 250 MCM Single Conductor Cable, Type USE	4,821	LF
11	No. 300 MCM Single Conductor Cable, Type USE	285	LF
12	Roadway Crossing, 3.0-Inch Conduit Schedule 80 PVC	96	LF
13	Detectable Warning Tape, 3" Electric	2,284	LF
14	Trench, Single Circuit Secondary	2,380	LF
15	Distribution Panel, 600-Amp	1	EA
16	200 Amp Circuit Breaker	3	EA
17	175 Amp Circuit Breaker	2	EA
18	Led Light	1	LS
19	Special Backfill	330	TONS
20	6-inch Non-Reinforced PCC	1,115	SY
21	5-Inch Reinforced PCC Sidewalk	24	SY
22	Engineering Fabric	4,206	SY
23	Macadam Stone	820	TONS
24	Class 'A' Crushed Stone	506	TONS
25	4'x4'x5.5" Reinforced PCC Slab and Fire Ring	31	EA
26	Fire Ring Only, ADA Model	3	EA
27	Topsoil, Furnish and Place	1,093	CY
28	Campsite Posts, Furnish and Install	37	EA
29	Erosion Matting	356	SY
30	Seeding, Fertilizing and Mulching	2.3	AC
31	Trees (1.5" dia.)	32	EA
32	NPDES General Permit #2 & SWPPP	1	LS

GENERAL NOTES:

Verify actual locations and elevations with DNR Engineer.

All work shall conform to and be performed in accordance with all applicable codes and ordinances.

The contractor shall visit the site and inspect the project area and thoroughly familiarize themselves with the actual job conditions prior to bidding and the start of work. Failure to visit the project site shall not relieve the contractor from performing the work in accordance to the plans, specification, special provisions and contract.

The contractor shall verify, at the site, all dimensions and conditions shown on the plans and shall notify the DNR Engineer of any discrepancies, omissions, and/or conflicts prior to proceeding with the work.

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans or approved by the DNR Engineer.

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service areas will be subject to the approval of the DNR Engineer.

Where utilities and fixtures are shown as Existing on the plans or encountered within the construction area, it shall be the responsibility of the contractor to notify the DNR Engineer of those utilities prior to the beginning of any construction. The contractor shall be afforded access to these facilities for necessary modification of services. Underground facilities, structures and utilities have been plotted from available surveys and records and therefore their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto. No claims for additional compensation will be allowed to the contractor for any interference or delay caused by such work.

The contractor shall shape graded area to maintain surface drainage. All elevations are to finish grade.

The contractor is expected to have materials, equipment, and labor available on a daily basis to install and maintain erosion control features on the project. This may involve seeding, silt fence, rock ditch checks, silt basins or silt dikes.

CONSULTANT:
NONE

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QUANTITIES AND GENERAL NOTES

CAMPGROUND IMPROVEMENTS FOR:
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LUCAS COUNTY

NO.	BY / DATE	REVISION
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DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: H.D
DATE: APRIL 20, 2024
SHEET No: 3

ESTIMATE REFERENCE INFORMATION

Item No.	Description
1	Mobilization - Payment per SUDAS Section 11020.
2	Construction Staking - Includes all Contractor provided construction survey and staking necessary for construction of the project as shown in the plans and as specified in SUDAS Section 11010. Iowa DNR Engineer to provide AutoCAD drawings with information for staking. Control has been established on-site for GPS use. Includes Contractor providing as-built drawings to Field Engineer at project completion.
3	Filter Sock, 8" - per SUDAS section 9040.
4	Demolition - Includes all items shown on Sheet 5. Unless otherwise noted, all demo'd items to be disposed of offsite. Includes any necessary saw cuts for pavement removals.
5	Clear and Grubbing - All trees that needed to be removed should have been felled by others prior to construction. Any stumps remaining within the Construction limits shall be removed. They may be burned with other wood piles on-site. Stumps that don't burn shall be disposed of offsite.
6	Grading - Contractor shall grade the site as shown on Sheets 7-11. The breakdown of quantities as calculated from AutoCAD surfaces is as follows (all fill shown includes a 1.30 shrink factor): * Outer Sites 1-22 have 1,240 CY of Fill and 325 CY of Cut => 915 CY of Fill needed * Inner Sites 23-34 have 80 CY of fill and 600 CY of Cut => 520 CY of Cut generated * The 395 CY of fill needed will be provided as part of the 1,093 CY of Topsoil being imported (Bid Item No. 27). Any remaining material shall be wasted on-site. * There will be approximately 490 CY of rock removed from the existing pads. This to be used as fill under the new camp pads of sites 5-22 .
7	Single Campsite Outlet Post-50 Amp - The Contractor shall install outlet posts as shown on Sheets 14-18.
8	No. 2 AWG Grounding Conductor Cable, Type THW or USE - Contractor shall install No. 2 AWG Grounding Conductor as shown on Sheets 14-18.
9	No. 4/0 AWG Single Conductor Cable, Type USE - Contractor shall install No. 4/0 AWG Single Conductor as shown on Sheets 14-18.
10	No. 250 MCM Single Conductor Cable, Type USE - Contractor shall install No. 250 MCM Single Conductor as shown on Sheets 14-18.
11	No. 300 MCM Single Conductor Cable, Type USE - Contractor shall install No. 300 MCM Single Conductor as shown on Sheets 14-18.
12	Roadway Crossing, 3.0-Inch Conduit Schedule 80 PVC - Contractor shall install electrical conduit under the existing roads as shown on Sheets 14-18.
13	Detectable Warning Tape, 3" Electric - Contractor shall install warning tape in the proposed electrical trenches as shown on Sheets 14-18
14	Trench, Single Circuit Secondary - Contractor shall trench in electric lines as shown on Sheets 14-18.
15	Distribution Panel, 600-Amp - Contractor shall install new 600-amp distribution panel as shown on Sheets 14-18. Includes all necessary connections and conduit as needed to meet NEC and Iowa Electric Code. Also includes construction of an Alliant approved wooded structure for the meter installation (see Sheet 18).
16	200 Amp Circuit Breaker - Contractor shall install breakers per NEC and Iowa Electric Code as shown on Sheets 14-18.
17	175 Amp Circuit Breaker - Contractor shall install breakers per NEC and Iowa Electric Code as shown on Sheets 14-18.
18	Led Light - This is for replacing the light at the boat ramp (location shown on Sheet 2). The new light shall be a Hubbell LED Outdoor Area/Site Light PMPA, No. PMPA1-LS-CS-T5-BZ (or approved equal). Bronze in color. Includes all necessary wire, conduit, galvanized or stainless steel brackets, as needed to mount light to existing pole.

ESTIMATE REFERENCE INFORMATION

Item No.	Description
19	Special Backfill - This item is for the granular subbase material to be used under the PCC pavements. Installation per SUDAS Section 2010.
20	6-inch Non-Reinforced PCC - Installation per SUDAS Section 7010. Includes any necessary tie-ins to existing or proposed pavements. Contractor shall mark and verify joint sawcuts with Field Engineer prior to cutting.
21	5-Inch Reinforced PCC Sidewalk - Installation per SUDAS Section 7030. Includes placing 2 rows of no. 4 bar parallel in pavement. Sawcut joints every 5'.
22	Engineering Fabric - Contractor shall install Engineering Fabric, MIRAFI 600X (or approved equal) below camp pads, placed on compacted subgrade. Fabric shall conform to Iowa DOT Specification 4196.01.
23	Macadam Stone - Contractor shall install 4-inch depth macadam stone on top of engineering fabric in camp pads. Material shall conform to Iowa DOT Specification Section 4122.02.
24	Class 'A' Crushed Stone - Contractor shall install Class 'A' Crushed Stone on top of the macadam stone in the camp pads. Includes compacting (rolling in) the rock surface of each camp pad. Quantity includes an additional 10% for compaction.
25	4'x4'x5.5" Reinforced PCC Slab and Fire Ring - Contractor shall install PCC slabs and fire rings (grills) as shown on Sheet 19. Contractor shall verify locations for each camp pad with Field Engineer prior to installation. The Contractor will be provided written permission from the IDNR to purchase the fire rings (grills) at the prices shown on the IPI website.
26	Fire Ring Only, ADA Model - Contractor shall install an ADA accessible fire ring (grill) on the new ADA accessible PCC camp pads as shown on Sheet 19.
27	Topsoil, Furnish and Place - Contractor shall import topsoil. Installation per SUDAS Section 2010. Quantity calculated by assuming 4" depth spread over all disturbed areas. Includes mixing in on-site compost shown on Sheet 5.
28	Campsite Posts, Furnish and Install - Contractor shall install camp site posts for each site in locations shown on Sheet 19. Posts shall be a treated 4x4, 4' high out of the ground with a minimum 2' in the ground, embedded in concrete. Each post shall be stained with TWP 116 Rustic Pro Series prior to installation and touched up again as needed after installation. Signs to be installed by Park staff. Quantity includes all new camp sites and placement of 3 additional posts in locations in campground as determined by Field Engineer.
29	Erosion Matting - Contractor shall install erosion matting on finish grades 3:1 or steeper. Installation per SUDAS Section 9040. Material shall meet SUDAS RECP Type 1.C.
30	Seeding, Fertilizing and Mulching - Contractor shall hydraulically seed, fertilize and mulch all disturbed areas with Type 1 Permanent Lawn Mixture. Seed mix and installation per SUDAS Section 9010.
31	Trees (1.5" Dia.) - Contractor shall plant trees at one per camp site in locations roughly shown on Sheet 19. Locations to be verified with Field Engineer prior to planting. Planting and 1-year warranty per SUDAS Section 9030. Includes staking and mulch per tree. Trees to be mix of Red Oak, Pin Oak, Swamp White Oak, Ohio Buckeye, Shagbark Hickory and Hackberry. Minimum pot size to be 7 gal (trees to be potted and not wrapped in burlap), minimum trunk diameter (caliper) is 1.5".
32	NPDES General Permit #2 & SWPPP - Contractor shall obtain the necessary NPDES General Permit #2 and prepare a SWPPP in accordance with Permit #2. Contractor responsible for supplying all necessary inspections and record keeping.

CONSULTANT:
NONE

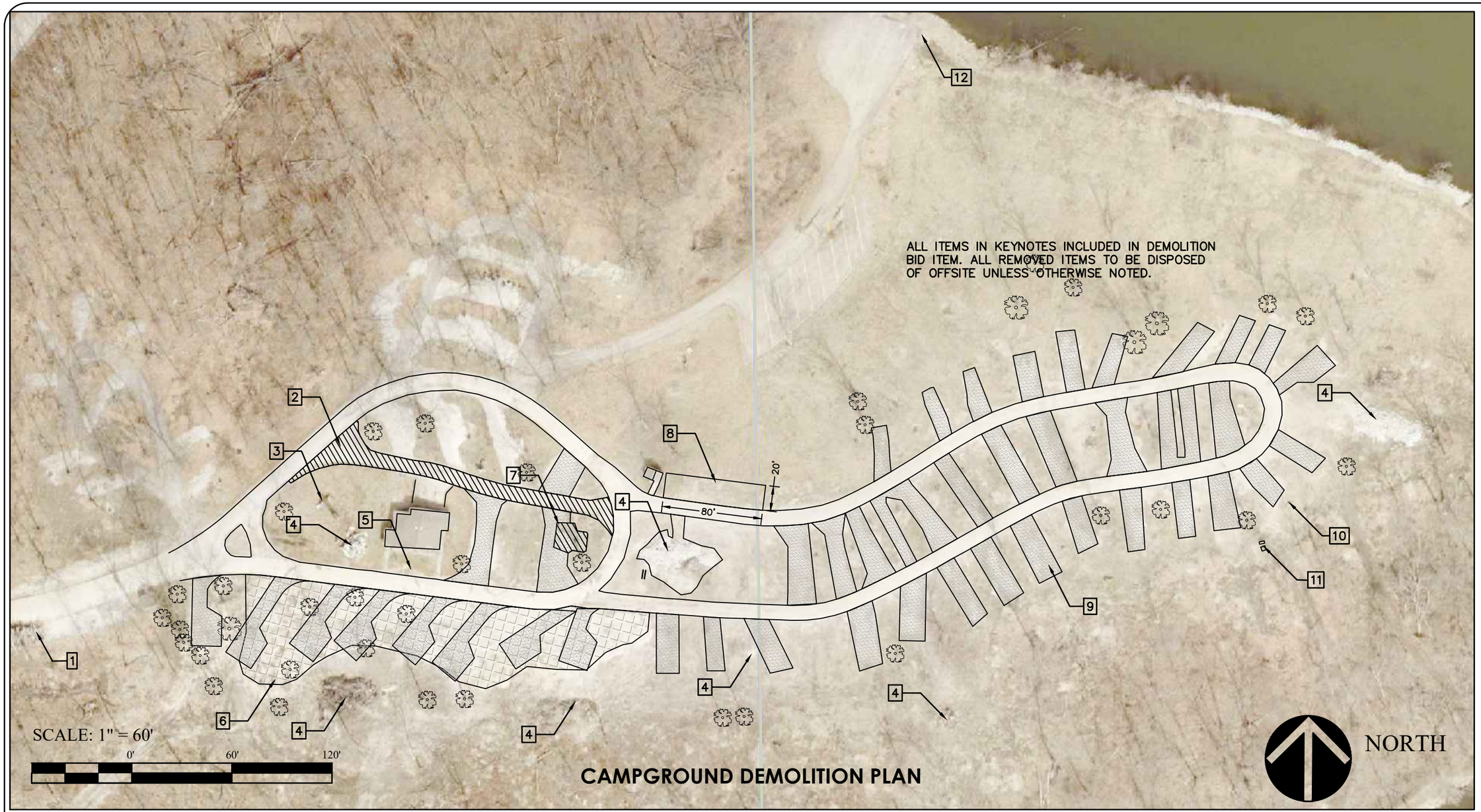
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILING
502 E. 9TH ST., DES MOINES, IA 50319-0034

QUANTITIES AND GENERAL NOTES

CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HJD
DATE: APRIL 20, 2024
SHEET No: 4



KEYNOTES:

1. LOG PILE TO BE REMOVED.
2. REMOVE 94 SY OF HMA PAVEMENT, APPROXIMATELY 6–8" DEPTH.
3. DEMO ALL PLAYGROUND EQUIPMENT INCLUDING ALL FOOTINGS. LEVEL AREA TO DRAIN. FILL IN FOOTING HOLES WITH FILL MATERIAL.
4. ALL PILES OF SHEET METAL, DEBRIS AND CONCRETE TO BE REMOVED. NO DEBRIS TO REMAIN ON–SITE.
5. REMOVE DAMAGED LIGHT POLE AND BASE. RECONNECT ELECTRIC AS NEEDED FOR ADJACENT LIGHT TO WORK.
6. AREA OF MULCH/COMPOST LEFTOVER FROM TREE CLEANUP, APPROX. 3–4" THICK. THIS SHALL BE SALVAGED AND RESPREAD WITH THE TOPSOIL IMPORT. THIS IS NOT TO BE USED IN FILL MATERIAL.
7. REMOVE ALL CONCRETE IN THE EXISTING HOST SITE, APPROXIMATELY 64 SY AT 6–8" DEPTH.
8. PROPOSED PARKING AREA. PRIOR TO PLACEMENT, CONTRACTOR SHALL REMOVE 1' DEPTH OF TOPSOIL AND STORE AND RE–SPREAD AT FINISH GRADE AS NEEDED IN CAMPGROUND. USE EXISTING GRAVEL PAD ROCK TO BRING BASE TO WITHIN 2" OF FINISH GRADE. TOP WITH 2" OF CLASS A ROAD STONE (SEPARATE BID ITEM).
9. EXISTING 6" DEPTH GRAVEL CAMP PADS TO BE USED IN FILL MATERIAL UNDER NEW CAMP PADS. MINIMIZE MIXING ROCK INTO THE FINAL 6" OF FINISH GRADE TO BE SEEDED.
10. REMOVE ALL ELECTRIC OUTPOSTS. CONTRACTOR SHALL ATTEMPT TO REMOVE ALL EXISTING ELECTRICAL LINES BETWEEN POSTS.
11. REMOVE EXISTING ELECTRIC DISTRIBUTION BOX, WORK WITH ALLIANT ENERGY ON REMOVAL OF TRANSFORMER.
12. WORK WITH ALLIANT ENERGY TO REMOVE ANY TRANSFORMER PIECES REMAINING ON EXISTING POLE, REMOVE OLD DAMAGED LIGHT FIXTURE.

CONSULTANT:
NONE

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DEMOLITION PLAN

CAMPGROUND IMPROVEMENTS FOR:
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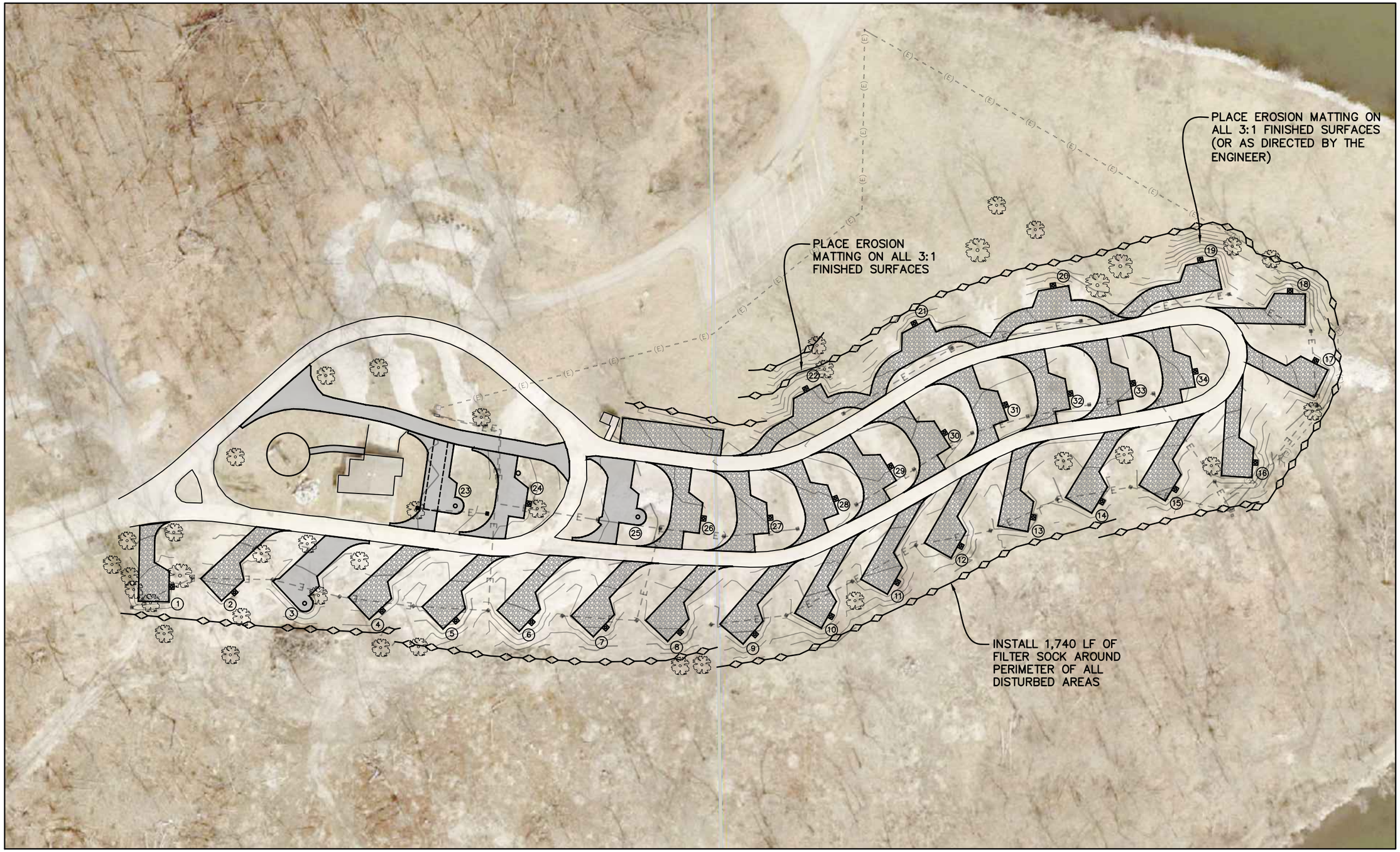
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 5



SCALE: 1" = 75'

0' 75' 150'

CAMPGROUND EROSION CONTROL PLAN

NORTH

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

EROSION CONTROL PLAN

CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

LUCAS COUNTY

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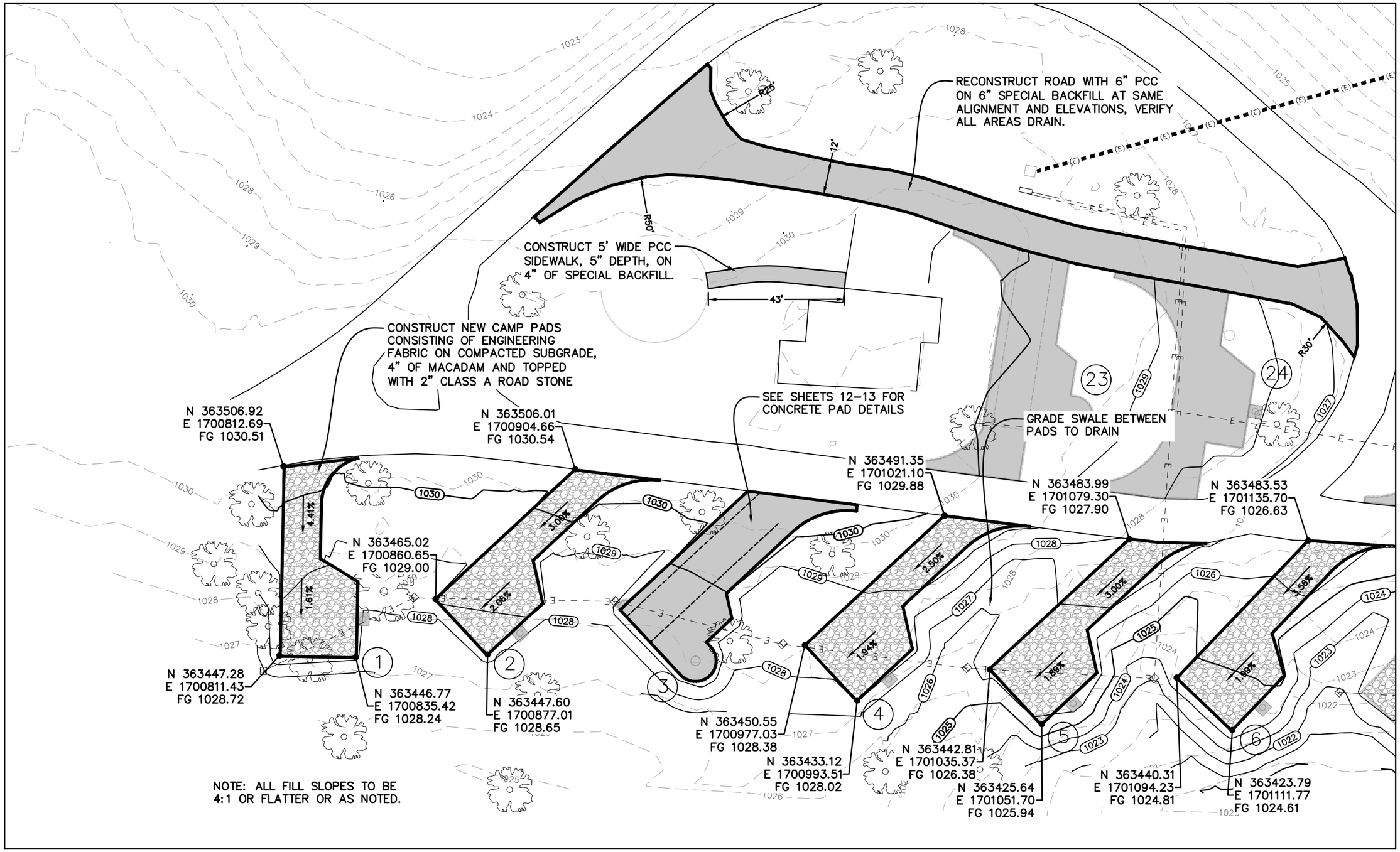
CHK'D BY: HJD	DATE: APRIL 20, 2024

SHEET No: 6



NOTE: ALL FILL SLOPES TO BE 4:1 OR FLATTER OR AS NOTED.

SCALE: 1" = 30'

0' 30' 60'

CAMPGROUND SITES 1 - 6 GRADING PLAN

NORTH

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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502 E. 9TH ST., DES MOINES, IA 50319-0034

GRADING PLAN

CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

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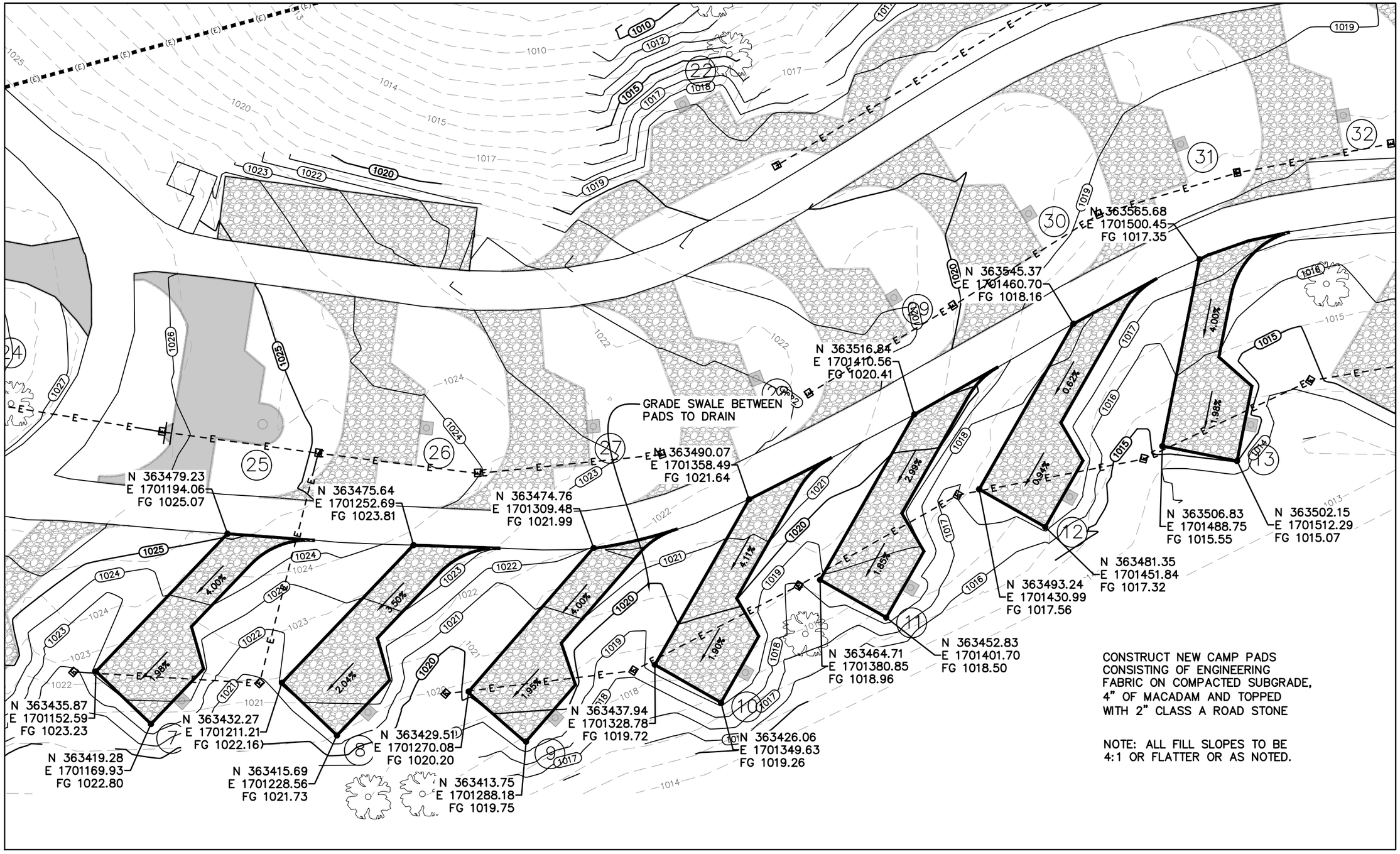
SHEET No: 7



CONSTRUCT NEW CAMP PADS CONSISTING OF ENGINEERING FABRIC ON COMPACTED SUBGRADE, 4" OF MACADAM AND TOPPED WITH 2" CLASS A ROAD STONE

NOTE: ALL FILL SLOPES TO BE 4:1 OR FLATTER OR AS NOTED.

SCALE: 1" = 30'

0' 30' 60'

NORTH

CAMPGROUND SITES 7 - 13 GRADING PLAN

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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GRADING PLAN

CAMPGROUND IMPROVEMENTS FOR:

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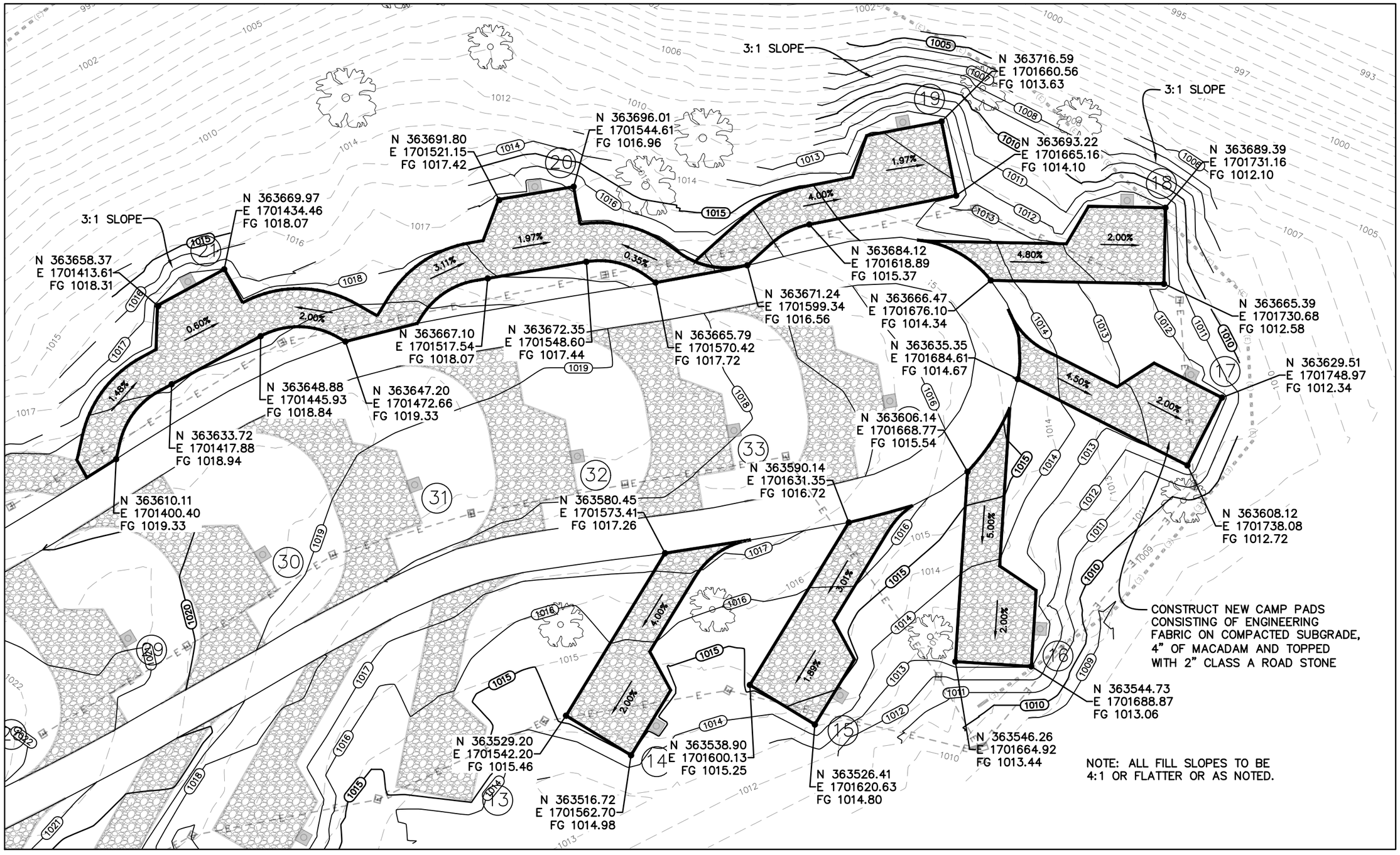
DATE: APRIL 20, 2024
SHEET No: 8



SCALE: 1" = 30'

0' 30' 60'

CAMPGROUND SITES 14 - 21 GRADING PLAN

NORTH

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

GRADING PLAN

CAMPGROUND IMPROVEMENTS FOR:

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CHK'D BY: HLD	DATE: APRIL 20, 2024
SHEET No:	9

CONSTRUCT NEW CAMP PADS CONSISTING OF ENGINEERING FABRIC ON COMPACTED SUBGRADE, 4" OF MACADAM AND TOPPED WITH 2" CLASS A ROAD STONE

NOTE: ALL FILL SLOPES TO BE 4:1 OR FLATTER OR AS NOTED.

SEE SHEETS 12–13 FOR CONCRETE PAD DETAILS

3:1 SLOPE

N 363618.42
E 1701349.10
FG 1018.75

N 363606.54
E 1701327.75
FG 1019.30

N 363591.80
E 1701193.24
FG 1024.38

N 363581.70
E 1701272.98
FG 1021.30

N 363598.58
E 1701382.03
FG 1019.37

N 363582.33
E 1701333.09
FG 1019.98

N 363564.60
E 1701309.24
FG 1021.48

N 363558.88
E 1701334.36
FG 1021.13

N 363541.07
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E 1701308.37
FG 1023.12

N 363500.89
E 1701253.31
FG 1024.90

N 363488.33
E 1701239.63
FG 1024.56

N 363486.10
E 1701297.51
FG 1022.87

SCALE: 1" = 30'

0' 30' 60'

NORTH

CAMPGROUND SITES 22 - 28 GRADING PLAN

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

GRADING PLAN

CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

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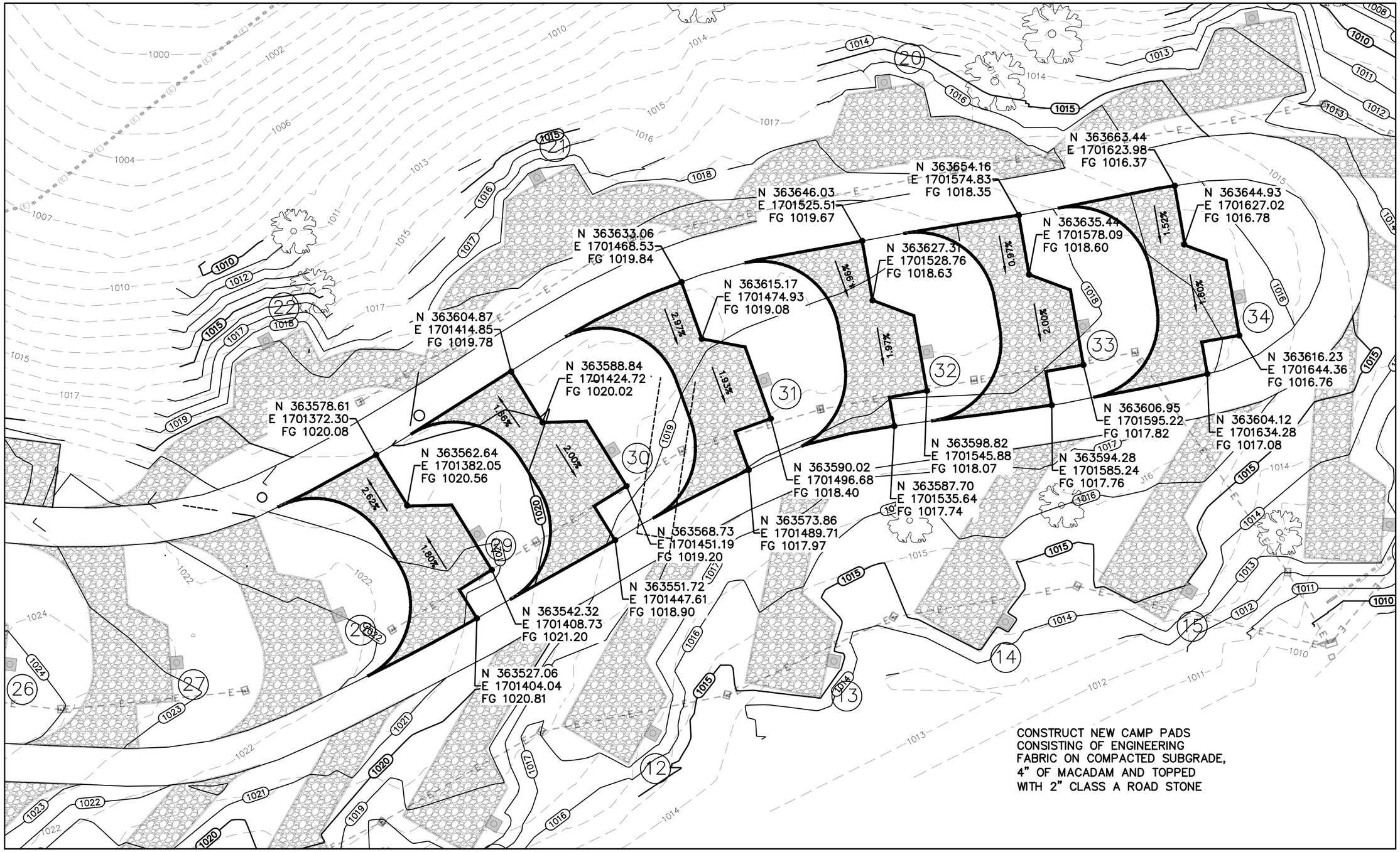
SHEET No: 10



SCALE: 1" = 30'

0' 30' 60'

CAMPGROUND SITES 29 - 34 PLAN

NORTH

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

GRADING PLAN

CAMPGROUND IMPROVEMENTS FOR:

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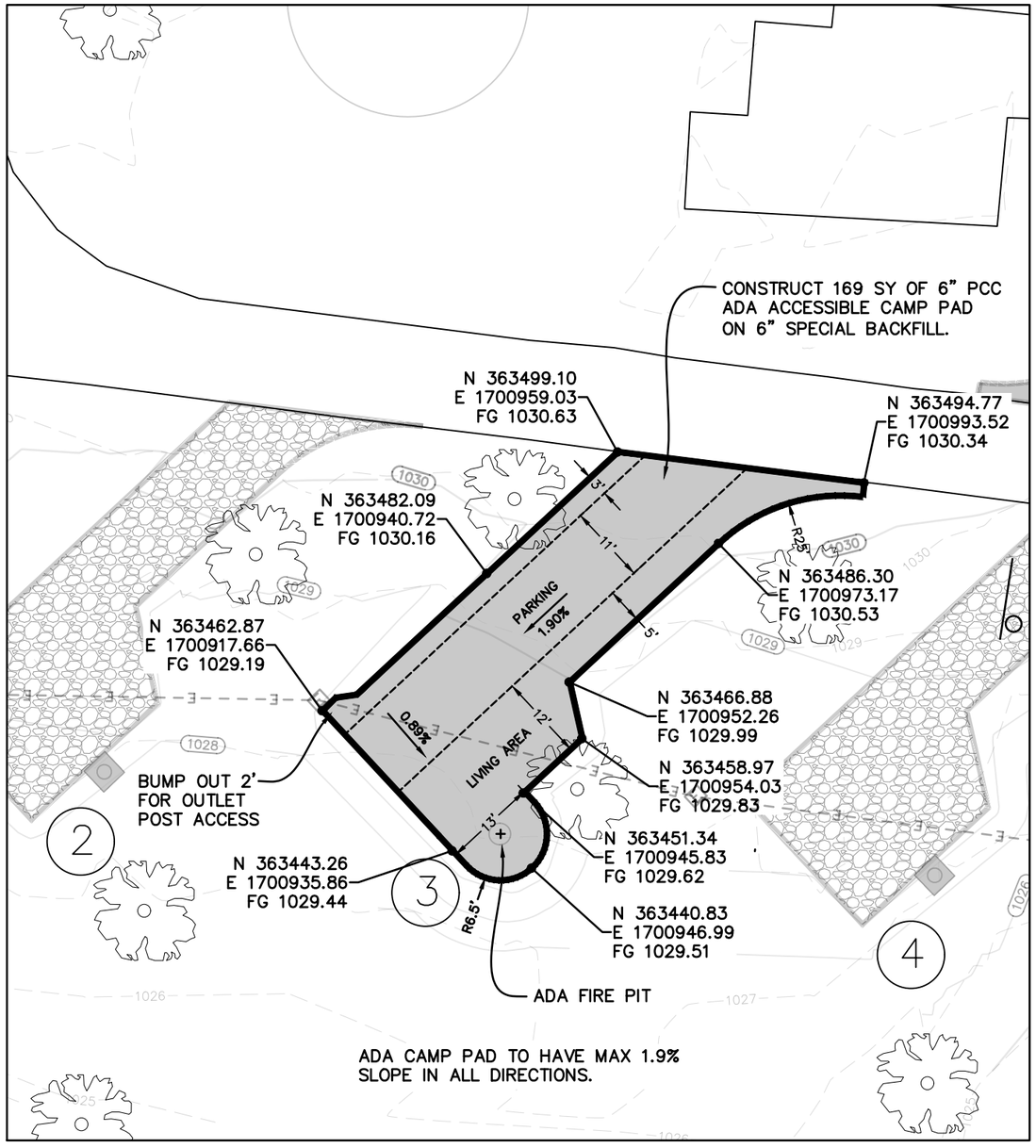
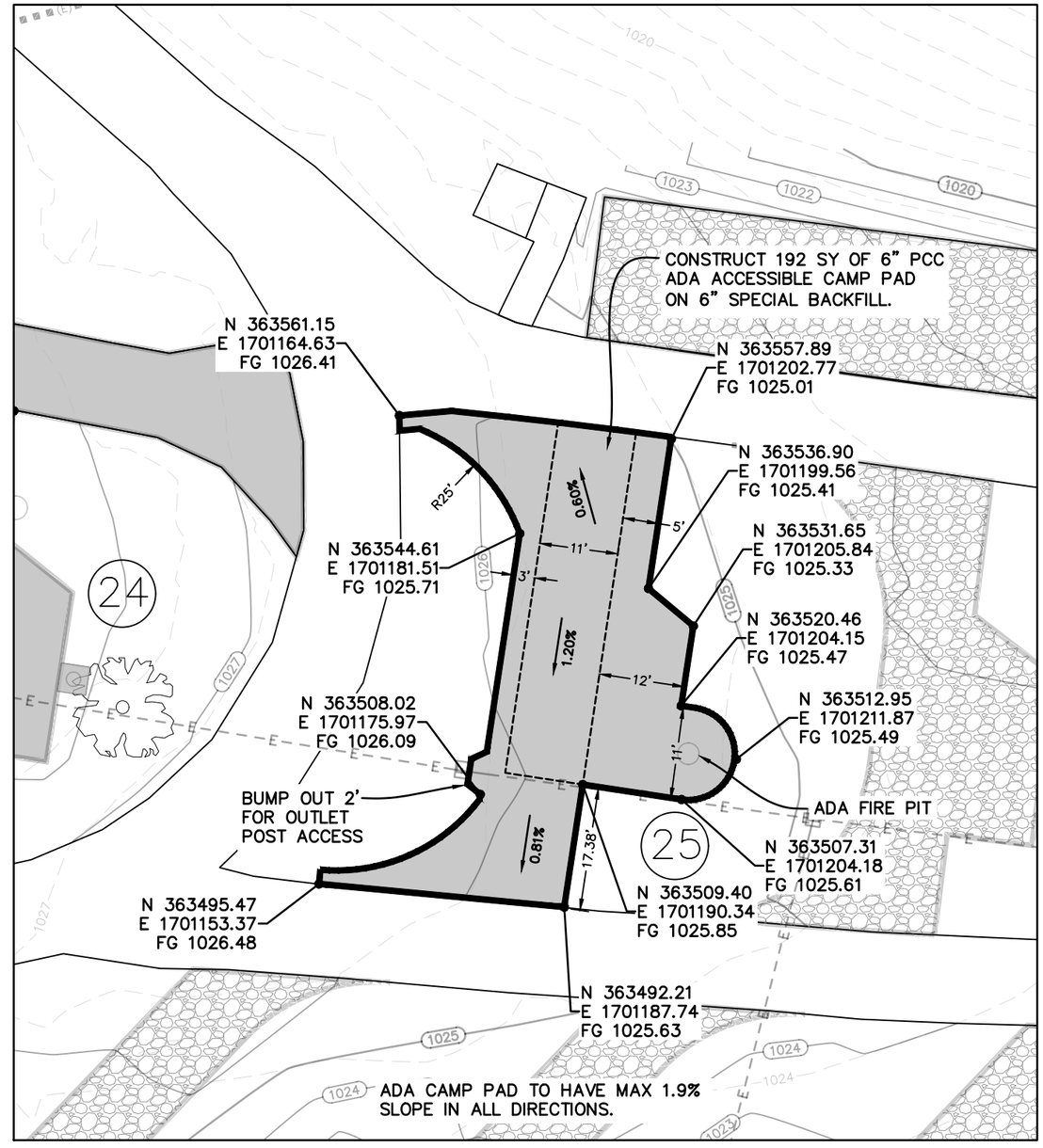
NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: H.D
DATE: APRIL 20, 2024
SHEET No: 11





ADA CAMP PAD TO HAVE MAX 1.9% SLOPE IN ALL DIRECTIONS.

ADA CAMP PAD TO HAVE MAX 1.9% SLOPE IN ALL DIRECTIONS.

SCALE: 1" = 20'

0' 20' 40'

CONCRETE PADS 3 AND 25 PLAN

NORTH

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

CONCRETE PADS PLAN

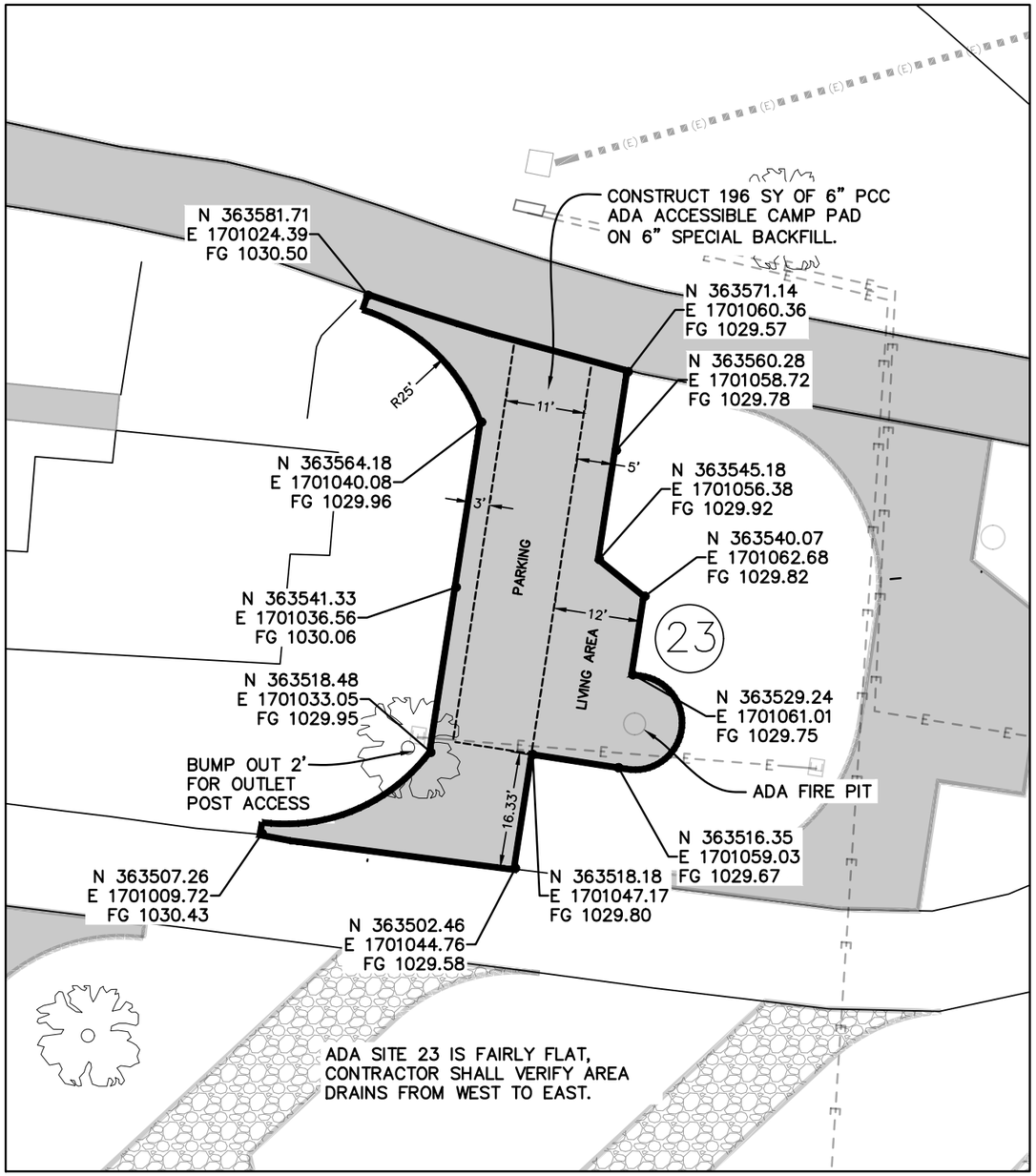
CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK

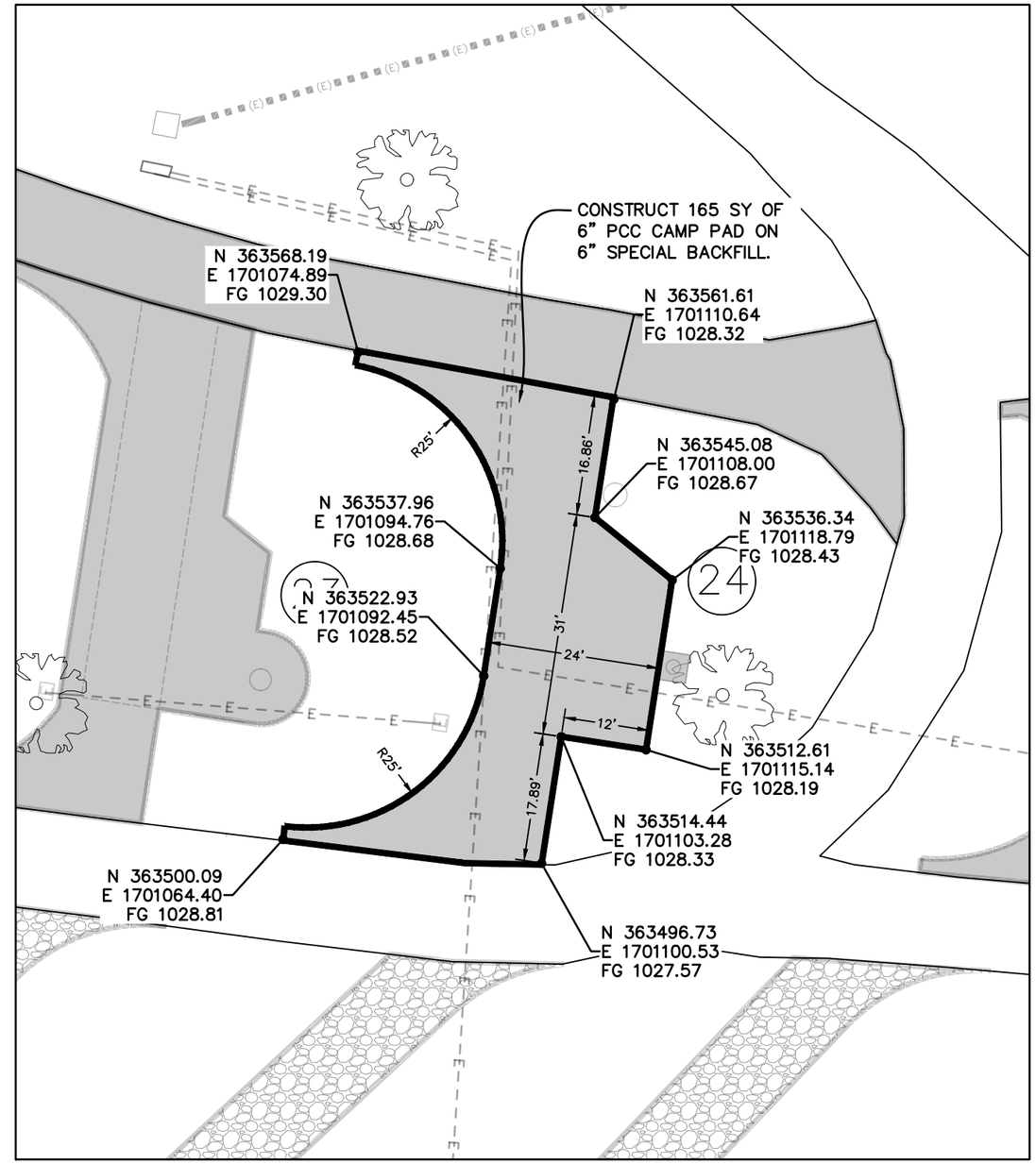
LUCAS COUNTY

NO.	BY DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD	PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD	DATE: APRIL 20, 2024

SHEET No: 12





SCALE: 1" = 20'

0' 20' 40'

CONCRETE PADS 23 AND 24 PLAN

NORTH

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

CONCRETE PADS PLAN

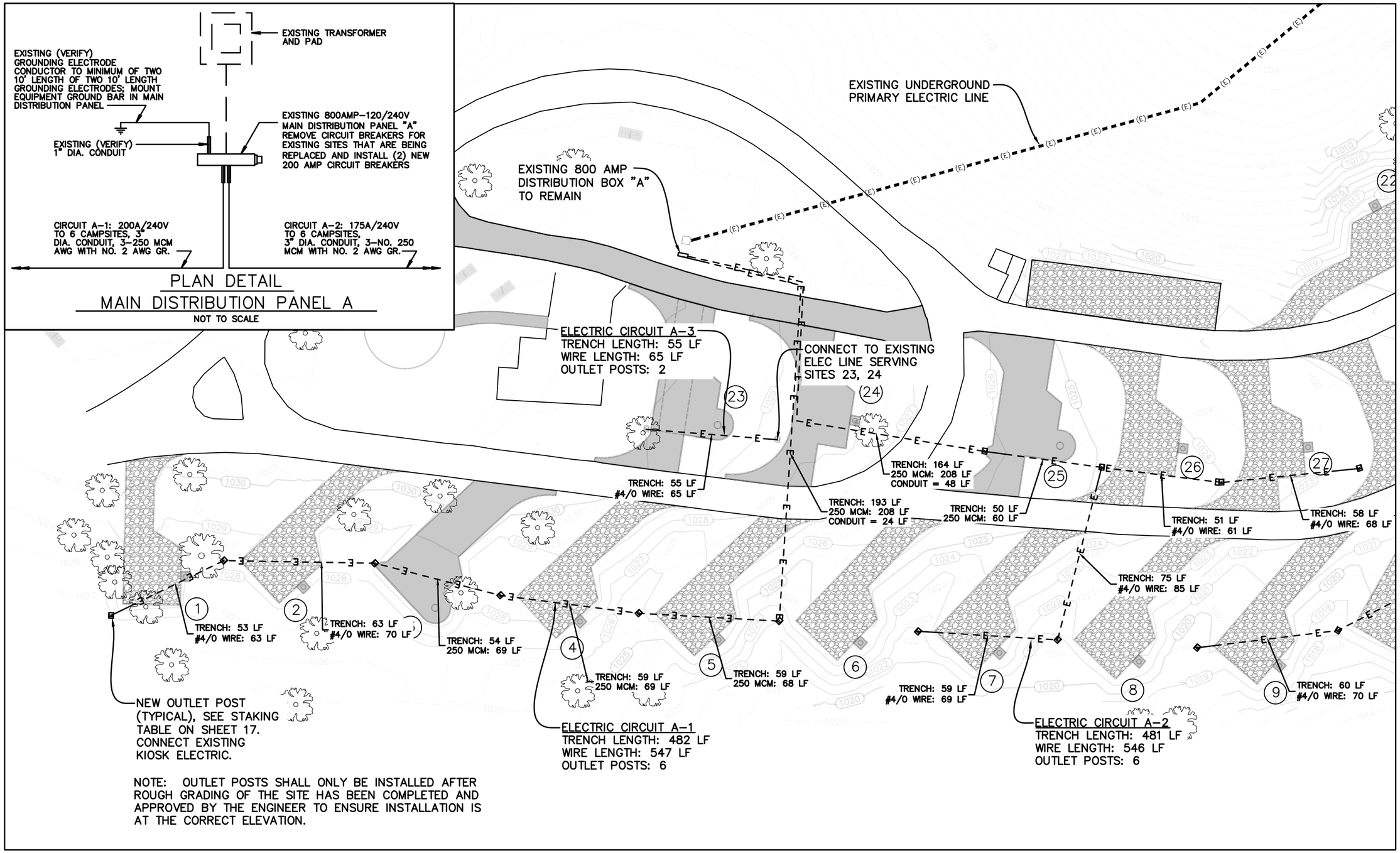
CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

LUCAS COUNTY

NO.	BY DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 13



SCALE: 1" = 40'

0' 40' 80'

CAMPGROUND ELECTRICAL PLAN

NORTH

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

ELECTRICAL PLAN

CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

LUCAS COUNTY

NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 14

NORTH

ELECTRIC CIRCUIT B–3
TRENCH LENGTH: 554 LF
WIRE LENGTH: 619 LF
OUTLET POSTS: 6

TRENCH: 119 LF
250 MCM: 129 LF

TRENCH: 104 LF
250 MCM: 114 LF

TRENCH: 71 LF
250 MCM: 81 LF

TRENCH: 100 LF
#4/0 WIRE: 110 LF

ELECTRIC CIRCUIT B–2
TRENCH LENGTH: 374 LF
WIRE LENGTH: 449 LF
OUTLET POSTS: 7

TRENCH: 59 LF
250 MCM: 69 LF

TRENCH: 51 LF
250 MCM: 61 LF

TRENCH: 54 LF
#4/0 WIRE: 64 LF

TRENCH: 49 LF
#4/0 WIRE: 59 LF

TRENCH: 61 LF
250 MCM: 95 LF
CONDUIT 24 LF

EXISTING UNDERGROUND
PRIMARY ELECTRIC LINE

TRENCH: 46 LF
#4/0 WIRE: 56 LF

TRENCH: 53 LF
#4/0 WIRE: 63 LF

TRENCH: 106 LF
250 MCM: 116 LF

TRENCH: 26 LF
250 MCM: 51 LF

TRENCH: 59 LF
250 MCM: 69 LF

TRENCH: 58 LF
250 MCM: 68 LF

TRENCH: 80 LF
300 MCM: 95 LF

INSTALL NEW 600 AMP
DISTRIBUTION BOX "B"

TRENCH: 51 LF
#4/0 WIRE: 61 LF

TRENCH: 58 LF
#4/0 WIRE: 68 LF

TRENCH: 60 LF
250 MCM: 70 LF

ELECTRIC CIRCUIT B–1
TRENCH LENGTH: 434 LF
WIRE LENGTH: 509 LF
OUTLET POSTS: 7

TRENCH: 75 LF
#4/0 WIRE: 85 LF

TRENCH: 58 LF
250 MCM: 68 LF

NEW OUTLET POST
(TYPICAL). SEE
SHEET 17 FOR
STAKING TABLE.

TRENCH: 59 LF
#4/0 WIRE: 69 L

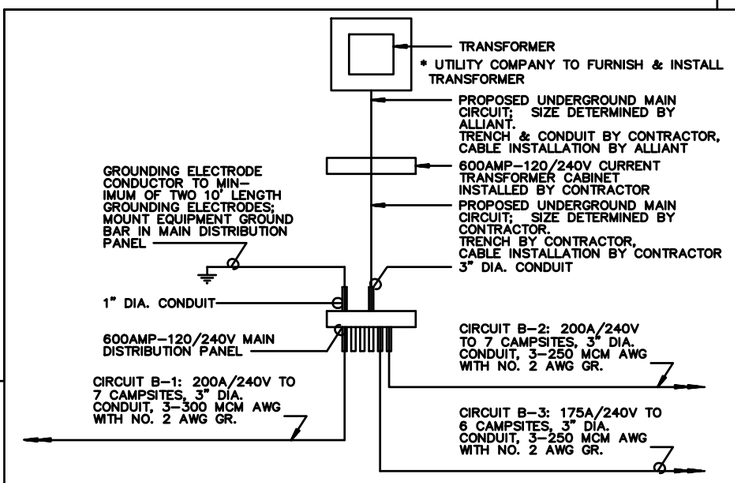
TRENCH: 60 LF
#4/0 WIRE: 70 LF

NOTE: OUTLET POSTS SHALL ONLY BE INSTALLED AFTER ROUGH GRADING OF THE SITE HAS BEEN COMPLETED AND APPROVED BY THE ENGINEER TO ENSURE INSTALLATION IS AT THE CORRECT ELEVATION.

SCALE: 1" = 40'

0' 40' 80'

CAMPGROUND ELECTRICAL PLAN



PLAN DETAIL
MAIN DISTRIBUTION PANEL B
NOT TO SCALE

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

ELECTRICAL PLAN

CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 15

CIRCUIT SCHEDULE

CIRCUIT	NO. OF OUTLET POSTS	FACILITY OR CAMPSITES SERVED	TRENCH LENGTH (FT.)	LENGTH OF ROAD CONDUIT (FT.)	LENGTH OF WARNING TAPE (FT.)	C.B. OR FUSE SIZE (AMP)	SIZE (AWG) & LENGTH (FT.) OF GR. CONDUCTOR (TYPE THW OR USE)							SIZE (AWG) & LENGTH (FT.) OF CONDUCTOR (TYPE USE)						
							#8	#6	#4	#2	#1/0	#2/0	#3/0	#1	#1/0	#2/0	#3/0	#4/0	250 MCM	300 MCM
A-1 (N, GR)	6	SITES 1-6, KIOSK	482	48	434	200/2-P				547								133	414	
A-1 (A)																		133	414	
A-1 (B)																		133	414	
A-2 (N, GR)	6	SITES 7-8, 25-28	481	24	457	175/2-P				546								283	263	
A-2 (A)																		283	263	
A-2 (B)																		283	263	
A-3 (N, GR)	2	SITES 23-24	55	0	55	EXISTING				65								65		
A-3 (A)																		65		
A-3 (B)																		65		
B-1 (N, GR)	7	SITES 9-15	434	0	434	200/2-P				509								139	275	95
B-1 (A)																		139	275	95
B-1 (B)																		139	275	95
B-2 (N, GR)	7	SITES 16, 29-34	374	24	350	200/2-P				449								303	146	
B-2 (A)																		303	146	
B-2 (B)																		303	146	
B-3 (N, GR)	6	SITES 17-22	554	0	554	175/2-P				619								110	509	
B-3 (A)																		110	509	
B-3 (B)																		110	509	
TOTALS	34		2380	96	2284					2735								3099	4821	285

GENERAL NOTES

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% (3.6 VOLTS ON EACH 120V PHASE).
3. ALL CONDUCTORS SHALL BE COPPER
4. CONTRACTOR'S ELECTRICIAN SHALL VERIFY ALL WIRE SIZES AND CONDUIT SIZES MEET NEC AND IOWA ELECTRICAL CODE REQUIREMENTS PRIOR TO INSTALLATION. CONTRACTOR SHALL NOTIFY ENGINEER REGARDING ANY DISCREPANCIES.

CONSULTANT:
NONE

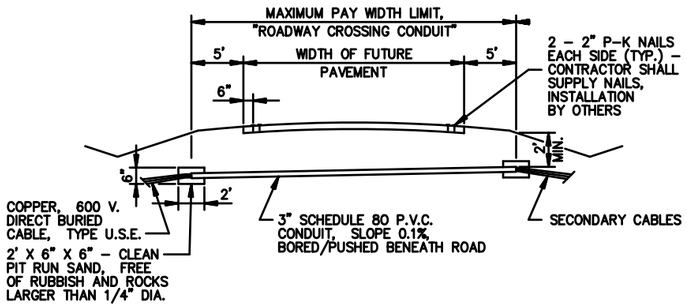
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

CIRCUIT SCHEDULE

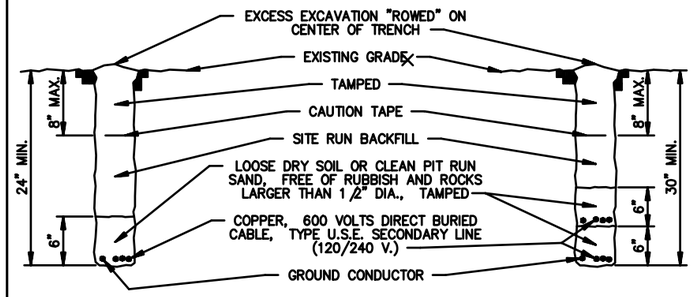
CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO.	BY	DATE	REVISION
1			FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HD
DATE: APRIL 20, 2024
SHEET No: 16

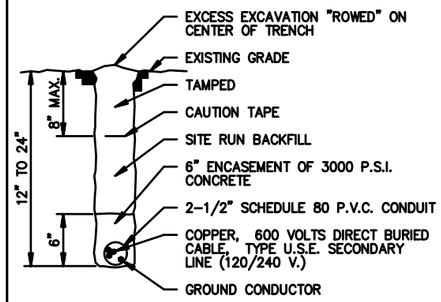


ROADWAY CROSSING CONDUIT BENEATH PAVEMENT



SINGLE TRENCH

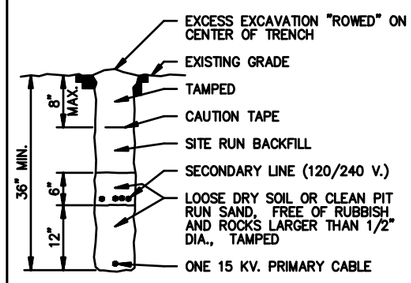
DOUBLE TRENCH



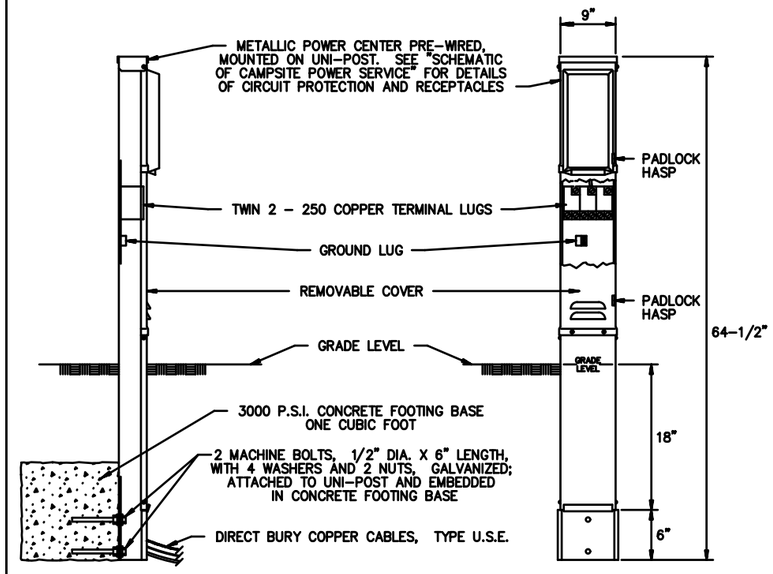
SINGLE TRENCH WITH LESS THAN MINIMUM BURIAL DEPTH

NOTES:

1. AFTER INSTALLATION OF THE ELECTRICAL CONDUCTORS, AND AT LOCATIONS WHERE THE TRENCHING OPERATIONS CROSS THE CAMPSITE VEHICLE PARKING PADS, THE CONTRACTOR SHALL PLACE AND COMPACT A MINIMUM OF 4" OF GRANULAR SURFACING ABOVE THE COMPACTED TRENCH BACKFILL.
2. THE CONTRACTOR SHALL SEED AREAS DISTURBED BY TRENCHING ACTIVITY WITH AN "URBAN" OR "RURAL" SEED MIXTURE, AS SPECIFIED ON THE PLAN DRAWINGS. THE COST OF SEEDING SHALL BE CONSIDERED AS INCIDENTAL TO OTHER ITEMS OF WORK.
3. TRENCHING AND BACKFILL SHALL CONFORM TO SUDAS.



COMBINED PRIMARY AND SECONDARY TRENCH

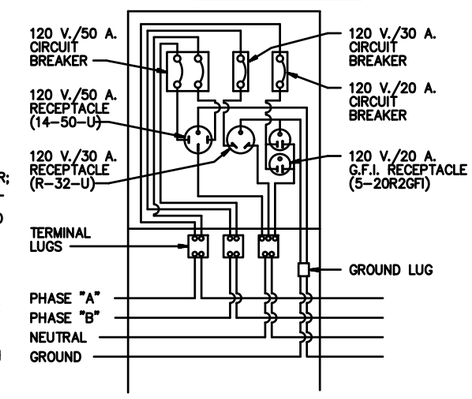


SIDE VIEW

FRONT VIEW

NOTES:

1. A "SINGLE CAMPSITE OUTLET POST-50 AMP" SHALL HAVE THE FOLLOWING CONFIGURATION: AN UNMETERED, POST MOUNTED CABINET WITH A 5-20R2GFI 20 AMP DUPLEX RECEPTACLE, A R32U 30 AMP RECEPTACLE, A 14-50R 50 AMP RECEPTACLE, A SINGLE POLE 20 AMP CIRCUIT BREAKER, A SINGLE POLE 30 AMP CIRCUIT BREAKER, AND A DOUBLE POLE 50 AMP CIRCUIT BREAKER; MIDWEST MODEL U075CP6010 OR MODEL U075CP6039 FOR 350 MCM LUGS, MILLBANK U5200-XL-75, OR APPROVED EQUAL, SHALL BE USED FOR SINGLE CAMPSITE OUTLET POST WITH METALLIC POWER CENTER.
2. SEE TRENCH DETAILS, STANDARD DRAWING NO. TS-1, FOR DETAILS OF INSTALLATION OF DIRECT BURY COPPER CABLES TO CAMPSITE OUTLET POST.
3. THE CONDUCTOR SIZES AND THE PLAN ARRANGEMENT OF THE LOADS ON EACH CIRCUIT SHALL BE SELECTED TO LIMIT THE MAXIMUM CIRCUIT VOLTAGE DROP, FROM THE TRANSFORMER TO THE FURTHEST CAMPSITE OUTLET ON THE CIRCUIT, TO 3% (3.6 VOLTS ON EACH 120 V. PHASE). ADJUST CONDUCTOR SIZE BASED ON ACTUAL ROUTING WITH NO ADDITIONAL COMPENSATION.
4. PROVIDE TWO EXTRA COMPLETE OUTLET POSTS AND TURN OVER TO OWNER.



SCHEMATIC OF CAMPSITE 50 AMP POWER SERVICE

CAMPGROUND ELECTRICAL SYSTEM STANDARD DRAWING NO. RC-1	
DETAILS OF ROADWAY CROSSING CONDUITS FOR SECONDARY CIRCUITS	
REVISION DATE 1/25/95	

CAMPGROUND ELECTRICAL SYSTEM STANDARD DRAWING NO TS-1	
DETAILS OF TRENCHES FOR SECONDARY CIRCUITS	
REVISION DATE 1/21/97	

CAMPGROUND ELECTRICAL SYSTEM STANDARD DRAWING NO. SC-1	
DETAILS OF CAMPSITE OUTLET POST	
REVISION DATE 10/26/06	

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

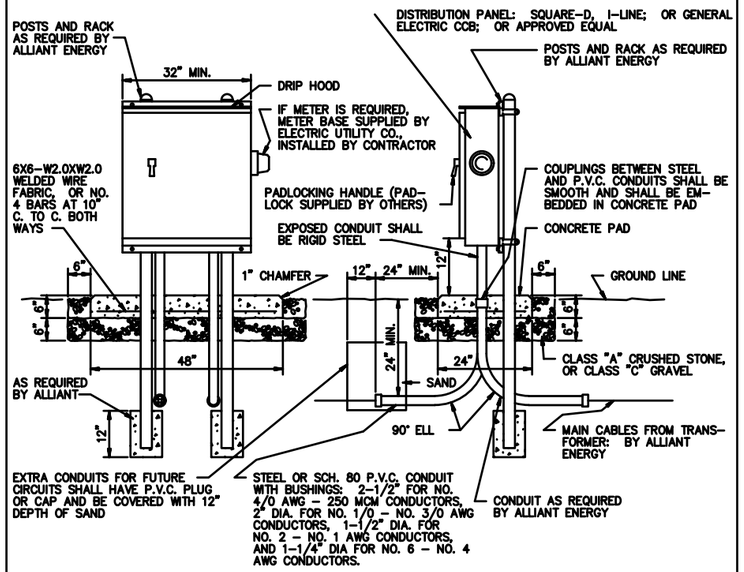
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL DETAILS

CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
DATE: APRIL 20, 2024
SHEET No: 17



PAD–MOUNTED DISTRIBUTION PANEL DETAIL

NOTES:

1. IF THE PROJECT SITE DOES NOT HAVE PRIMARY METERING, A METER FOR SECONDARY CIRCUITS SHALL BE INSTALLED ON THE SIDE OF THE MAIN DISTRIBUTION PANEL. THE METER BASE INSTALLATION SHALL BE IN CONFORMANCE WITH THE ELECTRIC UTILITY COMPANY'S REQUIREMENTS AND BE SUBJECT TO THEIR APPROVAL.
2. THE COST FOR INSTALLING "MAIN CIRCUIT CABLES" SHALL BE INCLUDED IN THE COST FOR INSTALLING THE MAIN DISTRIBUTION PANEL. THE CONTRACTOR SHALL ARRANGE WITH THE ELECTRIC UTILITY COMPANY FOR CONNECTION OF THE MAIN CIRCUIT CABLES TO THE TRANSFORMER.
3. MAIN DISTRIBUTION PANELS AND CT CABINET SHALL BE INSTALLED ACCORDING TO ALLIANT ENERGY REQUIREMENTS.

600 AMP/240 VOLT MAIN DISTRIBUTION PANEL FEATURES:

1. SYSTEM: 120/240 V., 3–WIRE CONTINUOUS GROUND, SINGLE PHASE.
2. SQUARE–D TYPE HCM I–LINE, OR GENERAL ELECTRIC TYPE CCB, PANELBOARD.
3. 800 AMP MA (SQUARE–D) OR TJK6 (G.E.) 2–POLE MAIN CIRCUIT BREAKER, EXCEPT WHEN PLAN DRAWINGS REQUIRE MAIN LUGS ONLY.
4. SOLID NEUTRAL.
5. EQUIPMENT GROUND BAR MOUNTED IN PANEL.
6. DEADFRONT, NEMA TYPE 3R ENCLOSURE.
7. GASKET SEALING AROUND DOOR OPENING.
8. CONCEALED DOOR HINGE.
9. THREE–POINT VAULT TYPE LOCKING MECHANISM WITH CHROME FINISH PAD–LOCKING HANDLE.
10. CABINET FINISH: RUST INHIBITING PRIMER AND FINISH COAT OF STANDARD GRAY BAKED ENAMEL.
11. BRANCH BREAKERS: TYPES FA & Q2 (SQUARE–D) OR TYPES TEB & TQD (G.E.) THERMAL MAGNETIC CIRCUIT BREAKERS.

CAMPGROUND ELECTRICAL SYSTEM STANDARD DRAWING NO. MP–3

DETAILS OF PAD–MOUNTED 600 AMP / 240 VOLT MAIN DISTRIBUTION PANEL

REVISION DATE 2/10/16

Alliant Energy

Chapter 6

ELECTRIC SERVICE RULES

SECONDARY METERING — Issued Jan 2024

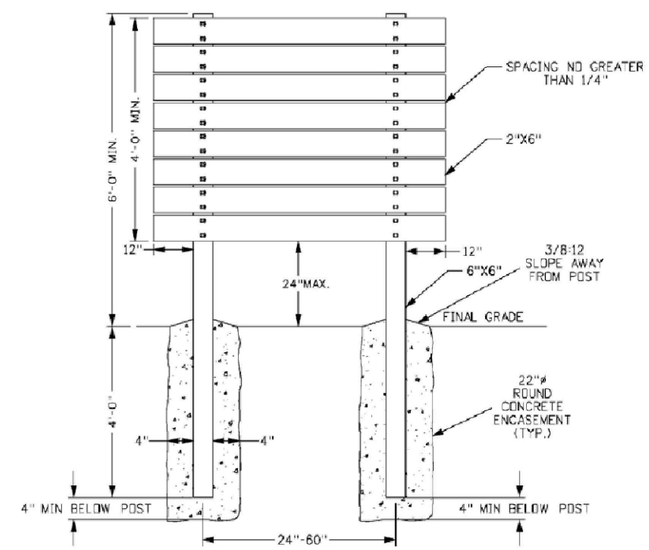
609. OUTDOOR FREE STANDING (Field-Built) METER STRUCTURES

A. Field built structures are limited to 1200 Amp Maximum. Alliant Energy engineering approval is required for use.

B. Wood field-built structures shall have a minimum of two 6" x 6" wood posts and 2" x 6" planks that are pressure treated against decay per the American Wood Protection Association (AWPA). The posts shall be buried a minimum of 4 feet deep, plumb and set in concrete the full depth. The planks shall be level and fastened with stainless steel or hot-dipped galvanized (G-185) hardware (bolts, washers, nuts.), **nails and screws are not acceptable.** The customer is responsible for the maintenance of the structure. See ESR 609.dgn for allowable design details.

C. All service equipment shall be waterproof, lockable and listed by an approved testing agency for service entrance use. Shall be securely fastened to structure with through bolts, washers and nuts.

WOOD CONSTRUCTION



ESR 609.DGN

ALLIANT ENERGY STRUCTURE REQUIREMENTS

CONSULTANT: NONE

IOWA DEPARTMENT OF NATURAL RESOURCES

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

ELECTRIC DETAILS

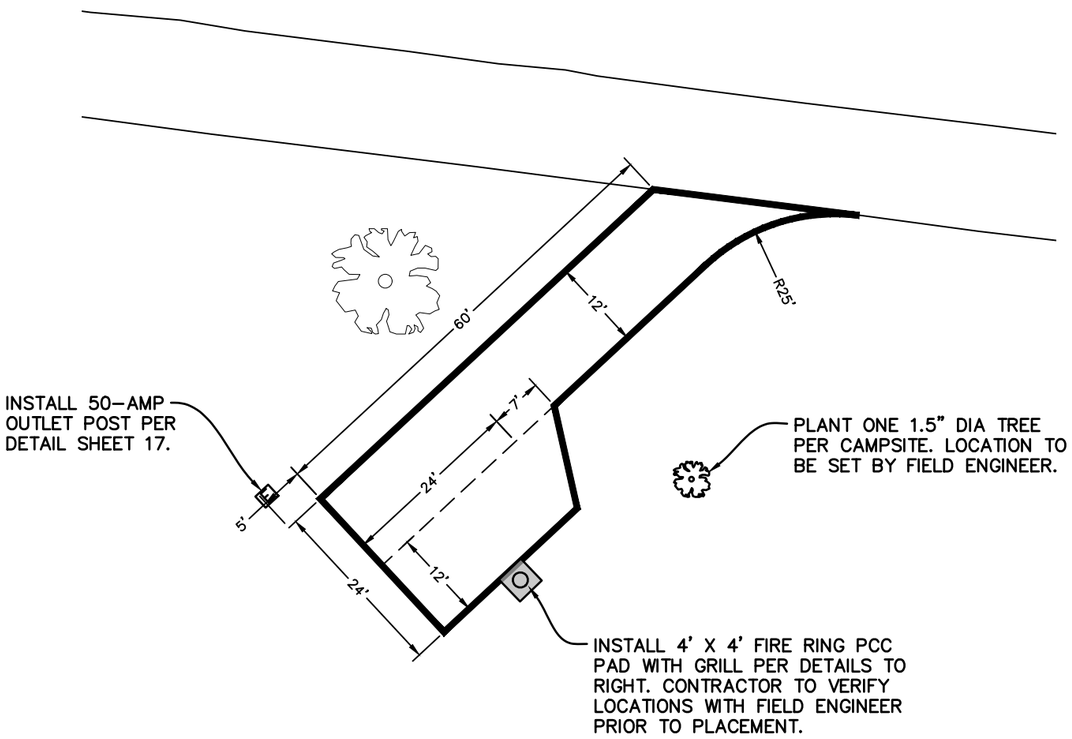
CAMPGROUND IMPROVEMENTS FOR:

RED HAW STATE PARK

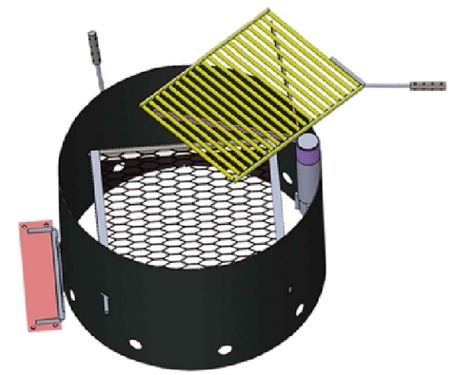
LUCAS COUNTY

NO.	BY / DATE	REVISION
1		FINAL FOR BIDDING

DRAWN BY: MDD
PROJECT NUMBER: 23-05-59-02
CHK'D BY: HD
DATE: APRIL 20, 2024
SHEET No: 18

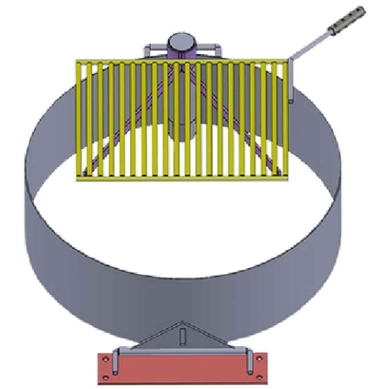


TYPICAL CAMP SITE LAYOUT
SCALE 1" = 20'



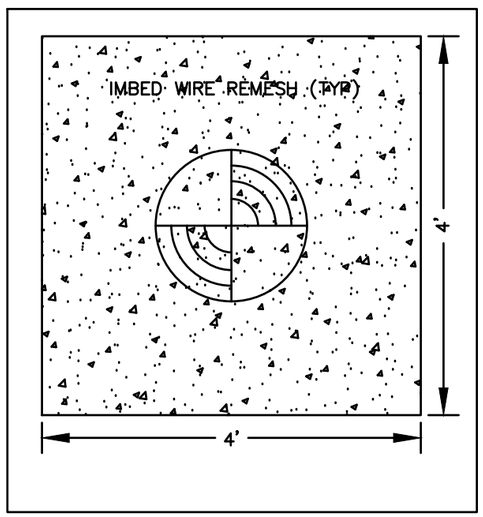
GRILL TO BE 7-GAUGE, SURFACE MOUNT IPI NO. FRNDGRILLADA7GA 30" ROUND X 18" HIEGHT.

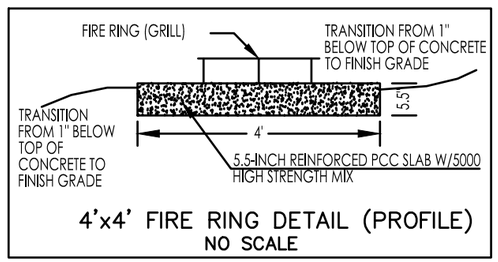
IPI ADA GRILL DETAIL
NOT TO SCALE



FIRE PIT GRILL 7-GAUGE, SURFACE MOUNT IPI NO. FRNDGRILLSM7GA 30" ROUND X 9" HIEGHT

IPI GRILL DETAIL
NOT TO SCALE





4'x4' FIRE RING DETAIL (PROFILE)
NO SCALE

FIRE RING NOTES:
1. FIRE RINGS SHALL BE 4'x4'x5.5" DEPTH (USE 2"x6" BOARDS FOR FORMS).
2. THEY SHALL HAVE WIRE REMESH PLACED AT MID-DEPTH (2.75").
3. CONTRACTOR TO SET THE CAMPFIRE RING ANCHORS INTO THE WET CEMENT. CONTRACTOR TO VERIFY ANCHOR DEPTH SUCH THAT GRILL WILL BE LEVEL AND FLUSH ON NEW CONCRETE SLAB.
4. CONTRACTOR TO USE 5,000 PSI HIGH STRENGTH CONCRETE THAT SETS IN 10-12 HOURS FOR THE FIRE RINGS (1.8 SY EACH). FIRE RINGS NEED TO CURE FOR 180 DAYS (6 MONTHS) PRIOR TO FIRE USAGE, CONTRACTOR TO POUR THE FIRE RINGS TO ACCOMMODATE THIS SCHEDULE.
5. TOP OF FIRE RINGS SHALL BE 1-INCH ABOVE FINISH GRADE FOR DRAINAGE.
6. ALL ITEMS DESCRIBED TO BE INCLUDED IN BID ITEM.
7. GRILLS SHALL BE IOWA PRISON INDUSTRIES MODEL FIRE PIT GRILL 7-GAUGE, SURFACE MOUNT, IPI NO. FRNDGRILLSM7GA OR EQUIVALENTS (IF APPROVED BY THE DNR).
8. ADA GRILLS SHALL BE FIRE PIT GRILL ADA 7-GAUGE, SURFACE MOUNT, IPI NO. FRNDGRILLADA7GA8 OR EQUIVALENTS (IF APPROVED BY THE DNR).
9. GRILLS CAN BE FOUND AT: WWW.IAPRISONIND.COM/STORE/C/142-GRILLS.

4'x4' FIRE RING DETAIL (PLAN)
NOT TO SCALE

CONSULTANT:
NONE

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DETAILS

CAMPGROUND IMPROVEMENTS FOR:
RED HAW STATE PARK
LUCAS COUNTY

NO.	BY: DATE	REVISION
1		FINAL FOR BIDDING

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PROJECT NUMBER: 23-05-59-02
CHK'D BY: HLD
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