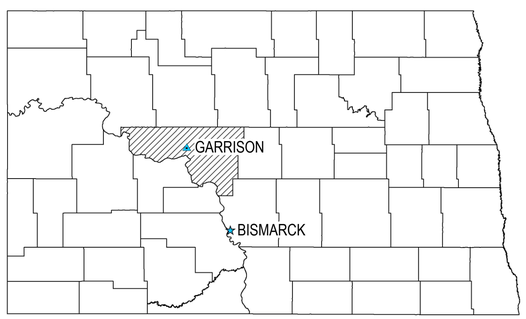
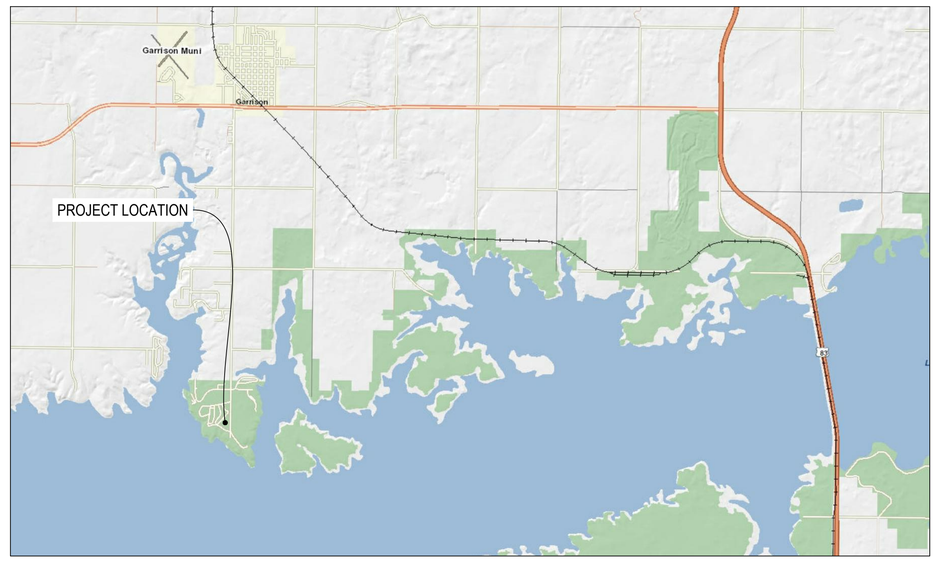
2019 CAMPGROUND IMPROVEMENTS

FORT STEVENSON STATE PARK

NORTH DAKOTA PARKS AND RECREATION DEPARTMENT
GARRISON, NORTH DAKOTA



VICINITY MAP
NOT TO SCALE



PROJECT LOCATION MAP
NOT TO SCALE

SHEET INDEX

SECTION NO.	DESCRIPTION
G001	TITLE SHEET
C100	EXISTING CONDITIONS
C101	DEMOLITION PLAN
C102	EROSION CONTROL PLAN
C200	PROPOSED SITE LAYOUT
C300	PROPOSED SITE GRADING
C400	PROPOSED SANITARY SEWER & WATERMAIN
C401	PROPOSED SANITARY SEWER & PROFILES
E400	GENERAL ELECTRICAL NOTES
E401	ELECTRICAL SPECIFICATIONS AND SYMBOL LEGEND
E402	ELECTRICAL SITE PLAN AND DETAILS
E403	ELECTRICAL SCHEDULES AND ONE LINE DIAGRAM
C500	PROPOSED SURFACE IMPROVEMENTS & PLANTING SCHEDULE

WARNING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT NDOC AT 800-795-0555
AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

811
NORTH DAKOTA ONE CALL
TOLL FREE 1-800-795-0555

STANDARD SPECIFICATIONS

THE STANDARD SPECIFICATIONS FOR THIS PROJECT ARE "2014 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" WITH CURRENT SUPPLEMENTAL SPECIFICATIONS AS ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION. IN THE EVENT A DISCREPANCY EXISTS BETWEEN THE PLAN SET AND STANDARD SPECIFICATIONS, THE PLAN SET SHALL SUPERCEDE.

CONTACT LIST

CONTACT	ORGANIZATION	ROLE	PHONE #	EMAIL ADDRESS
JASON JOHNSTON	NORTH DAKOTA PARKS & RECREATION DEPARTMENT	PROJECT & MAINTENANCE COORDINATOR	(701) 214-0982	JJOHNSTON@ND.GOV
CHAD TRAUTMAN	FORT STEVENSON STATE PARK (NDPRD)	PARK MANAGER	(701) 861-9703	CMTRAUTMAN@ND.GOV
KEVIN G. NELSON, PE, PLS	MOUNTAIN PLAINS, LLC	SENIOR PROJECT ENGINEER & LAND SURVEYOR	(701) 955-3153	KNELSON@MTNPLAINS.COM
BRIAN J. ZUROFF, PE	MOUNTAIN PLAINS, LLC	CERTIFYING CIVIL ENGINEER	(701) 955-3122	BZUROFF@MTNPLAINS.COM
JOSH MUEHLER	MOUNTAIN PLAINS, LLC	SURVEY PARTY CHIEF	(701)516-2289	JMUEHLER@MTNPLAINS.COM
PATRICK STRAATMANN, PE	ENGTECH, LLC	CERTIFYING ELECTRICAL ENGINEER	(701)258-7077	PSTRAATMANN@KPE-INC.COM

NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

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(701) 328-5357 | PARKREC.ND.GOV

FORT STEVENSON STATE PARK
2019 CAMPGROUND IMPROVEMENTS

MOUNTAIN PLAINS LLC
Engineering, Land Surveying & Utility Locating
1300 TACOMA AVE | BISMARCK, ND 58504
(701) 557-3348 | WWW.MTNPLAINS.COM

DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: G001
SHEET TITLE: TITLE SHEET

7/29/2019 4:23 PM
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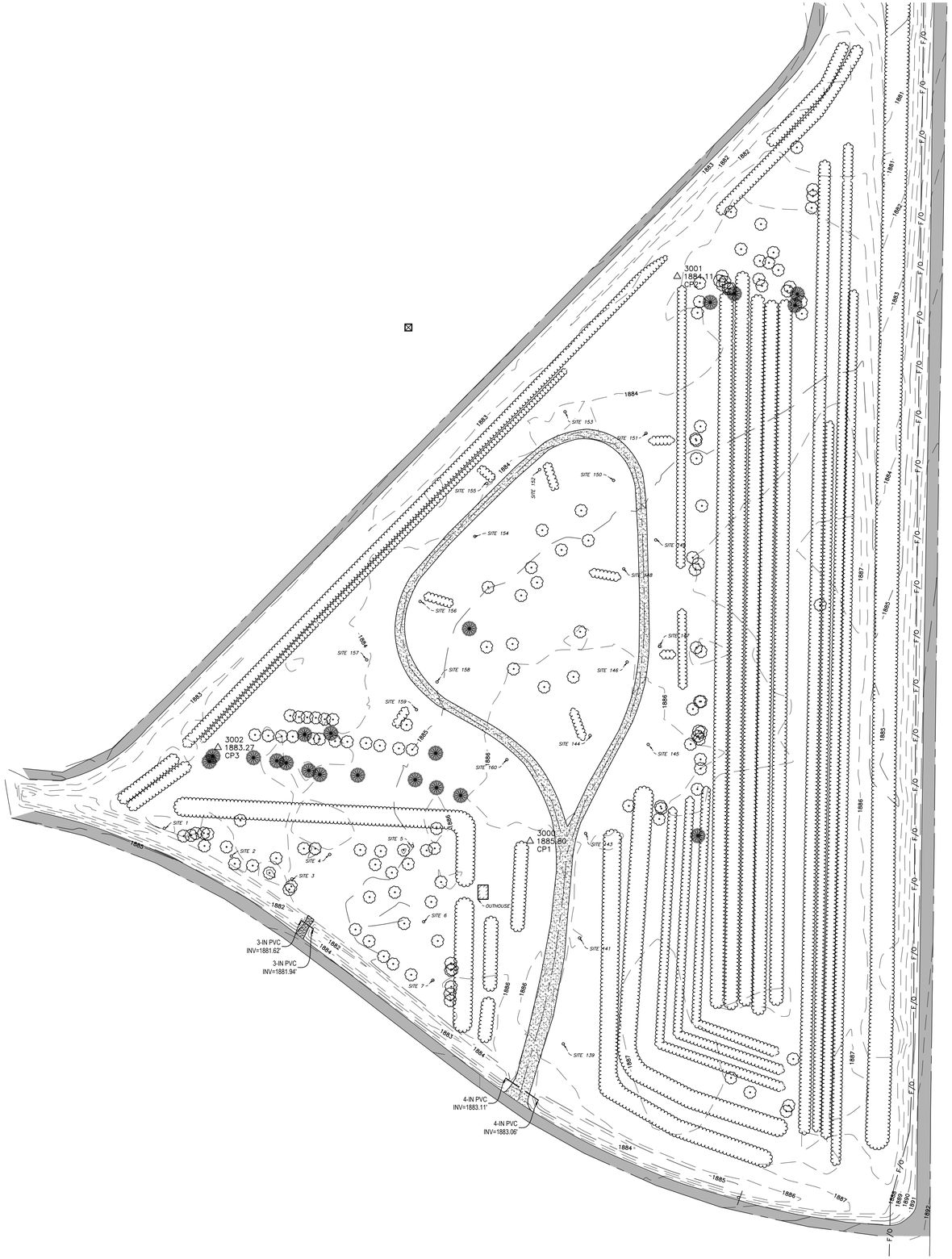

SCALE: 1 INCH = 60 FEET

BASIS OF BEARING IS GRID NORTH,
N.D. STATE PLANE COORDINATE SYSTEM
GRID DISTANCES ARE SHOWN AND ARE IN
TERMS OF INTERNATIONAL FEET.

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
	TREE LINE		CAMP # POST
	ASPHALT SURFACE		DECIDUOUS TREE
	GRAVEL SURFACE		CONIFEROUS TREE
	BUILDING		

GENERAL NOTES

1. THE INFORMATION REPRESENTED IN THESE PLANS WAS COMPILED AND DESIGNED IN CONFORMITY WITH THE INFORMATION AVAILABLE AND ESTABLISHED CIVIL ENGINEERING PRACTICES AT THE TIME THEY WERE ISSUED. NEITHER MOUNTAIN PLAINS, LLC OR ITS PERSONNEL PROVIDE WARRANTY, EXPRESSED OR IMPLIED, FOR THE INFORMATION PRESENTED IN THE PLANS.
2. ALL ELEVATIONS SHOWN ARE IN NAVD88 DATUM UNLESS OTHERWISE NOTED.
3. THE USE OF "CONTRACTOR" APPLIES TO THE PARTY RESPONSIBLE FOR THE PORTION OF WORK BEING DESCRIBED.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. MOUNTAIN PLAINS DOES NOT GUARANTEE THE EXACT LOCATIONS OF THE UTILITIES. THE CONTRACTOR IS REQUIRED TO CALL NORTH DAKOTA ONE CALL BY DIALING 811 OR 800-795-0555. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND FEES ASSOCIATED WITH UTILITY LOCATES.
5. CONTRACTOR SHALL OBTAIN PROPER PERMITS FROM THE CITY OR COUNTY WHEN WORKING WITHIN THE RIGHT-OF-WAY.
6. AREAS WITHIN RIGHT-OF-WAY WHICH ARE UTILIZED BY CONSTRUCTION TRAFFIC ARE TO BE SWEPT PRIOR TO OPENING TO PUBLIC TRAFFIC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ANY DEBRIS LEFT ON ADJACENT PUBLIC ROADWAYS OR RIGHTS-OF-WAY THAT WERE A DIRECT OR INDIRECT RESULT FROM CONSTRUCTION ACTIVITIES OF THIS PROJECT. THE UTILIZATION OF A VACUUM OR PICKUP TYPE SWEEPER IS REQUIRED TO MINIMIZE AIR CONTAMINATION. THE COST FOR PAVEMENT SWEEPING IS TO BE INCLUDED IN THE PRICES BID FOR OTHER PROJECT TASKS.
7. THE CONTRACTOR SHALL PROTECT ALL PROPERTY CORNERS AND MONUMENTS ASSOCIATED WITH THE SUBJECT PROPERTY. PROPERTY CORNERS OR MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT THAT ANY DISCREPANCY BETWEEN THE STANDARD SPECIFICATIONS AND THE BID DOCUMENTS ISSUED BY THE GENERAL CONTRACTOR OR PLANS WHICH HAVE BEEN SIGNED AND SEALED BY THE ISSUING ENGINEER EXISTS, THE PLANS SHALL GOVERN.

Point Table

Control Point	Northing	Easting	Elevation
CP1	216492.8600	1740957.4540	1885.799
CP2	217046.9190	1741101.9290	1884.112
CP3	216584.7300	1740651.1550	1883.267

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DATE: July 30, 2019
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APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C100
SHEET TITLE: EXISTING CONDITIONS

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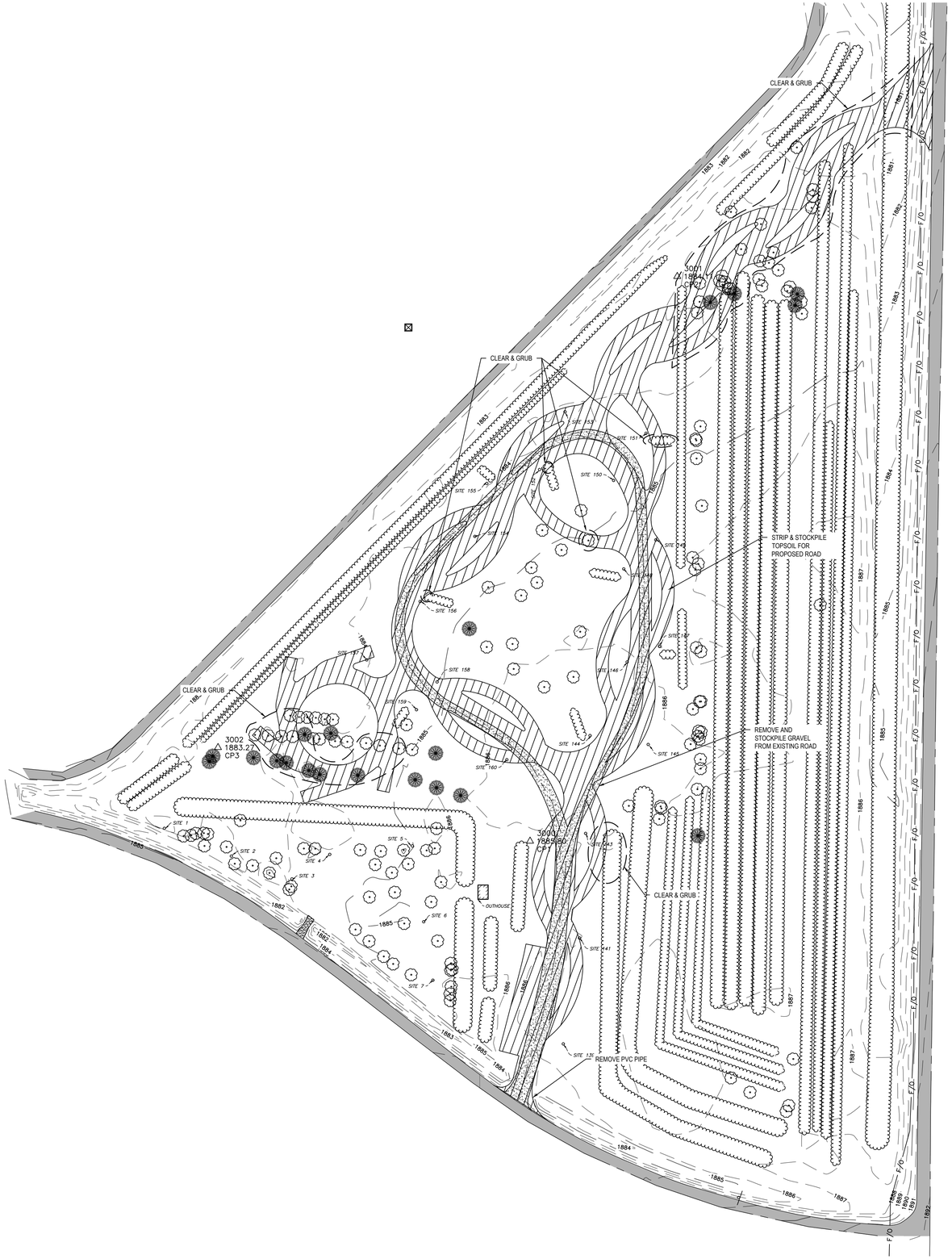

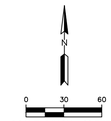

BASIS OF BEARING IS GRID NORTH, N.D. STATE PLANE COORDINATE SYSTEM GRID DISTANCES ARE SHOWN AND ARE IN TERMS OF INTERNATIONAL FEET.

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
	TREE LINE		CAMP # POST
	ASPHALT SURFACE		DECIDUOUS TREE
	GRAVEL SURFACE		CONIFEROUS TREE
	BUILDING		

DEMOLITION LEGEND

TOPSOIL REMOVAL

DEMOLITION PLAN NOTES

1. NORTH DAKOTA PARKS AND RECREATION DEPARTMENT TO REMOVE AND STOCKPILE FIRE RINGS AND PICNIC TABLES PRIOR TO DEMOLITION.
2. REMOVAL OF CURB AND GUTTER, BITUMINOUS PAVEMENT, AND CONCRETE PAVEMENT SHALL INCLUDE THE HAULING AND DISPOSAL OF MATERIAL, ANY SAW CUTS NECESSARY, AND ALL MEASURES NECESSARY TO PROTECT/PRESERVE THE EXISTING ADJACENT PAVEMENT FROM DAMAGE. IF THE ENGINEER AND/OR OWNER DEEM ANY DAMAGE OR IMPERFECTIONS TO THE EXISTING CONCRETE CAUSED BY CONTRACTOR NEGLIGENCE, THE COST FOR REMOVAL AND PATCHING THE ADDITIONAL PAVEMENT IS TO BE THE EXPENSE OF THE CONTRACTOR.
3. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANIES TO DETERMINE WHICH UTILITY STRUCTURES AT THE PERIMETER OF THE PROPERTY ARE NOT TO BE DISTURBED.
4. CONTRACTOR SHALL COORDINATE TOPSOIL STOCKPILE LOCATION WITH THE PARK MANAGER. TOPSOIL NOT INCORPORATED INTO THE PROPOSED SITE SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
5. AVERAGE HAUL HAS NOT BEEN COMPUTED FOR THIS PROJECT. ALL TEMPORARY STOCKPILING WILL BE ALLOWED IN THE PARK. CONTRACTOR SHALL COORDINATE MATERIAL STOCKPILING WITH THE PARK MANAGER. SEE SHEET C300 FOR ESTIMATED GRADING QUANTITIES.
6. ALL WASTE GENERATED FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF WITHIN THE RULES AND REGULATIONS OF ALL LOCAL, STATE, AND FEDERAL LAWS. THE COST FOR DISPOSAL SHALL BE CONSIDERED IN THE PRICE BID FOR THE RESPECTIVE BID ITEMS.
7. THE CONTRACTOR IS TO COORDINATE ALL EXISTING UTILITY RELOCATIONS OR DISCONNECTIONS WITH THEIR RESPECTIVE OWNERS. ALL COSTS ASSOCIATED WITH THE RELOCATION OF UTILITIES AND COORDINATION IS TO BE INCLUDED IN THE PRICE BID OF THE PROJECT.
8. CONTRACTOR SHALL REMOVE AND PILE ALL NECESSARY SITE POSTS IN THE CONSTRUCTION AREA. CONTRACTOR TO COORDINATE STOCKPILING LOCATIONS WITH THE PARK MANAGER.

DEMOLITION ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	CLEAR & GRUB	LSUM	1
2	REMOVAL & STOCKPILE GRAVEL	SY	1570
3	REMOVE & STOCKPILE SITE POSTS	EACH	19
4	STRIP & STOCKPILE TOPSOIL	SY	6520

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(701) 557-3348 | WWW.MTNPLAINS.COM

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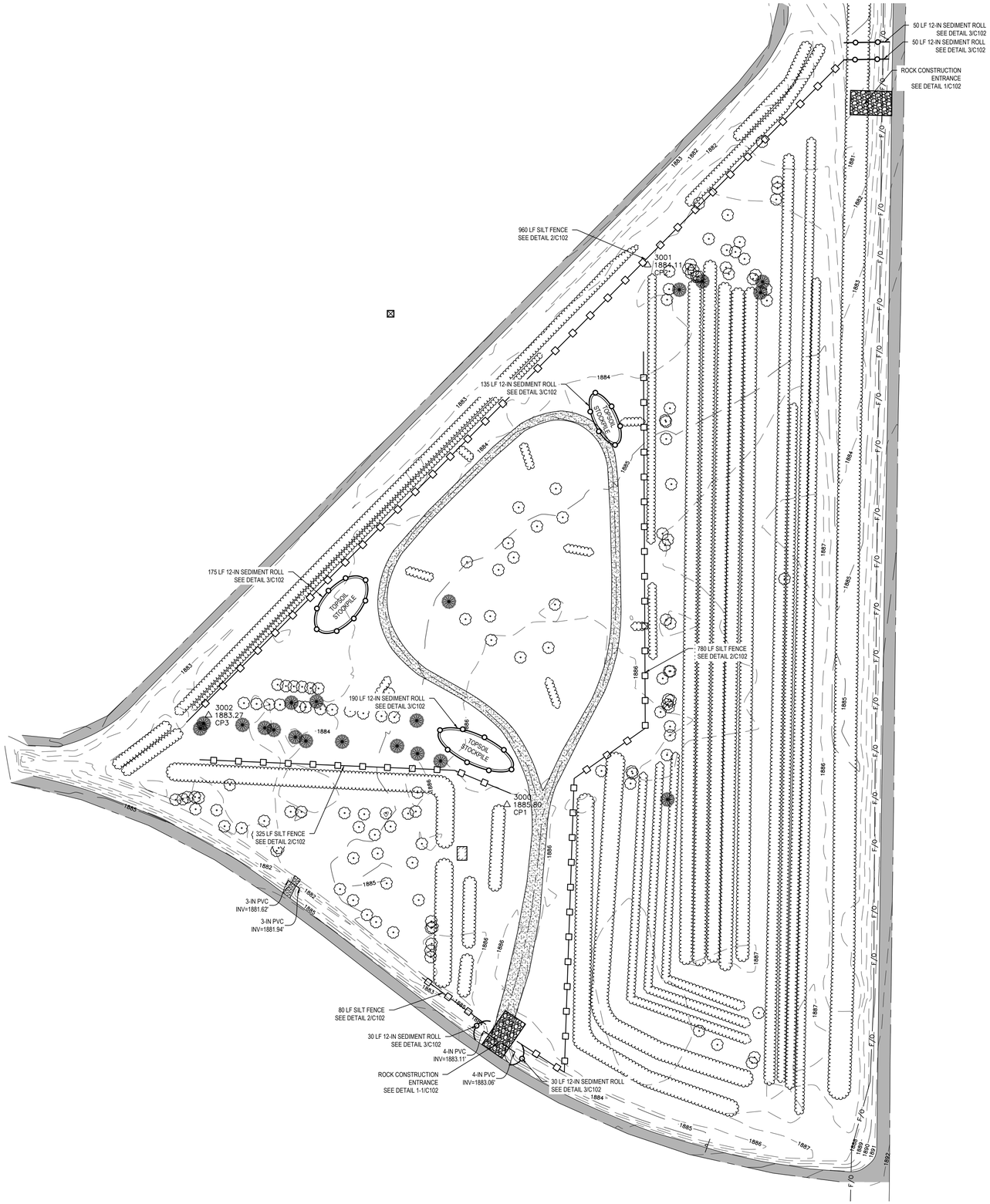
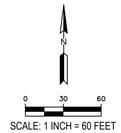
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C101
SHEET TITLE: DEMOLITION PLAN





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LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE		VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
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	TREE LINE		CAMP # POST
	ASPHALT SURFACE		DECIDUOUS TREE
	GRAVEL SURFACE		CONIFEROUS TREE
	BUILDING		

EROSION CONTROL LEGEND

SILT FENCE S.D. 2/C102

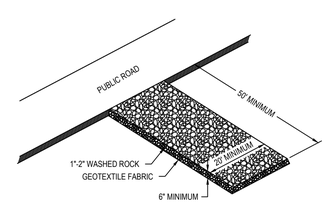
SEDIMENT LOG S.D. 3/C102

EROSION CONTROL PLAN NOTES

1. CONTRACTOR SHALL UTILIZE ROCK CONSTRUCTION ENTRANCES AS NECESSARY. THE ROCK CONSTRUCTION ENTRANCES SHALL BE MAINTAINED SUCH THAT THERE WILL BE NO DEBRIS INTRODUCED TO THE PUBLIC ROADWAY. IF SUCH DEBRIS IS INTRODUCED, IT IS THE RESPONSIBILITY AND EXPENSE OF THE CONTRACTOR TO CLEAN THE CITY STREETS TO ACCEPTABLE STANDARDS SET BY THE CITY, ENGINEER, AND/OR OWNER.
2. EROSION CONTROL MEASURES SHALL BE MAINTAINED APPROPRIATELY AND AS NECESSARY TO PREVENT OFF-SITE SILTATION AND EROSION FROM OCCURRING.
3. EROSION CONTROL SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITY AND SHALL BE PROPERLY MAINTAINED AND REMAIN IN PLACE THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITY UNTIL FINAL SURFACE COURSES ARE INSTALLED AND SUBSTANTIAL VEGETATION HAS BEEN ACHIEVED.
4. CONTRACTOR WILL DISPOSE OF BOULDERS ENCOUNTERED ON SITE DURING LAND DISTURBING ACTIVITIES AT THE OWNER'S DISCRETION. ROCK EXCAVATION IS TO BE INCLUDED WITH THE PRICE BID OF COMMON EXCAVATION FOUND ON SHEET C300. ROCK EXCAVATION IS ANTICIPATED TO BE 1% OF TOTAL EXCAVATION. IN THE EVENT THAT ROCK EXCAVATION EXCEEDS 1% OF TOTAL EXCAVATION, NO ADDITIONAL PAYMENT WILL BE MADE.
5. CONTRACTOR SHALL INSTALL SILT FENCE WITHIN BOUNDARY OF PROJECT SITE AT GENERAL LOCATIONS SHOWN. SILT FENCE SHALL BE PROPERLY INSTALLED PRIOR TO BEGINNING DEMOLITION OR EARTHMOVING OPERATIONS.
6. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE WITHIN THE SITE AT ALL TIMES. ALL EFFORTS SHALL BE MADE TO REDUCE SWALES AND PONDING THAT ADVERSELY AFFECT SOIL MOISTURE. IN THE EVENT POSITIVE DRAINAGE CANNOT BE ACCOMPLISHED DUE TO CONSTRUCTION ACTIVITIES, SUMP SYSTEMS SHALL BE INSTALLED IN CRITICAL AREAS TO ASSIST IN REMOVAL OF STORM WATER RUNOFF WITHIN THE SITE. ALL COSTS ASSOCIATED WITH MAINTAINING POSITIVE DRAINAGE SHALL BE INCLUDED IN THE OVERALL PRICE BID OF THE PROJECT.
7. CONTRACTOR SHALL COORDINATE TOPSOIL STOCKPILE LOCATION WITH THE PARK MANAGER. TOPSOIL NOT INCORPORATED INTO THE PROPOSED SITE SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
8. ALL WASTE GENERATED FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF WITHIN THE RULES AND REGULATIONS OF ALL LOCAL, STATE, AND FEDERAL LAWS. THE COST FOR DISPOSAL SHALL BE CONSIDERED IN THE PRICE BID FOR THE RESPECTIVE BID ITEMS.

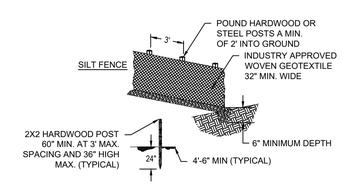
EROSION CONTROL ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	ROCK CONSTRUCTION ENTRANCE	EA	2
2	SILT FENCE	LF	2145
3	12-IN SEDIMENT ROLL	LF	600



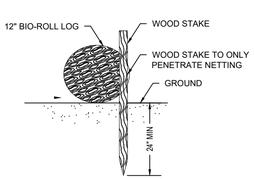
NOTE: FABRIC SHALL BE PLACED UNDER ROCK TO PREVENT MUD MIGRATION THROUGH ROCK

1 / C102 ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE



NOTES:
1. INSTALL SILT FENCE PER PLAN SET BEFORE BEGINNING CONSTRUCTION.
2. REPLACE TORN, OVERBURDENED, OR DECOMPOSING SILT FENCE WITHIN 24 HOURS.
3. TO JOIN SECTIONS OF SILT FENCE, POSITION POSTS TO OVERLAP. FABRIC SHOULD FOLD AROUND EACH POST ONE FULL TURN.

2 / C102 SILT FENCE DETAIL
NOT TO SCALE



3 / C102 SEDIMENT LOG DETAIL
NOT TO SCALE

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DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C102
SHEET TITLE: EROSION CONTROL PLAN

7/29/2019 4:24 PM
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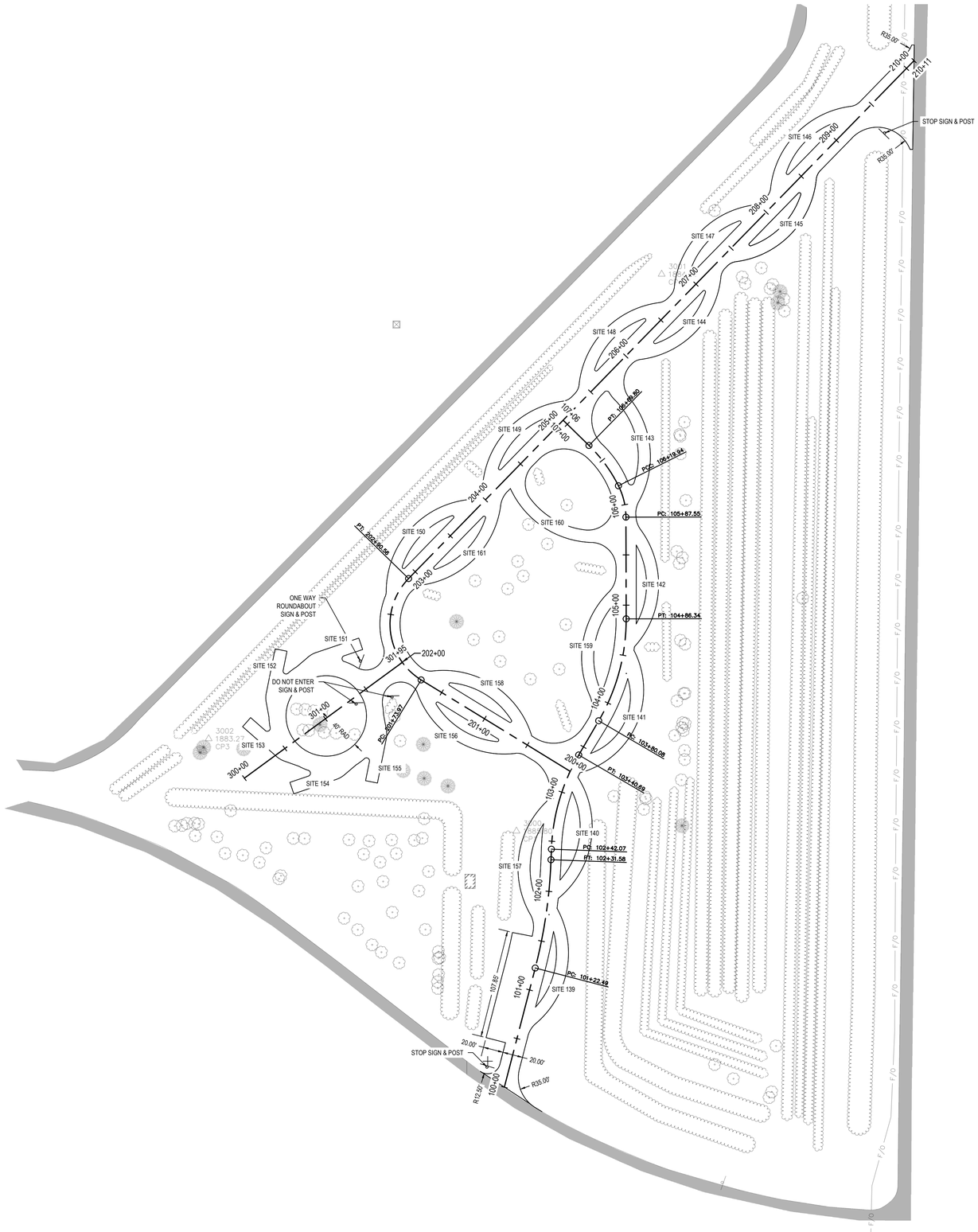

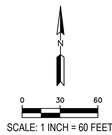

SCALE: 1 INCH = 60 FEET

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LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
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SITE LAYOUT NOTES

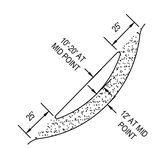
1. NORTH DAKOTA PARKS AND RECREATION DEPARTMENT WILL ORDER AND INSTALL NEW CAMPSITE SIGNS. PERMANENT TRAFFIC CONTROL SIGNS & POSTS WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. ALL PERMANENT TRAFFIC CONTROL SIGNS SHALL MEET CURRENT MUTCD STANDARDS.

SITE LAYOUT ESTIMATED QUANTITIES

STORM WATER QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	SIGN AND POST	EA	5

CAMPER CIRCLE SITE



CAMPER PULLTHROUGH SITE

1 / C200 TYPICAL CAMPSITE DETAIL
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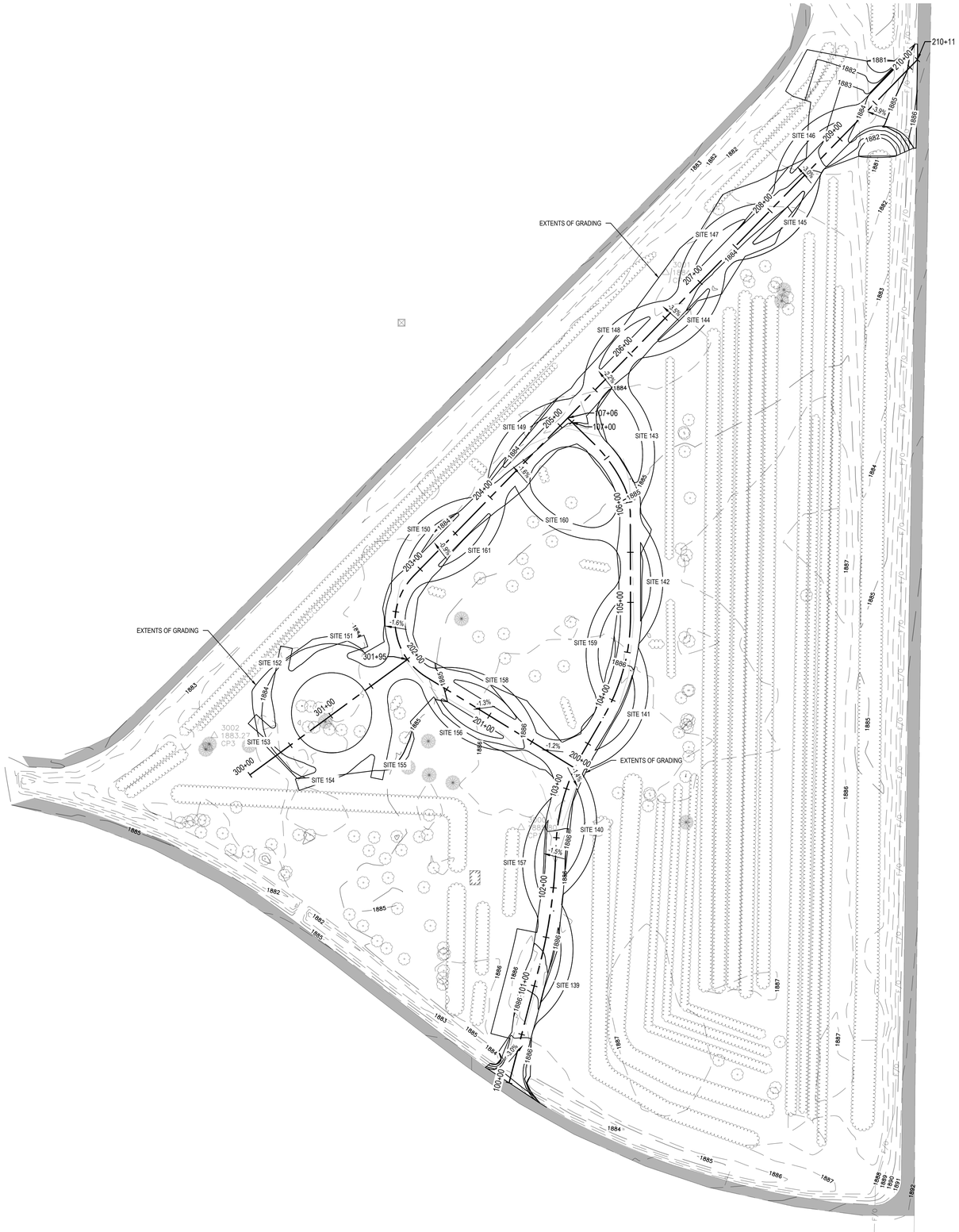
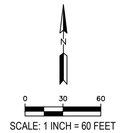
SHEET NO: C200
SHEET TITLE: PROPOSED SITE LAYOUT





BASIS OF BEARING IS GRID NORTH,
N.D. STATE PLANE COORDINATE SYSTEM
GRID DISTANCES ARE SHOWN AND ARE IN
TERMS OF INTERNATIONAL FEET.

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
1880	PROPOSED GROUND MAJOR CONTOUR		CAMP # POST
1881	PROPOSED GROUND MINOR CONTOUR		DECIDUOUS TREE
	TREE LINE		CONIFEROUS TREE
	BUILDING		

GRADING PLAN NOTES

1. ALL FILL IS TO BE COMPACTED TO 95% A.A.S.H.O STANDARD COMPACTION AT OPTIMUM MOISTURE ±2.5%. REFER TO THE SOILS REPORT FOR COMPACTION RECOMMENDATIONS.
2. CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY WITH EXISTING CONTOURS
3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT AND FINAL RAKING OF ALL TOPSOIL REQUIRED TO COMPLETE THE SITE FOR LANDSCAPING.
4. THE SURFACE IS TO BE LEFT GRADED TO DRAIN AT THE END OF EACH WORKING DAY. ANY TIME LOST DUE TO PONDING LEFT BY THE CONTRACTOR AT THE END OF EACH WORKING DAY WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE SUBGRADE AND AGGREGATE BASE COURSE SHALL BE COMPACTED TO THE FOLLOWING:
   a. 95% STANDARD PROCTOR AT OPTIMUM MOISTURE ±2.5% FOR PAVEMENT SUBGRADE AND GENERAL EMBANKMENT FILL.
   b. 98% STANDARD PROCTOR FOR AGGREGATE BASE COURSE (CLASS 5) BENEATH PAVEMENT.
6. ALL COMPACTION TESTING REQUIRED BY THE PROJECT SPECIFICATIONS SET FORTH BY THE OWNER AND/OR ENGINEER SHALL BE AT THE EXPENSE OF THE CONTRACTOR
7. ALL EXCESS MATERIAL LEFT AFTER SITE GRADING HAS BEEN SUCCESSFULLY COMPLETED THAT HAS NOT BEEN SPOKEN FOR BY THE OWNER BECOMES PROPERTY OF THE CONTRACTOR. THE CONTRACTOR IS TO COORDINATE ALL EFFORTS WITH THE SITE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAUL EXCESS MATERIAL OFF-SITE PRIOR TO THE PROJECT BEING COMPLETE AND ACCEPTED BY THE OWNER AND/OR ENGINEER.
8. A NOTICE OF INTENT TO OBTAIN A STORM WATER POLLUTION PERMIT SHALL BE ACQUIRED BY THE CONTRACTOR AND OWNER FROM THE NORTH DAKOTA DEPARTMENT OF HEALTH (NDDoH). FOR ASSISTANCE WITH SITE INFORMATION AND SWPPP PREPARATION, CONTACT THE ENGINEER.
9. THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL UNTIL PERMANENT EROSION CONTROL IS ESTABLISHED.
10. ALL GRASSED AREAS DISTURBED BY CONSTRUCTION SHALL BE TOP SOILED (4-IN DEPTH) AND GRADED. SEE DETAILS.

GRADING PLAN ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	COMMON EXCAVATION	CY	400
2	EMBANKMENT	CY	805
3	TOPSOIL - PLACE & PROCESS	L SUM	1

THIS TABLE IS BASED OFF OF COMPUTER MODELING AND IS FOR ESTIMATION PURPOSES ONLY. ACTUAL EARTHWORK NUMBERS MAY VARY. THE CONTRACTOR IS RESPONSIBLE FOR THEIR OWN CALCULATIONS PRIOR TO BIDDING. CALCULATIONS DO NOT INCLUDE ANY MATERIAL OR EXCAVATION FOR BUILDING FOUNDATION.

ESTIMATED SUBGRADE EARTHWORK		UNIT	QUANTITY
A	EMBANKMENT (FILL)	CY	700
B = A*1.15	PLUS 15% SHRINKAGE	CY	805
C	LESS COMMON EXCAVATION (CUT)	CY	400
F = B - C	IMPORT REQUIRED	CY	405

ESTIMATED TOPSOIL		UNIT	QUANTITY
G	TOPSOIL - STRIP	CY	1475
H	TOPSOIL - PLACE	CY	1170
I = G - H	HAUL OUT REQUIRED	CY	305
J = F + I	TOTAL HAUL OUT REQUIRED	CY	100

TOPSOIL MAY BE UTILIZED AS FILL MATERIAL IN NON-STRUCTURAL AREAS AS APPROVED BY THE ENGINEER. CONTRACTOR TO COORDINATE LOCATION OF EXCESS MATERIAL TO BE STORED ON SITE WITH THE PARK MANAGER. ANY EXCESS MATERIAL NOT TO BE KEPT WITHIN THE PARK IS TO BECOME PROPERTY OF THE CONTRACTOR WITH DISPOSAL INCLUDED IN THE PRICE BID FOR THE ASSOCIATED EXCAVATION QUANTITIES.

NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY BRIAN J. ZUROFF REGISTRATION NUMBER PE-10414 ON 07/30/2019 AND THE ORIGINAL DOCUMENT WAS STORED AT MOUNTAIN PLAINS, LLC BISMARCK, ND

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FORT STEVENSON STATE PARK 2019 CAMPGROUND IMPROVEMENTS

MOUNTAIN PLAINS LLC
Engineering, Land Surveying & Utility Locating
1300 TACOMA AVE | BISMARCK, ND 58504
(701) 557-3348 | WWW.MTNPLAINS.COM

DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C300
SHEET TITLE: PROPOSED SITE GRADING

7/29/2019 4:25 PM
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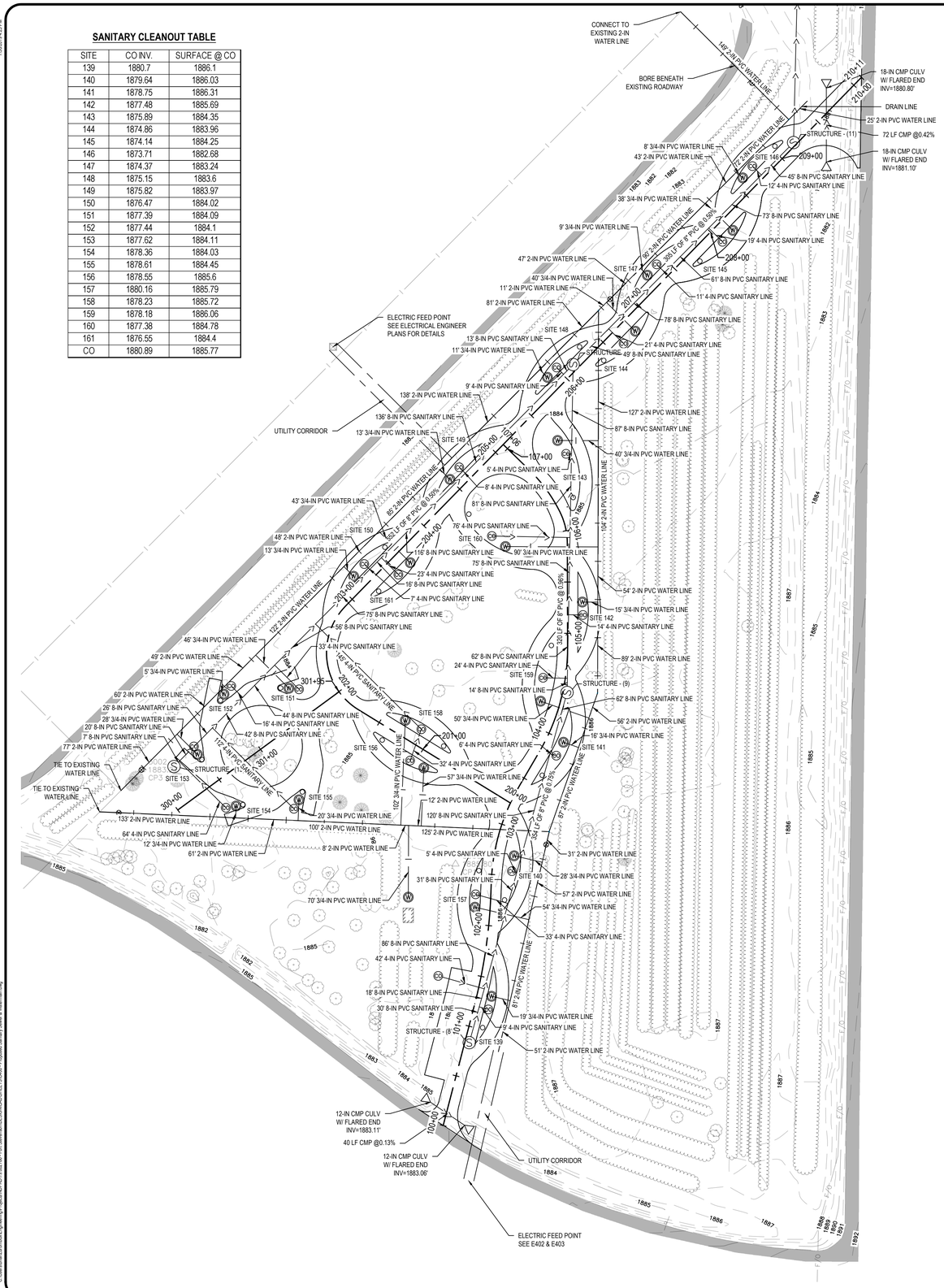
SANITARY CLEANOUT TABLE

SITE	CO INV.	SURFACE @ CO
139	1880.7	1886.1
140	1879.64	1886.03
141	1878.75	1886.31
142	1877.48	1885.69
143	1875.89	1884.35
144	1874.86	1883.96
145	1874.14	1884.25
146	1873.71	1882.68
147	1874.37	1883.24
148	1875.15	1883.6
149	1875.82	1883.97
150	1876.47	1884.02
151	1877.39	1884.09
152	1877.44	1884.1
153	1877.62	1884.11
154	1878.36	1884.03
155	1878.61	1884.45
156	1878.55	1885.6
157	1880.16	1885.79
158	1878.23	1885.72
159	1878.18	1886.06
160	1877.38	1884.78
161	1876.55	1884.4
CO	1880.89	1885.77



SCALE: 1 INCH = 60 FEET

BASIS OF BEARING IS GRID NORTH, N.D. STATE PLANE COORDINATE SYSTEM GRID DISTANCES ARE SHOWN AND ARE IN TERMS OF INTERNATIONAL FEET.

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
	TREE LINE		CAMP # POST
	BUILDING		DECIDUOUS TREE
			CONIFEROUS TREE
			CURB STOP VALVE
		W	YARD HYDRANT

UTILITIES LEGEND

	UTILITY CORRIDOR
	EXISTING WATERMAIN
	PROPOSED WATERMAIN
	PROPOSED SANITARY SEWER
S	PROPOSED SANITARY MANHOLE

UTILITY PLAN NOTES

1. EXISTING UTILITY INFORMATION SHOWN HERE-ON WAS OBTAINED FROM THE BEST AVAILABLE SOURCE AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF THE EXACT LOCATIONS OF EXISTING UTILITIES AND IS RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITIES, WHETHER THEY ARE PUBLIC OR PRIVATE, SHOWN HERE-ON OR NOT SHOWN HERE-ON.
2. THE CONTRACTOR SHALL CONFIRM ALL NEW UTILITY TAP LOCATIONS WITH THE UTILITY OWNERS. ANY FEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
4. WATERMAIN BENDS, BEDDING, THRUST BLOCKING, FITTINGS, LUBRICATION, AND SEALANTS ARE TO BE INCLUDED WITH THE PRICE BID FOR THE ASSOCIATED PIPE INSTALLATION. ALL BENDS, FITTINGS, AND APPURTENANCES SHALL BE CAST IRON IN CONSTRUCTION OR AS OTHERWISE APPROVED BY THE ENGINEER. WATERWORKS INSTALLATION IS TO BE PER SPECIFICATIONS OR MANUFACTURERS RECOMMENDATION, WHICHEVER IS MORE RESTRICTIVE.
5. WATERMAIN SHALL BE INSTALLED WITH A MINIMUM COVER DEPTH OF 6-FT. IN THE INSTANCE THAT 6-FT OF PHYSICAL GRADE SEPARATION CANNOT BE ACHIEVED, THE PIPE SHALL BE INSULATED AS TO PROVIDE AN EFFECTIVE 6-FT OF COVER DEPTH. FOAM INSULATION SHALL BE "DOW CHEMICAL STYROFOAM BRAND HIGHLOAD INSULATION FOR FROST PROTECTION OF EXISTING UTILITY LINES" OR AN APPROVED EQUAL. INSULATION THICKNESS SHALL VARY DEPENDENT ON THE INSULATION VALUE OF THE CHOSEN PRODUCT.
6. ALL POTABLE WATER SYSTEM COMPONENTS SHALL BE NSF 61 CERTIFIED AND DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651 AND THE STANDARD SPECIFICATIONS. IN THE EVENT A DISCREPANCY EXISTS BETWEEN AWWA DISINFECTION AND THE STANDARD SPECIFICATIONS, THE MORE STRICT DISINFECTION PROCEDURE SHALL SUPERCEDE.
7. ALL WATERMAINS SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. ALL ACTIVE WATER AND SANITARY SEWER PIPES SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 10-FT FOR PARALLEL PIPE RUNS.
9. SANITARY SEWER BENDS, WYES, BEDDING, AND FITTINGS SHALL BE INCLUDED WITH THE PRICE BID FOR THE ASSOCIATED PIPE INSTALLATION. INSTALLATION IS TO BE PER SPECIFICATIONS OR MANUFACTURERS RECOMMENDATION, WHICHEVER IS MORE RESTRICTIVE.
10. THE SANITARY SEWER SHALL BE DEFLECTION TESTED AND LEAKAGE TESTED PER TEN STATES STANDARDS. DEFLECTION TESTING SHALL BE MANDREL-TYPE WITH A DIAMETER NOT LESS THAN 95 PERCENT OF THE BASE INSIDE DIAMETER/ LEAKAGE TEST SHALL BE HYDROSTATIC AND NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE SYSTEM.
11. THE CONTRACTOR IS TO PROTECT EXISTING ROADWAY AND INFRASTRUCTURE DURING UTILITY INSTALLATION. ANY RESULTING DAMAGE WILL BE AT THE CONTRACTOR'S EXPENSE.
12. WHEN CROSSING SANITARY SEWER AND POTABLE WATER LINES, A MINIMUM 18-IN VERTICAL SEPARATION MUST BE MADE WITH COMPACTED BEDDING MATERIAL. IF 18-IN VERTICAL SEPARATION IS NOT POSSIBLE, 64-SF OF 2-IN POLYSTYRENE INSULATION BOARD IS TO BE PLACED BETWEEN THE LINES UNTIL PROPER SEPARATION IS ACHIEVED. IT IS ASSUMED THAT 2-IN OF POLYSTYRENE INSULATION BOARD AS THE BARRIER CAPACITY OF 1-FT COMPACTED BEDDING MATERIAL. ALL COSTS ASSOCIATED WITH INSULATING THE CROSSING IS TO BE INCLUDED IN THE PRICE BID FOR THE ASSOCIATED BID ITEMS.
13. ALL COSTS AND MATERIALS ASSOCIATED WITH CONNECTING TO EXISTING UTILITY SERVICES ARE TO BE INCLUDED IN THE PRICE BID FOR "CONNECT TO EXISTING" OR "CONNECT TO PROPOSED" FOR THE RESPECTIVE UTILITY. COSTS AND MATERIALS INCLUDE, BUT ARE NOT LIMITED TO, LABOR, EXCAVATION, TAPPING SADDLES, BENDS, ELBOWS, TEES, CLAMPS, CORPORATIONS, UTILITY SERVICE FEES, EXISTING SERVICE ABANDONMENT, ETC.
14. CONTRACTOR TO COORDINATE PROPOSED GAS SERVICE AND ELECTRIC SERVICE LINE SIZE, LOCATION, AND INSTALLATION WITH THE RESPECTIVE UTILITY OWNERS.
15. CONTRACTOR TO COORDINATE UTILITY LOCATIONS WITH PLUMBING, MECHANICAL, AND STRUCTURAL PLANS. WHILE THE UTILITIES ARE INTENDED TO BE STUBBED WITHIN THE BUILDING FOOTPRINT, A 5-FOOT BUFFER AREA HAS BEEN LEFT FOR MINOR CONNECTION DISCREPANCIES.
16. PRICE BID FOR UTILITY SERVICE POINT TO INCLUDE ALL MATERIAL, LABOR, AND INSTALLATION NECESSARY TO PROVIDE UTILITY SERVICE POINT AS DESIGNATED IN DETAIL 4/C400. UTILITY SERVICE POINTS TO BE CONSISTENT WITH NORTH LOOP CAMPSITES.
17. WATER SERVICES DRAIN TO MAIN.

UTILITY PLAN ESTIMATED QUANTITIES

WATERMAIN QUANTITIES

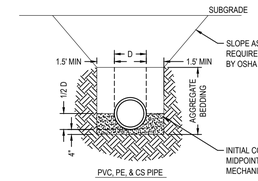
ITEM	DESCRIPTION	UNIT	QUANTITY
1	CONNECTION TO WATERMAIN SERVICE	EA	2
2	UTILITIES SERVICE POINT (WATER/ELEC)	EA	24
3	2-IN WATER SERVICE PIPE	LF	2273
4	3/4-IN WATER SERVICE PIPE	LF	827
5	UTILITY CROSSING	EA	13

SANITARY SEWER QUANTITIES

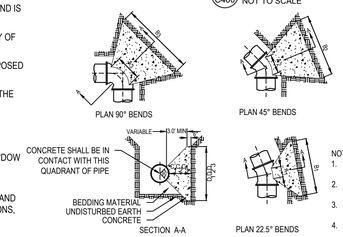
ITEM	DESCRIPTION	UNIT	QUANTITY
1	CONNECTION TO SANITARY SEWER SERVICE	EA	1
2	UTILITY SERVICE POINT	EA	23
3	8-IN PVC MAIN	LF	2216
4	4-IN PVC (SERVICE)	LF	683
5	SANITARY MANHOLE	EA	6
6	SANITARY SEWER CLEANOUT	EA	24

STORM WATER QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	CMP STORM CULVERT	LF	112
2	CMP STORM FLARED END SECTIONS	EA	4



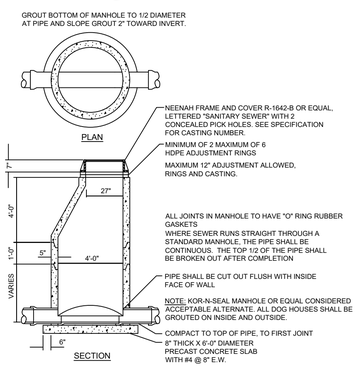
1 C400 AGGREGATE PIPE BEDDING DETAIL
NOT TO SCALE



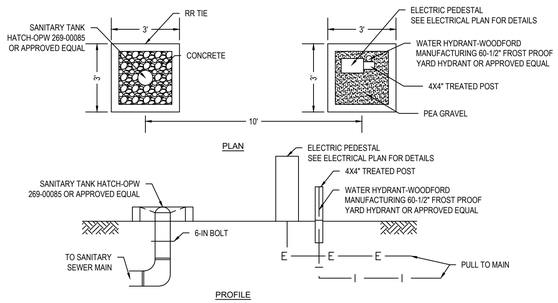
BUTTRESS DIMENSIONS						
PIPE SIZE	22.5° BEND	45° BEND		90° BEND/TEE		
	B_1	D_1	B_2	D_2	B_3	D_3
6"	1'-0"	1'-0"	1'-9"	1'-9"	2'-3"	1'-6"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-2"
12"	1'-10"	1'-10"	3'-4"	2'-9"	4'-9"	2'-6"
16"	2'-0"	2'-2"	3'-10"	3'-0"	6'-2"	3'-6"
20"	2'-6"	2'-8"	5'-6"	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"
30"	-	-	9'-3"	6'-0"	17'-0"	6'-0"

NOTES:
1. BACK OF BUTTRESS SHALL BE POURED AGAINST FIRM, UNDISTURBED EARTH.
2. Ø = 45° MINIMUM. (DIMENSIONS C1, C2, C3 MUST BE LARGE ENOUGH TO MEET THIS REQUIREMENT)
3. DIMENSIONS A1, A2, & A3 SHALL BE AS WIDE AS POSSIBLE WITHOUT INTERFERING WITH MJ BOLTS.
4. PLACE POLYETHYLENE BETWEEN CONCRETE & PIPE.

2 C400 WATERMAIN THRUSTBLOCKING DETAIL
NOT TO SCALE



3 C400 SANITARY SEWER MANHOLE
NOT TO SCALE



4 C400 CAMPSITE UTILITIES SERVICE POINT DETAIL
NOT TO SCALE

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FORT STEVENSON STATE PARK
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DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C400
SHEET TITLE: PROPOSED SANITARY SEWER & WATERMAIN

7/30/2019 4:25 PM
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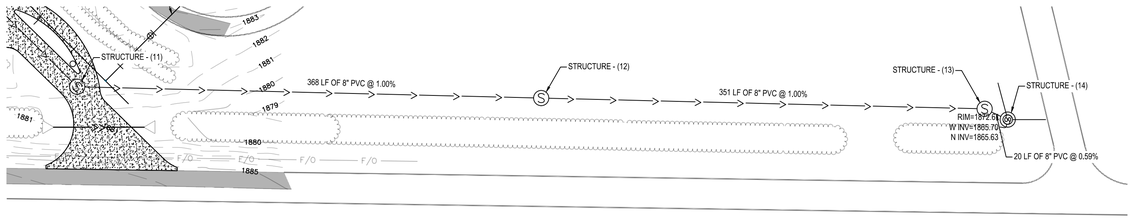

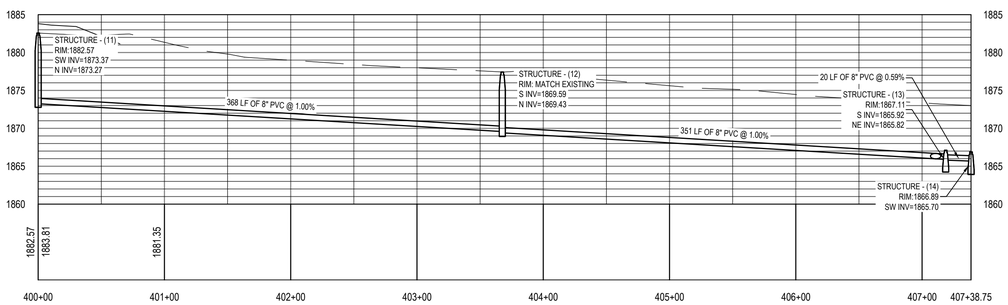

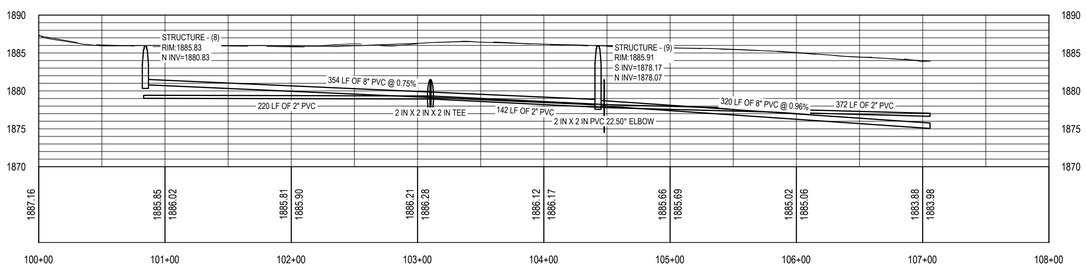

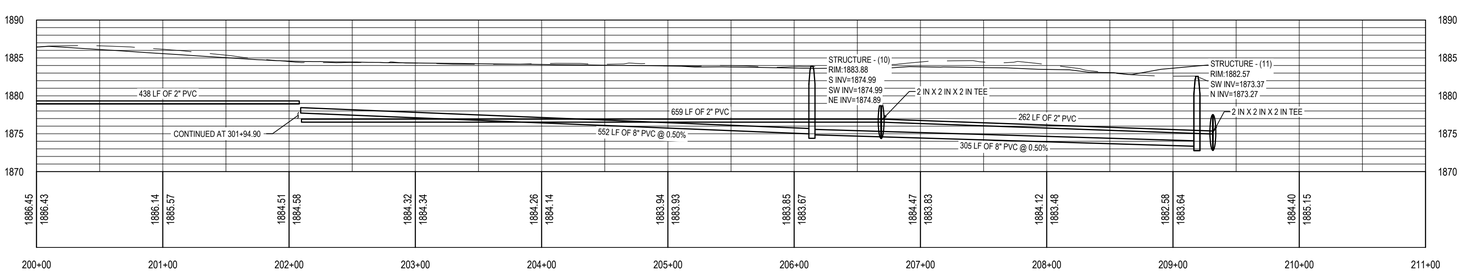

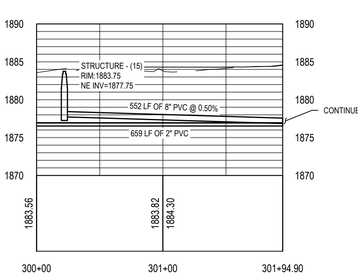

0 30 60
HORIZONTAL SCALE: 1 INCH = 60 FEET

0 30 60
VERTICAL SCALE: 1 INCH = 10 FEET

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
	TREE LINE		CAMP # POST
	BUILDING		DECIDUOUS TREE
			CONIFEROUS TREE
			CURB STOP VALVE
		W	YARD HYDRANT

PIPE PROFILE LEGEND

SMH	PROPOSED SANITARY MANHOLE
EX SMH	EXISTING SANITARY MANHOLE
SCO	PROPOSED SANITARY CLEANOUT

UTILITIES LEGEND

	EXISTING WATERMAIN
	PROPOSED WATERMAIN
	PROPOSED SANITARY SEWER
S	PROPOSED SANITARY MANHOLE

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GENERAL DIVISION 26, 27, 28 NOTES

PRE–BID INSTRUCTIONS:

1. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND CAREFULLY EXAMINE THE EXISTING CONDITIONS. CONTRACTOR SHALL NOT BE ALLOWED EXTRA COST DUE TO FAILURE TO VISIT SITE OR TO INQUIRE WITH OWNER AND DESIGN PROFESSIONALS AS TO CLARIFICATIONS OF DISCREPANCIES AND UNKNOWNS.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ENTIRE SET OF DRAWINGS AND SPECIFICATIONS TO DETERMINE THE SCOPE OF WORK. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, FIRE PROTECTION, PLUMBING AND MECHANICAL DRAWINGS. EXTRA COST SHALL NOT BE ALLOWED DUE TO FAILURE TO REVIEW ENTIRE SET OF DRAWINGS AND SPECIFICATIONS.
3. DATA PRESENTED ON THE DRAWINGS ARE AS ACCURATE AS PRELIMINARY SURVEYS AND PLANNING CAN DETERMINE, BUT ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION OF ALL DIMENSIONS IS DIRECTED. SPECIFICATIONS, DISTANCES AND LEVELS WILL BE GOVERNED BY ACTUAL FIELD CONDITIONS. REVIEW ARCHITECTURAL, STRUCTURAL, FIRE PROTECTION, PLUMBING, AND MECHANICAL PLANS AND ADJUST WORK TO CONFORM TO ALL CONDITIONS SHOWN THEREON. ACTUAL QUANTITY AND LOCATION OF DEVICES MAY VARY BASED ON CONDITIONS ENCOUNTERED DURING ORIGINAL CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR REMOVING OR REUSING EXISTING DEVICES. UNUSED EXISTING DEVICES, ASSOCIATED WIRING, CONDUIT AND FITTINGS SHALL BE REMOVED.
4. CONTRACTOR SHALL REFERENCE SPECIFICATIONS FOR CONSTRUCTION MATERIALS AND INSTALLATION PROCEDURES. THE SPECIFICATIONS ARE PART OF THE CONSTRUCTION DOCUMENTS. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS, SUCH CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT / ENGINEER FOR RESOLUTION.
5. THESE DOCUMENTS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW MATERIALS FOR COMPLETE INSTALLATION. JUNCTION BOXES AND PULL BOXES ARE NOT ALL SHOWN IN THESE DOCUMENTS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING REQUIRED JUNCTION / PULL BOXES TO MEET REQUIREMENTS OF APPROPRIATE LOCAL AND NATIONAL ELECTRICAL CODES.

PROVIDE COMPLETE, COMPLIANT, AND OPERATIONAL SYSTEMS:

1. DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO COMPLEMENT EACH OTHER. PROVIDE ITEMS SHOWN ON ONE AND NOT THE OTHER AS THOUGH SHOWN AND CALLED OUT IN BOTH. IF AN APPARENT CONFLICT EXISTS WITHIN THE CONSTRUCTION DOCUMENTS, PRESUME TO PROVIDE THE MORE COSTLY CHOICE, AND REQUEST CLARIFICATION FROM ARCHITECT / ENGINEER IN WRITING.
2. PROVIDE, LABOR, MATERIALS, EQUIPMENT, FEES, AND PERMITS NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL SYSTEM FOR THE ENTIRE PROJECT AS SHOWN ON THESE CONSTRUCTION DOCUMENTS.
3. CONSTRUCTION DOCUMENTS PRESENT THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF SYSTEMS. COMPLETE DETAIL IS NOT PRESENTED. DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THEIR SMALL SCALE, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION. PROVIDE SYSTEMS COMPLETE AND OPERATIONAL AND IN COMPLIANCE WITH DESIGN INTENT. OBTAIN PERMISSION FROM ENGINEER PRIOR TO MAKING MAJOR DEVIATIONS FROM CONSTRUCTION DOCUMENTS. EXAMPLES OF MAJOR DEVIATIONS ARE CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIALS.
4. INSTALL EQUIPMENT IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S WRITTEN RECOMMENDATIONS. PROVIDE FITTINGS AND OTHER SIMILAR DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
5. REPAIR OR REPLACE PARTS OF THIS WORK THAT FAIL, ARE UNFIT, OR BECOME DAMAGED DURING CONSTRUCTION WITH NO CHANGE TO THE CONTRACT PRICE.

PAY FEES:

1. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED FOR THE ELECTRICAL WORK; ARRANGE FOR INSPECTIONS REQUIRED FOR THE ELECTRICAL WORK; FURNISH A CERTIFICATE OF FINAL INSPECTION AND APPROVAL BY ENFORCEMENT AUTHORITIES.
2. WHEN ADJUSTMENTS, ALTERATIONS, OR CHANGES TO THE PROJECT ARE REQUIRED TO ACCOMMODATE PRODUCTS OTHER THAN "BASIS OF DESIGN", PAY ENGINEERING/DESIGN FEES REQUIRED TO MAKE SUCH ADJUSTMENTS, ALTERATIONS, OR CHANGES (INCLUDING BUT NOT LIMITED TO MECHANICAL, STRUCTURAL SUPPORT, AND CHANGES TO ACCOMMODATE MAINTENANCE NEEDS AND DESIGN INTENT).
3. PAY PROFESSIONAL ENGINEERING AND DESIGN FEES ASSOCIATED WITH CONTRACTOR–INITIATED CHANGES OCCURRING AFTER SEALED CONSTRUCTION DOCUMENTS ARE SUBMITTED FOR APPROVAL TO AUTHORITY HAVING JURISDICTION.
4. PAY PROFESSIONAL ENGINEERING FEES ASSOCIATED WITH CONTRACTOR'S FAILURE TO FOLLOW SUBMITTAL REQUIREMENTS.

MAKE SUBMITTALS:

1. INDIVIDUAL SUBMITTALS ARE TO BE PREPARED ELECTRONICALLY IN 'PDF' FORMAT. ELECTRONIC FILES SHALL BE ORIGINAL VENDOR–PREPARED ELECTRONIC FILES AND NOT SCANNED COPIES OF CATALOG PAGES OR FACSIMILES. INDIVIDUAL EQUIPMENT ITEMS SHALL BE TAGGED WITH EQUIPMENT IDENTIFIERS AS SHOWN ON THESE DRAWINGS. ILLEGIBLE ELECTRONIC FILES ARE SUBJECT TO "REVISE AND RESUBMIT" ACTION.
2. INCLUDE WITH SUBMITTALS SPECIFIC WRITTEN NOTICE OF EACH VARIATION A SUBMITTAL HAS FROM THE REQUIREMENTS OF CONSTRUCTION DOCUMENTS. ENGINEER'S REVIEW OF SUBMITTALS SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FROM COMPLIANCE WITH CONSTRUCTION DOCUMENTS UNLESS THE ENGINEER HAS SPECIFICALLY ACCEPTED THE VARIATION IN WRITING.
3. SUBMIT SUBSTITUTION REQUESTS FOR APPROVAL. SUBSTITUTED EQUIPMENT SHALL MEET OR EXCEED STANDARDS SET BY ITEMS SPECIFIED.
4. SUBMIT A SCHEDULE OF CONSTRUCTION DOCUMENT CHANGES REQUIRED DUE TO 1) DIFFERENCES (BETWEEN PRELIMINARY DESIGN DATA AND SUBMITTAL DATA) IN "BASIS OF DESIGN" EQUIPMENT OR 2) SUBSTITUTED EQUIPMENT FOR REVIEW PRIOR TO INITIATING WORK. WHEN ADJUSTMENTS, ALTERATIONS, OR CHANGES TO THE PROJECT ARE REQUIRED TO ACCOMMODATE SUBSTITUTED PRODUCTS, PAY ENGINEERING/DESIGN FEES REQUIRED TO MAKE SUCH ADJUSTMENTS, ALTERATIONS, OR CHANGES.
5. SUBSTITUTION REQUESTS SHALL SHOW ENERGY CONSERVATION FEATURES OF SUBSTITUTED EQUIPMENT EQUAL OR EXCEED THAT OF SPECIFIED EQUIPMENT.

KEEP RECORDS:

1. DURING CONSTRUCTION, MAINTAIN A SET OF AS–BUILT, REDLINED, RECORD DRAWINGS AT THE PROJECT SITE. RECORD ALL CHANGES FROM, BUT NOT LIMITED TO, ADDENDA, CHANGE ORDERS, SUPPLEMENTAL INSTRUCTIONS, AND DESIGN CLARIFICATIONS. RECORD CHANGES IN LAYOUT, ROUTING, EQUIPMENT, COMPONENTS, AND ACCESSORIES. RECORD CHANGES DUE TO CHANGES IN SUPPLIED EQUIPMENT. AFTER ENGINEER'S FINAL INSPECTION PROVIDE RECORD DRAWINGS TO ENGINEER.
2. AT COMPLETION OF PROJECT PROVIDE NEW PANEL DIRECTORIES INDICATING WHICH BREAKERS ARE NOW SPARE. INCLUDE LISTING OF BREAKERS FROM OLD PANEL DIRECTORIES FOR CIRCUITS NOT DISTURBED. CONSULT WITH OWNER FOR CIRCUITS NOT ADEQUATELY MARKED.

DEFINITIONS:

1. ACTION SUBMITTALS: WRITTEN AND GRAPHIC INFORMATION REQUIRING DESIGN PROFESSIONAL'S RESPONSIVE ACTION. ACTION SUBMITTALS INCLUDE PRODUCT DATA, SHOP DRAWINGS, SAMPLES, PRODUCT SCHEDULE OR LIST.
2. INFORMATIONAL SUBMITTALS: WRITTEN INFORMATION NOT REQUIRING DESIGN PROFESSIONAL'S RESPONSIVE ACTION. SUBMITTALS MAY BE REJECTED FOR NOT COMPLYING WITH REQUIREMENTS. INFORMATION SUBMITTALS INCLUDE COORDINATION DRAWINGS, WELDING CERTIFICATES, QUALIFICATION DATA, INSTALLER CERTIFICATES, MANUFACTURER CERTIFICATES, PRODUCT CERTIFICATES, MATERIAL CERTIFICATIONS, MATERIAL TEST REPORTS, PRODUCT TEST REPORTS, FIELD TEST REPORTS, OPERATION AND MAINTENANCE DATA, MANUFACTURER'S INSTRUCTIONS, MANUFACTURER'S FIELD REPORTS, INSURANCE CERTIFICATES AND BONDS, MATERIAL SAFETY DATA SHEETS AND RECOMMENDED SPARE PARTS LISTS.
3. FURNISH: OBTAIN AND DELIVER TO ON–SITE STORAGE IN ORIGINAL FACTORY PACKAGING.
4. INSTALL: UNPACK, MOVE TO FINAL LOCATION, MAKE CONNECTIONS, AND PLACE INTO FINAL SERVICE ACCORDING TO PROCEDURES IDENTIFIED IN PART 3 OF APPLICABLE SECTION(S).
5. PROVIDE: FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

PROTECT:

1. PROTECT EXISTING STRUCTURES AND EQUIPMENT DURING THE EXECUTION OF THIS CONTRACT.
2. REPAIR AREAS AFFECTED BY WORK TO THEIR ORIGINAL CONDITION OR BETTER.

COORDINATE:

1. PRIOR TO ORDERING, FABRICATING, OR INSTALLING WORK, COORDINATE ELECTRICAL WORK WITH WORK OF OTHER SUBCONTRACTORS AND WITH CONTRACTORS HIRED DIRECTLY BY THE OWNER. EXAMPLES OF WORK BY OTHERS INCLUDE BUT ARE NOT LIMITED TO CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, AND REFRIGERATION. WHERE CONFLICTS OCCUR, RESOLVE THEM PRIOR TO FABRICATION AND INSTALLATION.
2. COORDINATE ARRANGEMENT, MOUNTING, AND SUPPORT OF ELECTRICAL EQUIPMENT SO CONNECTING RACEWAYS WILL BE CLEAR OF OBSTRUCTIONS AND OF THE WORKING AND ACCESS SPACE OF OTHER EQUIPMENT.
3. DURING INSTALLATION, RESOLVE CONFLICTS AND MAKE CHANGES RESULTING FROM LACK OF CONTRACTOR COORDINATION WITH NO CHANGE TO THE CONTRACT PRICE.
4. LOCATIONS AND SIZES OF SERVICE CONNECTIONS TO EQUIPMENT, FLOOR AND WALL OPENINGS, SUPPORTS, CONCRETE PADS, FOUNDATIONS, SPACE ARRANGEMENTS, ELECTRICAL POWER, AND OTHER SIMILAR PROVISIONS FOR "BASIS OF DESIGN" EQUIPMENT ARE BASED ON PRELIMINARY INFORMATION AVAILABLE DURING DESIGN TO SHOW DESIGN INTENT AND SPACE ALLOCATION. ACTUAL CONDITIONS MAY VARY DEPENDING ON CONFIGURATION OF PURCHASED EQUIPMENT. PRIOR TO INITIATING WORK, VERIFY ABOVE TYPES OF INFORMATION FROM EQUIPMENT DRAWINGS CERTIFIED FOR MANUFACTURE BY RESPECTIVE EQUIPMENT MANUFACTURERS. MAKE MODIFICATIONS FROM WHAT IS SHOWN IN CONSTRUCTION DOCUMENTS TO PROVIDE SUCCESSFUL EQUIPMENT INSTALLATION WITH NO CHANGE IN CONTRACT PRICE. SUBMIT A SCHEDULE OF SUCH CHANGES FOR REVIEW PRIOR TO INITIATING WORK. DOCUMENT REVIEWED CHANGES ON RECORD DRAWINGS.
5. NOTIFY THE ENGINEER IN WRITING OF EXISTING CONDITIONS DIFFERING FROM THOSE SHOWN IN CONTRACT DOCUMENTS. THE ENGINEER WILL EVALUATE THE DIFFERENCES, AND IF NECESSARY, REDESIGN FOR THE CONDITIONS FOUND.
6. DO NOT SCALE OFF CONSTRUCTION DOCUMENTS. COORDINATE INSTALLATION WITH FIELD CONDITIONS.
7. WHERE BUILDING ELEMENTS (FOR EXAMPLE, DOOR FRAMES, PORTIONS OF WALLS, PORTIONS OF FLOORS, ETC.) HINDER REMOVAL OF EXISTING OR INSTALLATION OF NEW EQUIPMENT, REMOVE AND REPLACE SUCH ELEMENTS. UPON SUBSTANTIAL COMPLETION, ENSURE BUILDING ELEMENTS MATCH THEIR ORIGINAL CONDITIONS.
8. PROVIDE APPROPRIATE PROVISIONS FOR EXPANSION OR MOVEMENT OF RACEWAYS.
9. GIVE RIGHT OF WAY TO PIPING AND OTHER SYSTEMS INSTALLED AT A REQUIRED SLOPE.
10. COORDINATE ROOF WORK WITH OWNER TO MAINTAIN WARRANTY OF ROOFING SYSTEM.
11. COORDINATE ANY FIRE DETECTION WITH OWNER AND AUTHORITY HAVING JURISDICTION.
12. PROVIDE POWER WIRING TO EQUIPMENT SUPPLIED BY OTHER DIVISIONS. PROVIDE LINE–VOLTAGE SUPPLY AND INTERLOCK WIRING TO CONTROL EQUIPMENT SUPPLIED BY OTHER DIVISIONS. WHERE REQUESTED BY OTHER DIVISIONS, PROVIDE LOW–VOLTAGE CONTROL AND INTERLOCK WIRING TO CONTROL EQUIPMENT SUPPLIED BY THOSE DIVISIONS.

PROVIDE SERVICEABILITY:

1. PROVIDE SERVICE CLEARANCES AROUND EQUIPMENT AS RECOMMENDED BY EQUIPMENT MANUFACTURER.

ADDRESS PENETRATIONS:

1. IN FIRE RATED BARRIERS, PROVIDE FIRE STOPPING ASSEMBLIES LISTED BY A RECOGNIZED INDEPENDENT TESTING LABORATORY AND MATCHED TO FIELD CONDITIONS. MAINTAIN FIRE RATING OF SURFACE PENETRATED.

CONTROL QUALITY:

1. RECORD ALL DRAWING MODIFICATIONS AND SPECIFICATION MODIFICATIONS IN ADDENDUM(S) ON THE APPROPRIATE DRAWING(S) AND IN THE APPROPRIATE SPECIFICATION SECTION(S), RESPECTIVELY.
2. ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH NECA 1 AND APPROPRIATE LOCAL AND NATIONAL ELECTRICAL AND BUILDING CODES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT CHECK–IN, SAFEKEEPING, AND DAMAGE PREVENTION.
4. UNSPECIFIED EQUIPMENT OR SYSTEMS SHALL BE REPRESENTED BY DULY AUTHORIZED DISTRIBUTORS WITH SERVICE DEPARTMENTS REGULARLY ENGAGED IN THE MAINTENANCE AND INSTALLATION OF THESE SYSTEMS AND EQUIPMENT. SUCH SERVICE DEPARTMENTS SHALL REGULARLY STOCK STANDARD REPLACEMENT PARTS AND EQUIPMENT AND SHALL BE LOCATED WITHIN A REASONABLE DISTANCE FROM THE INSTALLATION SITE.
5. WHENEVER A MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT IS IDENTIFIED ON THE DRAWINGS BY REFERENCE TO MANUFACTURERS, VENDORS NAMES, TRADE NAMES, CATALOG NUMBERS, OR THE LIKE, IT IS SO IDENTIFIED FOR THE PURPOSE OF ESTABLISHING A STANDARD. MATERIALS, ARTICLES, OR PIECES OF EQUIPMENT FROM OTHER MANUFACTURERS OR VENDORS, WHICH WILL ADEQUATELY PERFORM THE DUTIES IMPOSED BY THE GENERAL DESIGN, WILL BE CONSIDERED EQUALLY ACCEPTABLE PROVIDED THEY ARE OF EQUAL SUBSTANCE, APPEARANCE, AND FUNCTION.
6. MEASURE INDICATED MOUNTING HEIGHTS TO BOTTOM OF UNIT FOR SUSPENDED ITEMS AND TO CENTER OF UNIT FOR WALL–MOUNTING ITEMS.
7. IF MOUNTING HEIGHTS OR OTHER LOCATION CRITERIA ARE NOT INDICATED, ARRANGE AND INSTALL COMPONENTS AND EQUIPMENT TO PROVIDE MAXIMUM POSSIBLE HEADROOM.
8. INSTALL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS OF BOTH ELECTRICAL EQUIPMENT AND OTHER NEARBY INSTALLATIONS. CONNECT IN SUCH A WAY AS TO FACILITATE FUTURE DISCONNECTING WITH OTHER ITEMS IN THE VICINITY.
9. ALL LIGHTING, RECEPTACLE AND EQUIPMENT BRANCH CIRCUITS SHALL BE 2 NO. 12 AND 1 NO. 12 GROUND UNLESS OTHERWISE SPECIFIED ON THE PLANS OR SCHEDULES. SIZE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR PER NEC 250.122.
10. ALL MECHANICAL EQUIPMENT IS SHOWN ON THE PLANS WITH A DISCONNECTING MEANS. THIS DISCONNECT MAY BE SUPPLIED BY THE MECHANICAL EQUIPMENT SUPPLIER OR BY THE ELECTRICAL CONTRACTOR. SEE EQUIPMENT CONNECTION SCHEDULES FOR ACTUAL SUPPLIER OF DISCONNECT.
11. MARK ALL RECEPTACLES WITH A TAG IDENTIFYING THE PANEL AND BREAKER SUPPLYING EACH RECEPTACLE. TAG SHALL BE PLACED ON INSIDE–FACE OF RECEPTACLE COVERPLATE.
12. ALL MULTIPLE CIRCUIT CONDUITS SHALL INCLUDE AN INDIVIDUAL NEUTRAL AND EQUIPMENT GROUNDING CONDUCTOR FOR EACH CIRCUIT.
13. ALL CONDUCTORS SHALL BE COPPER. ALUMINUM CONDUCTORS ARE NOT ACCEPTABLE.
14. TWIST–ON WIRE CONNECTORS SHALL BE USED FOR 40 AMP OR LESS CIRCUITS IDEAL "WING–NUT" OR EQUAL CONNECTORS.
15. GROUND–FAULT PROTECTED RECEPTACLES SHALL NOT BE SLAVED.
16. MINIMUM RACEWAY SIZE SHALL BE 3/4" TRADE SIZE, UNDERGROUND 1" TRADE SIZE. NO EXCEPTIONS.
17. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL BE 6 FT. NO EXCEPTIONS.
18. CONDUIT SHALL BE SUPPORTED AT REQUIRED DISTANCES WITH RUST–PROOF ONE–HOLE STRAPS. TIE–WRAP SUPPORTS ARE NOT ALLOWED.
19. ALL OUTDOOR WEATHERPROOF CONVENIENCE RECEPTACLES TO BE PROVIDED WITH IN–USE COVER PER NEC 406.9(B)(1). PROVIDE DIE–CAST IN–USE COVERS, PLASTIC COVERS ARE NOT ACCEPTABLE.
20. INSTALL FLOOR–MOUNTED EQUIPMENT ON CONCRETE PADS WITH A MINIMUM THICKNESS OF 4 INCHES. CONSTRUCT CONCRETE PAD 4 INCHES WIDER (IN EACH DIRECTION) THAN EQUIPMENT FOOT PRINT.
21. THE NUMBER OF CURRENT CARRYING CONDUCTORS INSTALLED IN A SINGLE RACEWAY SHALL NOT EXCEED SIX.
22. DIRECT BURIED CONDUCTORS AND CONDUCTORS IN BELOW–GRADE RACEWAYS AND BOXES SHALL NOT BE SPLICED.
23. CONDUITS SHALL NOT BE PLACED IN CONCRETE FLOOR SLABS UNLESS SPECIFICALLY NOTED ON DRAWINGS. CONDUITS SHALL BE PERMITTED TO STUB UP THROUGH SLABS. CONDUITS PLACED UNDERNEATH CONCRETE FLOOR SLABS SHALL BE A MINIMUM OF 36" BELOW FINISHED GRADE.

CLOSEOUT:

1. GUARANTEE SYSTEMS (PARTS AND LABOR) FOR A MINIMUM PERIOD OF ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION.
2. PROVIDE OPERATING AND MAINTENANCE MANUALS IN PDF FORMAT. MANUALS SHALL INCLUDE, BUT ARE NOT LIMITED TO, PRODUCT DATA SHEETS, SHOP DRAWINGS, WIRING DIAGRAMS, OPERATING AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT, ACCESSORIES, LIGHTING FIXTURES, OCCUPANCY CONTROLS AND RECOMMENDED SPARE PARTS LISTS.
3. IMMEDIATELY BEFORE TURNING SYSTEMS OVER TO OWNER, DEMONSTRATE FULL AND PROPER SYSTEMS OPERATIONS TO ENGINEER AND OWNER. IMMEDIATELY BEFORE DEMONSTRATION, PROPERLY AND FULLY RE–LUBRICATE EQUIPMENT.
4. UPON COMPLETION OF WORK, REMOVE ALL SURPLUS MATERIALS AND RUBBISH. MAKE REQUIRED PATCHING AND REPAIRS OF OTHER TRADES' WORK THAT YOU DAMAGED. LEAVE THE PREMISES IN A CLEAN AND ORDERLY CONDITION.
5. UPON SUBSTANTIAL COMPLETION OF THE PROJECT, THE ENGINEER WILL PERFORM A WALK–THROUGH TO PREPARE A PUNCH LIST OF INCOMPLETE ITEMS. THE ENGINEER WILL SUBMIT THIS PUNCH LIST TO THE CONTRACTOR WHO SHALL COMPLETE THE ITEMS INDICATED ON THE PUNCH LIST AND SUBSEQUENTLY REQUEST A RE–INSPECTION. UPON RE–INSPECTION, IF THE ENGINEER DETERMINES ITEMS ALREADY IDENTIFIED REMAIN INCOMPLETE, THE ENGINEER'S COSTS ASSOCIATED WITH ADDITIONAL RE–INSPECTIONS WILL BE DEDUCTED FROM THE AMOUNT OWED TO THE CONTRACTOR ON A TIME AND MATERIALS BASIS.

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NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

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FORT STEVENSON STATE PARK
2019 CAMPGROUND IMPROVEMENTS

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DATE: July 30, 2019
DRWN BY: NWN
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SECTION 16010 – GENERAL ELECTRICAL REQUIREMENTS

A. WARRANTIES – ALL MATERIALS, WORKMANSHIP AND EQUIPMENT SHALL BE WARRANTED AGAINST DEFECTS OR AGAINST INJURY FROM PROPER AND USUAL WEAR FOR A PERIOD OF ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION. ANY ITEM THAT BECOMES DEFECTIVE WITHIN THE WARRANTY PERIOD SHALL BE REPAIRED OR REPLACED, AT NO ADDITIONAL COST TO THE OWNER. WARRANTY SHALL INCLUDE REPAIR OF FAULTY WORKMANSHIP.

B. DEFINITIONS ABBREVIATIONS – THE FOLLOWING SHALL APPLY THROUGHOUT THE CONTRACT DOCUMENTS:

a) FURNISH – SUPPLY AND DELIVER TO SITE READY FOR INSTALLATION.

b) INDICATED – NOTED SCHEDULED OR SPECIFIED.

c) PROVIDE – FURNISH, INSTALL AND CONNECT COMPLETE AND READY FOR FINAL USE.

d) NEC – NATIONAL ELECTRIC CODE (NFPA 70).

e) NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION.

f) NFPA – NATIONAL FIRE PROTECTION ASSOCIATION.

g) UL – UNDERWRITERS LABORATORIES INC.

C. CODES AND STANDARDS – ALL WORK SHALL BE PERFORMED BY COMPETENT CRAFTSMAN SKILLED IN THE TRADE INVOLVED AND SHALL BE DONE IN A MANNER CONSISTENT WITH NORMAL INDUSTRY STANDARDS. ALL WORK SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), LOCAL BUILDING CODE, AND ALL OTHER APPLICABLE STATE AND LOCAL CODES OR STANDARDS. WHERE THERE IS A CONFLICT BETWEEN THE CODE AND THE CONTRACT DOCUMENTS, THE CODE SHALL HAVE PRECEDENCE ONLY WHEN IT IS MORE STRINGENT THAN THE CONTRACT DOCUMENTS.

D. PERMITS – CONTRACTOR SHALL BECOME FAMILIAR AND COMPLY WITH ALL REQUIREMENTS REGARDING PERMITS, FEES, LICENSES, ETC. ALL PERMITS, LICENSES, INSPECTIONS AND ARRANGEMENTS REQUIRED FOR THE WORK SHALL BE OBTAINED BY CONTRACTORS EFFORT AND EXPENSE. ALL UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL RULES AND REGULATIONS AND ALL CHARGES SHALL BE PAID BY THE CONTRACTOR.

E. SUBMITTALS – SHOP DRAWINGS SHALL BE SUBMITTED TO ARCHITECT/ENGINEER FOR THE FOLLOWING ITEMS OF ELECTRICAL EQUIPMENT:

a) WIRING DEVICES.

b) ENCLOSED SWITCHES AND CIRCUIT BREAKERS.

c) PANELBOARDS.

d) LIGHTING FIXTURES.

2. SHOP DRAWINGS INCLUDE FABRICATION AND INSTALLATION DRAWINGS, DIAGRAMS, SCHEDULES AND OTHER DATA SPECIFICALLY PREPARED FOR THE PROJECT. INCLUDE DIMENSIONS AND NOTATIONS SHOWING COMPLIANCE WITH SPECIFIED STANDARDS. UNLESS OTHERWISE NOTED, SUBMIT SHOP DRAWINGS IN ELECTRONIC 'PDF' FORMAT FOR REVIEW.

3. ENGINEER WILL REVIEW OR TAKE APPROPRIATE ACTION FOR SUBMITTALS. REVIEW IS ONLY TO DETERMINE GENERAL CONFORMANCE WITH DESIGN SHOWN IN CONTRACT DOCUMENTS. REVIEW OF SUBMITTALS SHALL NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR DEVIATION FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS OR FROM ERRORS OR OMISSIONS WITHIN SUBMITTAL.

F. MATERIALS – ALL MATERIALS AND EQUIPMENT USED IN THE CONSTRUCTION OF THE PROJECT SHALL BE NEW UNUSED AND UNDAMAGED UNLESS OTHERWISE SPECIFIED. MATERIALS AND EQUIPMENT SHALL BE OF LATEST DESIGN STANDARDS OF MANUFACTURER SPECIFIED. VERIFY INSTALLATION DETAILS AND REQUIREMENTS FOR MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND INSTALLED UNDER THIS CONTRACT.

G. DEMONSTRATION AND TRAINING – INSTRUCT OWNER'S PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN ELECTRICAL SYSTEMS. SCHEDULE TRAINING WITH OWNER WITH AT LEAST SEVEN DAYS OF ADVANCE NOTICE.

H. STARTING AND ADJUSTING – START AND TEST ALL EQUIPMENT AND OPERATING COMPONENTS TO CONFIRM PROPER OPERATION. TEST AND ADJUST ALL SYSTEMS TO ACHIEVE DESIGNED CAPACITY AND PERFORMANCE. ALL EQUIPMENT AND SYSTEMS DISCREPANCIES SHALL BE CORRECTED PRIOR TO FINAL ACCEPTANCE.

I. TEMPORARY POWER AND LIGHTING – PROVIDE TEMPORARY ELECTRIC POWER FROM LOCAL UTILITY WITH METERING AND PAYMENT OF USE CHARGES.

1. PROVIDE RECEPTACLE OUTLETS ADEQUATE FOR CONNECTION OF POWER TOOLS AND CONSTRUCTION EQUIPMENT.

2. PROVIDE TEMPORARY LIGHTING WITH LOCAL SWITCHING THAT PROVIDES ADEQUATE ILLUMINATION FOR CONSTRUCTION OPERATIONS AND TRAFFIC CONDITIONS.

SECTION 16050 – BASIC ELECTRICAL MATERIALS AND METHODS

A. QUALITY ASSURANCE – ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR LIMITED USE.

B. COORDINATION – COORDINATE CHASES, SLOTS, INSERTS, SLEEVES, AND OPENINGS WITH GENERAL CONSTRUCTION WORK AND ARRANGE IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION TO FACILITATE THE ELECTRICAL INSTALLATIONS THAT FOLLOW. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLING ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. COORDINATE INSTALLING LARGE EQUIPMENT REQUIRING POSITIONING BEFORE CLOSING ON THE BUILDING.

C. CONDUCTORS – ALL CONDUCTORS SHALL BE INSTALLED IN RACEWAYS. CONDUCTORS FOR PILOT AND CONTROL CIRCUITS SHALL BE #14. ALL OTHER CONDUCTORS SHALL BE #12 OR LARGER.

1. CONDUCTORS, NO. 10 AWG AND SMALLER: SOLID OR STRANDED COPPER.

2. CONDUCTORS, LARGER THAN NO. 10 AWG: STRANDED COPPER.

3. INSULATION: THERMOPLASTIC, RATED AT 90 DEG. C MINIMUM, THWN-2/THHN.

4. WIRE CONNECTORS AND SPLICES: UNITS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS SUITABLE FOR SERVICE INDICATED.

D. RACEWAYS – MINIMUM RACEWAY SIZE SHALL BE 3/4". RACEWAY TYPES AND APPLICATIONS SHALL BE AS FOLLOWS:

1. ELECTRICAL METALLIC TUBING (EMT): ANSI C80.3, ZINC-COATED STEEL WITH COMPRESSION FITTINGS. EMT SHALL BE USED FOR ALL OTHER APPLICATIONS NOT LISTED BELOW.

2. LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC): ZINC-COATED STEEL WITH SUNLIGHT RESISTANT AND MINERAL-OIL-RESISTANT PLASTIC JACKET. LFMC SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT OR IN WET OR DAMP LOCATIONS.

3. RIGID NON-METALLIC CONDUIT (RNC): NEMA TC 2, SCHEDULE 40PVC WITH NEMA TC3 FITTINGS. RNC SHALL BE USED FOR ALL UNDERGROUND APPLICATIONS.

4. RACEWAY FITTINGS: SPECIFICALLY DESIGNED FOR THE RACEWAY TYPE WITH WHICH USED.

E. JUNCTION AND DEVICE BOXES – MINIMUM BOX SIZE SHALL BE 4" SQUARE WITH EXTENSION OR PLASTER RING AS REQUIRED. BOX TYPES AND APPLICATIONS SHALL BE AS FOLLOWS.

1. SHEET METAL BOXES: NEMA OS 1 GALVANIZED STEEL. SHEET METAL BOXES SHALL BE USED FOR ALL SURFACE MOUNTED APPLICATIONS AND FLUSH MOUNTING IN GYPSUM OR PLASTER WALLS.

2. MASONRY BOXES: SQUARE CORNERED SUITABLE FOR FLUSH MOUNTING IN MASONRY CONSTRUCTION.

3. CAST METAL BOXES: NEMA FB 1. TYPE FD, COST BOX WITH GASKETED COVER. CAST METAL BOXES SHALL BE USED FOR EXTERIOR SURFACE MOUNTED APPLICATIONS.

F. ELECTRICAL IDENTIFICATION – ALL CONDUCTORS SHALL BE COLOR CODED THROUGHOUT THE INSTALLATION. COLOR CODING SHALL BE AS PRESCRIBED BY ANSI A13.1 AND NFPA 70.

1. PROVIDE UNDERGROUND WARNING TAPE FOR ALL BURIED CONDUCTORS. TAPE SHALL BE PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED, VINYL TAPE NOT LESS THAN 6 INCHES WIDE BY 4 MILS THICK WITH EMBEDDED CONTINUOUS METALLIC STRIP AND SHALL BE COMPOUNDED FOR PERMANENT DIRECT-BURIAL SERVICE.

2. PROVIDE ENGRAVED-PLASTIC LABELS FOR ALL DISCONNECT SWITCHES, PANELBOARDS, AND CONTROL DEVICES, LABELS SHALL BE MELAMINE PLASTIC LAMINATE ENGRAVING STOCK WITH 3/8" ENGRAVED LETTERING AND SHALL BE PUNCHED OR DRILLED FOR MECHANICAL FASTENERS.

G. CONCRETE BASES – CONSTRUCT CONCRETE BASES OF DIMENSIONS INDICATED, BUT NOT LESS THAN 4 INCHES LARGER IN BOTH DIRECTIONS THAT SUPPORT THE UNIT. FOLLOW SUPPORTED EQUIPMENT MANUFACTURER'S ANCHORAGE RECOMMENDATIONS AND SETTING TEMPLATE FOR ANCHOR-BOLT AND TIE LOCATIONS. UNLESS OTHERWISE INDICATED, USE 3000-PSI, 28-DAY COMPRESSIVE-STRENGTH CONCRETE WITH REINFORCEMENT.

H. CUTTING AND PATCHING – CUT, CHANNEL, CHASE, AND DRILL FLOORS, WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES REQUIRED TO PERMIT ELECTRICAL INSTALLATIONS. PERFORM CUTTING BY SKILLED MECHANICS OF TRADES INVOLVED.

1. REPAIR AND REFINISH DISTURBED FINISH MATERIALS AND OTHER SURFACES TO MATCH ADJACENT UNDISTURBED SURFACES. INSTALL NEW FIREPROOFING WHERE EXISTING FIRE STOPPING HAS BEEN DISTURBED. REPAIR AND REFINISH MATERIALS AND OTHER SURFACES BY SKILLED MECHANICS OF TRADES INVOLVED.

SECTION 16140 – WIRING DEVICES

A. GENERAL – DEVICES SHALL BE INSTALLED PLUMB AND SECURE. UNLESS OTHERWISE INDICATED, FLUSH MOUNT WIRING DEVICES WITH LONG DIMENSIONS VERTICAL, AND GROUNDING TERMINAL OF RECEPTACLES ON BOTTOM.

1. UNLESS OTHERWISE INDICATED, WIRING DEVICES SHALL BE MOUNTED AT THE FOLLOWING HEIGHTS, MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICES.

a) RECEPTACLES AND TELECOMMUNICATION OUTLETS = 18"

2. GROUP ADJACENT DEVICES UNDER SINGLE MULTI-GANG WALL PLATES.

3. WIRING DEVICES SHALL BE MANUFACTURED BY PASS AND SEYMOUR, LEVITON, HUBBEL, OR GENERAL ELECTRIC.

B. RECEPTACLES – DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE 20 AMPERE, 120 VOLT.

1. GROUND FAULT CIRCUIT INTERRUPTING (GFCI) RECEPTACLES SHALL NOT BE FEED-THROUGH TYPE.

2. RECEPTACLES SERVING OWNER FURNISHED EQUIPMENT SHALL HAVE CONFIGURATION TO MATCH THAT OF EQUIPMENT PLUG.

D. DEVICE COLOR – COLOR SHALL BE GRAY UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE.

E. WALL PLATES – PLATES SHALL BE TYPE 302 SATIN FINISH STAINLESS STEEL IN SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.

1. WEATHERPROOF PLATES IN DAMP LOCATIONS: HEAVY CAST ALUMINUM; HINGED, GASKETED EQUAL TO PASS & SEYMOUR #4511 FOR HORIZONTAL MOUNT OR #4512 FOR VERTICAL MOUNT. THESE COVERS SHALL BE INSTALLED OUTDOORS IN A LOCATION PROTECTED FROM THE WEATHER SUCH AS ROOFED OPEN PORCHES, CANOPIES, EVES, AND THE LIKE OR IN OTHER DAMP LOCATIONS WHERE THE RECEPTACLE WILL NOT BE SUBJECT TO BEATING RAIN OR WATER RUN-OFF. THESE COVERS MAY ALSO BE USED AT ROOF MOUNTED MECHANICAL EQUIPMENT FOR USE WITH PORTABLE TOOLS THAT WOULD BE NORMALLY CONNECTED TO THE OUTLET WHEN ATTENDED.

2. WEATHERPROOF PLATES IN WET LOCATIONS: SELF CLOSING IN-USE DIECAST COVER. LOCKABLE WEATHERPROOF ENCLOSURE, THE INTEGRITY OF WHICH IS NOT AFFECTED WHEN THE ATTACHMENT PLUG CAP IS INSERTED. EQUAL TO COOPER WIRING DEVICES #WIUMV-1 OR WIUMH-1. PLASTIC COVERS ARE NOT ACCEPTABLE.

SECTION 16420 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

A. ENCLOSED SWITCHES – ENCLOSED SWITCHES SHALL BE HEAVY-DUTY GRADE WITH LOCKABLE HANDLE. SWITCHES SHALL BE FUSIBLE UNLESS OTHERWISE INDICATED AND SHALL HAVE CLIPS TO ACCOMMODATE FUSE SIZES INDICATED ON THE DRAWINGS.

1. EXTERIOR MOUNTED SWITCHES SHALL BE NEMA 3R RATED AND SHALL BE BOLTED CLOSED.

2. CARTRIDGE FUSES SHALL BE CLASS DUAL-ELEMENT TIME DELAY, CLASS 'RK-1' BUSSMAN LOW PEAK. EQUIVALENT FUSES AS MANUFACTURED BY GOULD SHAWMUT, LITTLEFUSE, OR GE ARE ACCEPTABLE.

3. ENCLOSED SWITCHES SHALL BE MANUFACTURED BY EATON CUTLER-HAMMER, GENERAL ELECTRIC, SIEMENS, OR SQUARE D.

B. ENCLOSED CIRCUIT BREAKERS – ENCLOSED CIRCUIT BREAKERS SHALL BE MOLDED CASE THERMAL MAGNETIC TYPE WITH INVERSE TIME CURRENT ELEMENT FOR LOW LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. CIRCUIT BREAKER INTERRUPTING CAPACITY SHALL MEET AVAILABLE FAULT CURRENTS.

1. ENCLOSED CIRCUIT BREAKERS SHALL BE MANUFACTURED BY EATON CUTLER-HAMMER, GENERAL ELECTRIC, SIEMENS, OR SQUARE D.

SECTION 16442 – PANELBOARDS

A. GENERAL –PANELBOARD CABINETS SHALL BE NEMA PB 1. TYPE 3R ZINC COATED STEEL WITH MANUFACTURER'S STANDARD ENAMEL FINISH OVER CORROSION-RESISTANT TREATMENT OR PRIMER COAT. EACH PANELBOARD SHALL BE FURNISHED WITH A DIRECTORY CARD INDICATING THE LOAD SERVED BY EACH BRANCH CIRCUIT.

1. PANELBOARD BUS MATERIAL SHALL BE HARD-DRAWN COPPER. 98 PERCENT CONDUCTIVITY.

2. PROVIDE EACH PANELBOARD WITH AN EQUIPMENT GROUND BUS ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUND CONDUCTORS. BUS SHALL BE BONDED TO BOX.

3. WHERE FUTURE DEVICES (SPACES) ARE SCHEDULED PROVIDE MOUNTING BRACKETS, BUS CONNECTIONS, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.

4. EACH PANELBOARD SHALL BE FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. SEE SCHEDULES FOR REQUIRED INTERRUPTING CURRENT (A.I.C).

5. PANELBOARDS SHALL BE MOUNTED WITH TOP OF TRIM AT 74" ABOVE FINISHED FLOOR, UNLESS OTHERWISE STATED.

6. PANELBOARDS SHALL BE MOUNTED PLUMB AND RIGID WITHOUT DISTORTION OF BOX. MOUNT RECESSED PANELBOARDS WITH FRONTS UNIFORMLY FLUSHED WITH WALL FINISH.

7. PANELBOARDS SHALL BE MANUFACTURED BY EATON CUTLER-HAMMER, GENERAL ELECTRIC, SIEMENS, OR SQUARE D.

B. LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS.

1. OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.

2. DOORS: FRONT MOUNTED WITH CONCEALED HINGES; SECURED WITH FLUSH LATCH WITH TUMBLER LOCK; KEYED ALIKE.

C. OVERCURRENT PROTECTIVE DEVICES – THERMAL-MAGNETIC CIRCUIT BREAKERS WITH INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250A AND LARGER. CIRCUIT BREAKER LUGS SHALL BE MECHANICAL STYLE. SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND MATERIAL OF CONDUCTORS.

1. EACH OVERCURRENT PROTECTIVE DEVICE SHALL HAVE AN APPLICATION LISTING APPROPRIATE FOR THE APPLICATION, LISTINGS SHALL BE AS FOLLOWS:

a) TYPE HACR FOR HEATING, AIR-CONDITIONING, AND REFRIGERATING EQUIPMENT.

SECTION 16511 – LIGHTING AND LIGHTING CONTROL

A. FIXTURES AND FIXTURE COMPONENTS – ALL METAL PARTS AND COMPONENTS SHALL BE FREE FROM BURRS, SHARP CORNERS AND EDGES. ALL FIXTURES SHALL BE SHIPPED PRE-WIRED AND READY FOR MOUNTING.

1. DOORS, FRAMES, AND OTHER INTERNAL ACCESS MECHANISMS SHALL BE SMOOTH OPERATING, FREE FROM LIGHT LEAKAGE UNDER OPERATING CONDITIONS, AND ARRANGED TO PERMIT RELAMPING WITHOUT USE OF TOOLS.

B. LED FIXTURES – LAMPS SHALL HAVE A MINIMUM RATED LIFE OF 35,000 HOURS, MINIMUM CRI OF 80, CCT OF 3500K, (OR AS SCHEDULED) AND BE DIMMABLE. LED DRIVERS SHALL HAVE MINIMUM EFFICACY OF 100 LUMENS PER WATT AND BE CAPABLE OF DIMMING THE LAMPS FROM 100% TO 1% OF MAXIMUM LUMEN OUTPUT.

C. FINISHES – FIXTURE FINISHES SHALL BE MANUFACTURER STANDARD, UNLESS OTHERWISE INDICATED. PAINTED FINISHES SHALL BE APPLIED OVER CORROSION-RESISTANT TREATMENT OR PRIMER, FREE OF DEFECTS. METALLIC FINISHES SHALL BE CORROSION RESISTANT.

D. INSTALLATION – FIXTURES SHALL BE SECURED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPROVED SUBMITTAL MATERIALS.

ELECTRICAL ABBREVIATIONS

ABBV.	DESCRIPTION	ABBV.	DESCRIPTION
2P	TWO-POLE	HID	HIGH INTENSITY DISCHARGE
3P	THREE-POLE	INC	INCANDESCENT
3W	THREE-WIRE	KCMIL	THOUSANDS OF CIRCULAR MILS
4W	FOUR-WIRE	LED	LIGHT EMITTING DIODE
A	AMPERES	MCA	MINIMUM CIRCUIT AMPACITY
AIC	AMPERE INTERRUPTING CAPACITY	MCB	MAIN CIRCUIT BREAKER
AWG	AMERICAN WIRE GAUGE	MCC	MOTOR CONTROL CENTER
CFL	COMPACT FLUORESCENT	MH	METAL HALIDE
EWC	ELECTRIC WATER COOLER	MLO	MAIN LUGS ONLY
E, EX	EXISTING TO REMAIN	MOCP	MAXIMUM OVERCURRENT PROTECTION
FL	FLUORESCENT	NIC	NOT IN CONTRACT
FLA	FULL LOAD AMPERES	PH	PHASE
FVNR	FULL VOLTAGE NONREVERSING	PMH	PULSE-START METAL HALIDE
FVR	FULL VOLTAGE REVERSING	TVSS	TRANSIENT VOLTAGE SURGE SUPRESSOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	HP	HORSEPOWER

CONDUIT SYMBOLS

MOUNTING			DESCRIPTION
CEILING	WALL	FLOOR	
			CONDUIT HOMERUN TO PANEL (ARROWS DENOTE CIRCUITS)
			BRANCH CIRCUIT CONCEALED CONDUIT
			UTILITY LOOP CONCEALED CONDUIT
EM	EM	EM	EMERGENCY SYSTEM CONDUIT
			CONDUIT STUB LOCATION
			CONDUIT RISER (TURNED UP)
			CONDUIT TURNED DOWN

LIGHTING SYMBOLS

MOUNTING			DESCRIPTION # INDICATES TYPE IN FIXTURE SCHEDULE
CEILING	WALL	POLE	
		#'	SITE POLE LIGHTING LUMINAIRE (FIXTURE HEADS PER PLAN)
		#	SITE POLE-TOP PEDESTRIAN LIGHTING LUMINAIRE
			EXTERIOR SITE BOLLARD LUMINAIRE

POWER DISTRIBUTION SYMBOLS

SYMBOL	DESCRIPTION
	DISTRIBUTION PANEL / SWITCHBOARD
	NEW PANELBOARD (SURFACE MOUNT)
	EXISTING PANELBOARD (SURFACE MOUNT)
	NEW PANELBOARD (FLUSH MOUNT)
	EXISTING PANELBOARD (FLUSH MOUNT)
	GROUND BAR
	COMBINATION STARTER DISCONNECT SWITCH (THREE PHASE)
	COMBINATION STARTER DISCONNECT SWITCH (SINGLE PHASE)
XX/3 XX/AF	FUSED DISCONNECT SWITCH
NF	NON-FUSED DISCONNECT SWITCH
	QUICK-DISCONNECT
M	MOTOR

GENERAL NOTES:

1. THIS PROJECT MAY NOT USE EVERY SYMBOL OR DEVICE APPEARING IN THESE LEGENDS.
2. ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH APPROPRIATE LOCAL AND NATIONAL ELECTRICAL AND BUILDING CODES.
3. CONTRACTOR SHALL REFERENCE SPECIFICATIONS FOR CONSTRUCTION MATERIALS AND INSTALLATION PROCEDURES. THE SPECIFICATIONS ARE PART OF THE CONSTRUCTION DOCUMENTS. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS, SUCH CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT / ENGINEER FOR RESOLUTION.
4. THESE DOCUMENTS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW MATERIALS FOR COMPLETE INSTALLATION.
5. JUNCTION BOXES AND PULL BOXES ARE NOT ALL SHOWN WITHIN THESE DOCUMENTS. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING REQUIRED JUNCTION / PULL BOXES TO MEET REQUIREMENTS OF APPROPRIATE LOCAL AND NATIONAL ELECTRICAL CODES.

SYMBOL MODIFIERS:

E,EX	EXISTING	WG	WIRE-GUARD	N/E	NEW TO EXISTING CONNECTION
IG	ISOLATED GROUND	WP	WEATHERPROOF		
G	GROUND FAULT CURRENT INTERRUPTER	##"	MOUNTING HEIGHT		

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NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY:
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REGISTRATION NUMBER
PE-8243
ON 07/29/2019 AND THE ORIGINAL DOCUMENT IS STORED AT
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FORT STEVENSON STATE PARK
2019 CAMPGROUND IMPROVEMENTS

MOUNTAIN PLAINS LLC
Engineering, Land Surveying & Utility Locating
1300 TACOMA AVE | BISMARCK, ND 58504
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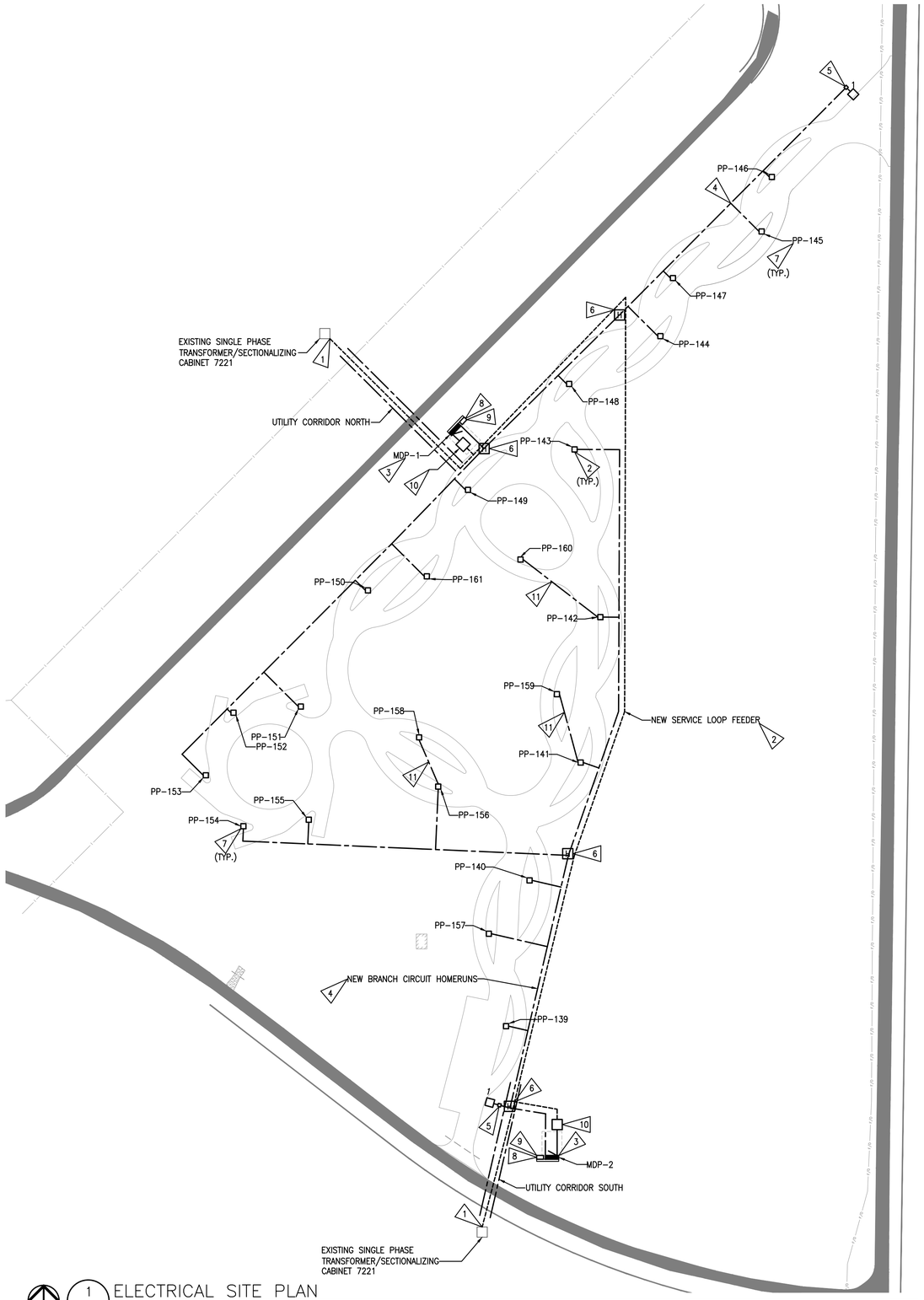
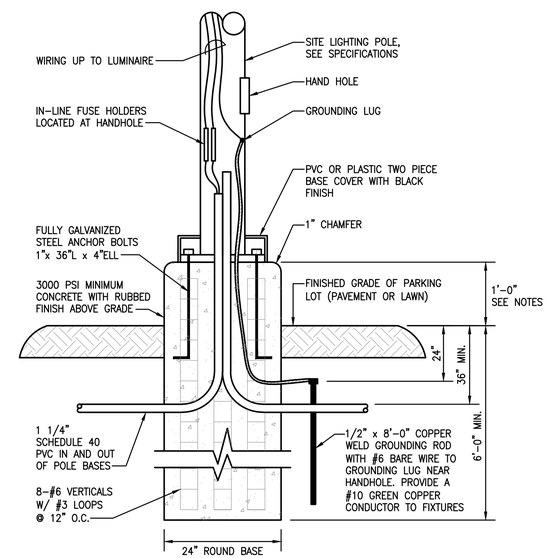
DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: E401
SHEET TITLE: ELECTRICAL SPECIFICATIONS AND SYMBOL LEGEND

H:\999-555\555001 Design\01 Active\04 Draft\CAD\999-555-001_E401.dwg

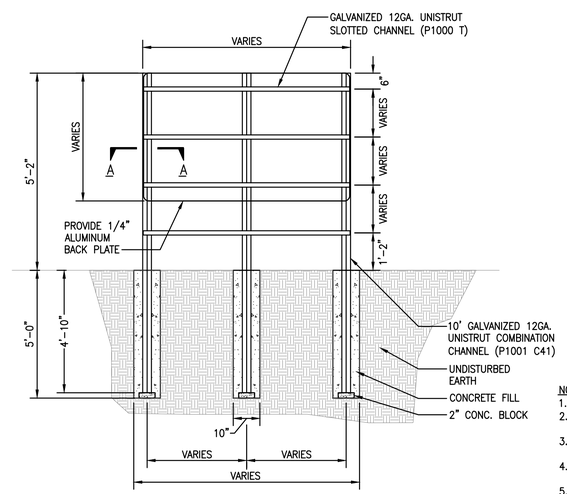


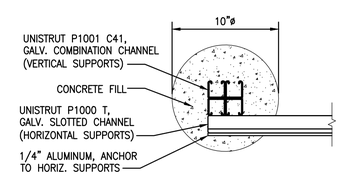
1 / E402 ELECTRICAL SITE PLAN
SCALE: 1" = 60'-0"



NOTES:
1.) ANCHOR BOLT LOCATIONS SHALL BE VERIFIED IN FIELD BY INSTALLING CONTRACTOR WITH BOLTS AS FURNISHED BY POLE MANUFACTURER.
2.) WHEN INSTALLING SITE LIGHTING IN LAWN AREAS AROUND THE PARKING LOT, OR IN ISLANDS OR BERMS INSIDE THE PARKING LOT, ADJUST THE EXPOSED HEIGHT OF THE BASE SO THAT THE TOP OF THE BASE IS 3'-0" ABOVE THE FINISHED GRADE OF THE PARKING LOT SURFACE.
3.) LOCATE BASES ON CENTERLINES WHERE CENTERLINES ARE SHOWN ON THE PLANS, OR CENTER BASES 3'-0" BACK FROM THE CURB WHERE CENTERLINES ARE NOT SHOWN.

2 / E402 SITE LIGHTING POLE BASE DETAIL
SCALE: NOT TO SCALE





SECTION A – A
SCALE: NOT TO SCALE

NOTES:
1.) PROVIDE VERTICAL SUPPORTS AS INDICATED ON PLANS AND DETAILS.
2.) MAINTAIN MINIMUM CLEARANCE BETWEEN FRAME, ADJACENT STRUCTURES, AND EQUIPMENT. PROVIDE INSTALLATION LOCATION PER PLANS AND ON SITE COORDINATION.
3.) PROVIDE SUPPORT FRAME AND ASSOCIATED HORIZONTAL MEMBERS IN LENGTHS INDICATED ON PLANS AND ELEVATIONS.
4.) PROVIDE REQUIRED BOLTS, FASTENERS, AND MOUNTING HARDWARE AS REQUIRED FOR FRAME CONSTRUCTION, BACKING PLATES, AND EQUIPMENT MOUNTING.
5.) GRIND SHARP EDGES ON UNISTRUT AND BACKING PLATES TO SMOOTH FOR SAFETY.
6.) PROVIDE CONCRETE CURING ADDITIVES OR ALLOW MINIMUM OF 7 DAYS TO CURE BEFORE EQUIPMENT MOUNTING.

3 / E402 UNISTRUT SUPPORT FRAME DETAIL
SCALE: NOT TO SCALE

GENERAL NOTES:

1. ANY EXISTING CONDITIONS INDICATED ARE BASED ON INFORMATION PROVIDED BY OTHERS AND POSSIBLE LIMITED FIELD VERIFICATION. THE CONTRACTOR SHALL ADJUST FOR ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.
2. THE CONTRACTOR SHALL VISIT THE PROJECT SITE, REVIEW EXISTING CONDITIONS AGAINST THE PLANS, AND FAMILIARIZE THEMSELF WITH THE WORK PRIOR TO BIDDING AND START OF THE WORK.
3. LIGHT-LINED ITEMS ARE EXISTING TO REMAIN, WITH REQUIREMENTS AS NOTED. HEAVY-LINED ITEMS INDICATE NEW WORK AS INDICATED.

FLAG NOTES:

1. UTILITY TO PROVIDE NEW FEEDER BETWEEN EXISTING SECTIONALIZING CABINETS. COORDINATE ROUTING WITH UTILITY PRIOR TO TRENCHING.
2. COORDINATE ALL ROUTING OF UTILITY PRIMARY FEEDERS WITH CIVIL DRAWINGS, UTILITY COMPANY, AND OTHER TRADES PRIOR TO ANY TRENCHING.
3. PROVIDE NEW 800A DISTRIBUTION PANEL BOARD WITH NEMA 3R WEATHER PROOF ENCLOSURE MOUNTED ON A NEW UNISTRUT RACK. COORDINATE WITH UTILITY FOR NEW METER, AND CONNECTION TO NEW PANEL. SEE PANEL SCHEDULE FOR FURTHER DETAILS.
4. ALL NEW BRANCH CIRCUITS FOR ELECTRICAL EQUIPMENT AND LIGHTING TO BE ROUTED WITHIN SAME TRENCH AS LOOP FEEDER, AND WATER PIPING. COORDINATE ROUTING AND TRENCH LAYOUT WITH CIVIL DRAWINGS, AND MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
5. PROVIDE NEW CONCRETE BASE FOR NEW LIGHTPOLE. SEE MANUFACTURER'S INSTALLATION DETAIL FOR MORE INFORMATION. COORDINATE FINAL LIGHTPOLE LOCATION WITH OWNER PRIOR TO ROUGH IN.
6. PROVIDE NEW HANDHOLES AT INDICATED LOCATIONS. NEW HANDHOLDS TO BE QUAZITE TIER 15 OR EQUAL. COORDINATE FINAL PLACEMENT, AND SIZE OF HANDHOLES WITH CIVIL DRAWINGS, AND MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
7. PROVIDE NEW POWER PEDESTAL AT INDICATED LOCATIONS. POWER PEDESTALS TO BE MIDWEST ELECTRICAL PRODUCTS – U075GP6 OR EQUAL. COORDINATE WITH OWNER PRIOR TO ROUGH IN FOR ADDITIONAL OWNER REQUIREMENTS ON MOUNTING. SEE CIVIL DRAWINGS FOR INSTALLATION DETAILS AT EACH SITE.
8. PROVIDE EQUIPMENT RACK FOR NEW DISTRIBUTION PANEL. SEE DETAIL 2/E402 FOR ADDITIONAL INFORMATION.
9. COORDINATE WITH LOCAL UTILITY TO PROVIDE NEW METER SOCKET WITH CTS FOR MONITORING OF NEW PANEL 'MDP-1'. UTILITY TO PROVIDE NEW METER.
10. UTILITY TO PROVIDE NEW SINGLE PHASE PAD MOUNT TRANSFORMER TO SERVE NEW PANEL "MDP-1." CONTRACTOR SHALL PROVIDE UNDERGROUND SECONDARY CONDUITS AND CONDUCTORS FROM SECONDARY SIDE OF NEW TRANSFORMER TO NEW PANEL. SEE ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION AND SIZING.
11. COORDINATE WITH CIVIL ENGINEER, AND GENERAL CONTRACTOR FOR TRENCHING AND ROUTING OF FEEDER PRIOR TO INSTALLATION OF ROADWORK.

LEGEND	
N/E	NEW TO EXISTING CONNECTION
	NEW WORK
	EXISTING

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DATE: July 30, 2019
DRWN BY: NWN
APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: E402
SHEET TITLE: ELECTRICAL SITE PLAN AND DETAILS

7/30/2019 12:31 PM
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PANEL NAME: MDP-1 — STATUS: NEW — LOCATION: NORTH OF SITE 149

MFR. / TYPE:	SQUARED I-LINE	VOLTAGE:	120/240V 1P, 3W
NEMA:	3R	INCOMING:	TOP
TRIM:	DOOR	RATINGS: BUS:	400A
NO. POLES:	N/A	MAIN CB:	400A
BUS MATERIAL:	COPPER	FEED-THRU LUGS:	N
NEUTRAL BUS:	100%	MAIN LUGS:	N/A
GROUND BUS:	100%	SUB-FEED LUGS:	N
ISOLATED GROUND:	N	BREAKER MOUNTING:	BOLT-ON
MOUNTING:	SURFACE	INCOMING PHASES:	AB
MOUNTING SPACE:	45"	SERVICE ENTRANCE RATED:	Y
SPACE REMAINING:	0/45"		

SUPPLIED FROM:	SEE ONE LINE
FEEDER CABLE:	SEE ONE LINE
AVAILABLE SHORT CIRCUIT:	25940 AIC
BUS AIC:	35K
MCB AIC:	35K
BRANCH AIC:	35K

CKT	DESCRIPTION	NOTES	MTG SPACE	LOAD VA	LOAD TYPE	AMPS	BRKR	PH	BRKR	AMPS	LOAD VA	LOAD TYPE	MTG SPACE	NOTES	DESCRIPTION	CKT
1	POWER PEDESTALS - 151,152		3"	7200	REC	60.0	100/2	A	100/2	60.0	7200	REC	3"		POWER PEDESTALS - 149,148	2
				7200	REC	60.0		B		60.0	7200	REC				
3	POWER PEDESTALS - 161,150		3"	7200	REC	60.0	100/2	A	100/2	60.0	7200	REC	3"		POWER PEDESTALS - 144,147	4
				7200	REC	60.0		B		60.0	7200	REC				
5	POWER PEDESTALS - 145,146		3"	7200	REC	60.0	100/2	A	50/2	30.0	3600	REC	3"		POWER PEDESTAL - 153	6
				7200	REC	60.0		B		30.0	3600	REC				
7	PREPARED SPACE		3"			0.0		A	100/2	0.0			3"		SPARE	8
						0.0		B		0.0						
9	PREPARED SPACE		3"			0.0		A	20/1	0.4	52	LTG	1.5"		NORTH SITE LIGHTING	10
						0.0		B		0.0			1.5"		PREPARED SPACE	12

PANEL SCHEDULE NOTES:

GENERAL PANEL SCHEDULE NOTES:
1. PANEL SUBMITTAL DRAWING TO BE LAID OUT PER THIS SCHEDULE.
2. PROVIDE ARC FLASH HAZARD LABEL PER NEC 110.16.

PANEL NAME: MDP-2 — STATUS: NEW — LOCATION: SOUTH OF SIRE 139

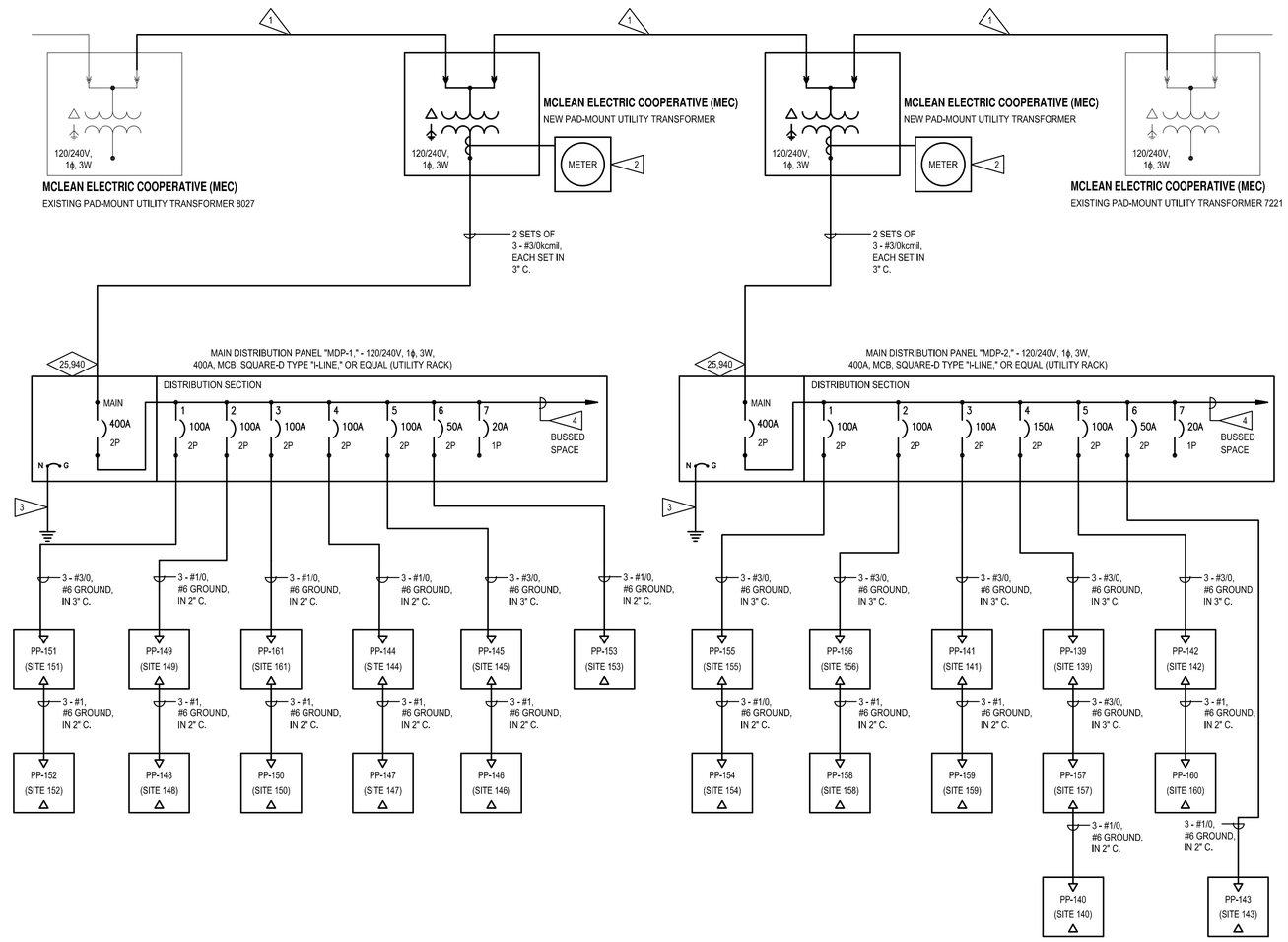
MFR. / TYPE:	SQUARED I-LINE	VOLTAGE:	120/240V 1P, 3W
NEMA:	3R	INCOMING:	TOP
TRIM:	DOOR	RATINGS: BUS:	400A
NO. POLES:	N/A	MAIN CB:	400A
BUS MATERIAL:	COPPER	FEED-THRU LUGS:	N
NEUTRAL BUS:	100%	MAIN LUGS:	N/A
GROUND BUS:	100%	SUB-FEED LUGS:	N
ISOLATED GROUND:	N	BREAKER MOUNTING:	BOLT-ON
MOUNTING:	SURFACE	INCOMING PHASES:	AB
MOUNTING SPACE:	45"	SERVICE ENTRANCE RATED:	Y
SPACE REMAINING:	0/45"		

SUPPLIED FROM:	SEE ONE LINE
FEEDER CABLE:	SEE ONE LINE
AVAILABLE SHORT CIRCUIT:	25940 AIC
BUS AIC:	35K
MCB AIC:	35K
BRANCH AIC:	35K

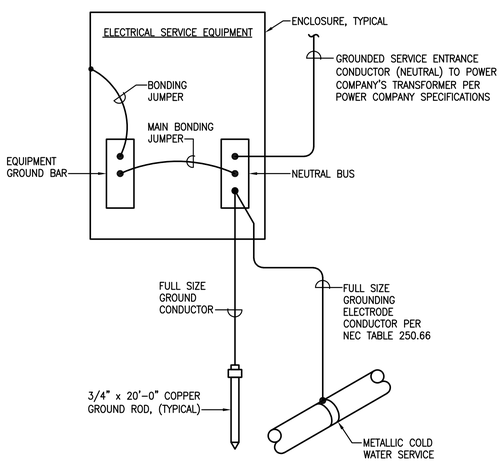
CKT	DESCRIPTION	NOTES	MTG SPACE	LOAD VA	LOAD TYPE	AMPS	BRKR	PH	BRKR	AMPS	LOAD VA	LOAD TYPE	MTG SPACE	NOTES	DESCRIPTION	CKT
1	POWER PEDESTALS - 155,154		3"	7200	REC	60.0	100/2	A	100/2	60.0	7200	REC	3"		POWER PEDESTALS - 156,158	2
				7200	REC	60.0		B		60.0	7200	REC				
3	POWER PEDESTALS - 141,159		3"	7200	REC	60.0	100/2	A	100/2	60.0	7200	REC	3"		POWER PEDESTALS - 142,160	4
				7200	REC	60.0		B		60.0	7200	REC				
5	POWER PEDESTALS - 139,157,140		3"	10800	REC	90.0	150/2	A	50/2	30.0	3600	REC	3"		POWER PEDESTAL - 143	6
				10800	REC	90.0		B		30.0	3600	REC				
7	SPARE		3"			0.0	100/2	A		0.0			3"		PREPARED SPACE	8
						0.0		B		0.0						
9	PREPARED SPACE		3"			0.0		A	20/1	0.4	52	LTG	1.5"		SOUTH SITE LIGHTING	10
						0.0		B		0.0			1.5"		PREPARED SPACE	12

PANEL SCHEDULE NOTES:

GENERAL PANEL SCHEDULE NOTES:
1. PANEL SUBMITTAL DRAWING TO BE LAID OUT PER THIS SCHEDULE.
2. PROVIDE ARC FLASH HAZARD LABEL PER NEC 110.16.

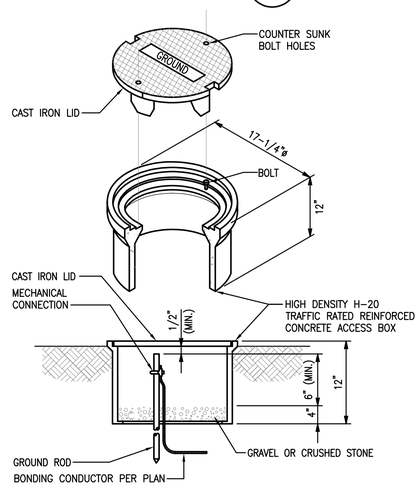


1 E403 PARTIAL ONE-LINE DIAGRAM – NEW WORK
SCALE: NOT TO SCALE



NOTE:
1.) WHEN AVAILABLE, CONTRACTOR SHALL PROVIDE ALL GROUNDING MEANS INDICATED WITH AT LEAST TWO MINIMUM MEANS SHOWN. CONTRACTOR SHALL REFER TO ELECTRICAL ONE LINE DIAGRAM FOR GROUNDING ELECTRODE CONDUCTOR SIZE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2 E403 GROUNDING DETAIL
SCALE: NOT TO SCALE



3 E403 GROUND ROD INSTALLATION DETAIL
SCALE: NOT TO SCALE

GENERAL NOTES:

1. ANY EXISTING CONDITIONS INDICATED ARE BASED ON INFORMATION PROVIDED BY OTHERS AND POSSIBLE LIMITED FIELD VERIFICATION. THE CONTRACTOR SHALL ADJUST FOR ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.
2. THE CONTRACTOR SHALL VISIT THE PROJECT SITE, REVIEW EXISTING CONDITIONS AGAINST THE PLANS, AND FAMILIARIZE THEMSELF WITH THE WORK PRIOR TO BIDDING AND START OF THE WORK.
3. LIGHT-LINED ITEMS ARE EXISTING TO REMAIN, WITH REQUIREMENTS AS NOTED. HEAVY-LINED ITEMS INDICATE NEW WORK AS INDICATED.

FLAG NOTES:

1. NEW FEEDER BETWEEN EXISTING SECTIONALIZING CABINETS. COORDINATE REQUIREMENTS FOR TRENCHING AND ROUTING WITH LOCAL UTILITY PRIOR TO ROUGH IN.
2. COORDINATE WITH LOCAL UTILITY TO PROVIDE NEW METER SOCKET WITH CTS FOR MONITORING OF NEW PANEL 'MDP-1'. UTILITY TO PROVIDE NEW METER.
3. PROVIDE PROPER GROUNDING JUMPER FOR NEW SERVICE SEE DETAILS 2 AND 3 ON SHEET E403 FOR MORE INFORMATION.
4. PROVIDE ADDITIONAL BUSSING SPACE FOR FUTURE BREAKERS. SEE PANEL SCHEDULE FOR MORE INFORMATION.

EXTERIOR LIGHT FIXTURE SCHEDULE

TYPE	BASIS OF DESIGN MANUF.	CATALOG NO.	LAMP NO.	DESCRIPTION	TYPE	VOLTS	VA	MOUNTING STYLE	HEIGHT	REMARKS	NOTES
1	EATON	MSA-E02-LED-E1-5MQ-BZ-PC(120V)	1	INSTALLED	LED	MVOLT	52	POLE	10	SINGLE HEAD PER POLE	1

NOTES:
1 PROVIDE NEW STEEL ROUND STRAIGHT POLE. (COOPER LIGHTING: SRX4)

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NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY:
PATRICK STRATTMANN, P.E.
REGISTRATION NUMBER PE-5243
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FORT STEVENSON STATE PARK
2019 CAMPGROUND IMPROVEMENTS

MOUNTAIN PLAINS LLC
Engineering | Land Surveying | Utility Locating
1300 TACOMA AVE | BISMARCK, ND 58504
(701) 557-3348 | WWW.MTNPLAINS.COM

DATE: July 30, 2019	
DRWN BY: NWN	APPD BY: BJZ
PROJECT NO: MP: 002766 | NDPRD: 20701	
SHEET NO: E403	
SHEET TITLE: ELECTRICAL SCHEDULES AND ONE LINE DIAGRAM	

SCALE: 1 INCH = 60 FEET

BASIS OF BEARING IS GRID NORTH, N.D. STATE PLANE COORDINATE SYSTEM GRID DISTANCES ARE SHOWN AND ARE IN TERMS OF INTERNATIONAL FEET.

LEGEND

F/O	UNDERGROUND FIBER OPTIC LINE	VB	VAULT BOX
	CULVERT		ELECTRIC TRANSFORMER
1880	EXISTING GROUND MAJOR CONTOUR	S	SANITARY SEWER MANHOLE
1881	EXISTING GROUND MINOR CONTOUR		TRAFFIC SIGN
	TREE LINE		CAMP # POST
	ASPHALT SURFACE		DECIDUOUS TREE
	GRAVEL SURFACE		CONIFEROUS TREE
	SEEDING CLASS II		
	BUILDING		

SURFACE IMPROVEMENT LEGEND

1	6-IN GRAVEL S.D. 1 / C500
	6-IN GRAVEL ROAD

LANDSCAPING PLAN LEGEND

	SHRUB S.D. 1 / C501
	DECIDUOUS TREE 2 / C501
	CLASS II (SUNNY MIX) GRASS

GENERAL NOTES

1. THE INFORMATION REPRESENTED IN THESE PLANS WAS COMPILED AND DESIGNED IN CONFORMITY WITH THE INFORMATION AVAILABLE AND ESTABLISHED CIVIL ENGINEERING PRACTICES AT THE TIME THEY WERE ISSUED. NEITHER MOUNTAIN PLAINS, LLC OR ITS PERSONNEL PROVIDE WARRANTY, EXPRESSED OR IMPLIED, FOR THE INFORMATION PRESENTED IN THE PLANS.
2. ALL ELEVATIONS SHOWN ARE IN NAVD88 DATUM UNLESS OTHERWISE NOTED.
3. THE USE OF "CONTRACTOR" APPLIES TO THE PARTY RESPONSIBLE FOR THE PORTION OF WORK BEING DESCRIBED.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. MOUNTAIN PLAINS DOES NOT GUARANTEE THE EXACT LOCATIONS OF THE UTILITIES. THE CONTRACTOR IS REQUIRED TO CALL NORTH DAKOTA ONE CALL BY DIALING 811 OR 800-795-0555. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND FEES ASSOCIATED WITH UTILITY LOCATES.
5. CONTRACTOR SHALL OBTAIN PROPER PERMITS FROM THE CITY OR COUNTY WHEN WORKING WITHIN THE RIGHT-OF-WAY.
6. THE COST OF MOBILIZATION IS TO BE INCLUDED IN THE PRICES BID FOR OTHER PROJECT TASKS AND SHALL INCLUDE ALL ITEMS NECESSARY FOR THE CONTRACTOR TO BE PRESENT ON SITE. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: CONTRACT BOND, EQUIPMENT HAULING, ROADWAY TOLLS AND FARES, LOCAL OR STATE GOVERNMENT PERMITS OR FEES, OR ANY OTHER REQUIREMENT STATED IN THE PROJECT SPECIFICATIONS.
7. AREAS WITHIN RIGHT-OF-WAY WHICH ARE UTILIZED BY CONSTRUCTION TRAFFIC ARE TO BE SWEPT PRIOR TO OPENING TO PUBLIC TRAFFIC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ANY DEBRIS LEFT ON ADJACENT PUBLIC ROADWAYS OR RIGHTS-OF-WAY THAT WERE A DIRECT OR INDIRECT RESULT FROM CONSTRUCTION ACTIVITIES OF THIS PROJECT. THE UTILIZATION OF A VACUUM OR PICKUP TYPE SWEEPER IS REQUIRED TO MINIMIZE AIR CONTAMINATION. THE COST FOR PAVEMENT SWEEPING IS TO BE INCLUDED IN THE PRICES BID FOR OTHER PROJECT TASKS.
8. THE CONTRACTOR SHALL PROTECT ALL PROPERTY PINS AND MONUMENTS ASSOCIATED WITH THE SUBJECT PROPERTY. PROPERTY PINS OR MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. IN THE EVENT THAT ANY DISCREPANCY BETWEEN THE STANDARD SPECIFICATIONS AND THE BID DOCUMENTS ISSUED BY THE GENERAL CONTRACTOR OR PLANS WHICH HAVE BEEN SIGNED AND SEALED BY THE ISSUING ENGINEER EXISTS, THE PLANS SHALL GOVERN.

SITE LAYOUT NOTES

1. ALL SITE LAYOUT, GRADING, AND STRIPING OF PEDESTRIAN TRAVEL WAYS ARE TO MEET OR EXCEED THE REQUIREMENTS SET FORTH IN THE AMERICANS WITH DISABILITIES ACT OF 1990 (ADA) REGULATIONS AS ADOPTED IN THE ACCESSIBILITY STANDARDS CALLED THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (2010 STANDARDS), WHICH CAN BE FOUND HERE:
https://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ADA REQUIREMENTS AND GUIDELINES ARE MET PRIOR TO PAVEMENT INSTALLATION. IN THE EVENT THAT ADA REQUIREMENTS AND GUIDELINES ARE NOT MET PER THE DESIGN AS PRESENTED IN THE PLANS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY FOR CORRECTIVE ACTION. ONCE PAVEMENT HAS BEEN INSTALLED, THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL GRADING OF THE PROJECT.

SURFACE IMPROVEMENT NOTES

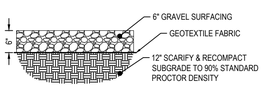
1. ALL WATERING REQUIRED FOR SUBGRADE AND BASE COURSE TO ACHIEVE OPTIMUM COMPACTION IS TO BE INCLUDED IN THE PRICE BID OF THE RESPECTIVE MATERIAL.
2. TOPSOIL TO BE INSTALLED & PREPARED IN LOCATIONS SHOWN.

LANDSCAPING PLAN NOTES

1. THE CONTRACTOR SHALL PROVIDE A ONE YEAR GUARANTEE OF ALL PLANTS AND MATERIALS. THE GUARANTEE BEGINS ON THE DATE OF THE ENGINEER'S WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT MATERIALS SHALL ALSO HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING.
2. ALL PLANTS TO BE INSTALLED ARE TO BE NORTHERN-GROWN, HARDY, AND INSTALLED PER STANDARD AAN PLANTING PRACTICES
3. USE A MINIMUM 6-IN LOAM PLANTING SOIL ON SHRUBS.
4. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO THE INSTALLATION OF PLANTS.
5. PRUNE PLANTS AS NECESSARY - PER STANDARD NURSERY PRACTICE.
6. OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE ONLY AFTER ACCEPTANCE OF THE WORK BY THE ENGINEER.
7. PLANTS SHALL BE IMMEDIATELY PLANTED UPON ARRIVAL AT SITE. TEMPORARILY HEEL-IN MATERIALS IF NECESSARY.
8. PLANTING BEDS FOR SHRUBS SHALL HAVE (40Z MIN.) WEED BARRIER FABRIC AND 4-IN TO 6-IN OF SHREDDED HARDWOOD MULCH.
9. SEED MIX SHALL BE RURAL-BLEND AS MIXED BY CHESAK SEED HOUSE IN BISMARCK, NORTH DAKOTA (OR AN APPROVED EQUAL) AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
10. PRIOR TO SEEDING, A MINIMUM OF 4-INCHES OF TOPSOIL IS TO BE LAID AND SHALL BE FREE OF VEGETATION AND STONES LARGER THAN 1-INCH
11. THE CONTRACTOR SHALL FURNISH THE ENGINEER DUPLICATE SIGNED COPIES OF A STATEMENT BY THE VENDOR CERTIFYING THAT EACH LOT OF SEED HAS BEEN TESTED BY A RECOGNIZED LABORATORY FOR SEED TESTING WITHIN NINE MONTHS OF THE DATE OF DELIVERY.
12. DESIGN OF THE SEED MIX TO BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
13. SIZES GIVEN FOR SHRUB PLANTING ARE MATURE HEIGHT AND SPREAD.
14. CONTRACTOR TO COORDINATE IRRIGATION SYSTEM WITH OWNER.

SURFACE IMPROVEMENT QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	6-IN GRAVEL	SY	8100
3	12-IN SCARIFY & RECOMPACT SUBGRADE	SY	8100
3	STRIPING & SIGNING	L SUM	1



1 C500 6" GRAVEL SURFACE
NOT TO SCALE

LANDSCAPING PLAN QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
1	SEEDING CLASS II	SY	10535

NO.	DATE	DESCRIPTION
1	06/21/2019	FINAL PLANS
2	07/29/2019	BID DOCUMENTS

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY BRIAN J. ZUROFF REGISTRATION NUMBER PE-10414
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DATE: July 30, 2019
DRWN BY: NWN
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PROJECT NO: MP: 002766 | NDPRD: 20701
SHEET NO: C500
SHEET TITLE: PROPOSED SURFACE IMPROVEMENTS & PLANTING SCHEDULE

7/30/2019 4:25 PM
C:\Users\Brian.Zuroff\Box Engineering\Projects\MP\NDPRD\19 001\06 - Fort Stevenson\CEDIA\CAD\SHEETS\C500 - Proposed Surface Improvements & Planting Schedule.dwg