



## UNIVERSITY FACILITIES MANAGEMENT

Sixth Avenue and Grant Street • P.O. Box 172760 • Bozeman, Montana 59717-2760  
Phone: (406) 994-5413 • Fax: (406) 994-5665

### ADDENDUM NO. 1 - OUTLINE AND SUMMARY INFORMATION

Project Name: MSU Stadium Lots

PPA No.: 22-0012

Location: 1 Bobcat Cir, Bozeman, MT 59717

Date: 03-27-2024

To: *All Plan Holders of Record*

*The Plans and Specification prepared by **DJ&A P.C** dated **03-27-2024**, shall be clarified and added as follows. The bidder proposes to perform all the following clarifications or changes. It is understood that the Base Bid shall include any modification of Work or Additional Work that may be required by reason of the following change or clarifications.*

*The Bidders are to acknowledge the receipt of this Addendum by inserting its number and date into their Bid Forms. Failure to acknowledge may subject the Bidder to disqualification and rejection of the bid. This Addendum forms part of the Contract Documents as if bound therein and modifies them as follows:*

#### I. AMENDMENTS TO THE PROJECT MANUAL

##### INVITATION TO BID

- A. REVISE - Bid opening date has been pushed back to 2:00 PM on Monday, April 8th, 2024. Please see the attached revised INVITATION TO BID

##### MSU SUPPLEMENTAL CONDITIONS

- A. REVISE – PAGES 84-103: Contractor to ignore outdated wage rates shown on pages 84-103 and instead use the link located in the table of contents for up-to-date wage rates.

##### 012200 UNIT PRICES

- A. REVISE - REMOVAL AND REPLACEMENT OF EXISTING HYDRANT: The removal and relocation of the one existing hydrant itemized on this sheet is no longer a part of this scope of work. Instead, there will only be one removed and relocated hydrant moving forward, rather than two.
- B. ADD – SUBGRADE STABILIZATION: Line Item A67, Subgrade Stabilization, was added to account for an assumed 5% of subgrade disturbance area in the case that the contractor must perform work according to the Geotech report when encountering soft subgrade conditions. The bid item and assumed quantity is provided to assist the Contractor in developing their Lump Sum bid amount and to ensure bids are based on the same assumed quantity. The bid item unit price will be used in the event of a change order if the quantity were different than the assumed 5% amount.
- C. REVISE – BID ITEM NUMBERING: See the addition of Item A67.

## II. AMENDMENTS TO THE DRAWINGS

### CIVIL

#### CD1.4 - SITE DEMOLITION PLAN 4

- A. REVISE - REMOVAL AND REPLACEMENT OF EXISTING HYDRANT: The removal and relocation of the existing hydrant shown on this sheet is no longer a part of this scope of work. Instead, this specific hydrant will be removed and relocated under the indoor practice facility project.

#### CU1.1 – UTILITY OVERVIEW 1

- A. ADD – GENERAL NOTE: General note #6 was added to provide the contractor with further clarification on tying into existing storm infrastructure.

#### CU1.2 – UTILITY OVERVIEW 2

- A. ADD - GENERAL NOTE: General note #6 was added to provide the contractor with further clarification on tying into existing storm infrastructure.

#### CU1.3 – UTILITY PLAN 1

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor further clarification on tying into existing storm infrastructure.
- B. REVISE – STORM INLET INVERTS: Storm drainage inverts were raised on this sheet with the intent to minimize trenching/excavation costs.

#### CU1.4 – UTILITY PLAN 2

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor further clarification on tying into existing storm infrastructure.
- B. REVISE – STORM INLET INVERTS: Storm drainage inverts were raised on this sheet with the intent to minimize trenching/excavation costs.

#### CU1.5 – UTILITY PLAN 3

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor with further clarification on tying into existing storm infrastructure.

#### CU1.6 – UTILITY PLAN 4

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor with further clarification on tying into existing storm infrastructure.
- B. REVISE - REMOVAL AND REPLACEMENT OF EXISTING HYDRANT: The removal and relocation of the existing hydrant shown on this sheet is no longer a part of this scope of work. Instead, this specific hydrant will be removed and relocated under the indoor practice facility project.

#### CU1.7 – UTILITY PLAN 5

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor with further clarification on tying into existing storm infrastructure.

- B. REVISE – STORM INLET INVERTS: The two storm drainage inverts along the north curb were raised on this sheet to lessen the cost of trenching/excavation.

#### CU1.8 – UTILITY PLAN 6

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor with further clarification on tying into existing storm infrastructure.
- B. REVISE – STORM INLET INVERTS: The four northern most storm drainage inverts were raised on this sheet to lessen the cost of trenching/excavation.

#### CU1.9 – UTILITY PLAN 7

- A. ADD - GENERAL NOTE: General note #9 was added to provide the contractor with further clarification on tying into existing storm infrastructure.

#### C5.10 – DETAIL 10

- A. REVISE – MONUMENT SIGN QUANTITY: The quantity of 51 monument signs has been removed, as there are only four monument signs to be installed.

### LANDSCAPE

#### LI2.0 – IRRIGATION MAINLINE PLAN

- A. REVISE – ISOLATION VALVE PRODUCT CALLOUT: The callout associated with the 16” isolation valve located on the 16” irrigation mainline has been updated to include basis of design product information for type of valve to match in-kind with Owner provided item. Product cut sheet information may be requested from Owner by awarded contractor following awarding of the project.

### ELECTRICAL

#### EI0.1 – ELECTRICAL INDEX

- A. ADD – Handhole detail added to sheet.
- B. ADD – Concrete base rebar added to detail 1 and 2.

#### EP2.0 – ELECTRICAL OVERALL SITE PLAN

- A. REVISE – Revisions to sheet note 2 and 9.

#### EP2.1 – ELECTRICAL SITE PLAN – AREA 1

- A. REVISE – Revisions to sheet note 3.

#### EP2.2 – ELECTRICAL SITE PLAN – AREA 2

- A. REVISE – Revisions to sheet note 1.

#### EP2.3 – ELECTRICAL SITE PLAN – AREA 3

- A. REVISE – Revisions to sheet note 2.

#### EP2.6 – ELECTRICAL SITE PLAN – AREA 6

- A. REVISE – Revisions to sheet note 3 and 4.

EP2.7 – ELECTRICAL SITE PLAN – AREA 7

- A. REVISE – Revisions to sheet note 3.

E6.1 – ELECTRICAL SCHEDULES & DIAGRAMS

- A. REVISE – Updates to panel schedule notes.
- B. REVISE – Updates to luminaire model number in luminaire schedule.
- C. ADD – Added note 7 to luminaire schedule.

III. ATTACHMENTS

- A. 012200 UNIT PRICES
- B. CD1.4 SITE DEMOLITION PLAN 4
- C. CP1.4 SITE PLAN 4
- D. CU1.1-CU1.9 UTILITY PLANS
- E. C5.10 DETAIL 10
- F. LI2.0
- G. EI0.1 ELECTRICAL INDEX
- H. EP2.0 ELECTRICAL OVERALL SITE PLAN
- I. EP2.1, EP2.2, EP2.3, EP2.6, EP2.7 ELECTRICAL SITE PLANS
- J. E6.1 ELECTRICAL SCHEDULES & DIAGRAMS

## INVITATION TO BID

Sealed bids will be received until **2:00 PM on Monday, April 8<sup>th</sup>, 2024**, and will be publicly opened and read aloud in the offices of **MSU University Facilities Management, Plew Building, 6<sup>th</sup> & Grant, Bozeman, Montana**, for: **MSU Stadium Lots, PPA No. 22-0012**.

Bids shall be submitted on the form provided within the Contract Documents. Contract documents may be obtained at the offices of:

**Montana State University**  
**UNIVERSITY FACILITIES MANAGEMENT**  
**Plew Building, 6<sup>th</sup> & Grant**  
**PO Box 172760**  
**Bozeman, Montana 59717-2760**

**On the web at:**  
<http://www.montana.edu/pdc/bids.html>

***A PRE-BID WALK-THROUGH IS SCHEDULED FOR Thursday, March 21<sup>st</sup>, 2024, AT 8:00 AM PARTICIPANTS SHOULD MEET AT Bobcat Stadium (1 Bobcat Circle, Bozeman, MT 59717), Gate 11 (Southeast stadium entrance near the Track & Field Complex). ATTENDANCE IS STRONGLY RECOMMENDED. Bidders should thoroughly review the contract documents before the pre-bid conference.***

Bids must be accompanied by a bid security meeting the requirements of the State of Montana in the amount of 10% of the total bid. After award, the successful bidder must furnish an approved Performance Security and a Labor & Material Payment Security each in the amount of 100% of the contract for contracts equal to or greater than \$150,000.

No bidder may withdraw his bid for at least thirty (30) calendar days after the scheduled time for receipt of bids except as noted in the Instructions to Bidders.

The Owner reserves the right to reject any or all bids and to waive any and all irregularities or informalities and the right to determine what constitutes any and all irregularities or informalities.

### Time of Completion

Bidder agrees to commence work immediately upon receipt of the Notice to Proceed and to substantially complete the project **by August 17<sup>th</sup>, 2024**.

*The State of Montana makes reasonable accommodations for any known disability that may interfere with an applicant's ability to compete in the bidding and/or selection process. In order for the state to make such accommodations, applicants must make known any needed accommodation to the individual project managers or agency contacts listed in the contract documents.*

State of Montana - Montana State University

## SECTION 012200

### UNIT PRICES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.

##### 1.2 DEFINITIONS

- A. Unit price is an amount proposed by bidders, a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

##### 1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 LIST OF UNIT PRICES

- A. GENERAL
  1. Quantities are estimated and to be verified by Contractor.
  2. Full descriptions of Bid Alternates can be found in SECTION 012300 ALTERNATES and as shown in Project Plans.
  3. The construction contract operates on a lump sum basis. The bid documents contain a tabulation of major construction items intended to assist the Contractor in calculating their lump sum bid. However, some necessary work items may not be fully tabulated or estimated within these documents. It is the Contractor's responsibility to thoroughly review the Project Plans and supporting documents,

conduct necessary takeoffs, estimations, and other calculations to formulate the proposed lump sum bid accurately. The provided bid tabulation does not encompass a comprehensive itemized list of all work essential for project completion.

4. Unit prices will only be employed in the event of a change order, with pricing derived from the unit prices specified within these bid documents. The Contractor is accountable for itemizing and delineating the work required within each bid item labeled as 'Miscellaneous' or 'Misc.'
5. The following unit abbreviations are used throughout this manual for measurement purposes:
  - a. Each EA
  - b. Cubic Feet CF
  - c. Cubic Yard CY
  - d. Lineal Feet LF
  - e. Lump Sum LS
  - f. Square Feet SF
  - g. Square Yard SY

**B. BASE BID**

<b>ITEM NO.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT PRICE</b>	<b>TOTAL</b>
M1	MOBILIZATION & MISC WORK	LS	1		
M2	PERMITTING	LS	1		
A1	TEMPORARY TRAFFIC CONTROL	LS	1		
A2	TEMPORARY CONSTRUCTION FENCING	LS	1		
A3	SOIL EROSION AND POLLUTION CONTROL	LS	1		
A4	RECLAIM AND REUSE EXISTING ASPHALT	SY	21000		
A5	REUSE EXISTING GRAVEL	SY	300000		
A6	CLEARING AND GRUBBING	SF	60000		
A7	EARTHWORK	CY	11000		
A8	HAUL OFF/SPREAD EXISTING CUT MATERIAL	CY	6000		

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
A9	REMOVE TREES	EA	23		
A10	REMOVE EXISTING CURB & GUTTER	LF	350		
A11	REMOVE CHAIN LINK FENCING	LF	2000		
A12	REMOVE & SALVAGE SIGNAGE	EA	24		
A13	REMOVE & SALVAGE FLAG POLES & PLAQUES	EA	3		
A14	REMOVE & SALVAGE MEMORIAL BRICKS	SF	310		
A15	REMOVE & SALVAGE LIGHT POLES (including wiring, conduit, base, etc.)	EA	35		
A16	REMOVE CONCRETE LIGHT POLE BASE	EA	15		
A17	REMOVE & SALVAGE EXISTING PIN DOWN CURBS	EA	11		
A18	SAWCUT EXISTING ASPHALT PAVEMENT	LF	1000		
A19	SAWCUT EXISTING CONCRETE	LF	500		
A20	REMOVE & RELOCATE FIRE HYDRANT (+ ductile iron extension)	EA	2		
A21	REMOVE BOLLARD	EA	12		
A22	REMOVE EXISTING PARKING DIVIDER FENCE	LF	1500		
A23	REMOVE EXISTING CONCRETE DRIVEWAY	SF	750		
A24	REMOVE & SALVAGE	EA	4		



ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
	EXISTING INLET				
A25	REMOVE LANDSCAPE WALL	LF	200		
A26	REMOVE CONCRETE STEPS & RAILING	EA	1		
A27	MISC. DEMOLITION WORK	EA	1		
A28	LANDSCAPE ROCK/GRAVEL MULCH	SF	13000		
A29	BASE STABILIZER TREATMENT PRODUCT (See Geotech Report)	LS	1		
A30	WOVEN GEOTEXTILE FABRIC (Mirafi 180N)	SF	560000		
A31	GRAVEL PARKING SECTION (3" Replacement of Asphalt)	SY	25400		
A32	ASPHALT PAVEMENT (light duty – 3")	SF	184000		
A33	ASPHALT PAVEMENT (heavy duty – 4")	SF	43364		
A34	PLAZA CONCRETE FLATWORK (heavy duty – 5" + fiber mesh additive)	SF	103320		
A35	PLAZA CONCRETE FLATWORK (heavy duty – 6" + fiber mesh additive)	SF	0		
A36	CONCRETE SIDEWALK	SF	1580		
A37	INSTALL CURB & GUTTER	LF	5800		
A38	INSTALL SOLID INLET COVER	EA	3		
A39	INSTALL HEEL PROOF INLET	EA	3		

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
A40	INSTALL CONCRETE VALLEY GUTTER (4' Wide)	LF	577		
A41	INSTALL CONCRETE VALLEY GUTTER (2' Wide)	LF	35		
A42	CONCRETE DRIVEWAY APPROACH (Traffic-rated pad)	EA	1		
A43	INSTALL CONCRETE WHEEL STOPS	EA	31		
A44	INSTALL REMOVABLE BOLLARDS	EA	62		
A45	INSTALL ADA PARKING SIGN & PAVEMENT MARKING	EA	31		
A46	INSTALL CHAIN LINK FENCE	LF	400		
A47	INSTALL NEW MONUMENT SIGN	EA	4		
A48	PERMANENT PAVEMENT MARKINGS ~ 4" STRIPING	LF	22000		
A49	CHAMBER SYSTEM (Lot 20)	CF	3589		
A50	CHAMBER SYSTEM (Lot 25)	CF	4685		
A51	STORM DRAIN STRUCTURE + INLET + ENVIROHOOD	EA	13		
A52	ADJUST EXISTING UTILITIES TO GRADE	EA	51		
A53	UPGRADE EXISTING UTILITIES WITHIN TRAVEL WAY TO BE TRAFFIC RATED	EA	51		

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
A54	ELECTRICAL SYSTEM	LS	1		
A55	12" HDPE STORM DRAIN PIPE	LF	1070		
A56	18" HDPE STORM DRAIN PIPE	LF	75		
A57	BIKE RACKS	EA	13		
A58	LANDSCAPE IRRIGATION	LS	1		
A59	TREES (Canopy, Evergreen, Ornamental)	EA	21		
A60	SHRUBS	EA	205		
A61	EDGING	LF	75		
A62	SEEDING & SOIL AMENDMENTS	LS	1		
A63	16" IRRIGATION VALVE	EA	1		
A64	4" HDPE IRRIGATION PIPE	LF	645		
A65	LANDSCAPE BOULDERS	EA	72		
A66	MISC. WORK	LS	1		
A67	SUBGRADE STABILIZATION	SF	30,000		

1

C. BID ALTERNATE NO. 1:

CHANGED LINE-ITEM ESTIMATED QUANTITIES, AS A RESULT OF ALTERNATE NO. 1

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ADD/DEDUCT
A31	GRAVEL PARKING SECTION (3" Replacement of Asphalt)	SY	25400		DEDUCTION
A32	ASPHALT PAVEMENT (Light Duty – 3")	SF	159,500		ADDITION

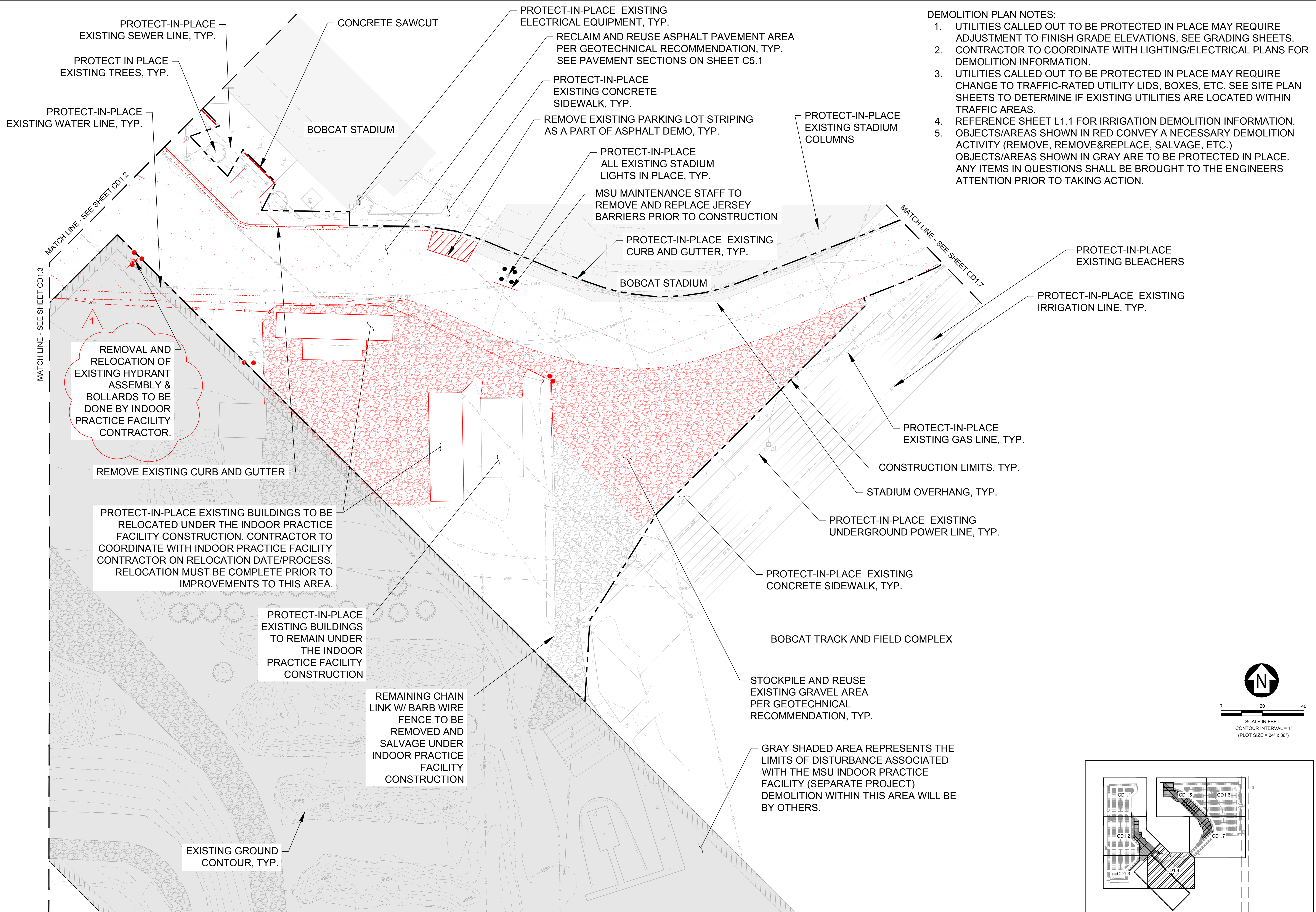
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ADD/DEDUCT
A33	ASPHALT PAVEMENT (Heavy Duty – 4")	SF	68,936		ADDITION
A48	PERMANENT PAVEMENT MARKINGS – 4" STRIPING	LF	23000		ADDITION

D. BID ALTERNATE NO. 2:

CHANGED LINE-ITEM ESTIMATED QUANTITIES, AS A RESULT OF ALTERNATE NO. 2

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	ADD/DEDUCT
A34	PLAZA CONCRETE FLATWORK (Heavy duty 5" + fiber mesh additive)	SF	103320		DEDUCTION
A35	PLAZA CONCRETE FLATWORK (Heavy duty 6" + fiber mesh additive)	SF	103320		ADDITION

END OF SECTION 012200



- DEMOLITION PLAN NOTES:**
1. UTILITIES CALLED OUT TO BE PROTECTED IN PLACE MAY REQUIRE ADJUSTMENT TO FINISH GRADE ELEVATIONS. SEE GRADING SHEETS.
  2. CONTRACTOR TO COORDINATE WITH LIGHTING/ELECTRICAL PLANS FOR DEMOLITION INFORMATION.
  3. UTILITIES CALLED OUT TO BE PROTECTED IN PLACE MAY REQUIRE CHANGE TO TRAFFIC-RATED UTILITY LIDS, BOXES, ETC. SEE SITE PLAN SHEETS TO DETERMINE IF EXISTING UTILITIES ARE LOCATED WITHIN TRAFFIC AREAS.
  4. REFERENCE SHEET L1.1 FOR IRRIGATION DEMOLITION INFORMATION.
  5. OBJECTS/AREAS SHOWN IN RED CONVEY A NECESSARY DEMOLITION ACTIVITY (REMOVE, REMOVE&REPLACE, SALVAGE, ETC.) OBJECTS/AREAS SHOWN IN GRAY ARE TO BE PROTECTED IN PLACE. ANY ITEMS IN QUESTIONS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO TAKING ACTION.

1  
REMOVAL AND RELOCATION OF EXISTING HYDRANT ASSEMBLY & BOLLARDS TO BE DONE BY INDOOR PRACTICE FACILITY CONTRACTOR.

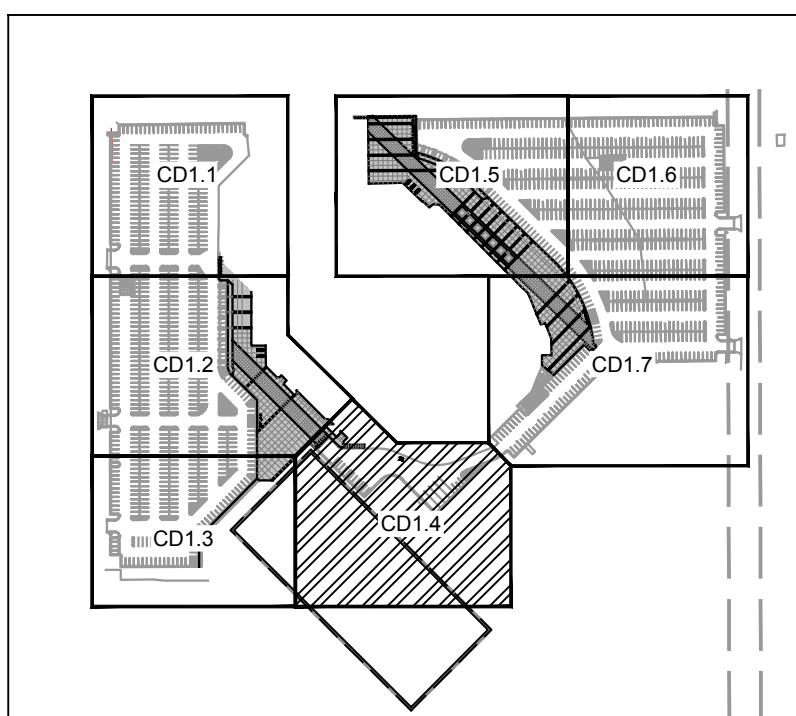
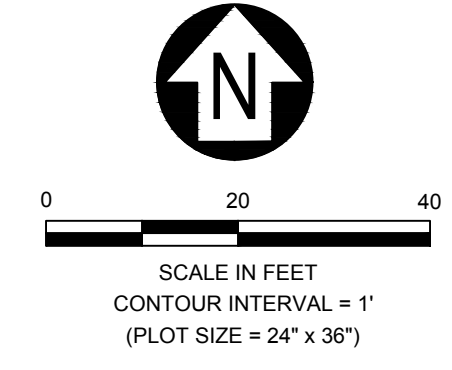
REMOVE EXISTING CURB AND GUTTER

PROTECT-IN-PLACE EXISTING BUILDINGS TO BE RELOCATED UNDER THE INDOOR PRACTICE FACILITY CONSTRUCTION. CONTRACTOR TO COORDINATE WITH INDOOR PRACTICE FACILITY CONTRACTOR ON RELOCATION DATE/PROCESS. RELOCATION MUST BE COMPLETE PRIOR TO IMPROVEMENTS TO THIS AREA.

PROTECT-IN-PLACE EXISTING BUILDINGS TO REMAIN UNDER THE INDOOR PRACTICE FACILITY CONSTRUCTION

REMAINING CHAIN LINK W/ BARB WIRE FENCE TO BE REMOVED AND SALVAGE UNDER INDOOR PRACTICE FACILITY CONSTRUCTION

EXISTING GROUND CONTOUR, TYP.



FINAL CD - FOR CONSTRUCTION



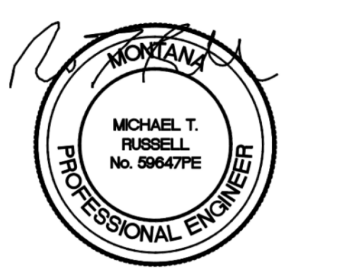
MSU-CPDC  
MONTANA STATE UNIVERSITY  
BOZEMAN, MONTANA  
PHONE: 406.994.5413  
FAX: 406.994.5665

# MSU Stadium Lots

Construction Documents



DRAWN BY: R. BAKKER		
REVIEWED BY: M. RUSSELL		
REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-2024

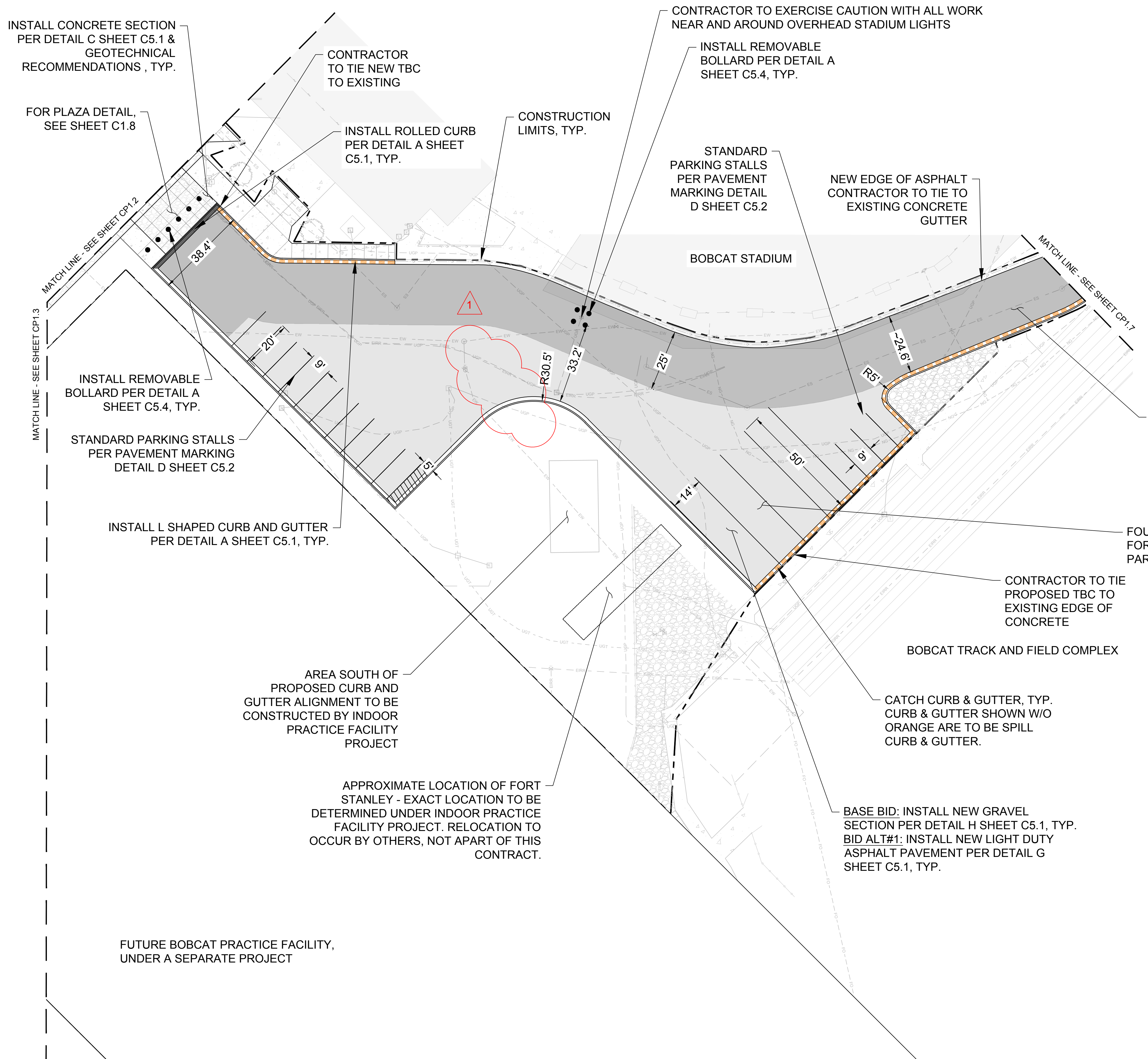


PPA#22-0012

SHEET TITLE  
SITE DEMOLITION  
PLAN 4

SHEET  
**CD1.4**

DATE  
3-27-2024



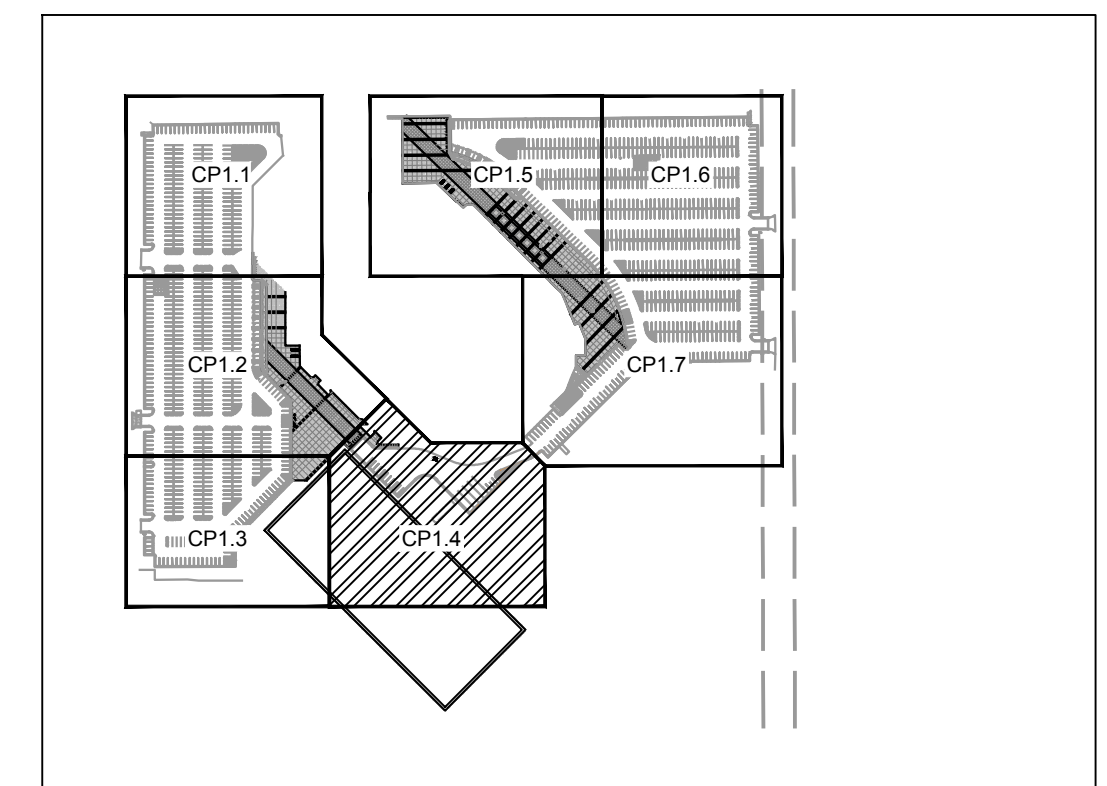
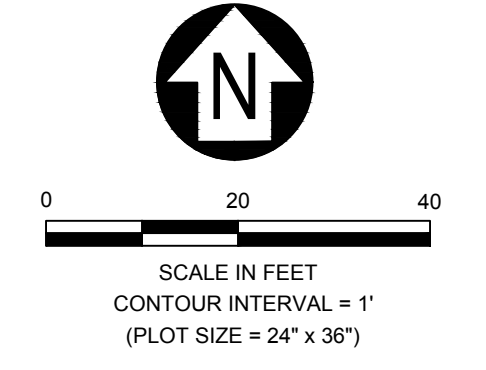
**SITE PLAN NOTES:**

1. WIDTH OF PARKING STALLS MEASURED AT NARROWEST POINT (ALONG FACE OF CURB FOR EXTERIOR PARKING STALLS AND ALONG EDGE OF DRIVE AISLE FOR INTERIOR PARKING STALLS).
2. CONTRACTOR TO EXERCISE CARE IN MINIMIZING DISTURBANCE TO LANDSCAPING BEYOND EDGE OF PROPOSED IMPROVEMENTS/PROJECT EXTENTS. CONTRACTOR TO PROVIDE PATCHING AND REPAIR OF LANDSCAPING, GRASS AREA(S), AND IRRIGATION. CONTRACTOR TO COORDINATE WITH MSU PRIOR TO DISTURBING ANY LANDSCAPED AREAS.
3. SEE SHEET GC1.3 FOR BID OVERVIEW INFORMATION.
4. CONTRACTOR TO FOLLOW GEOTECHNICAL RECOMMENDATIONS FOR PAVEMENT AND CONCRETE DESIGN. CONTRACTOR TO USE BASE ONE TREATED DESIGN. IF CONTRACTOR DOES NOT HAVE ENOUGH REUSED BASE MATERIAL FOR ENTIRE PROJECT, CONTRACTOR SHALL RECEIVE APPROVAL BEFORE USING THE ALTERNATIVE DESIGN WITH NEW CAC (CRUSHED AGGREGATE COURSE) BASE MATERIAL.

BASE BID: INSTALL NEW GRAVEL SECTION PER DETAIL H SHEET C5.1, TYP.  
 BID ALT#1: INSTALL HEAVY DUTY ASPHALT PAVEMENT PER DETAIL F SHEET C5.1, TYP.

FOUR BUS PARKING STALLS FOR HEAD-IN OR BACK-IN PARKING, 14' X 50'

BASE BID: INSTALL NEW GRAVEL SECTION PER DETAIL H SHEET C5.1, TYP.  
 BID ALT#1: INSTALL NEW LIGHT DUTY ASPHALT PAVEMENT PER DETAIL G SHEET C5.1, TYP.



**MONTANA STATE UNIVERSITY**

MSU-CPDC

MONTANA STATE UNIVERSITY  
 BOZEMAN, MONTANA  
 PHONE: 406.994.5413  
 FAX: 406.994.5665

**MSU Stadium Lots**  
 Construction Documents

**D&D**

406.721.4320  
 220 W Laramie, Ste 1D  
 Bozeman, MT 59715  
 djanda.com

DRAWN BY: R. BAKKER  
 REVIEWED BY: M. RUSSELL

REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24

**MICHAEL T. RUSSELL**  
 No. 89447E  
 PROFESSIONAL ENGINEER

PPA#22-0012  
 A/E#00-00-00

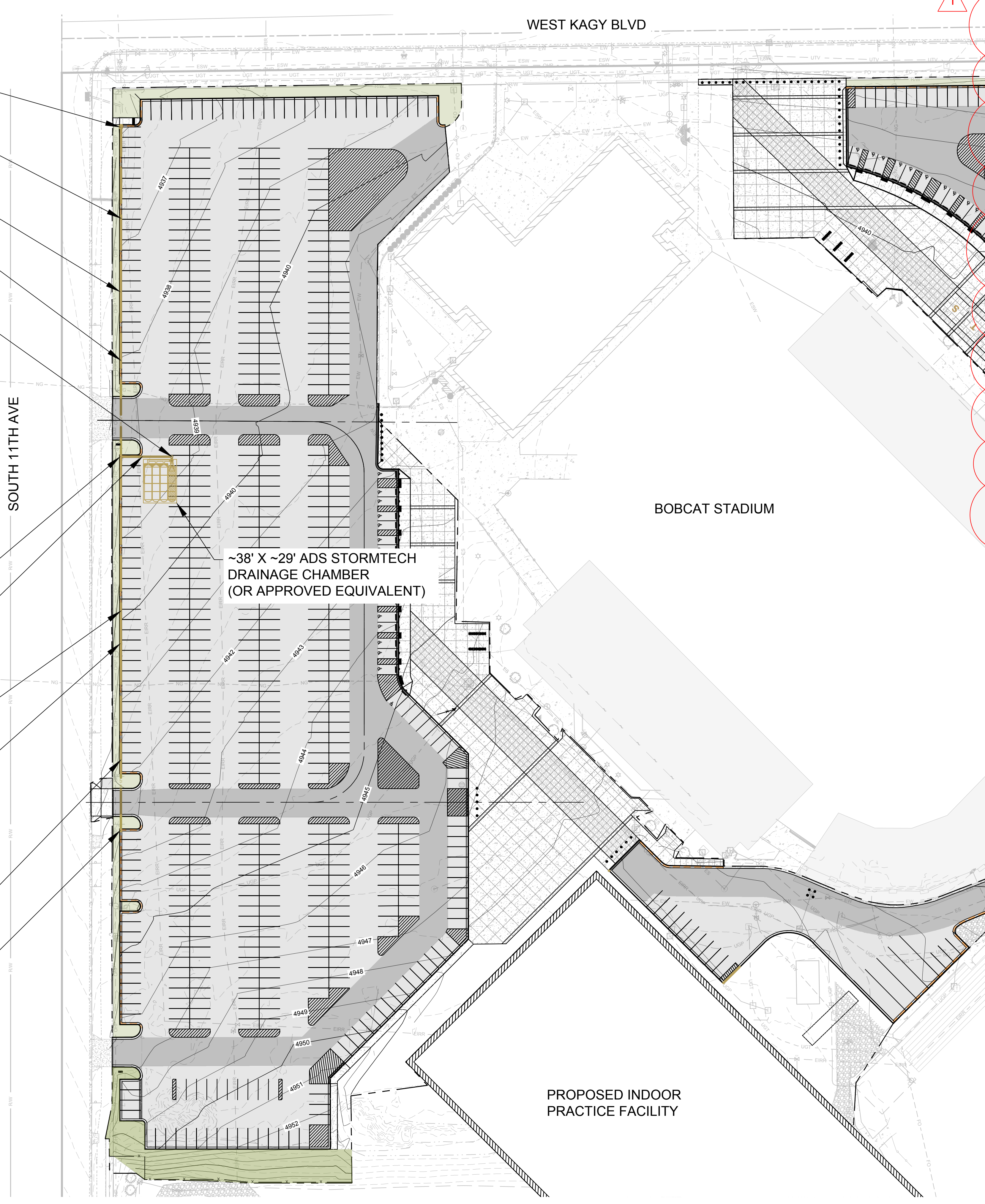
SHEET TITLE  
 SITE PLAN 4

SHEET  
**CP1.4**

DATE  
 3-27-2024

MONTANA STATE UNIVERSITY - 1000 S. GARDEN AVENUE, BOZEMAN, MT 59717-3100  
 406.994.5413 | www.msu.edu | 406.994.5665

CURB INLET CATCH BASIN  
 ~145 LF OF 12" Ø HDPE STORM PIPE  
 CURB INLET CATCH BASIN  
 ~145 LF OF 12" Ø HDPE STORM PIPE  
 DRAIN BASIN WITH SOLID COVER  
 SOUTH 11TH AVE  
 ~38' X ~29' ADS STORMTECH DRAINAGE CHAMBER (OR APPROVED EQUIVALENT)  
 CURB INLET CATCH BASIN  
 ~45 LF OF 18" Ø HDPE STORM PIPE  
 ~164 LF OF 12" Ø HDPE STORM PIPE  
 CURB INLET CATCH BASIN  
 ~164 LF OF 12" Ø HDPE STORM PIPE  
 CURB INLET CATCH BASIN



- UTILITY PLAN NOTES:**
1. EXISTING MANHOLES AND VALVES LOCATED WITHIN NEW CONCRETE OR ASPHALT AREAS WILL NEED TO BE ADJUSTED TO PROPOSED GRADE. SEE GRADING PLAN AND DETAIL A SHEET C5.3.
  2. PROVIDE A MINIMUM OF 1' SUMP DEPTH IN ALL INLETS.
  3. INSTALL NYOPLAST ENVIROHOOD STRUCTURE OR APPROVED EQUIVALENT IN ALL INLETS. SEE SHEET C5.6.
  4. ENSURE ALL UTILITY STRUCTURES (STORM INLETS, JUNCTION BOXES, ETC.) WITHIN THE PROPOSED TRAVEL WAY (I.E. PARKING LOT) ARE TRAFFIC RATED.
  5. GRAVITY UTILITIES SHALL TAKE PRECEDENCE OVER DRY UTILITIES. CONTRACTOR MAY NEED TO RELOCATE (RAISE, LOWER, REALIGN) SOME DRY UTILITIES TO AVOID CONFLICTS WITH GRAVITY UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF ANY UTILITY CONFLICT IS DISCOVERED AND DEEMED TO BE UNABLE TO FIELD FIT PER SPECIFICATIONS.
  6. CONTRACTOR TO VERIFY EXISTING CONDITIONS OF ALL STORM INFRASTRUCTURE (PIPES, STRUCTURES, ETC.) PRIOR TO TIE IN.
  7. **IMPORTANT:** CONTRACTOR TO ENSURE THAT THE BOTTOM OF CHAMBER SYSTEM STONE INTERFACES WITH EXISTING FREE FLOWING STRATA. THIS WILL REQUIRE THE EXCAVATION OF AN EXISTING CLAY LENSE WITH BACKFILL OF SUITABLE FREE-FLOWING, OPEN-GRADED GRANULAR MATERIALS. SEE GEOTECHNICAL RECOMMENDATIONS.

FINAL CD - FOR CONSTRUCTION

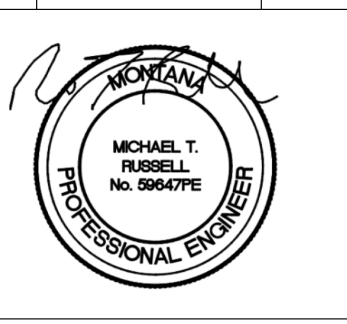


MSU-CPDC  
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 FAX: 406.994.5665

**MSU Stadium Lots**  
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REVIEWED BY: M. RUSSELL		
REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24

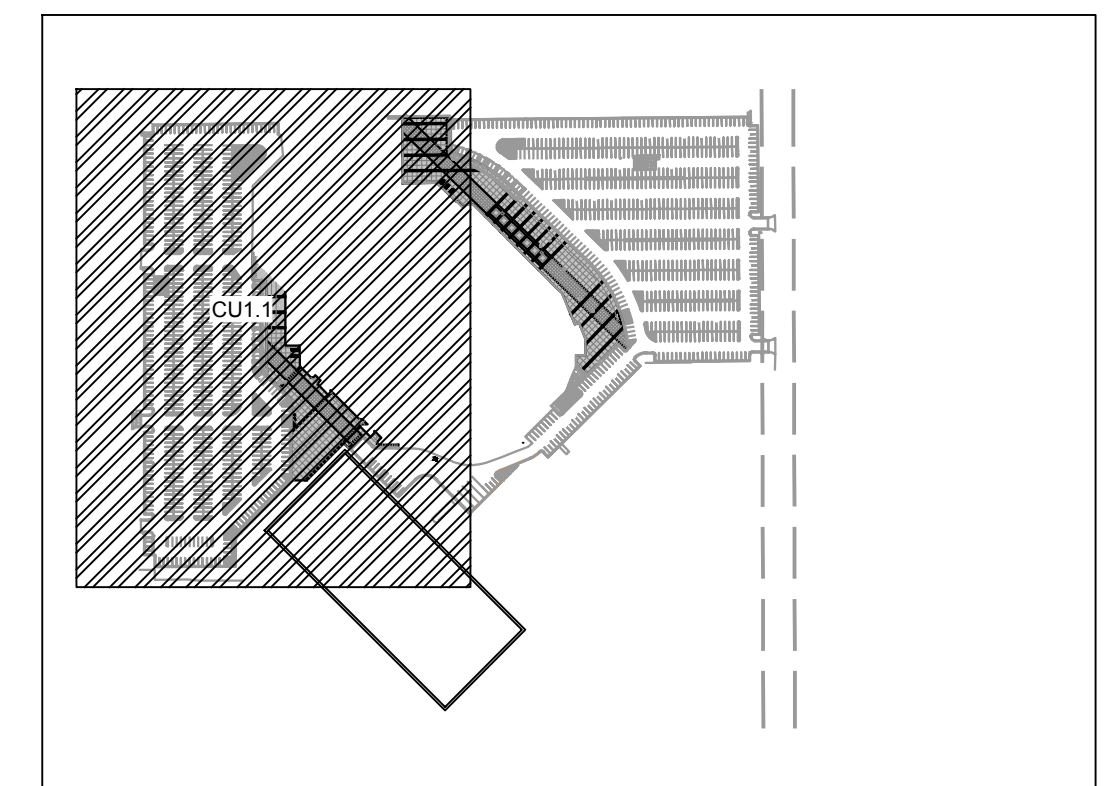


PPA#22-0012

SHEET TITLE  
 UTILITY OVERVIEW  
 1

SHEET  
**CU1.1**

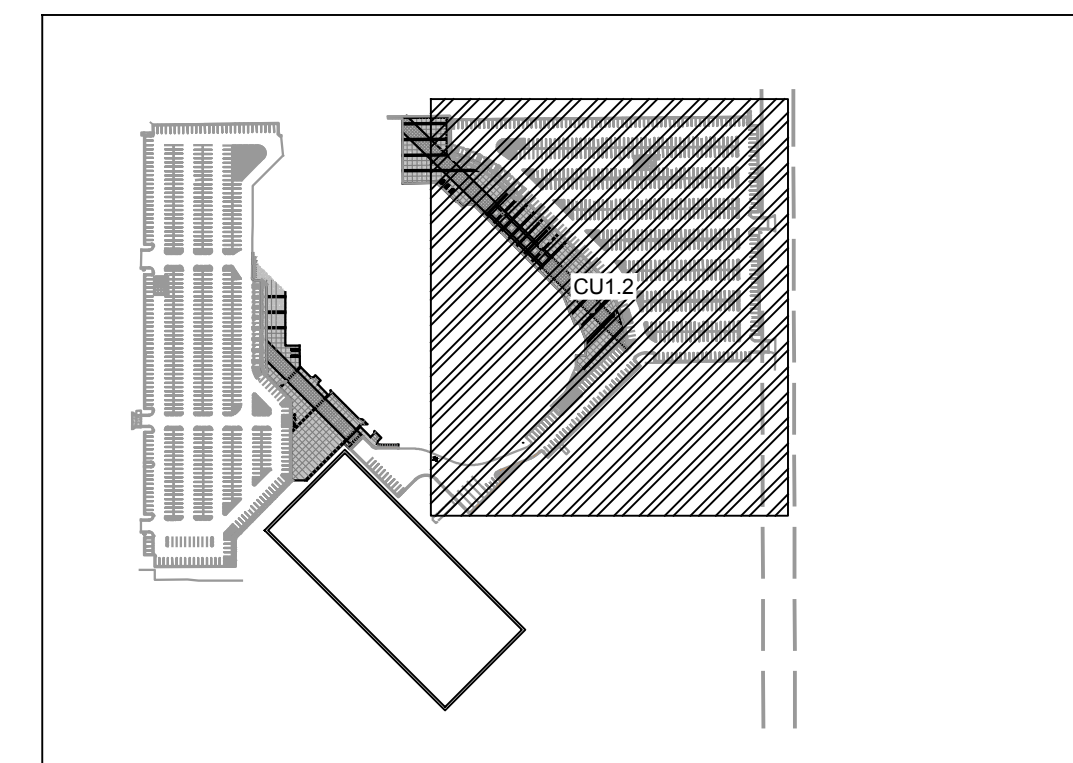
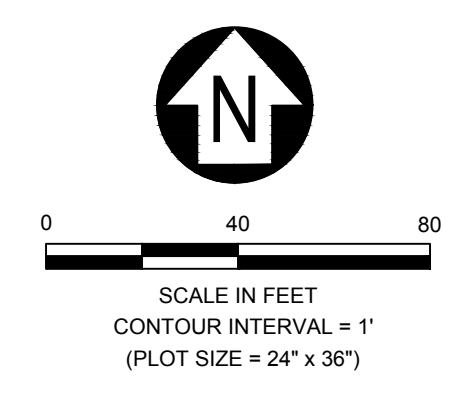
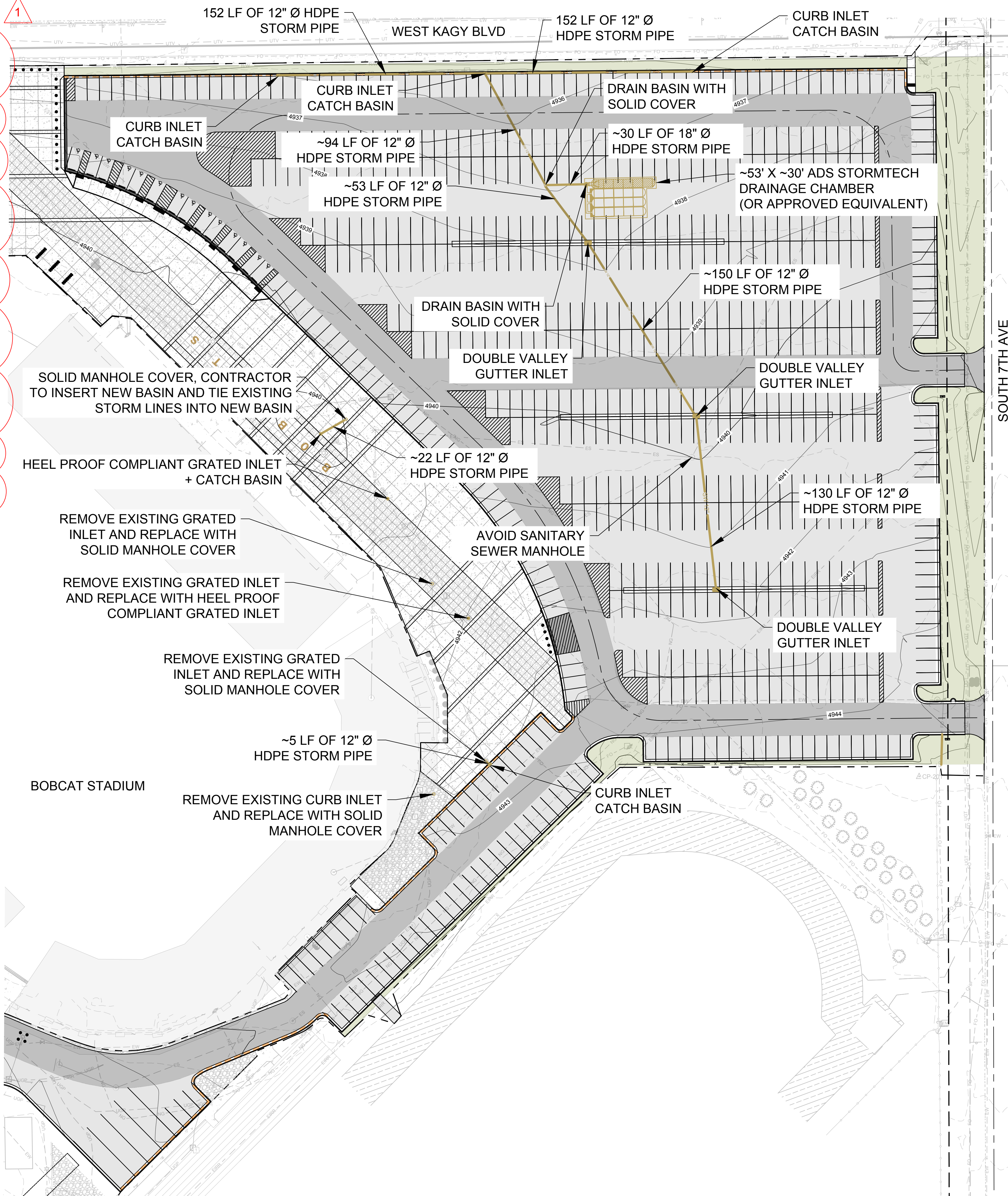
DATE  
 3-27-2024



MSU 2024-2025 Stadium Lots - Stormwater Management Plan - Final CD - For Construction

**UTILITY PLAN NOTES:**

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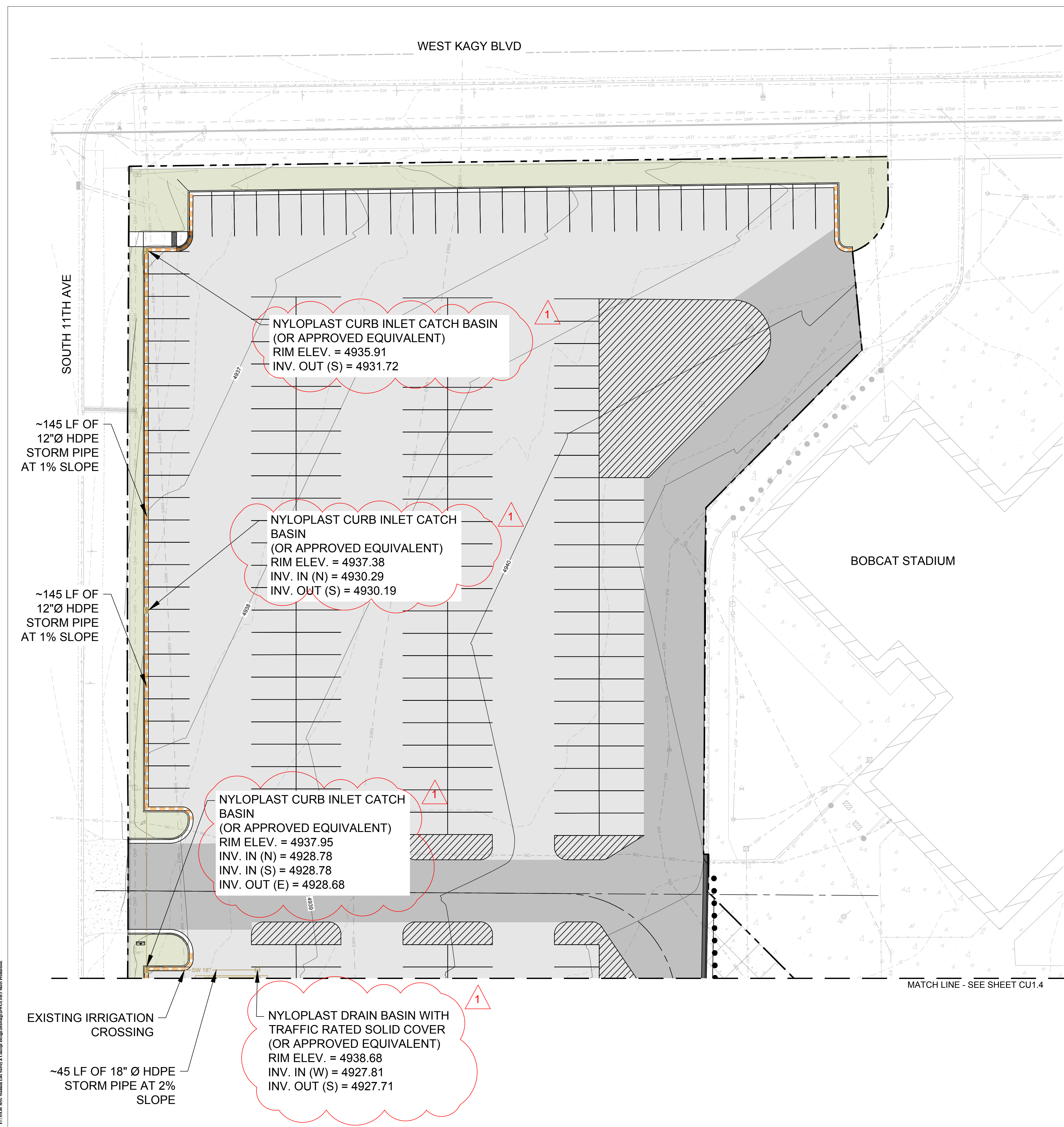
SHEET TITLE  
 UTILITY OVERVIEW  
 2

SHEET  
**CU1.2**

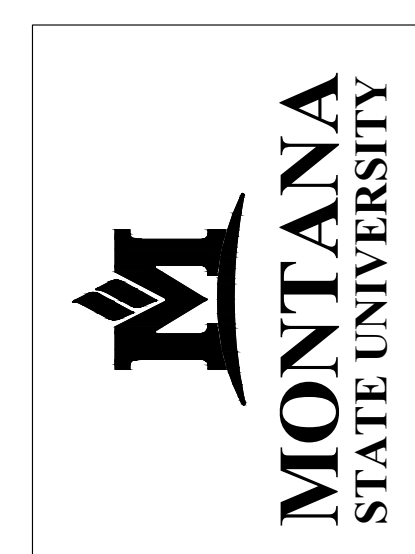
DATE  
 3-27-2024

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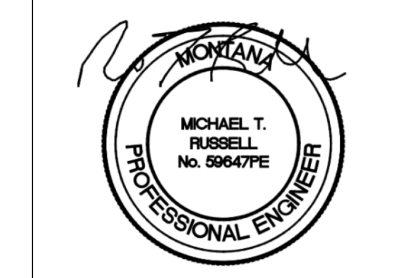


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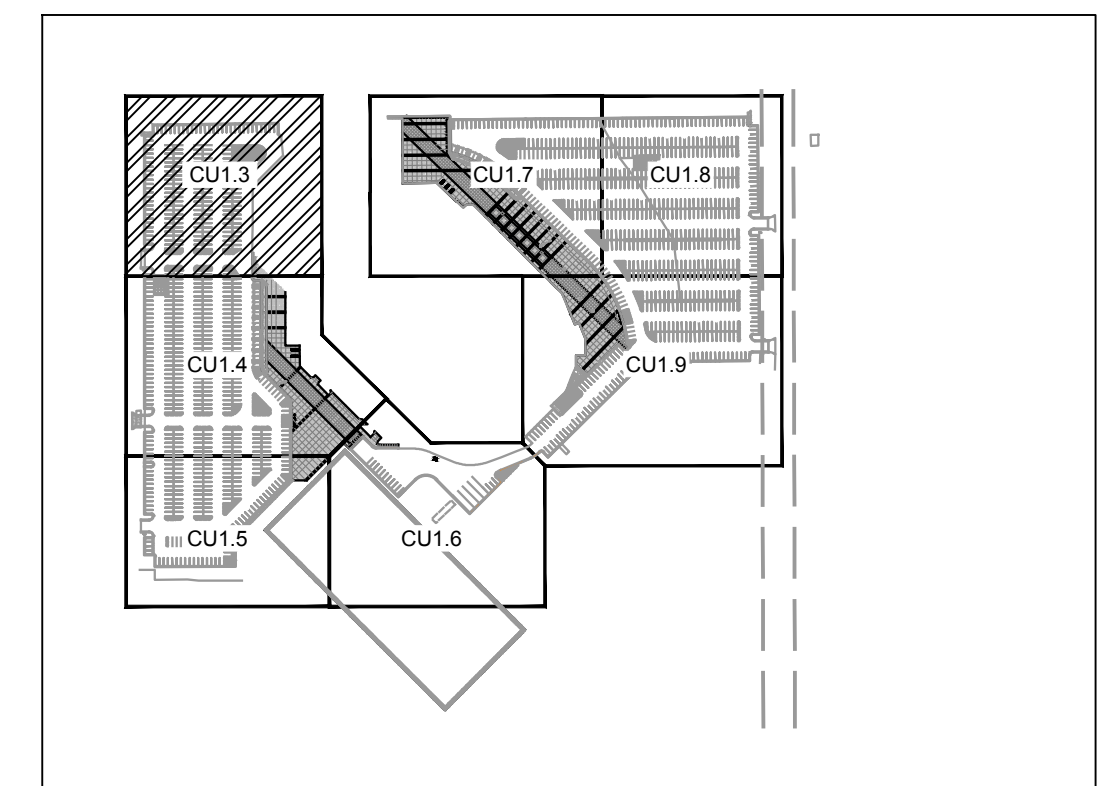
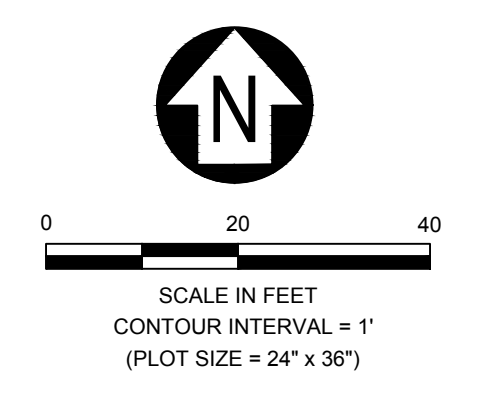


PPA#22-0012

SHEET TITLE  
 UTILITY PLAN 1

SHEET  
**CU1.3**

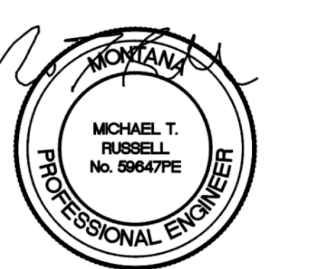
DATE  
 3-27-2024



FINAL CD - FOR CONSTRUCTION

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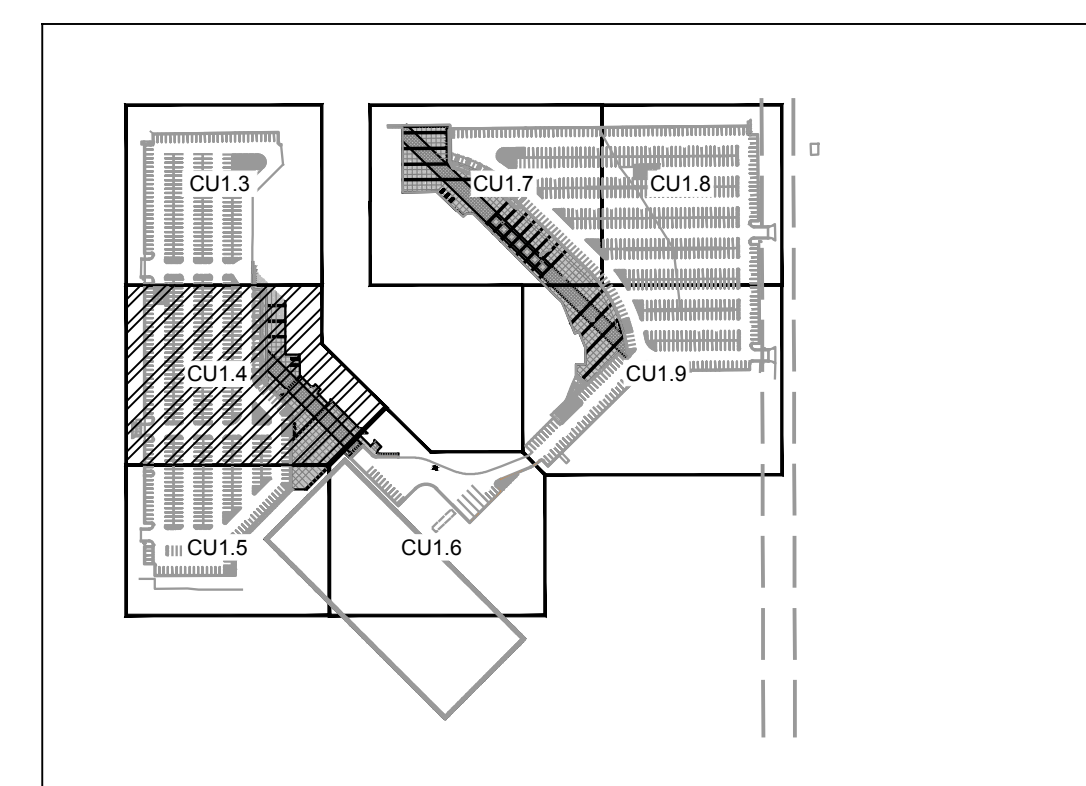
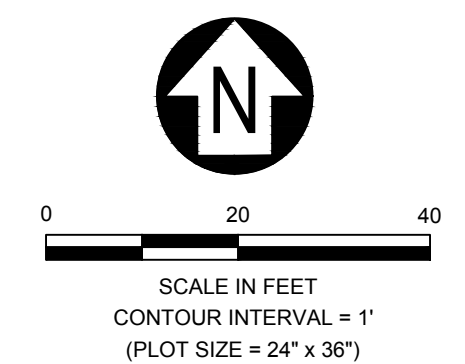
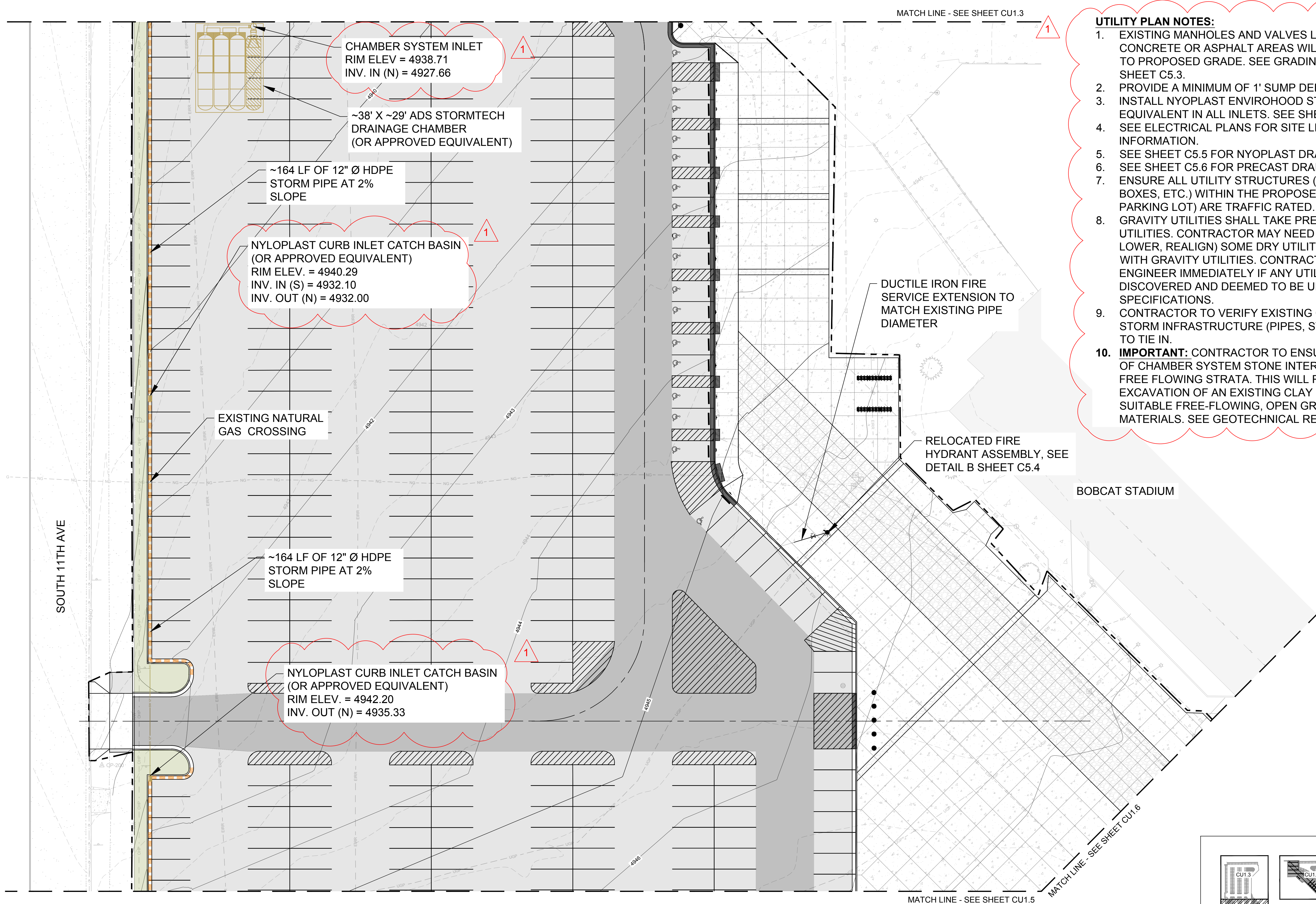
SHEET TITLE  
UTILITY PLAN 2

SHEET  
**CU1.4**

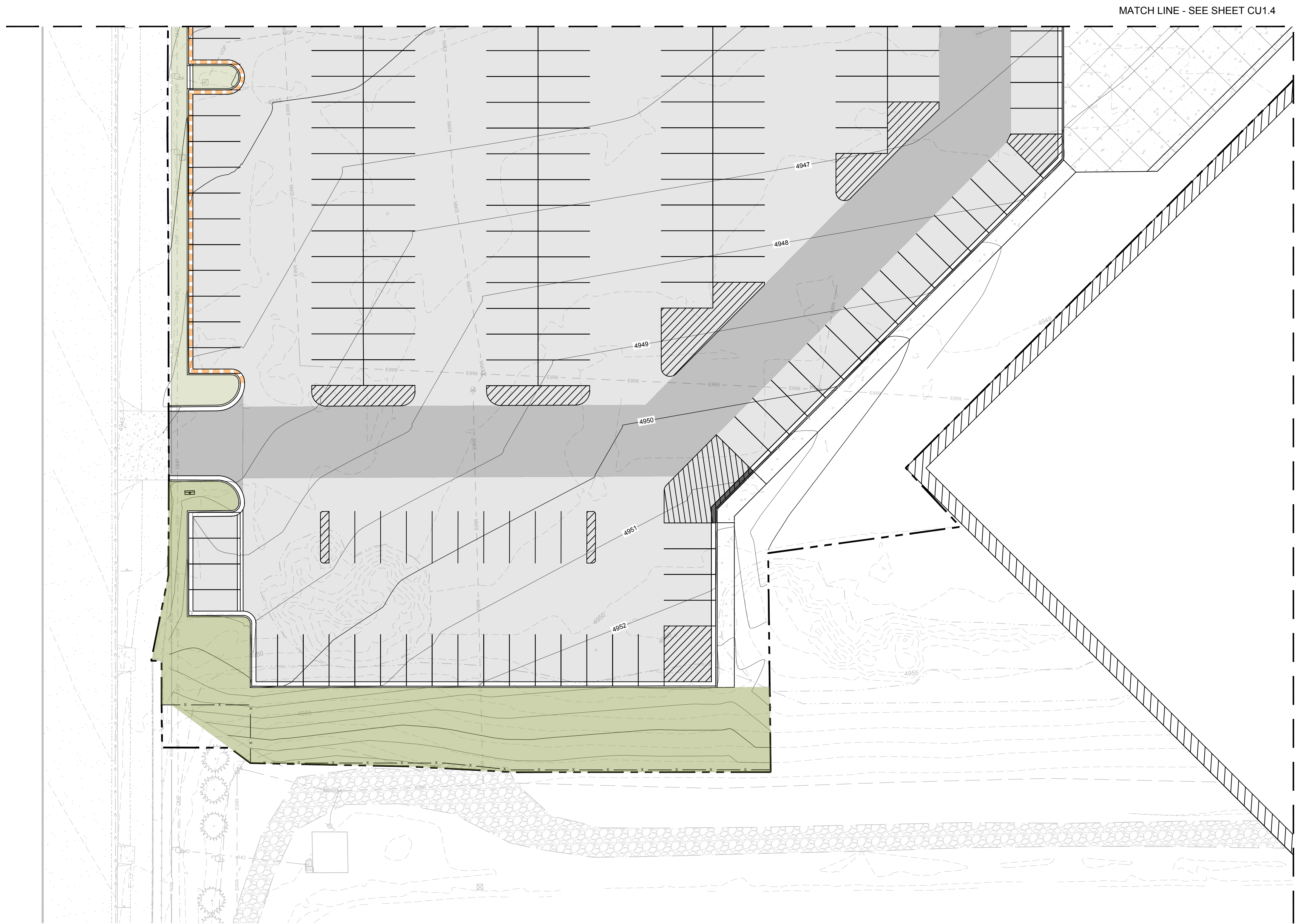
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**UTILITY PLAN NOTES:**

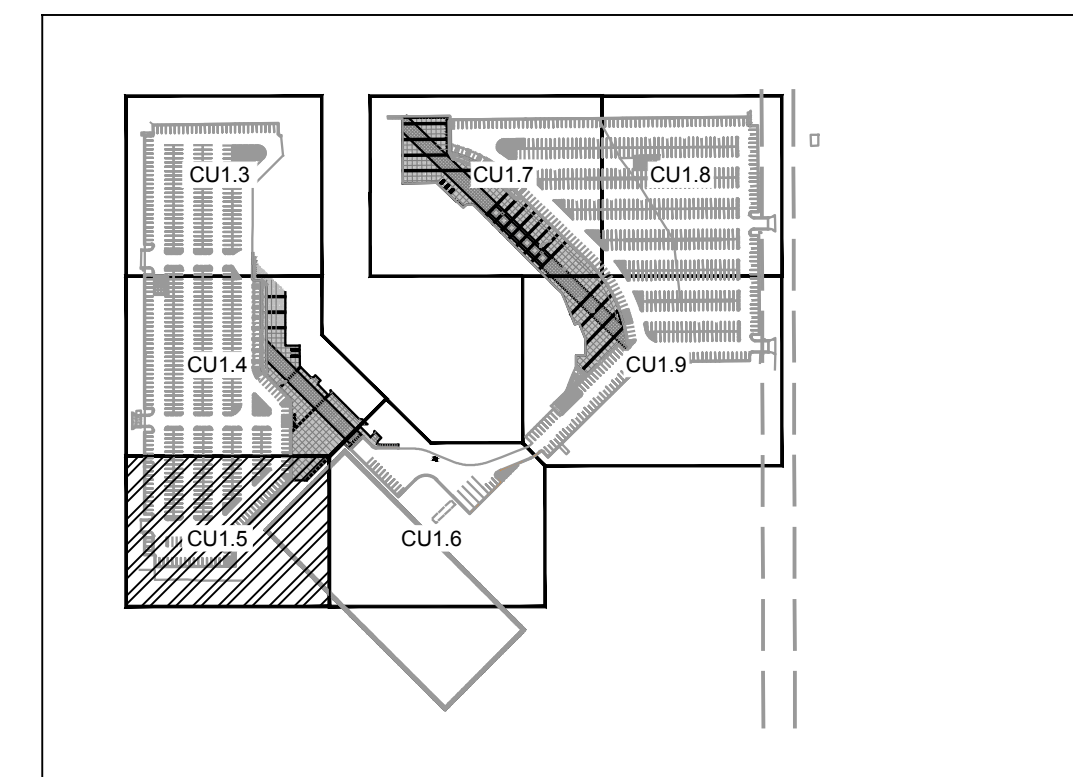
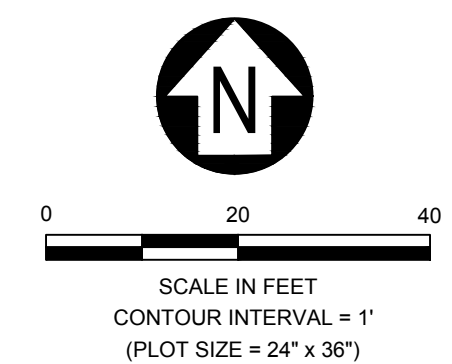
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 BOZEMAN, MONTANA 59717-3000  
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**NO UTILITY INFRASTRUCTURE IS PROPOSED ON THIS SHEET.**



1

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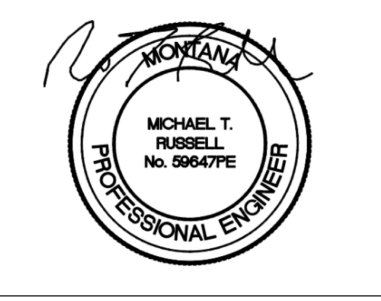
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BOZEMAN, MONTANA  
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Construction Documents



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REVIEWED BY: M. RUSSELL

REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24



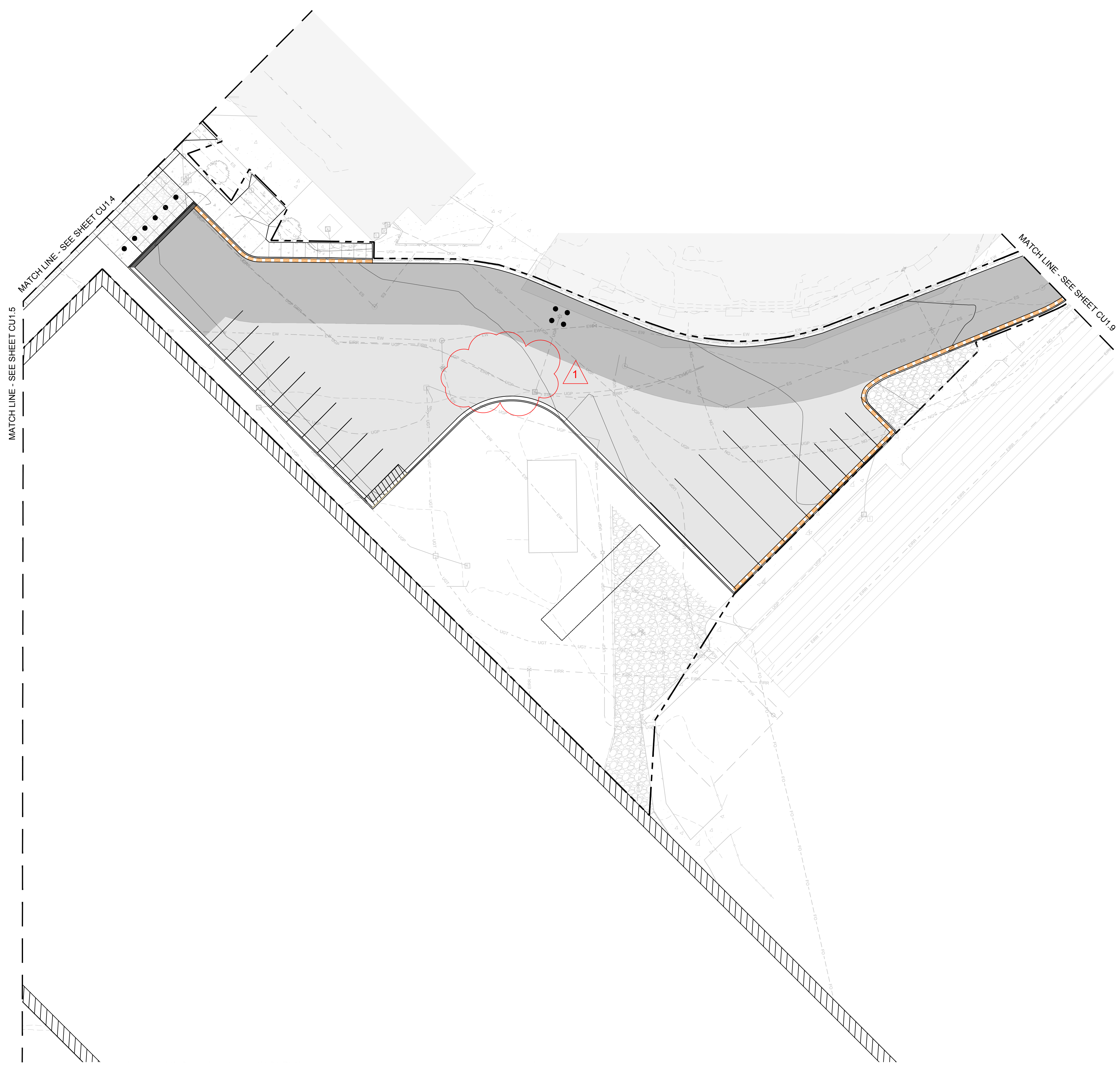
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SHEET TITLE  
UTILITY PLAN 3

SHEET  
**CU1.5**

DATE  
3-27-2024

MSU 2024 Stadium Lots - Utility Plan 3 - Final CD - For Construction



1

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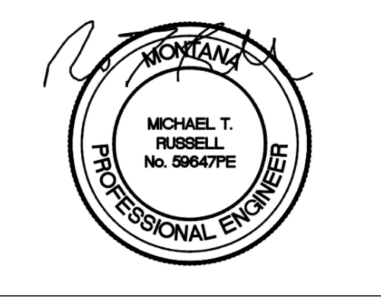
**MSU Stadium Lots**  
 Construction Documents

FINAL CD - FOR CONSTRUCTION

**D&D**  
 406.721.4320  
 220 W Lammie, Ste 1D  
 Bozeman, MT 59715  
 djanda.com

DRAWN BY: R. BAKKER  
 REVIEWED BY: M. RUSSELL

REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24

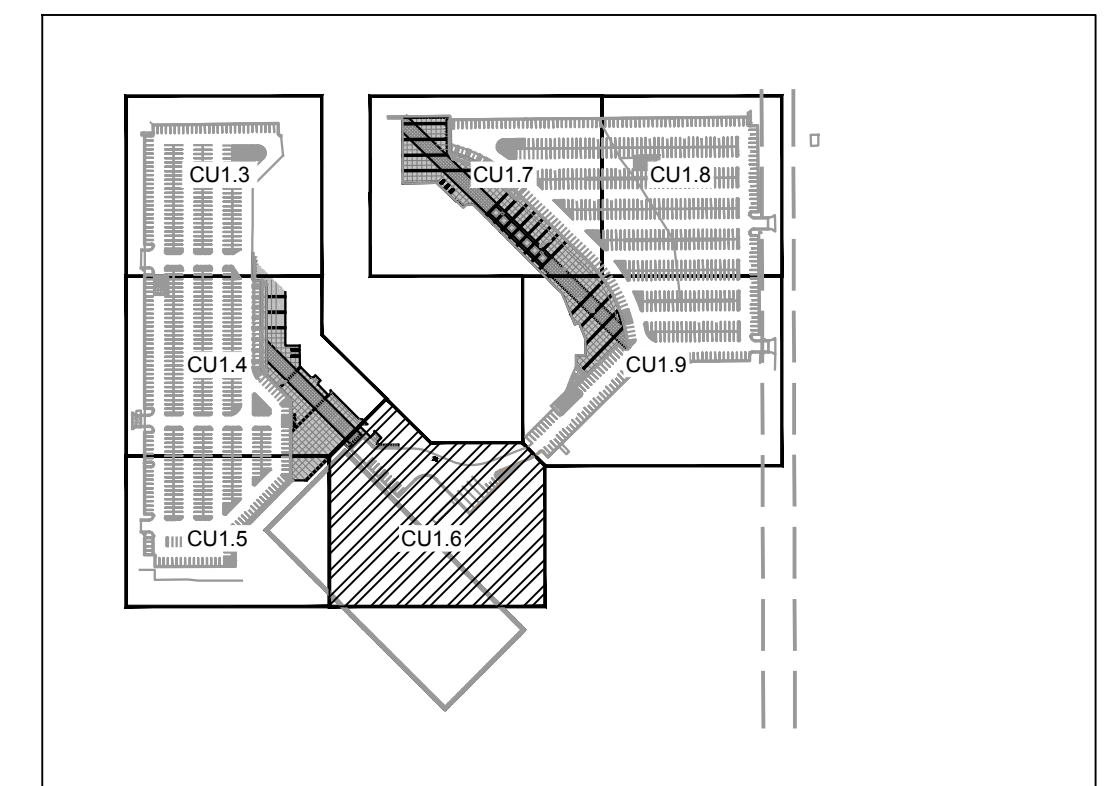
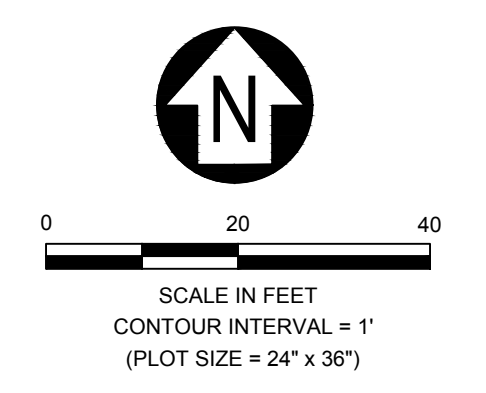


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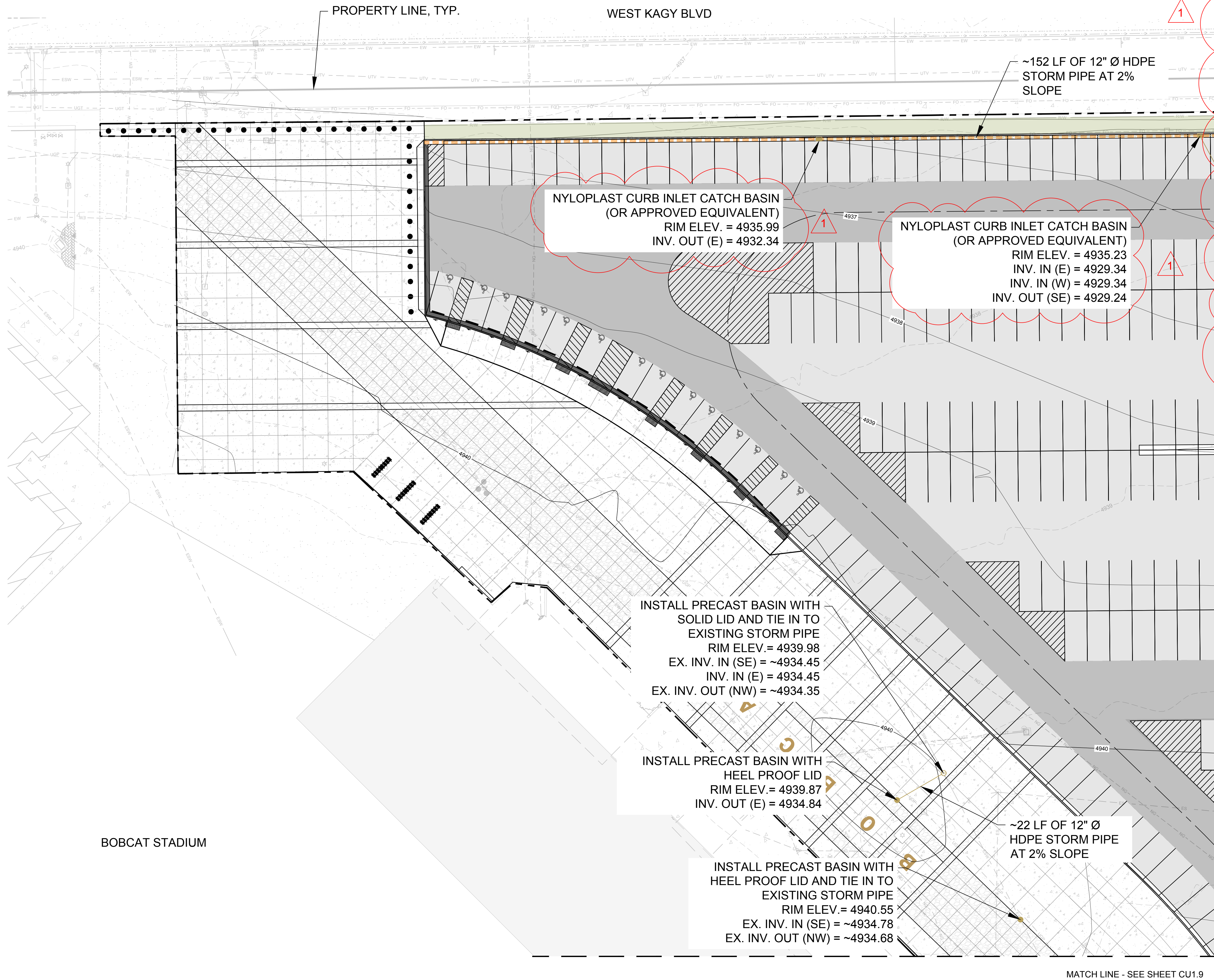
SHEET TITLE  
 UTILITY PLAN 4

SHEET  
**CU1.6**

DATE  
 3-27-2024

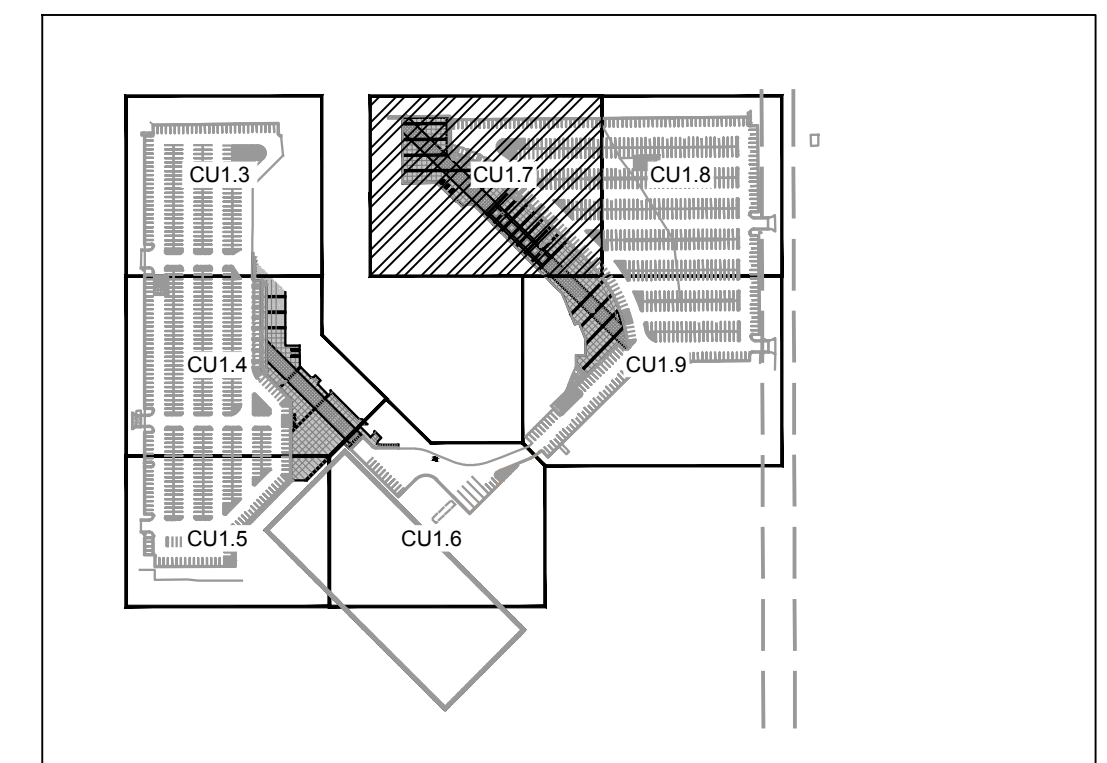
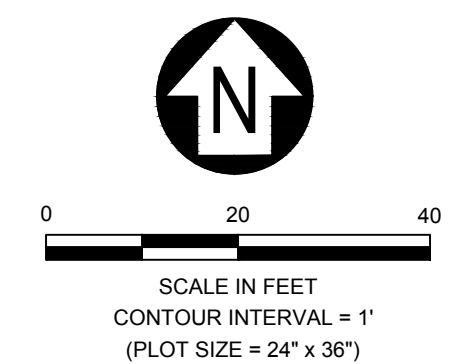


MSU 2024 Stadium Lots - UTILITY PLAN 4 - CONSTRUCTION DOCUMENTS - 3/27/24



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BOBCAT STADIUM



FINAL CD - FOR CONSTRUCTION



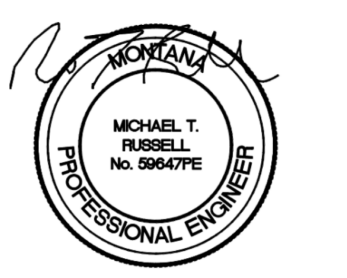
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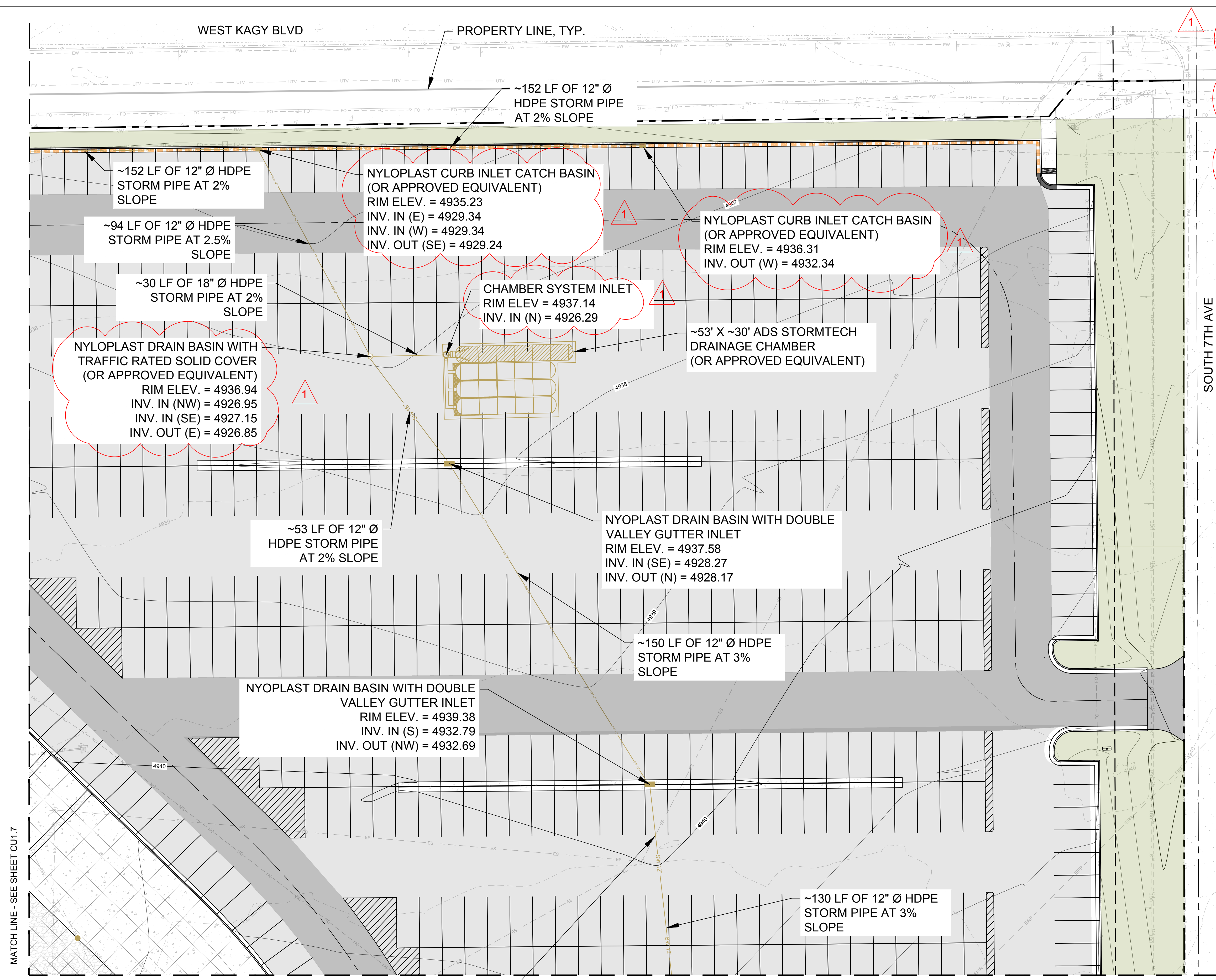


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SHEET TITLE  
UTILITY PLAN 5

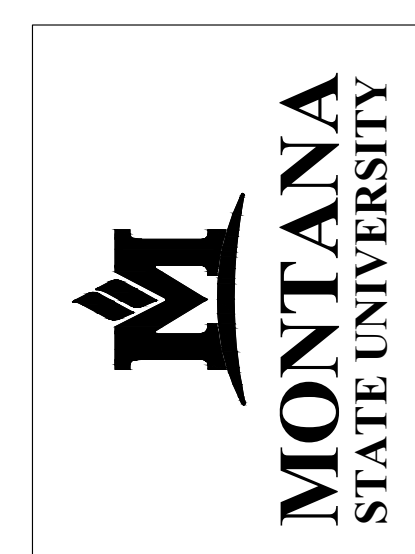
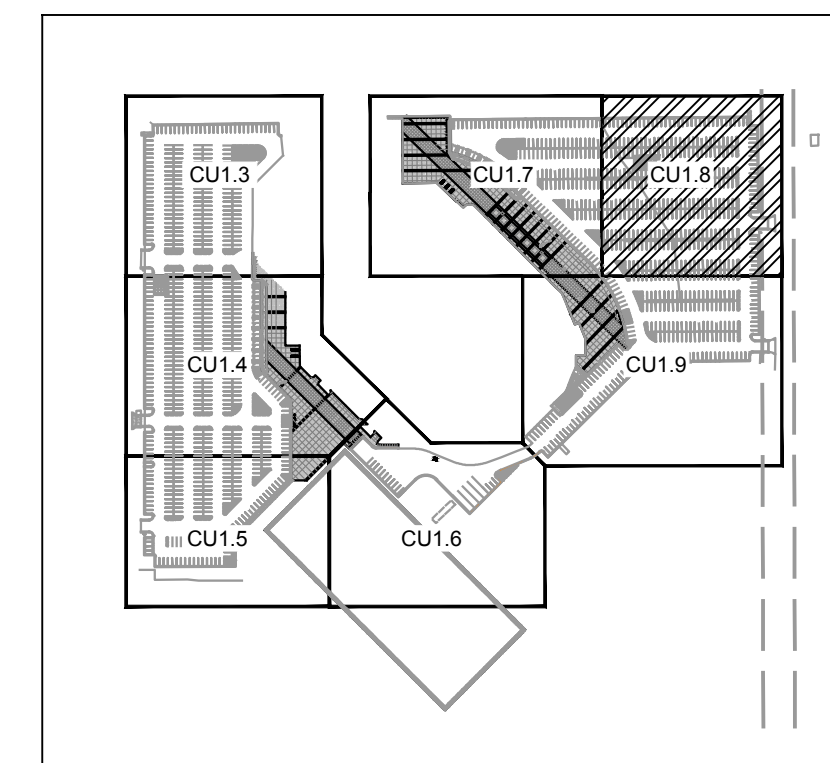
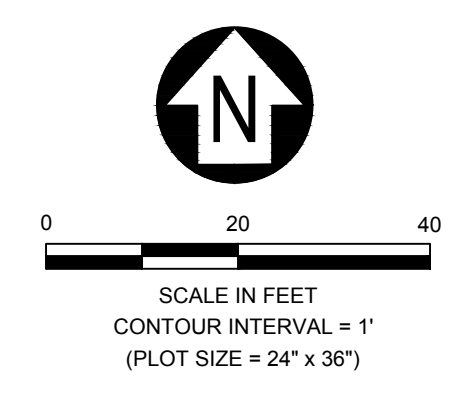
SHEET  
**CU1.7**

DATE  
3-27-2024



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EXISTING SANITARY SEWER CROSSING. TOPOGRAPHIC SURVEY INDICATES THAT THE CLEARANCE BETWEEN TOP OF SANITARY SEWER AND BOTTOM OF PROPOSED STORM DRAIN IS ~11". IF CONTRACTOR FINDS LESS SEPARATION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY. LESS THAN 10" OF CLEARANCE WILL WARRANT BACKFILLING WITH FLOWABLE FILL.



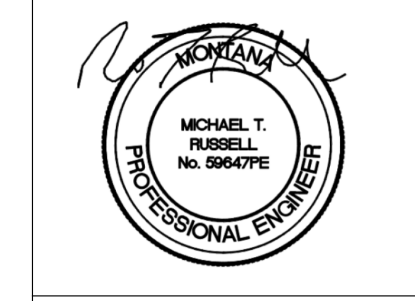
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BOZEMAN, MONTANA  
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**MSU Stadium Lots**  
Construction Documents

FINAL CD - FOR CONSTRUCTION



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REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24



PPA#22-0012

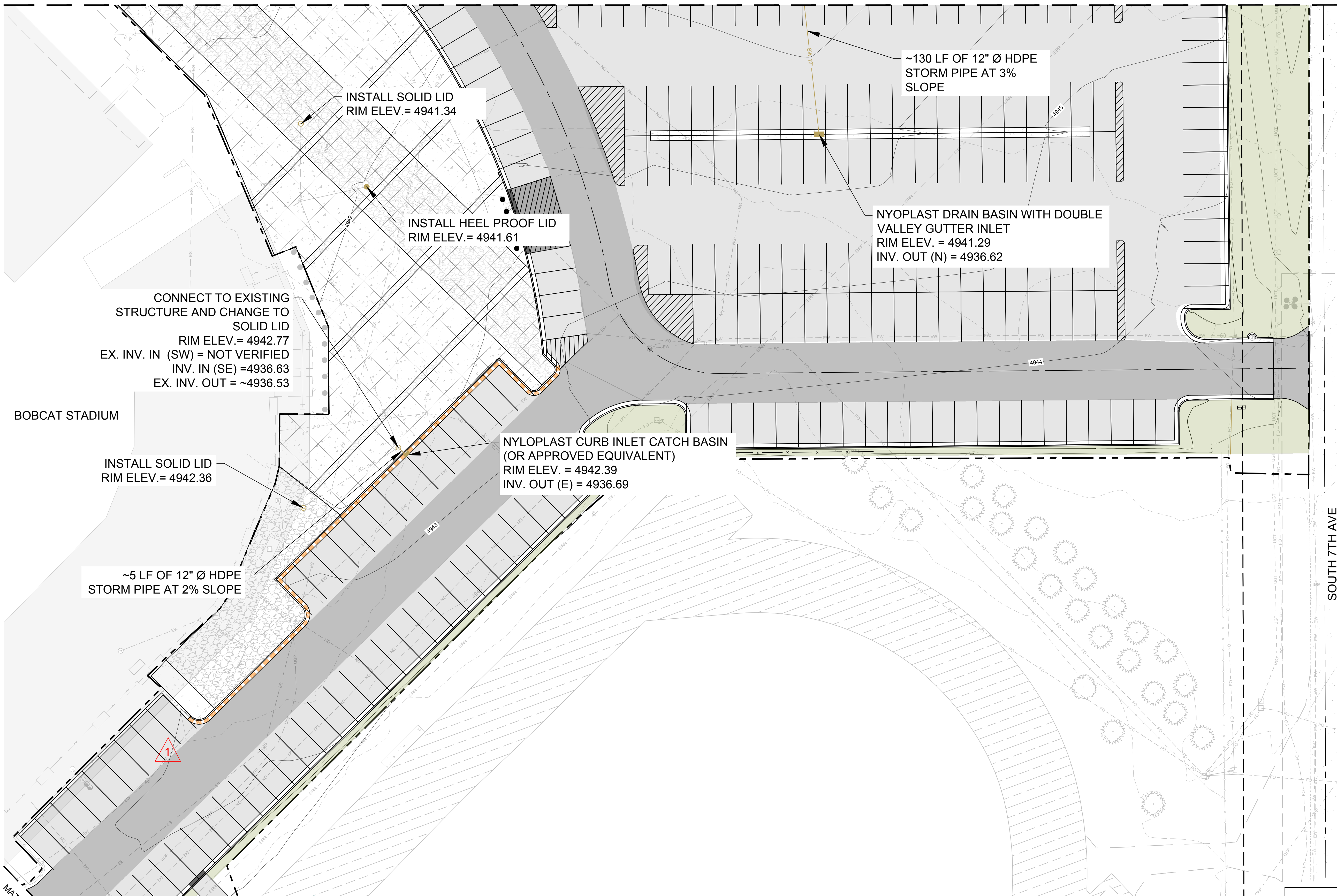
SHEET TITLE  
UTILITY PLAN 6

SHEET  
**CU1.8**

DATE  
3-27-2024

MATCH LINE - SEE SHEET CU1.7

MATCH LINE - SEE SHEET CU1.8



BOBCAT STADIUM

SOUTH 7TH AVE

~5 LF OF 12" Ø HDPE STORM PIPE AT 2% SLOPE

~130 LF OF 12" Ø HDPE STORM PIPE AT 3% SLOPE

NYOPLAST DRAIN BASIN WITH DOUBLE VALLEY GUTTER INLET  
RIM ELEV. = 4941.29  
INV. OUT (N) = 4936.62

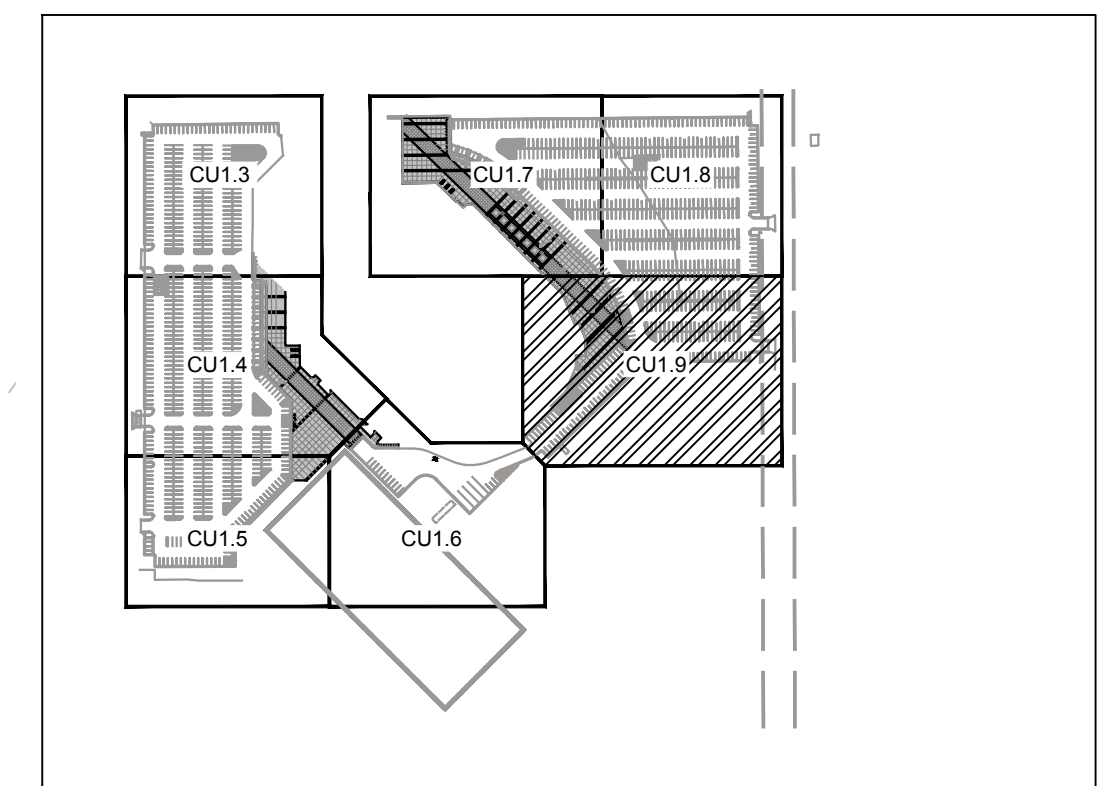
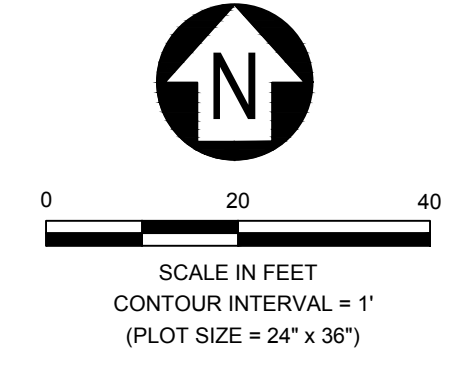
NYOPLAST CURB INLET CATCH BASIN (OR APPROVED EQUIVALENT)  
RIM ELEV. = 4942.39  
INV. OUT (E) = 4936.69

CONNECT TO EXISTING STRUCTURE AND CHANGE TO SOLID LID  
RIM ELEV. = 4942.77  
EX. INV. IN (SW) = NOT VERIFIED  
INV. IN (SE) = 4936.63  
EX. INV. OUT = ~4936.53

INSTALL SOLID LID  
RIM ELEV. = 4942.36

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- PROVIDE A MINIMUM OF 1' SUMP DEPTH IN ALL INLETS.
- INSTALL NYOPLAST ENVIROHOOD STRUCTURE OR APPROVED EQUIVALENT IN ALL INLETS. SEE SHEET C5.6.
- SEE ELECTRICAL PLANS FOR SITE LIGHTING DESIGN & INFORMATION.
- SEE SHEET C5.5 FOR NYOPLAST DRAIN STRUCTURES.
- SEE SHEET C5.6 FOR PRECAST DRAIN STRUCTURES
- ENSURE ALL UTILITY STRUCTURES (STORM INLETS, JUNCTION BOXES, ETC.) WITHIN THE PROPOSED TRAVEL WAY (I.E. PARKING LOT) ARE TRAFFIC RATED.
- GRAVITY UTILITIES SHALL TAKE PRECEDENCE OVER DRY UTILITIES. CONTRACTOR MAY NEED TO RELOCATE (RAISE, LOWER, REALIGN) SOME DRY UTILITIES TO AVOID CONFLICTS WITH GRAVITY UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF ANY UTILITY CONFLICT IS DISCOVERED AND DEEMED TO BE UNABLE TO FIELD FIT PER SPECIFICATIONS.
- CONTRACTOR TO VERIFY EXISTING CONDITIONS OF ALL STORM INFRASTRUCTURE (PIPES, STRUCTURES, ETC.) PRIOR TO TIE IN.



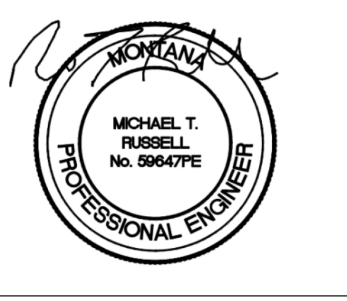
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**MSU Stadium Lots**  
Construction Documents

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REVIEWED BY: M. RUSSELL		
REV.	DESCRIPTION	DATE
1	ADDENDUM #1	03-27-24



PPA#22-0012

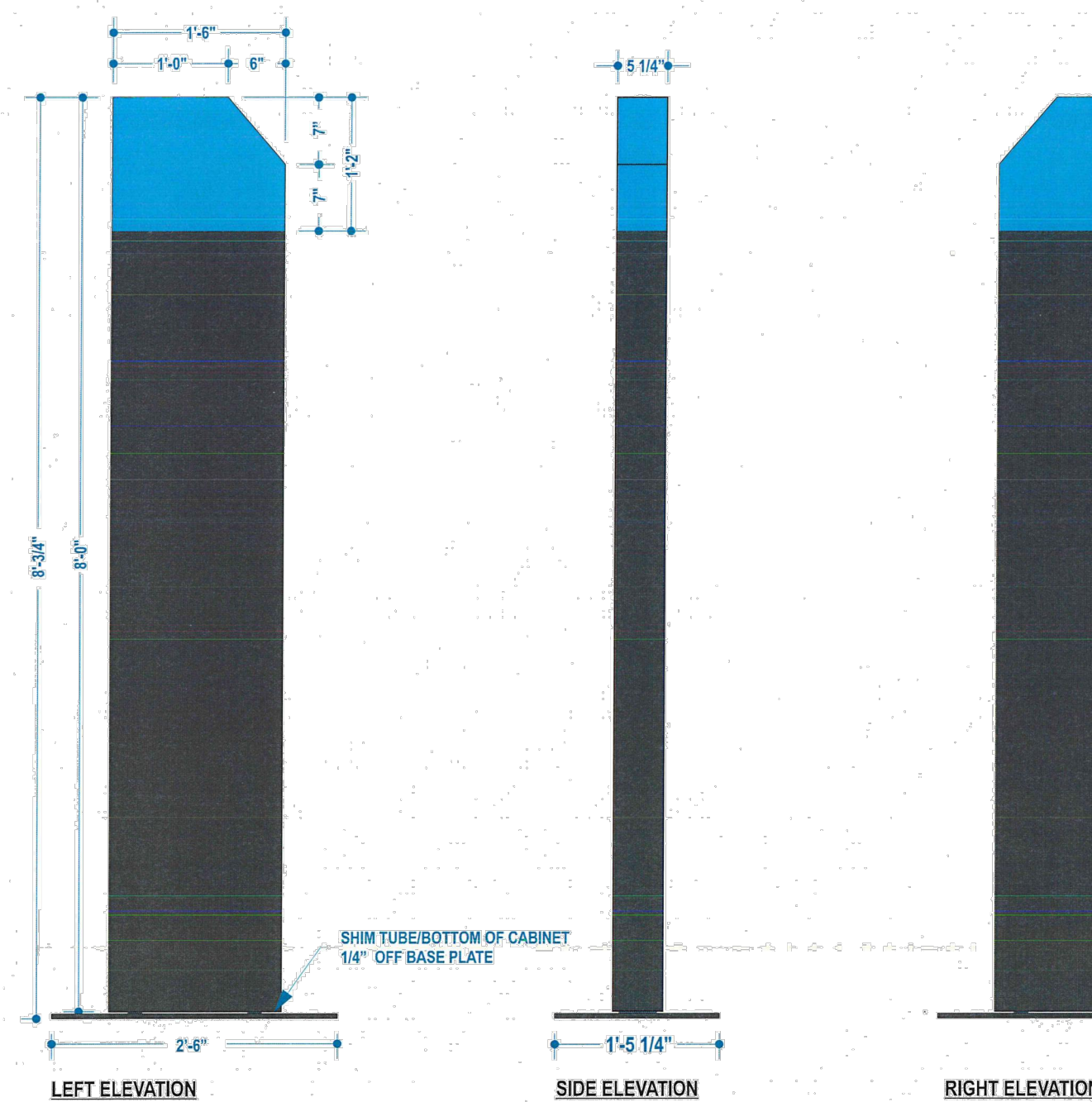
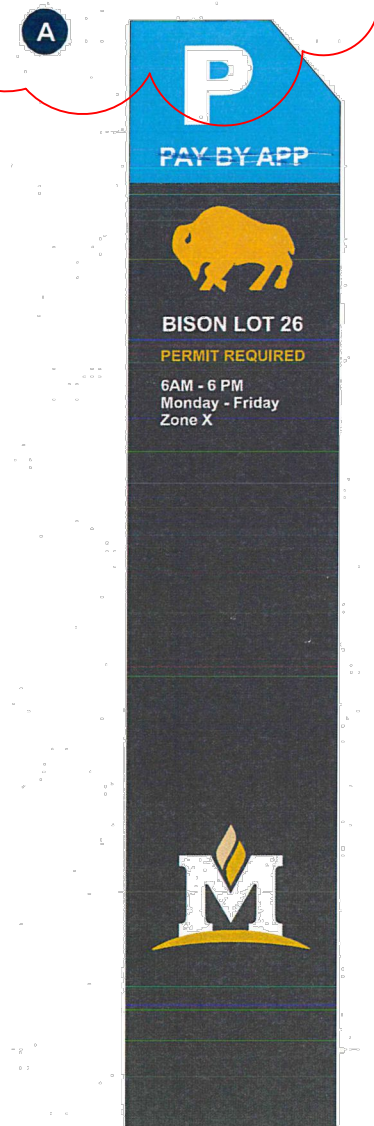
SHEET TITLE  
UTILITY PLAN 7

SHEET  
**CU1.9**

DATE  
3-27-2024

MONTANA STATE UNIVERSITY - 1000 EAST CALVERT AVENUE, BOZEMAN, MT 59717-3100

**MONUMENT - FINISHES**  
MSU-19-46398-1



PAINT SATIN POLYURETHANE TO MATCH PMS 238  
VINYL WRAP WITH GRAPHICS TO BE APPLIED TO PAINTED SURFACE BY OTHERS ONSITE AFTER INSTALL

PAINT SATIN POLYURETHANE TO MATCH PMS 433  
VINYL WRAP WITH GRAPHICS TO BE APPLIED TO PAINTED SURFACE BY OTHERS ONSITE AFTER INSTALL

POWDER COAT ENTIRE STEEL STRUCTURE TO MATCH PMS 433

LEFT ELEVATION

SIDE ELEVATION

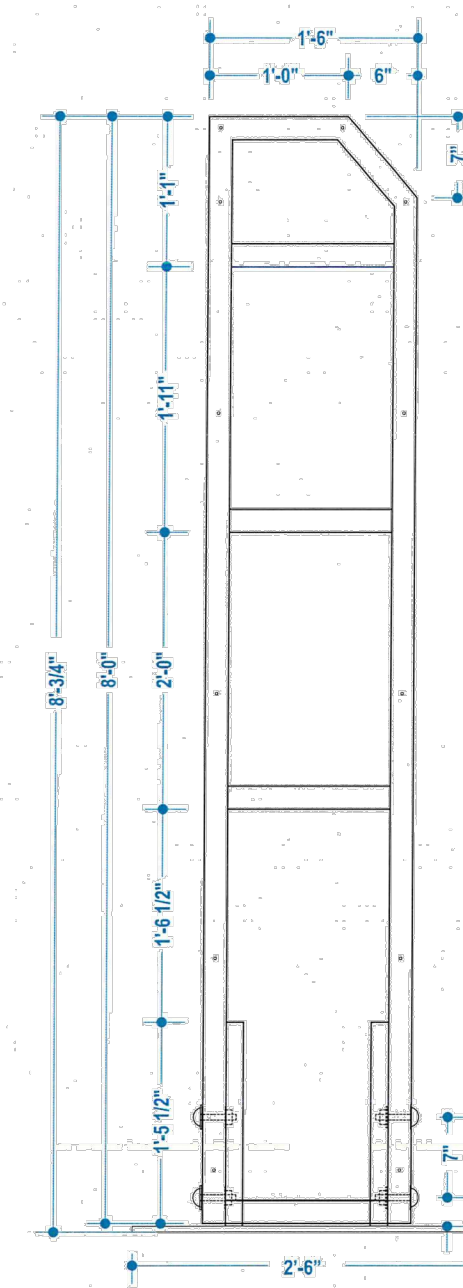
RIGHT ELEVATION

NOTE:  
1) GRAPHIC LAYOUT SHOWN IS REPRESENTATIVE AND WILL BE SUPPLIED BY VINYL WRAP SUPPLIER AND APPLIED IN FIELD

RFI:  
1) PLEASE PROVIDE GRAPHIC SUPPLIER FOR COORDINATION  
2) PLEASE CONFIRM PMS NUMBER FOR BLUE  
3) PLEASE CONFIRM PMS NUMBER FOR BROWN  
4) PLEASE CONFIRM QUANTITY OF SIGNS AND LOCATIONS

COLOR LEGEND	
PMS PAINT	VINYL
PMS 238	
PMS 124	
PMS 433	
PMS 281	
WHITE	OPAQUE 3M 7725-10 TRANS. 3M 3630-29

**MONUMENT - STRUCTURE**  
MSU-19-46398-1



3/4" CARRIAGE BOLT & WASHER  
POWDER COATED TO MATCH PMS 433

2" x 5" x 1/4" ALUMINUM 6061 TUBE  
PAINT SATIN POLYURETHANE TO MATCH PMS 433

DRILL AND TAP ALUMINUM TO RECEIVE 1/4" - #20 FLAT HEAD MACHINE SCREW  
PAINTED TO MATCH THE PAINTED BACKGROUND - EITHER PMS 433 OR PMS 238  
COUNTERSINK FLUSH WITH ALUMINUM SKIN  
QTY 8 PER SIDE, 16 TOTAL

C4 x 1/4" CHANNEL WELDED TO 1/2" STEEL PLATE PRE-DRILLED FOR CARRIAGE BOLTS  
POWDER COATED TO MATCH PMS 433

1/2" STEEL PLATE  
POWDER COATED TO MATCH PMS 433  
WITH 2 ROWS OF WELDED DECON STUDRAILS

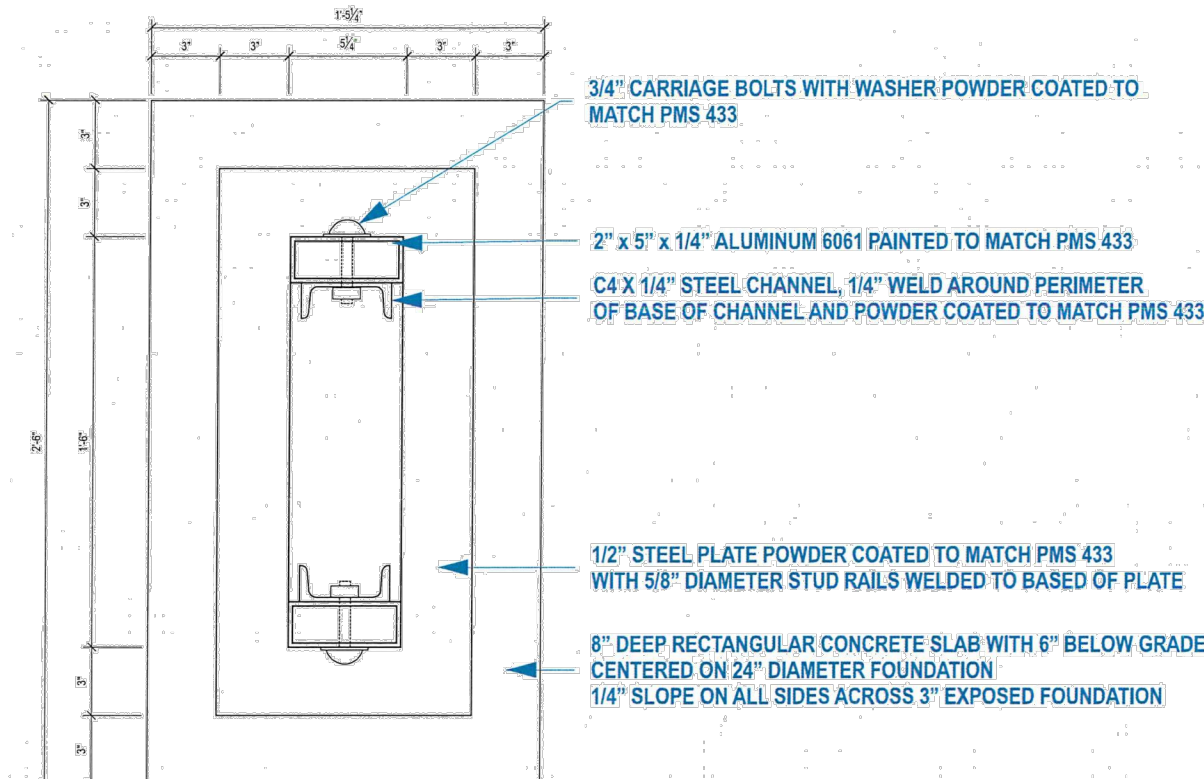
LEFT ELEVATION

SIDE ELEVATION

RIGHT ELEVATION

COLOR LEGEND	
PMS PAINT	VINYL
PMS 238	
PMS 124	
PMS 433	
PMS 281	
WHITE	OPAQUE 3M 7725-10 TRANS. 3M 3630-29

**MONUMENT - FOUNDATIONS**  
MSU-19-46398-1



FOUNDATION - TOP VIEW - NTS

NOTE:  
3) POWDER COAT THE FOLLOWING ELEMENTS TO MATCH PMS 433:  
A) 1/2" STEEL BASE  
B) QTY 2 - VERTICAL STEEL CHANNEL  
C) STUD RAILS WELDED TO BOTTOM OF 1/2" PLATE  
D) CARRIAGE BOLTS & WASHERS  
4) SHIM ALUMINUM TUBE / CABINET 1/4" OFF BASE PLATE  
5) 24" DIAMETER SONOTUB WITH 36" DEPTH  
6) 2" MINIMUM DISTANCE BETWEEN REBAR AND EDGE OF CONCRETE

**NOTES**

- CONTRACTOR SHALL WORK WITH OWNER PREFERRED SIGN VENDOR FOR DESIGN AND MANUFACTURING OF SIGNS, OR APPROVED EQUAL.
- OWNER TO PROVIDE TEXT AND GRAPHIC INFORMATION FOR EACH SIGN.
- FINAL DESIGN SHALL BE APPROVED IN SHOP DRAWINGS. SUBMIT TO OWNER FOR APPROVAL.
- SEE CIVIL SITE PLAN FOR SIGNAGE LOCATIONS.

**A** MSU MONUMENT SIGN  
C5.10 NTS

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**MSU Stadium Lots**  
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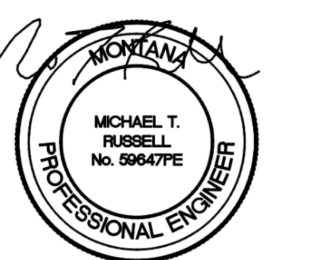


DRAWN BY: R.BAKKER

REVIEWED BY: M. RUSSELL

REV. DESCRIPTION DATE

1 ADDENDUM #1 03-27-24



PPA#22-0012

SHEET TITLE

DETAIL 10

SHEET

**C5.10**

DATE

3-27-2024



PROPERTY LINE, TYP.

SOUTH 11TH STREET

WEST KAGY BLVD

BOBCAT ATHLETIC COMPLEX

BOBCAT STADIUM

1  
 INSTALL NEW 16" ISOLATION VALVE DOWNSTREAM OF EXISTING VALVE ON HDPE MAINLINE. CONTRACTOR SHALL USE OWNER PROVIDED VALVE FOR INSTALLATION AND PROVIDE REPLACEMENT TO OWNER SHELF STOCK WITH IN-KIND VALVE AS PART OF THIS PROJECT. ISOLATION VALVE SHALL BE MUELLER LINESEAL III BUTTERFLY VALVE 3211-6 FLANGED ENDS CLASS 125, 16-INCH SIZE, WITH STANDARD BURIED SERVICE ACTUATOR MDT-3S, OR APPROVED EQUAL. ISOLATION VALVE LOCOTON TO BE DETERMINED IN COORDINATION WITH THE OWNER.

PROVIDE AND INSTALL NEW 4" ISOLATION GATE VALVE AT EXISTING TIE-IN FOR NEW HDPE MAINLINE PIPE. CONTRACTOR SHALL FIELD VERIFY EXISTING VALVE LOCATION. SEE DETAIL ON SHEET LI5.1

PROVIDE AND INSTALL NEW 4" HDPE MAINLINE PIPE. CONTRACTOR SHALL FIELD VERIFY EXISTING VALVE LOCATION WITH EXISTING MAINLINE PIPE ALIGNMENT. MAINLINE PIPE SHALL BE HDPE PIPE 4710 DR-11 OR AS APPROVED BY OWNER. FINAL PROPOSED ALIGNMENT TO BE DETERMINED IN COORDINATION WITH THE OWNER.

PROVIDE AND INSTALL NEW 4" ISOLATION GATE VALVE AND LOCATE IN VALVE BOX, AS SPECIFIED, FOR IPF PROJECT IRRIGATION POC. LOCATE VALVE BOX 4' MINIMUM FROM PROPOSED BACK OF SIDEWALK, SEE DETAIL ON SHEET LI5.1.

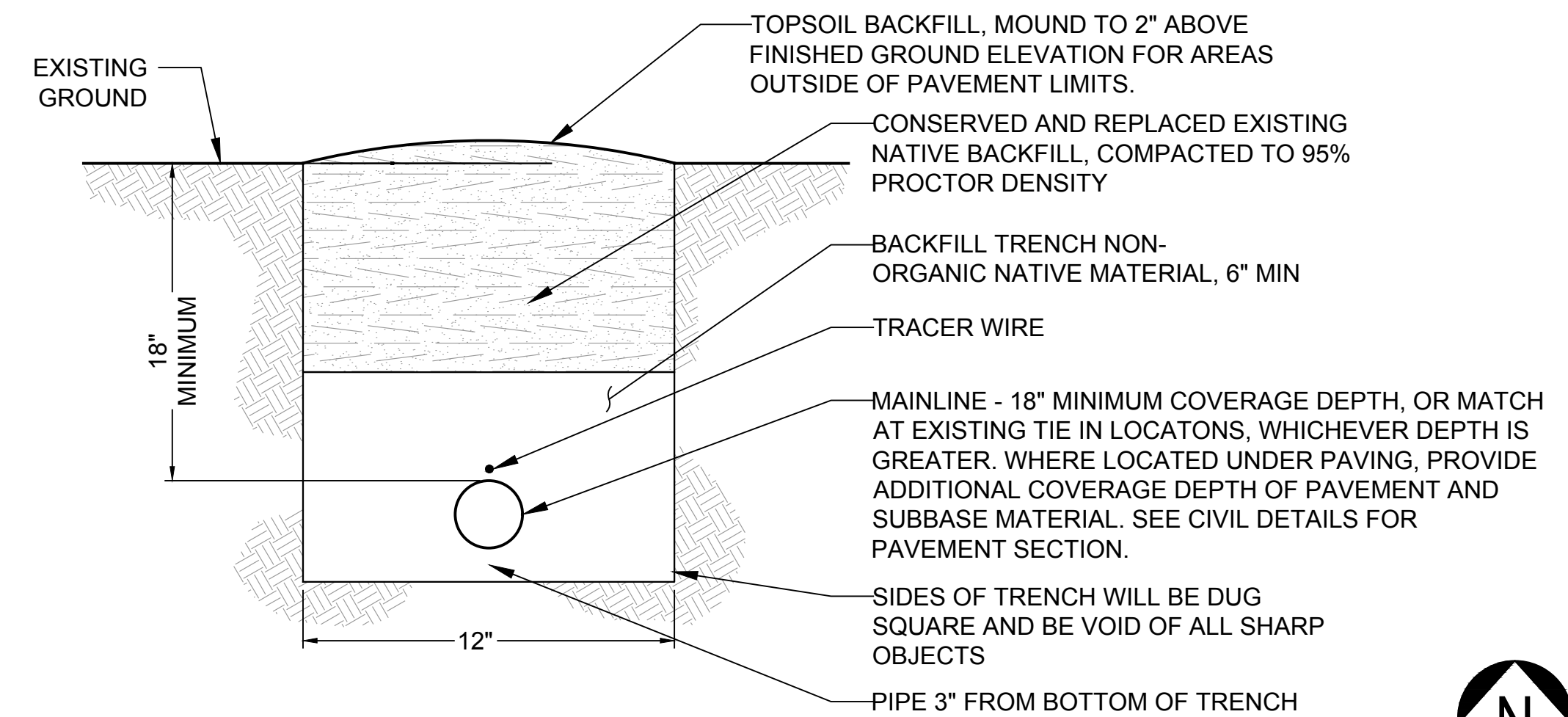
INDOOR PRACTICE FACILITY (PROJECT BY OTHERS, NIC)

TIE-IN NEW LINE AT APPROX THIS LOCATION WITH EXISTING 4" PVC WITH REQUIRED TRANSITION FITTING

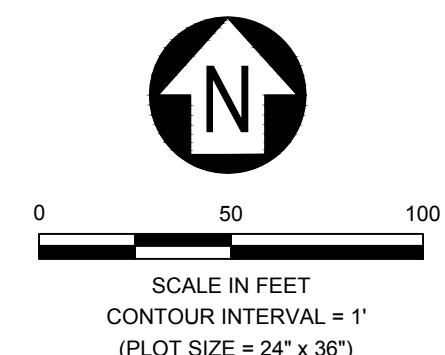
SEE SHEET LI1.1 FOR MAINLINE DEMOLITION INFORMATION

PROVIDE NEW 4" MAINLINE PIPE IN NEW ALIGNMENT AS SHOWN. CONTRACTOR SHALL FIELD VERIFY TIE-IN LOCATIONS WITH EXISTING MAINLINE PIPE. CONNECT APPROXIMATELY AT EXISTING PVC PIPE IN LANDSCAPE ISLAND NORTH OF TRACK AND FIELD TO EXISTING PVC PIPE EAST EDGE OF PARKING LOT APPROXIMATELY 5 FEET BEHIND PROPOSED BACK OF CURB. NEW PIPE APPROXIMATELY 475 LF. MAINLINE PIPE SHALL BE HDPE PIPE 4710 DR-11 OR AS APPROVED BY OWNER. PROVIDE PIPE SLEEVING AS SPECIFIED.

COORDINATE EXTENTS AND TIE-IN WITH IPF PROJECT IRRIGATION PLAN



A TYPICAL 4" MAINLINE UTILITY TRENCH DETAIL  
 LI2.0 SCALE NTS



FINAL CD - FOR CONSTRUCTION

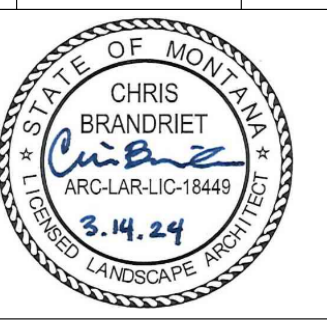


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REVIEWED BY: C. BRANDRIET		
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PPA#22-0012

SHEET TITLE  
 IRRIGATION  
 MAINLINE PLAN

SHEET  
**LI2.0**

DATE  
 3-27-2024

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# MSU Stadium Lots | Electrical, & Lighting

Montana State University Bozeman, MT

# Bid Set Documents

Date Issued | 03-14-2024  
Project Engineer | Andrew Moore

REV



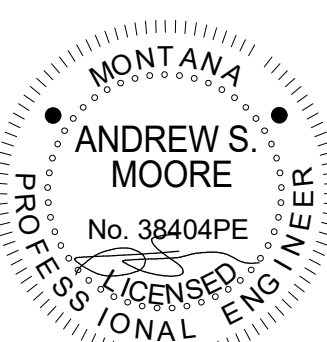
MSU Stadium Lots  
Bid Set Documents

CAMPUS PLANNING,  
DESIGN & CONSTRUCTION  
MONTANA STATE UNIVERSITY  
BOZEMAN, MONTANA  
PHONE: 406.994.5413 FAX: 406.994.5665

REVISIONS		
#	DATE	DESCRIPTION
1	3.27.24	Addendum #1

## BLACKSHEEP ENGINEERING

Mechanical | Plumbing | Electrical | Lighting | Technology  
602 W. Hemlock St. | Bozeman, MT 59716  
blacksheep-engineering.com | 406.278.9488



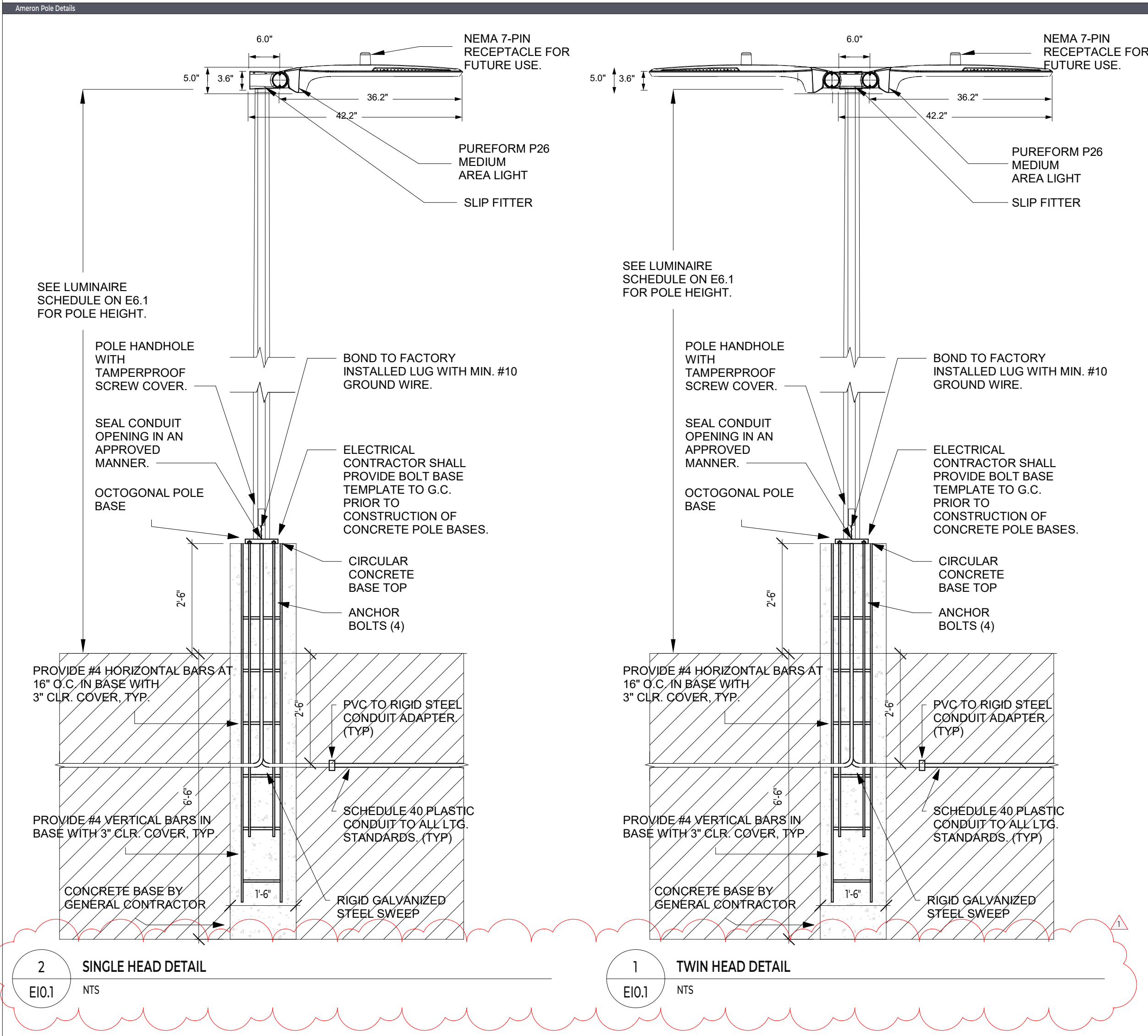
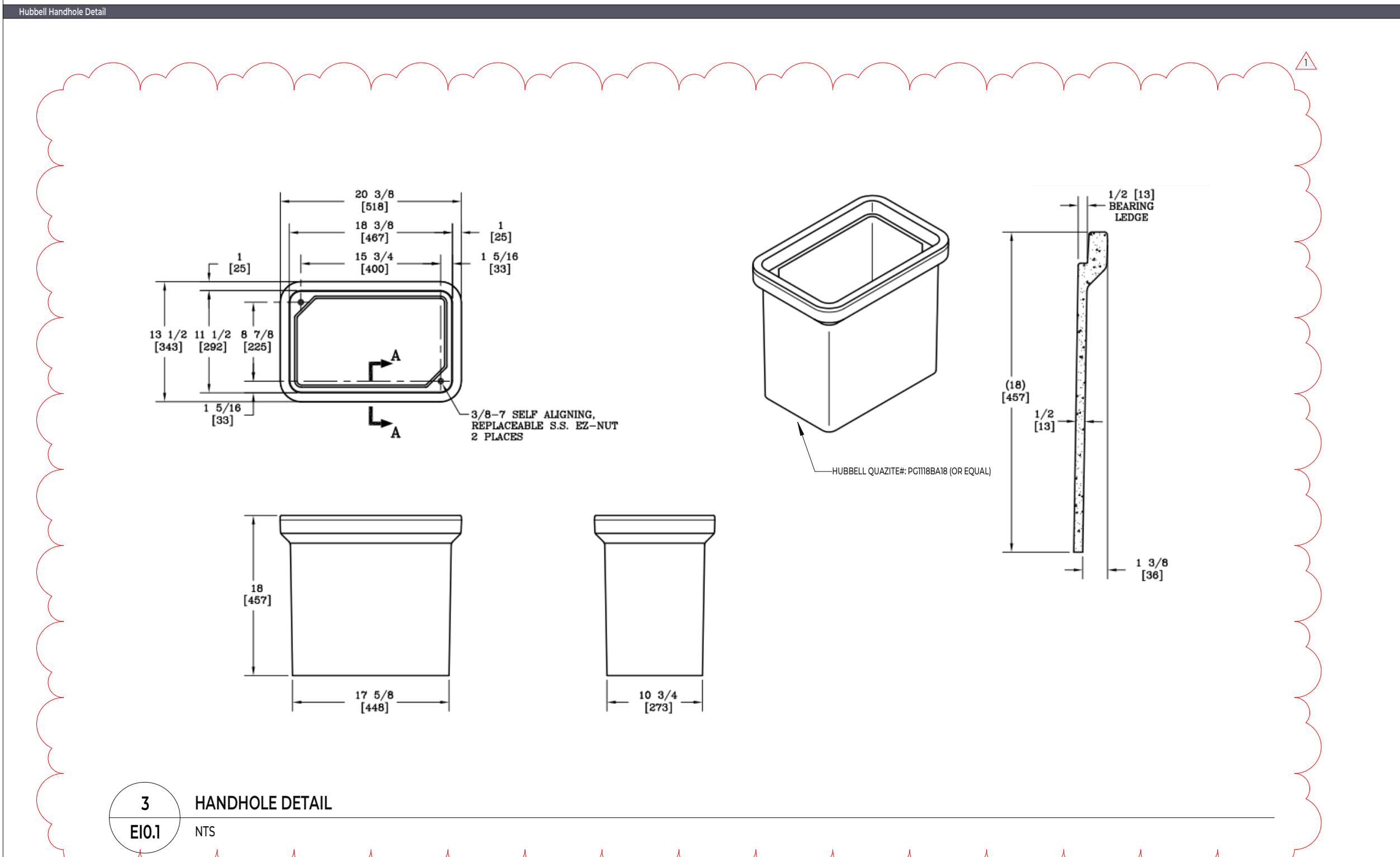
PPA#22-0012

A/E#00-00-00

## ELECTRICAL INDEX

# EI0.1

Date:  
03-14-2024



Abbreviations	General Notes
A AMP Ampere	LV Low Voltage
AIC Amps Interrupting Capacity	LVR Low Voltage Relay
AC Alternating Current	MCB Main Circuit Breaker
AFCI Arc-Fault Circuit Interrupter	MDP Main Distribution Panel
AFF Above Finished Floor	MFR Manufacturer
AFG Above Finished Grade	MIN Minimum
ATS Automatic Transfer Switch	MLO Main Lug Only
AV Audio Visual	MSB Main Switchboard
AWG American Wire Gauge	MV Medium Voltage
BAS Building Automation System	N Neutral
BTU British Thermal Units	(N) New
C, CDT Conduit	NA, N/A Not Applicable
CB Circuit Breaker	NEMA National Electrical Manufacturer Association
CBT Circuit	N.C. Normally Closed
CL Centerline	N.O. Normally Open
CLG Ceiling	NTS Not to Scale
CO Carbon Monoxide	OCPD Overcurrent Protective Device
CO Conduit Only	P Poles
CT Current Transformer	PB Pullbox
CJ Copper	PH Phase
DCC Digital Data Control	PNL Panelboard
DWG Drawing	POE Power Over Ethernet
(E) Existing	PWR Power
E.C. Electrical Contractor	RECPD Receptacle
ELEC Electric / Electrical	RS Rigid Steel
EM Emergency	SD Smoke Detector
EMT Electrical Metallic Tubing	SHT Sheet
EQ Equal	SOH Standard Outlet Height
FA Fire Alarm	SP Spare
FACP Fire Alarm Control Panel	SPEC Specification
FBO Furnished by Others	SPD Surge Protective Device
FLA Full Load Amps	SS Surge Suppression
FSD Fire Smoke Damper	SW Switch
G, GND Ground	SWBD Switchboard
G.C. General Contractor	SWGR Switchgear
GEN Generator	TEMP Temporary
GFCI Ground-Fault Circuit Interrupter	TVSS Transient Voltage Surge Suppressor
HP Horse Power	TYP Typical
IBEC Installed by Electrical Contractor	UG Underground
IG Isolated Ground	UON Unless Otherwise Noted
J, JB Junction Box	UPS Uninterruptible Power Supply
KV Kilovolt	V Voltage
KVA Kilovolt-Ampere	VA Volt-Amperes
KW Kilowatt	W Watt
KWH Kilowatt Hour	WD Warm Dim or Water Detector
LCP Lighting Control Panel	WP Weatherproof
LTC Lighting	XFMR Transformer

Sheet #	Sheet Name	Rev.	Description	Date
EI0.1	ELECTRICAL INDEX		Addendum #1	3/27/24
ED10	ELECTRICAL OVERALL DEMOLITION SITE PLAN			
ED11	ELECTRICAL OVERALL DEMOLITION PLAN - AREA 1			
ED12	ELECTRICAL DEMOLITION PLAN - AREA 2			
ED14	ELECTRICAL DEMOLITION PLAN - AREA 4			
ED15	ELECTRICAL DEMOLITION PLAN - AREA 5			
ED16	ELECTRICAL DEMOLITION PLAN - AREA 6			
ED17	ELECTRICAL DEMOLITION PLAN - AREA 7			
EP20	ELECTRICAL OVERALL SITE PLAN	Addendum #1		3/27/24
EP21	ELECTRICAL SITE PLAN - AREA 1	Addendum #1		3/27/24
EP22	ELECTRICAL SITE PLAN - AREA 2	Addendum #1		3/27/24
EP23	ELECTRICAL SITE PLAN - AREA 3	Addendum #1		3/27/24
EP24	ELECTRICAL SITE PLAN - AREA 4			
EP25	ELECTRICAL SITE PLAN - AREA 5			
EP26	ELECTRICAL SITE PLAN - AREA 6	Addendum #1		3/27/24
EP27	ELECTRICAL SITE PLAN - AREA 7	Addendum #1		3/27/24
EP30	SITE PHOTOMETRIC PLAN			
E61	ELECTRICAL SCHEDULES & DIAGRAMS	Addendum #1		3/27/24

**Project Scope & Executive Summary**

**Electrical Design**

Power design to include the following:

- Plan layouts of electrical circuits, power design support of electrical utilization equipment, equipment connections, and electrical specifications to serve different requirements including lighting and general circuits as well as infrastructure for electric vehicle charging.
- Complete single-line diagram, connection schedules and panel schedules.
- Detail drawings for site electrical infrastructure and new equipment elevations.
- Decision 26 specifications

**Lighting Design**

Design of exterior environments in accordance with MSU standards, including past experience, engineering guidelines, and campus outdoor lighting master plan.

- Illumination and luminance / contrast levels will meet the recommendations of the IESNA handbook.
- Luminaires shall be LED type, with ability to dim through integral 0-10V dimming (FAWS) and NEMA 7 receptacles for future wireless controls.
- Centralized to match recent control system work on campus will be integrated and provide controls in accordance with IECC 2021.

Lighting design objectives and deliverables include the following:

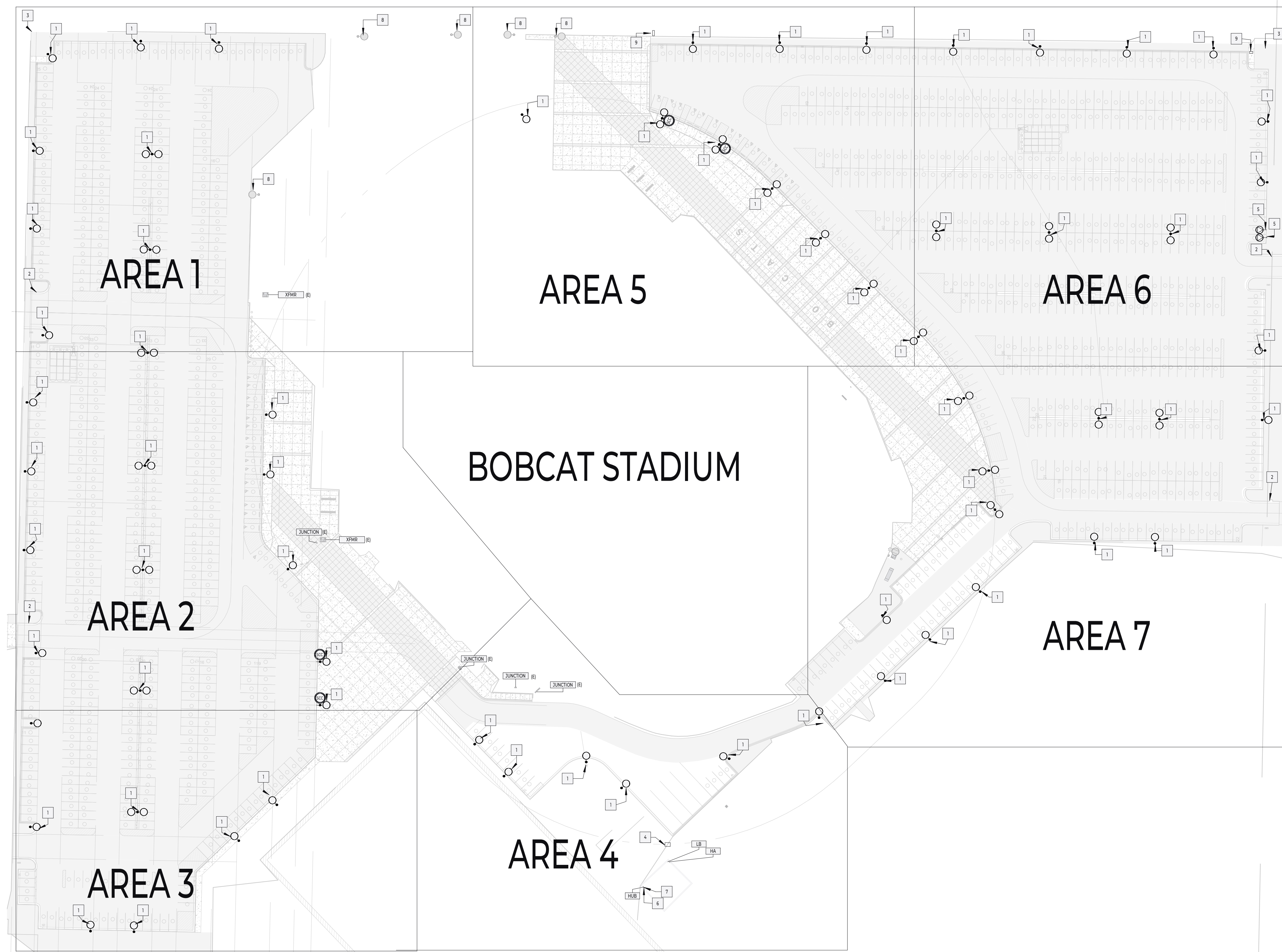
- Luminaire selections and schedules
- Luminaire layouts and installation details
- Site lighting control layouts, zoning, and wiring requirements
- Lighting control schedules with comprehensive bill of materials
- Division 26 specifications

Photometric calculations in exterior areas to ensure adherence to IESNA illumination recommendations and design reviews to ensure the lighting is in conformance with the owners expectations.

The symbols and abbreviations list on this sheet is a comprehensive standard guide intended for general use on all projects. Therefore, not all symbols and abbreviations contained in this list are necessarily used on this project and should be used for clarification only.

- All work shall be installed in accordance with the latest National Electrical Code (NEC) and all local codes having jurisdiction. General work practices for construction shall be in accordance with NECA I standard for good workmanship in electrical construction (ANSI).
- All materials provided by the contractor shall be new and free of defects, listed / labeled for the intended purpose by Underwriters (UL) or other organization that is acceptable to the AHJ.
- The contractor is responsible for providing all equipment required to complete the project. Any bill of materials referenced in this plan set is for reference only to illustrate design intent.
- These drawings and accompanying specifications are intended to describe and illustrate systems which will not interfere with the structure of the building, and which will fit into the available spaces. The contractor is responsible for laying out all work to conform to NEC clearances, architectural, structural, mechanical, and site conditions, to avoid obstructions and to allow the proper installation of each item. Coordinate with drawings of other trades to fit the actual space conditions. Headroom and space condition to be maintained.
- Upon the completion of the work, the entire electrical system shall be tested and shall be shown to be in proper working condition in accordance with the intent of the specifications and drawings. It shall be the responsibility of the contractor to have all systems ready for operation and inspection by AHJ.
- Electrical contractor to verify actual installed equipment electrical name plate data before energizing the circuit. Confirm electrical design values and actual equipment being installed in compliance with electrical code and manufacturer installation requirements.
- Conduit runs when shown as diagrammatic. Final location and routing shall be established by the contractor based on the installation conditions and shall be verified in the field. All conduit types and installation requirements shall be in accordance with the specifications. Where conductor and cable routing are not shown on the plans, contractor shall determine routing and lengths required.
- Provide conduit expansion fittings with bonding jumpers to allow for thermal expansion and contraction where necessary, per NEC 300.7(B).
- Provide support for conductors in vertical conduits per NEC 300.19. Support conduct using steel pipe straps, lay-in adjustable hangers, clevis hangers, or split hangers. Hanger spacing shall be installed per NEC requirements for the type of conduit being installed.
- Provide pull or junction boxes where required to facilitate the installation of conductors. Bends in conduit between pull boxes shall not exceed a total of 360-degrees.
- Provide branch circuit wiring to all items requiring electrical connections. Where branch circuit wiring is not shown, connect items to circuits indicated. Unless indicated otherwise, all branch circuits shall be minimum #12 AWG.
- Provide independent support for disconnect switches, control stations, boxes, panels, etc. where no walls or other structural surface exists.
- Provide disconnect switches for HVAC equipment within eyesight of the equipment.
- Contractor shall provide signage to all electrical boxes, junction boxes, disconnects, conduit runs, subpanels, and main service equipment.
- Grounding system: Permanently and effectively ground all metallic conduit, supports, cabinets, panelboards, and system neutral conductors. Maintain continuity of equipment ground throughout the system. Ground clamps shall be approved type, specifically designed for grounding. Where grounding conductor is enclosed in conduit, ground clamp shall be of a type which grounds both conductor and conduit. All circuits in flexible metal or plastic conduit shall include a ground wire sized in accordance with NEC.
- Conductors: Copper with color coding, #10 AWG and smaller to be solid or stranded, #8 AWG and larger to be stranded. Minimum #12 AWG unless otherwise indicated. Aluminum conductors permitted for feeders 100A and larger. Conductors must be installed in accordance with NEC and cannot be supported from ceiling support wires. All power conductors in conduit shall be THWN-2, XHHN-2, RHW-2, PVWIRE, or XLPE.
- All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
- The EC may submit substitution requests for prior approval no less than 10 days prior to bid date. Blacksheep separates prior approval packages for luminaires & controls. The EC shall break out separate line items for each to prevent "lockout" of pricing respective to this project.
- Submittals shall be provided by the installer for Blacksheep review and approved prior to ordering.

Electrical	Communications   Audio   Video
NEMA 5-15R / 5-20R, Mounted Vertically, Non-Essential Power	Cable Enclosure (Requires 1 Dedicated 20A Circuit)
NEMA 5-15R / 5-20R, Mounted Horizontally, Non-Essential Power	Data Outlet   (2) CAT6
NEMA 5-15R Quadruplex, "+" Indicates Height AFF	Wireless Access Point   (2) CAT6
NEMA 5-15R / 5-20R, Essential Power	Demarcation - Phone / Data Service   (4) CAT6, (1) IPS Provided Fiber
NEMA 5-15R / 5-20R, Optional Standby Power	Satellite Dish Location   (4) RG6QS, (1) 14", (1) GND
NEMA 5-15R / 5-20R, GFCI-Protected Receptacle	Touch Panel   (2) CAT6
NEMA 5-15R / 5-20R, GFCI Receptacle	Control RF Gateway   (2) CAT6
NEMA 5-15R / 5-20R, Weatherproof Receptacle	Control System Integration Wiring   (3) CAT6
NEMA 5-15R / 5-20R, Weatherproof Receptacle, In-Use	Television   (1) RG6QS, (3) CAT6
NEMA 6-XOR, 250V, 2-Pole; Number Indicates Amperage (i.e., 2=20A)	Projector   (1) RG6QS, (3) CAT6
NEMA 14-XOR, 250/250V, 2-Pole w/ Neutral; Number Indicates Amperage	Aux Input Location   (4) CAT6
NEMA 15-XOR, 250V, 3-Pole; Number Indicates Amperage	Backbox
NEMA L6-XOR, 250V, 2-Pole; Number Indicates Amperage	Speaker   (1) 16"/4 Per Pair
NEMA L14-XOR, 250/250V, 2-Pole w/ Neutral; Number Indicates Amperage	Subwoofer   (1) 14"
NEMA L15-XOR, 250V, 3-Pole; Number Indicates Amperage	Soundbar - LR / LCR / Center   (2) 16"
Electrical Provision or Equipment Connection Provision	Doorbell   (2) CAT6
Electrical Floor Receptacle, Flush Mounted	Remote Control
Electrical Floor Receptacle, Recessed Wall Mounted	Equipment Rack
Electrical Floor Receptacle, Flush Floor Mounted	
Wiremold Power Outlet Strip	
Non-Fused Disconnect Switch, Surface Mounted	
Fused Disconnect Switch, Surface Mounted	
Panelboard, Flush Mounted	
Panelboard, Surface Mounted	
Push Button   EPO = Emergency Power Off	
Solar Photovoltaic Panel / Array	
Inverter	
Security   Life Safety   Surveillance   Access	Lighting Control   Shades   Environmental
Security Panel (Requires Dedicated 20A Circuit)   (4) CAT6	Lighting Control Panel (Requires 1 Dedicated 20A Circuit)   (3) CAT6
Security Keypad   (1) 22/4, (1) CAT6	Lighting Control Dimming Panel   (1) QSC
Cellular Communicator   (1) 22/4, (1) 18/4 FPLR, (2) CAT6	Lighting Repeater   (1) QSC
RF Receiver   (1) 22/4	Lighting Keypad   (1) QSC
RF Repeater   (1) 18/4 FPLR	Occupancy Sensor   (1) QSC
Door / Window Contact Sensor   (1) 22/4	Thermostat   (1) 18/6, (1) CAT6
Overhead Door Contact   (1) 22/4	Thermostat Sensor   (1) CAT6
Motion Detector   (1) 22/4	Oxygen Control   (1) 18/6, (1) CAT6
Glass Break Sensor   (1) 22/4	Fireplace Control   (1) 18/6, (1) CAT6
Interior Siren   (1) 18/4 FPLR	Wireless Hybrid Keypad
Horn / Strobe   (1) 18/4 FPLR	Wireless Keypad
Sewage Ejector Interface   (1) 22/4	Wireless Dimmer
Surveillance Camera   (2) CAT6	Remote Dimmer - 3-Way
Water / Flood Sensor   (1) 22/4	Wireless Switch
Low Temperature Sensor   (1) 22/4	Remote Switch - 3-Way
Wireless Flood / Low Temp Sensor	Standard Switch (Provided by the EC)
Water Shutoff Valve (Requires Dedicated 20A Circuit)   (1) CAT6	Shade Panel (Requires 2 Dedicated 20A Circuits)
Carbon Monoxide Sensor   (1) 22/4	Single Roller Motorized Shade   (1) QSC
Gas Detector   (1) 22/4	Dual Roller Motorized Shade   (2) QSC
Heat Detector   (1) 22/4	Motorized Drape   (1) QSC
Smoke Detector   (1) 18/4 FPLR	Electronic Smart Glass   (1) 18/4
Sprinkler Flow / Tamper Valve   (1) 18/4 FPLR	
Access Control Panel (Requires 20A Dedicated Circuit)   (3) CAT6	Lighting Luminaires
Access Control Interface   (1) CAT6, (1) Access Composite	Bollard
Access Control Lock   (1) 22/4, (1) 18/4 FPLR	Ceiling Mounted
	Recessed Downlight   Round or Square
	Recessed Multiple Downlight   4 Light Sources
	Pendant   Round or Square
	Wall Mounted
	Wall Mounted Exterior
	Pole Mounted Exterior   Line Indicates Direction of Arm
	Linear LED
	Recessed Linear
	Surface Mounted Linear
	Step Light
General Drawing Symbols	
Callout View Tag	Keynote Tag
Elevation Tag	Mechanical Equipment Tag w/ Circuit ID
	Electrical Equipment Tag
	Lighting Tag w/ Circuit ID



**General Sheet Notes**

1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

**Reference Keynotes**

1. New luminaire, pole and base.
2. Provide one 2" PVC conduit sleeve under roadway for future use.
3. Provide 2" conduit under sidewalk for future use.
4. Provide (2) spare 1" conduits from panel LB to new handhole outside of storage room for future use.
5. Provide (3) #4/0AWG conductors & (1) #4AWG Ground in 2" conduit and connect to SOA breaker in panel LB for future EV charging. Provide handholes as required by article 100 of the NEC.
6. Lutron Vive hub and (5) power packs to be mounted in storage building where existing Wattstopper lighting panel is located.
7. Provide and install new lighting control hub per lighting control equipment schedule. Provide connection to unswitched 120V, 20A circuit existing at this location.
8. Existing luminaire is outside of project limits and will remain.
9. Provide Hubbell underground enclosure assembly for future access in case of rework. See E101 for details.



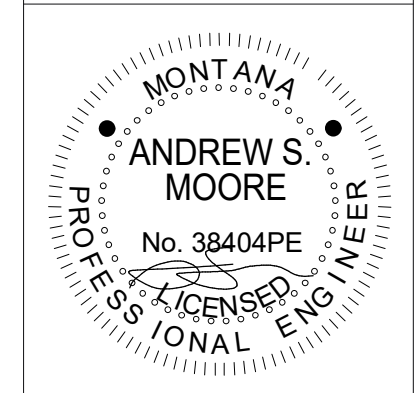
**MSU Stadium Lots Bid Set Documents**

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PPA#22-0012  
 A/E#00-00-00  
 ELECTRICAL OVERALL SITE PLAN

**EP2.0**

Date:  
 03-14-2024

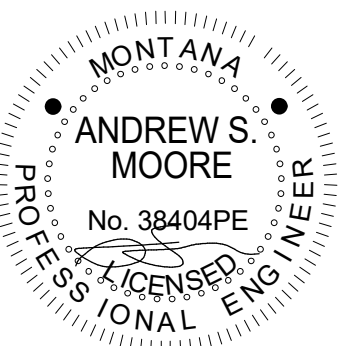
1 ELECTRICAL OVERALL SITE PLAN  
 EP2.0 1" = 60'-0"

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PPA#22-0012

A/E#00-00-00

ELECTRICAL SITE  
PLAN - AREA 1

**EP2.1**

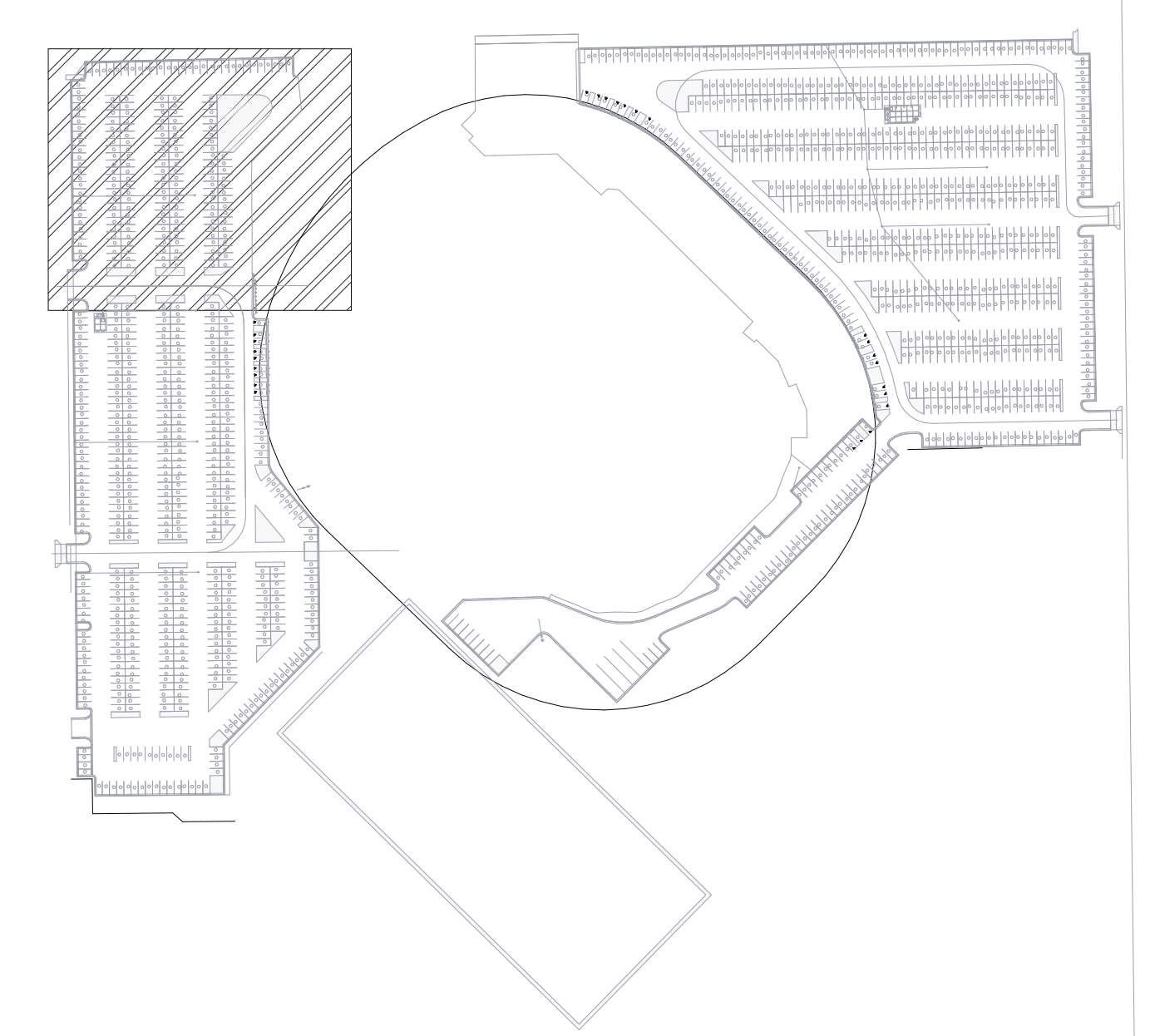
Date:  
03-14-2024

**General Sheet Notes**

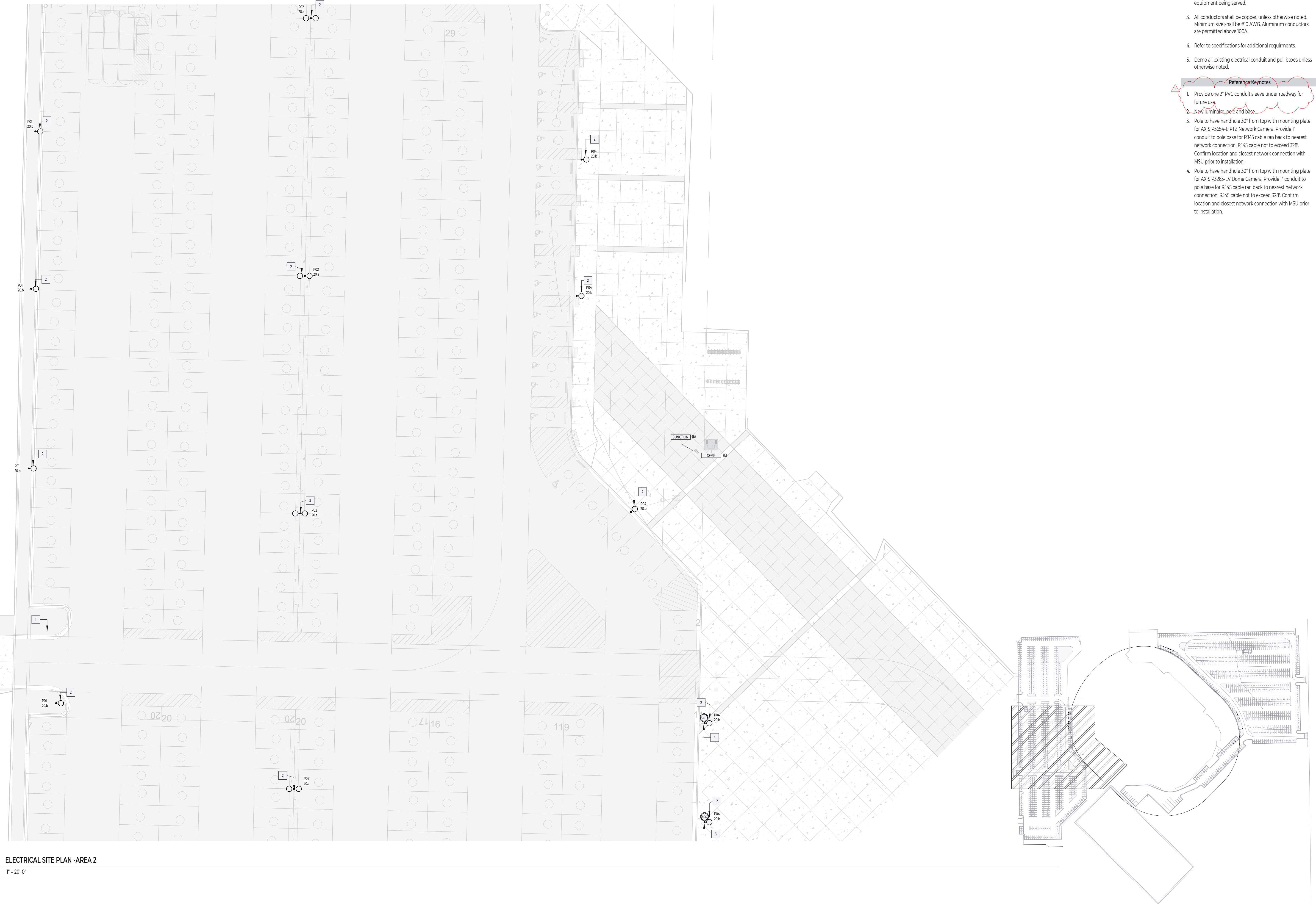
1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

**Reference Keynotes**

1. New luminaire, pole and base.
2. Provide 2" conduit under sidewalk for future use.
3. Provide one 2" PVC conduit sleeve under roadway for future use.



**1 SITE PLAN AREA 1**  
EP2.1 1" = 20'-0"



**General Sheet Notes**

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3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

**Reference Keynotes**

1. Provide one 2" PVC conduit sleeve under roadway for future use.
2. New luminaire, pole and base.
3. Pole to have handhole 30' from top with mounting plate for AXIS P5654-E PTZ Network Camera. Provide 1" conduit to pole base for R345 cable run back to nearest network connection. R345 cable not to exceed 328'. Confirm location and closest network connection with MSU prior to installation.
4. Pole to have handhole 30' from top with mounting plate for AXIS P3365-LV Dome Camera. Provide 1" conduit to pole base for R345 cable run back to nearest network connection. R345 cable not to exceed 328'. Confirm location and closest network connection with MSU prior to installation.



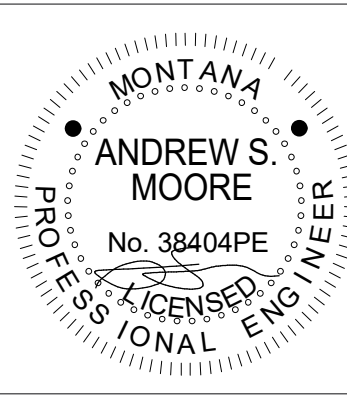
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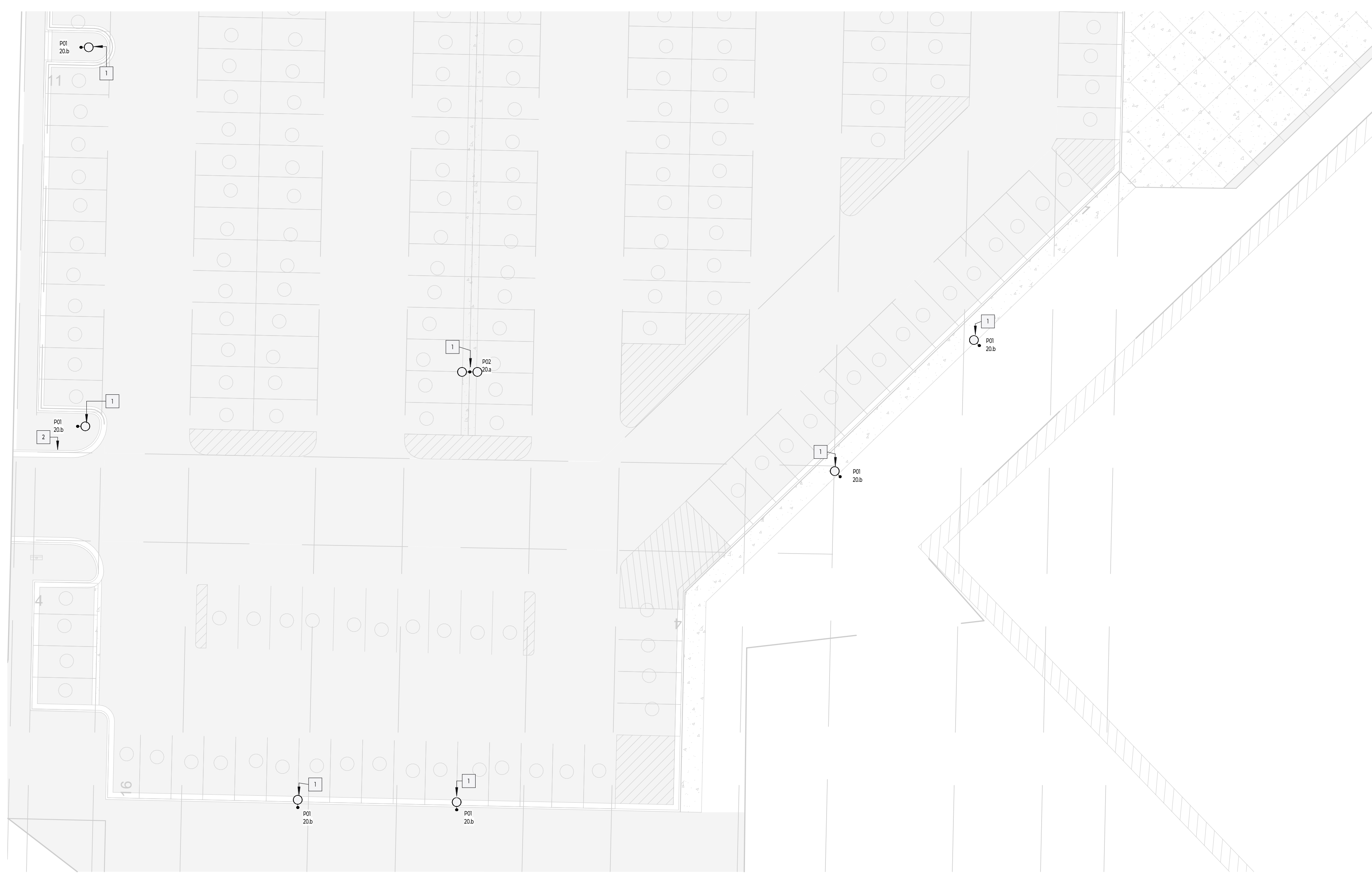


PPA#22-0012  
A/E#00-00-00  
ELECTRICAL SITE  
PLAN - AREA 2

**EP2.2**

Date:  
03-14-2024

1 ELECTRICAL SITE PLAN - AREA 2  
EP2.2 1" = 20'-0"



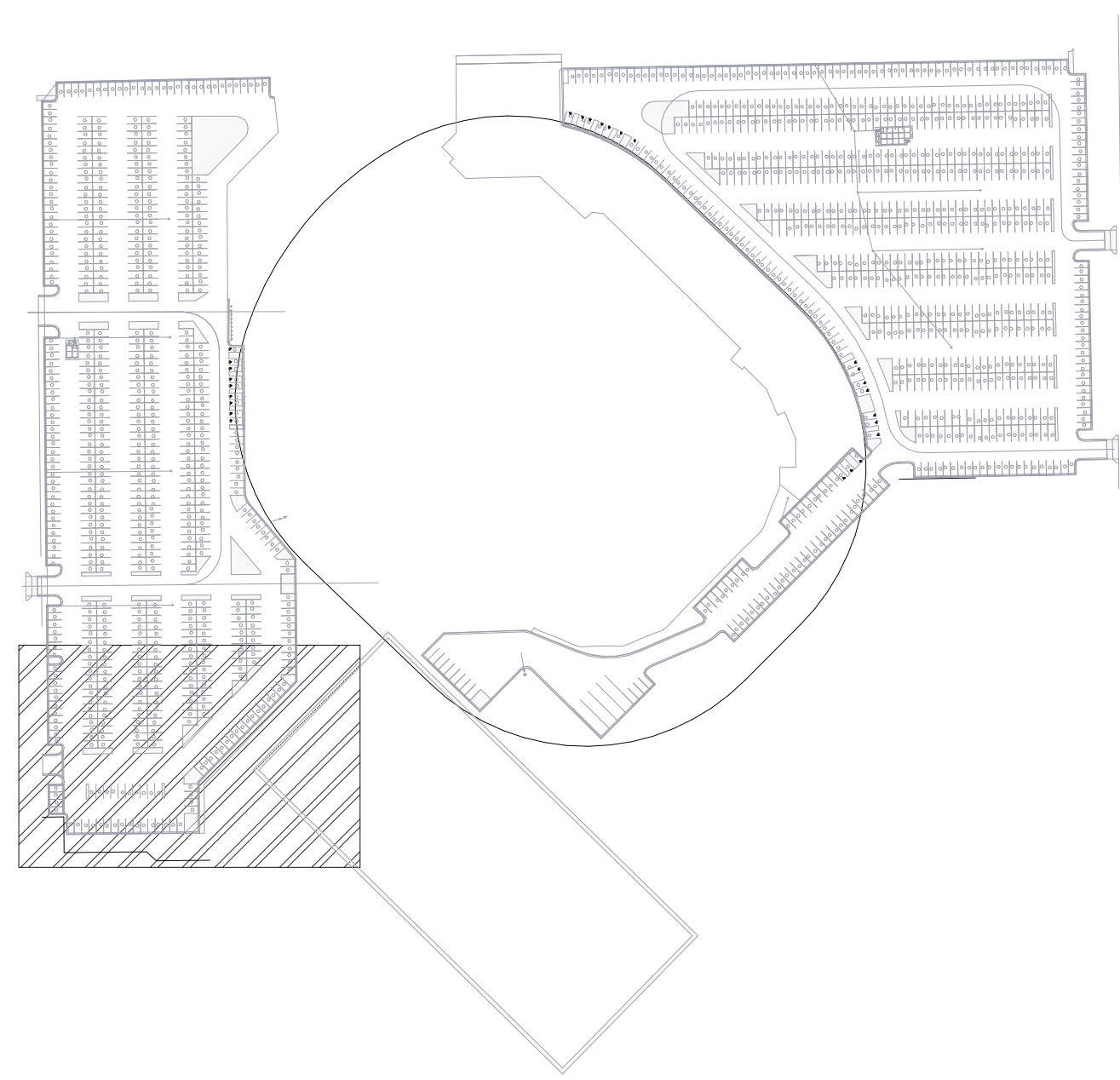
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EP23 ELECTRICAL SITE PLAN -AREA 3  
T= 20'-0"

General Sheet Notes

1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

Reference Keynotes

1. New luminaire, pole and base.
2. Provide one 2" PVC conduit sleeve under roadway for future use.



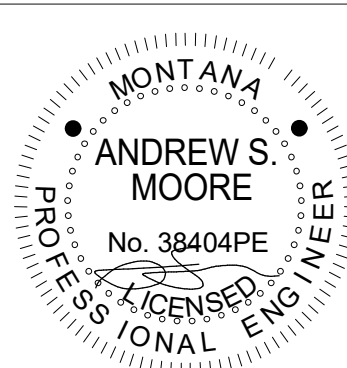
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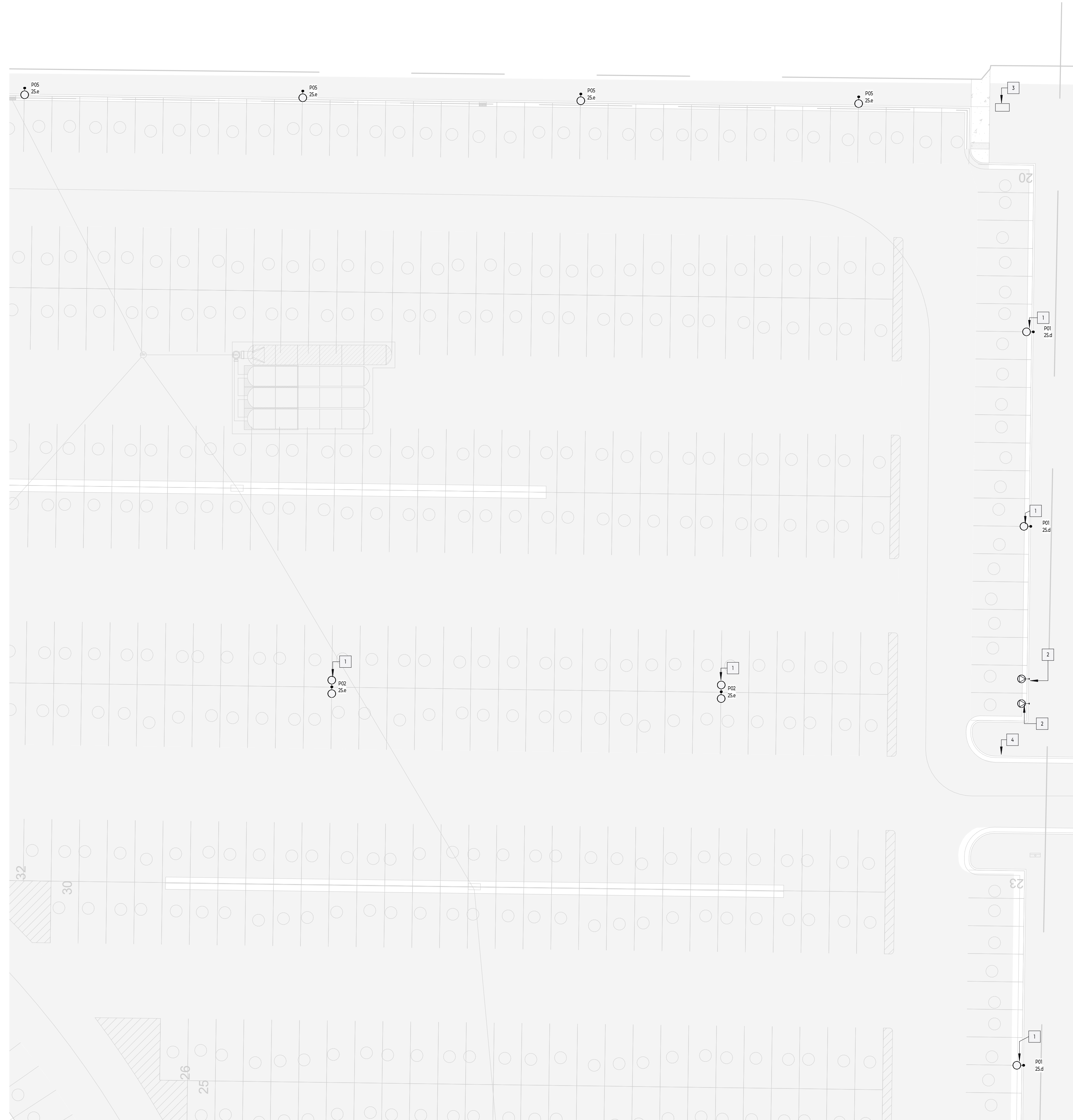


PPA#22-0012  
A/E#00-00-00

ELECTRICAL SITE  
PLAN -AREA 3

**EP2.3**

Date:  
03-14-2024



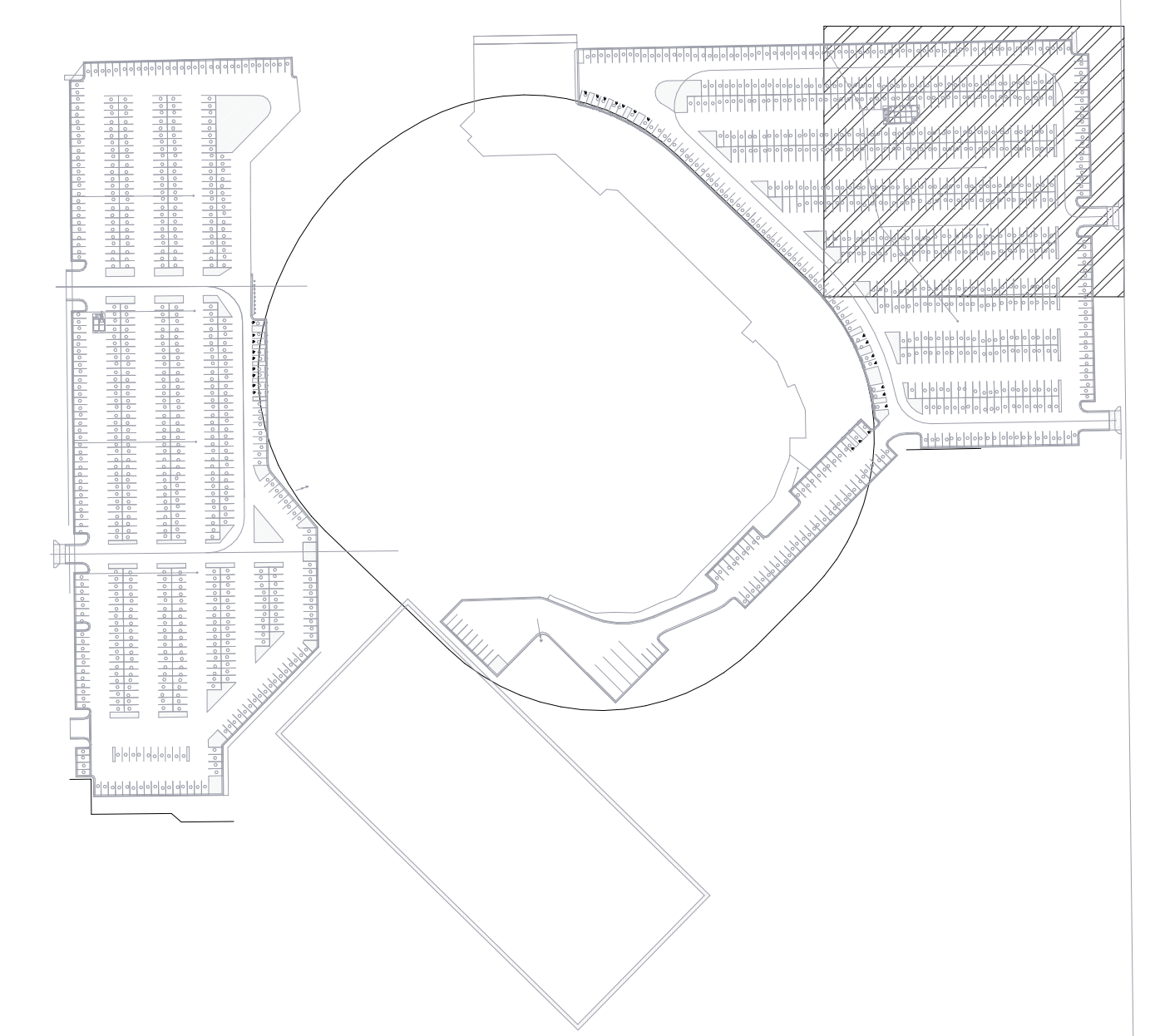
1 ELECTRICAL SITE PLAN -AREA 6  
EP2.6 1" = 20'-0"

**General Sheet Notes**

1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

**Reference Keynotes**

1. New luminaire, pole and base.
2. Provide (3)#4(OAWG conductors & (1) #4AWG Ground in 2" conduit and connect to 50A breaker in panel LB for future EV charging. Provide handholes as required by article 100 of the NEC.
3. Provide Hubbell underground enclosure assembly for future access in case of rework. See E101 for details.
4. Provide 2" conduit under sidewalk for future use.



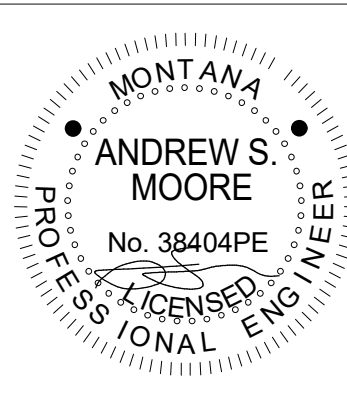
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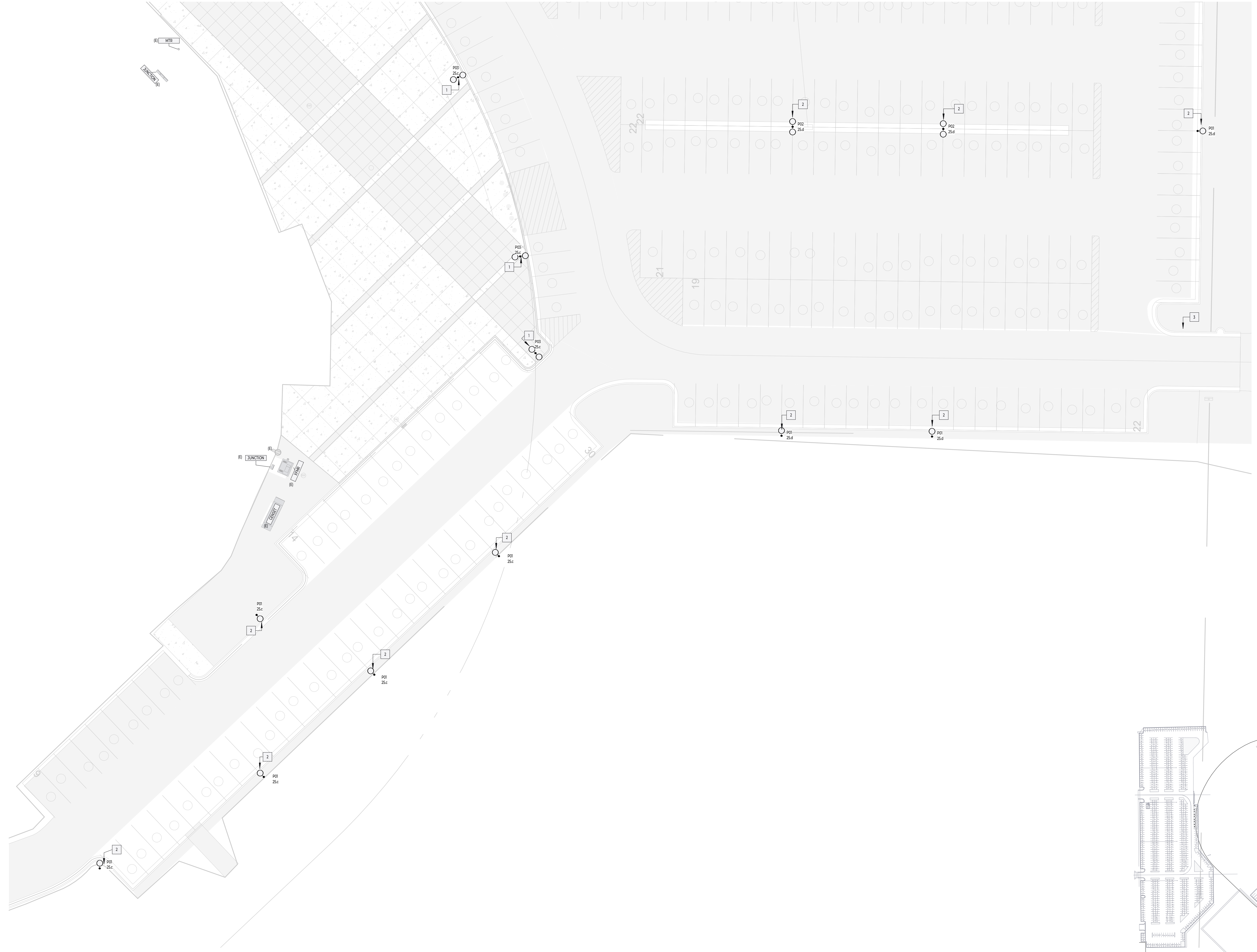
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ELECTRICAL SITE  
PLAN -AREA 6

**EP2.6**

Date:  
03-14-2024

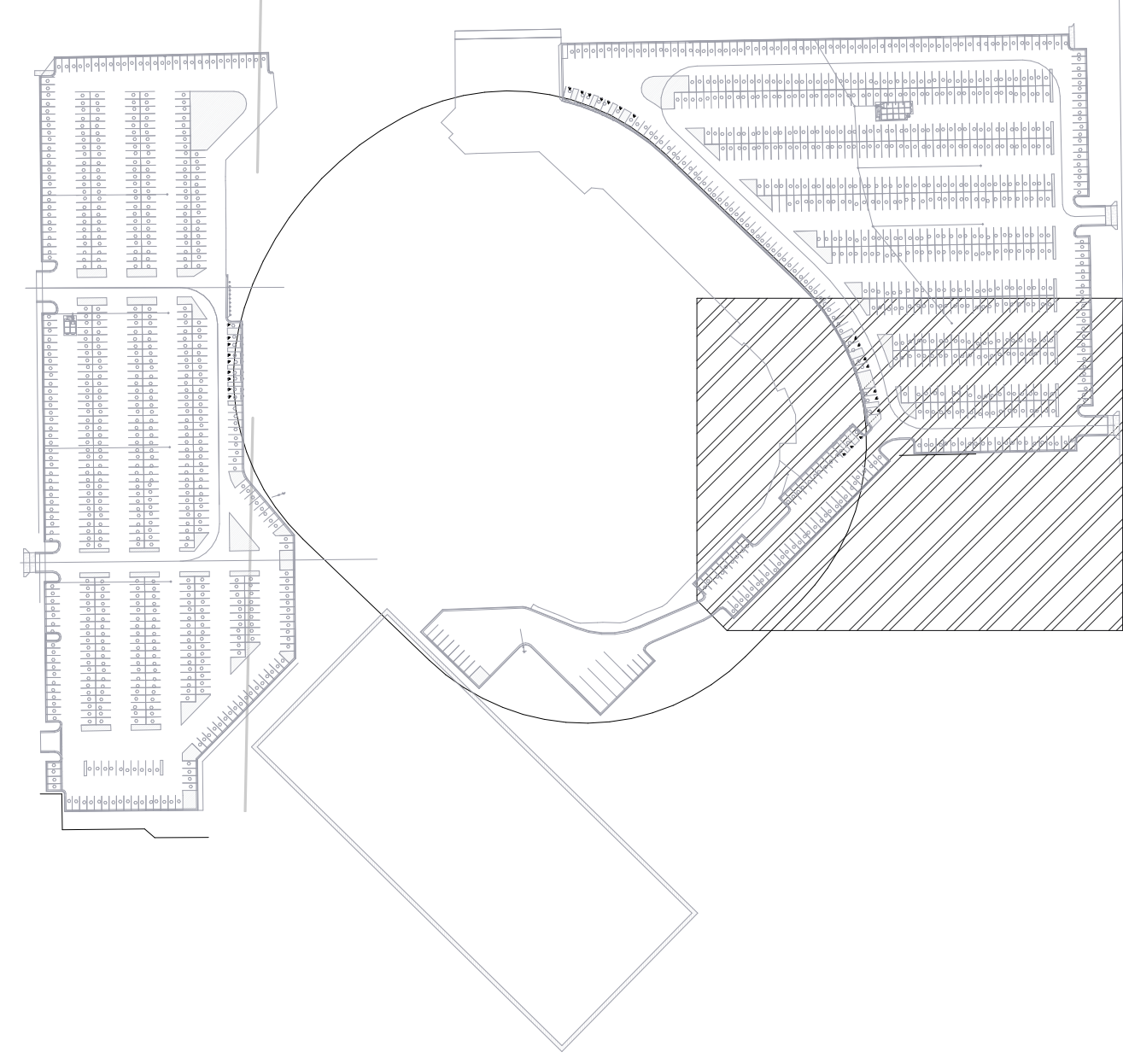


**General Sheet Notes**

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2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
4. Refer to specifications for additional requirements.
5. Demo all existing electrical conduit and pull boxes unless otherwise noted.

**Reference Keynotes**

1. Existing luminaire in new location on new pole and base.
2. New luminaire, pole and base.
3. Provide one 2" PVC conduit sleeve under roadway for future use.



1 ELECTRICAL SITE PLAN - AREA 7  
EP2.7 1" = 20'-0"



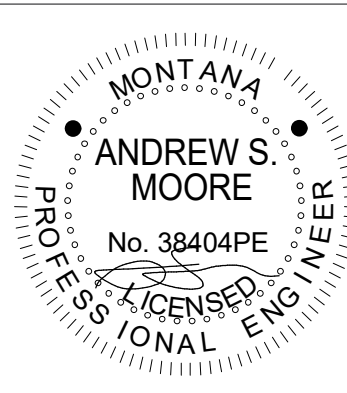
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PPA#22-0012  
A/E#00-00-00  
ELECTRICAL SITE PLAN - AREA 7

**EP2.7**

Date:  
03-14-2024

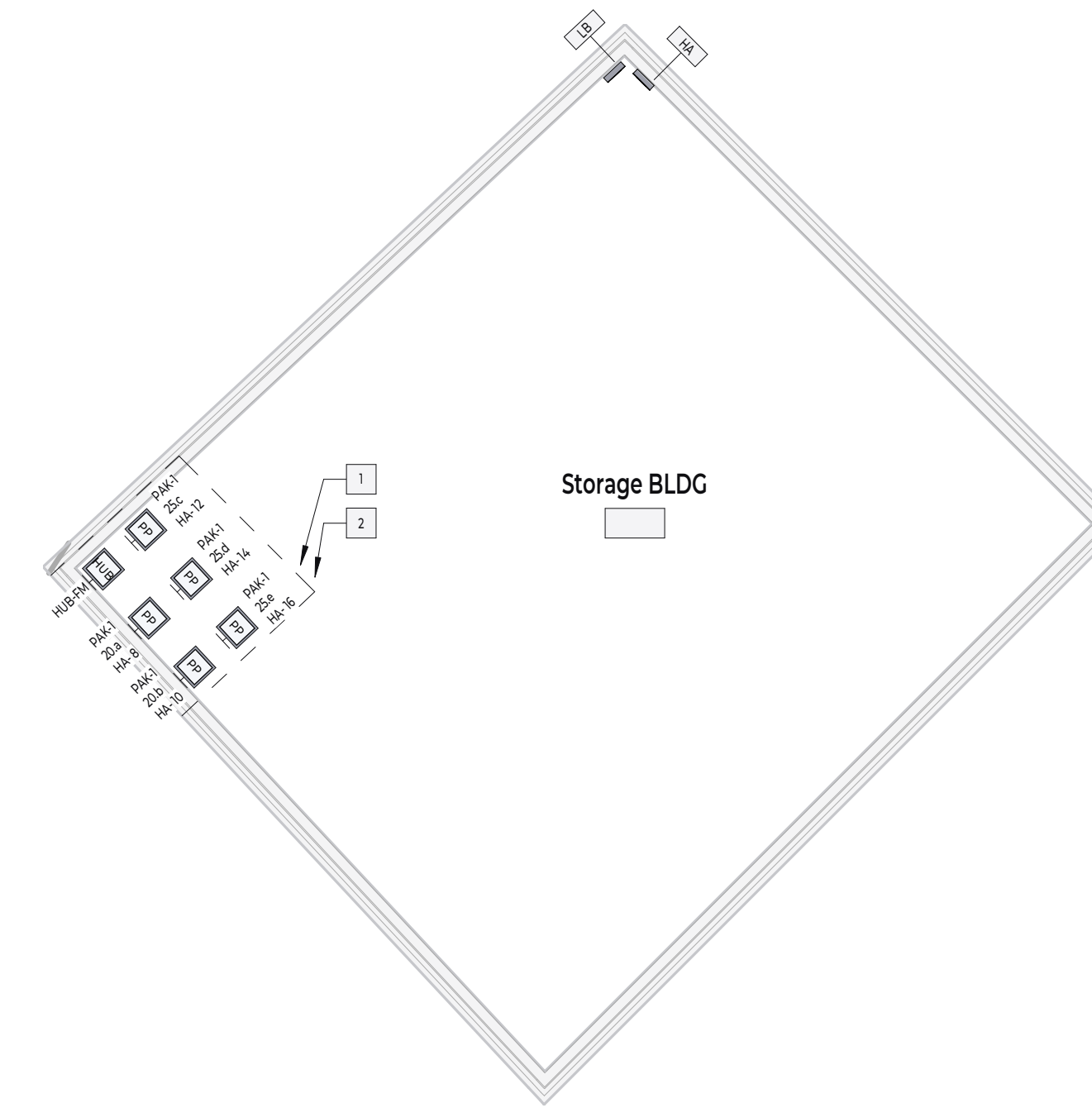


Type	Description	Manufacturer	Model	No. of Heads	No. of Poles	CCT	CRI	Dimming	Wattage	Lumens	Remarks
P01	Pole Head - Type 4 Distribution, Single Luminaire Assembly	Cardco	P26-64L-800-WW-G2-SF-4-Z77-FAWS-TLRD7-FI-BZ & PTF2-P26/34-1-90(F)	33	33	3000	80+	FAWS	92 VA	8854 lm	12,3,4,7
P02	Pole Head - Type 4 Distribution, Twin Luminaire Assembly	Cardco	P34-96L-800-WW-G2-SF-4-Z77-FAWS-TLRD7-FI-BZ & PTF34-2-180-(F)	24	12	3000	80+	FAWS	92 VA	8854 lm	12,3,4,7
P03	Pole Head - Type 4 Distribution, Twin Luminaire Assembly	Cardco	P26-64L-800-WW-G2-SF-4-Z77-FAWS-TLRD7-FI-BZ & PTF2-P26/34-2-180(F)	18	9	3000	80+	FAWS	92 VA	8854 lm	12,3,5,7
P04	Pole Head - Type 4 Distribution, Single Luminaire Assembly	Cardco	P34-96L-800-WW-G2-SF-4-Z77-FAWS-TLRD7-FI-BZ & PTF26/34-1-90(F)	5	5	3000	80+	FAWS	232 VA	26591 lm	12,3,6,7
P05	Pole Head - Type 4 Distribution, Single Luminaire Assembly	Cardco	P34-96L-800-WW-G2-SF-4-Z77-FAWS-TLRD7-FI-BZ & PTF26/34-1-90(F)	7	7	3000	80+	FAWS	232 VA	26591 lm	12,3,4,7

- NOTES:
- Luminaire model number, mounting accessories, and pole model number indicated in schedule model number separated by '&#x27;.
  - Pole to have a concrete base for all locations with parking surface and within 5' of driving surfaces.
  - Refer to I/E10.1 and 2/E10.1 for installation requirements.
  - Provide luminaire with Ameron MBO08.5 and a 2" Tenon for slip fitter.
  - Provide luminaire with Ameron MBO06 and a 2" Tenon for slip fitter.
  - Provide luminaire with Ameron MBO07 and a 2" Tenon for slip fitter.
  - Provide luminaire NEMA 7 pin with shorting cap for future photocell addition.

Type Mark	Manufacturer	Model	Description	Count	Notes
H-MOUNT	Lutron	H-MOUNT_SM	Vive Surface Mount Kit	1	1,2,3
HUB-FM	Lutron	H3S-O-FM	Vive Wireless HUB Without BACNET, Up to 75 Devices, Flush Mount	1	1,2,3
LSC	Lutron	LSC-B2	Commercial system 2-year warranty	1	1,2,3
LSC-OS	Lutron	LSC-OS-VU-VIVE	Vive system onsite full-scope startup	1	1,2,3
PAK-1	Lutron	RMJS-SR-DV-B	Vive PowPak Relay Module	5	1,2,3,4
VIVE-VUE	Lutron	VIVE-VUE	Vive Software License	1	1,2,3

- NOTES:
- EC to install a complete working system.
  - EC to provide startup, commissioning, and training services for lighting control system.
  - Refer to specifications for additional control system requirements.
  - EC to include an additional PowPak (RMJS-SR-DV-B) to cover unforeseen existing zoning.



1 Storage Building Electrical Plan  
E6.1  
NTS

General Sheet Notes

- Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
- The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
- All conductors shall be copper, unless otherwise noted. Minimum size shall be #10 AWG. Aluminum conductors are permitted above 100A.
- Refer to specifications for additional requirements.
- Demo all existing electrical conduit and pull boxes unless otherwise noted.

Reference Keynotes

- Provide and install new lighting control hub per lighting control equipment schedule. Provide connection to unswitched 120V, 20A circuit existing at this location.
- Lutron Vive hub and (5) power packs to be mounted in storage building where existing Wattstopper lighting panel is located.

Schedule || HA

Project	MSU Stadium Lots	Mounting	Placeholder	Bussing	225	Voltage	480/277 Wye
Panel ID	HA	KAIC Rating	10kA	Mains	225 A	Phases	3
Location	Storage BLDG	Feeder		Type	MCB	Wires	4

- Details:
- Circuit Breaker Protection Types |
- A = Arc-Fault Protection
  - G = Ground-Fault Personnel
  - D = Dual Arc-Fault and Ground-Fault Protection
  - E = Ground-Fault Equipment
  - L = Breaker Lock-Off Device
  - S = Furnish with Standard Breaker
  - ST = Shunt Trip Device

- Notes:
- Connect new lighting circuits to existing panel HA in the garage space.

CKT	Circuit Description	Wire	Type	Trip	Poles	A	B	C	Poles	Trip	Type	Wire	Circuit Description	CKT
1	(D) Lighting Panel Controller	--	--	20 A	3	0 VA	0 VA					--	Transformer	2
3	--	--	--	--	--	--	--					--	--	4
5	--	--	--	--	--	--	--	0 VA	0 VA	--	--	--	--	6
7	(D) Parking Lights	--	--	20 A	1	0 VA	1288 VA			1	20 A	S	1/2"C, #10, #10N, #10G	8
9	(D) Parking Lights	--	--	20 A	2	0 VA	1472 VA			1	20 A	S	1/2"C, #10, #10N, #10G	10
11	--	--	--	--	--			0 VA	2576 VA	1	20 A	S	South / East Lot   Lighting Pak	12
13	(D) Parking Lights	--	--	20 A	2	0 VA	920 VA			1	20 A	S	East Lot   Lighting Pak	14
15	--	--	--	--	--			0 VA	1944 VA	1	20 A	S	East Lot   Lighting Pak	16
17	Spare 1" Conduit	--	--	20 A	1			0 VA	0 VA	1	20 A	--	Spare 1" Conduit	18

Total Apparent Power Phase Loads:	2208 VA	3416 VA	2576 VA
Total Current Phase Loads:	8 A	13 A	10 A

Connected Loads:	Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panel Totals
Phase A:	Other	0 VA	0.00%	0 VA	Total Connected Load:
Phase B:	Lighting	8200 VA	100.00%	8200 VA	Total Estimated Demand:
Phase C:					Total Connected Current:
Total:					Total Estimated Demand Current:

Schedule || LB

Project	MSU Stadium Lots	Mounting	Placeholder	Bussing	125 A	Voltage	120/208 Wye
Panel ID	LB	KAIC Rating	10kA	Mains	125 A	Phases	3
Location		Feeder		Type	MCB	Wires	4

- Details:
- Circuit Breaker Protection Types |
- A = Arc-Fault Protection
  - G = Ground-Fault Personnel
  - D = Dual Arc-Fault and Ground-Fault Protection
  - E = Ground-Fault Equipment
  - L = Breaker Lock-Off Device
  - S = Furnish with Standard Breaker
  - ST = Shunt Trip Device

Notes:

CKT	Circuit Description	Wire	Type	Trip	Poles	A	B	C	Poles	Trip	Type	Wire	Circuit Description	CKT
1	Space	--	--	--	1	--	--			1	--	--	Space	2
3	(E) Track Score Board	--	--	20 A	2		0 VA	0 VA		2	20 A	--	(E) Track Scoreboard	4
5	--	--	--	--	--			0 VA	0 VA	--	--	--	--	6
7	(E) Track Scoreboard Outlet	--	--	20 A	2	0 VA	0 VA			2	20 A	--	(E) Track Scoreboard	8
9	--	--	--	--	--			0 VA	0 VA	--	--	--	--	10
11	(E) Track Scoreboard Outlet	--	--	20 A	2	0 VA	0 VA	0 VA	0 VA	2	20 A	--	(E) Track Scoreboard	12
13	--	--	--	--	--	0 VA	0 VA			--	--	--	--	14
15	(E) Phone Board	--	--	20 A	1		0 VA	0 VA		1	20 A	--	(E) Receptacle / Hammerthrow	16
17	(E) Interior Bldg Lights	--	--	20 A	1		0 VA	0 VA		1	20 A	--	(E) Receptacle	18
19	Space	--	--	1	--	0 VA				3	20 A	--	(E) Feed to Pressbox Panel	20
21	Space	--	--	1	--	--	0 VA			--	--	--	--	22
23	(E) West Receptacle	--	--	20 A	1			0 VA	0 VA	--	--	--	--	24
25	Space	--	--	20 A	1	--	--			1	--	--	Space	26
27	East Lot   Future Dual EV Charger	2"C, 2#4/0, #3/0N, #4G	S	20 A	2		4160 VA	4160 VA		2	50 A	S	East   Future Dual EV Charger	28
29	--	--	--	--	--			4160 VA	4160 VA	--	--	--	--	30

Total Apparent Power Phase Loads:	0 VA	8320 VA	8320 VA
Total Current Phase Loads:	0 A	80 A	80 A

Connected Loads:	Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panel Totals
Phase A:	Continuous	16640 VA	125.00%	20800 VA	Total Connected Load:
Phase B:					Total Estimated Demand:
Phase C:					Total Connected Current:
Total:					Total Estimated Demand Current:



MSU Stadium Lots  
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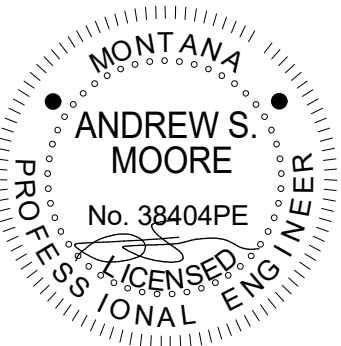
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PPA#22-0012

A/E#00-00-00

ELECTRICAL  
SCHEDULES &  
DIAGRAMS

E6.1

Date:  
03-14-2024