ITEM #: 2
DATE: 11-18-2026

CITY OF AMES
DEPARTMENT OF PLANNING AND HOUSING
REPORT TO THE ZONING BOARD OF ADJUSTMENT

REQUEST:

A Special Use Permit Request to allow construction of a Kwik Star Convenience Store at 3218 Cameron School Road within the Convenience General Service "CGS" zone.

BACKGROUND:

Kwik Star has an option agreement to purchase 3218 Cameron School Road in order to build a new 11,033 square foot convenience store with 8 gasoline fuel pumps, and a car wash. The site is located at the southwest corner of intersection of George Washington Carver Avenue and Cameron School Road and has a third street frontage along the new commercial street of Columbus Drive. The Convenience General Service (CGS) zoning for the site requires approval of a Special Use Permit.

CGS zoning is designed to address compatibility requirements with nearby residential areas with specific site and architectural design requirements. In addition to the current CGS zoning requirements, the site is subject to a Master Plan, approved by the City Council with the rezoning of the original property addressed as 3220 Cameron School Road on September 23, 2025. Relevant limitations include the location of the fueling positions on the south side of the site along Columbus Drive, minimum 20 foot landscaped front yards, and limit on sewer capacity for each developed lot. (See attached)

The site is also subject to conditions related to a pre-annexation agreement with the original developer for roadway improvements. The original developer that rezoned and platted the site, represented by Kurt Friedrich and Luke Jensen, is required to construct frontage improvements along GW Carver and Cameron School Road, by 2029. However, the developer has a tentatively approved amendment for a cash in lieu payment to the City of Ames for the City to construct an improvement, along with additional terms. The City may construct a roundabout in partnership with Story County or be responsible for a lane widening and signalization with the eventual extension of Stange Road to connect with Cameron School Road. The City estimates that road improvements could occur in 2028, subject to final agreements.

OPERATIONS:

The proposed convenience store would operate 24 hours a day and 7 days a week, including the car wash. Customer access will be from driveway along Cameron School Road and two driveways along Columbus Drive. The western most Columbus Drive is a shared driveway with planned commercial to the west. Fueling trucks arrival daily, and will access the site from Columbus Drive. Other deliveries will occur daily to supply the store, with access from Columbus and exiting to Cameron School Road.

SITE PLAN:
The subject property is approximately three acres with frontage along three streets. The principal building is a one-story 11,033 square foot convenience store. The site is access via two entrances along Columbus Drive and an entrance along Cameron School Road to the north. Additionally, there will be a westward cross access easement to two commercial properties to the west of the site. (See Site Plan)

The site will have 8 fueling stations under a canopy located directly south of the building. The store will have 8 fuel pumps for 16 total fueling positions. The fueling canopy is approximately 20 feet in height and 3,800 square feet. This location complies with a Master Plan approved in 2025.

A single bay automatic carwash is located along the north side of the building, access from the west and exiting to the east. The site also includes customary accessory uses for vacuums, air stations, and parking.

The site will have landscaped front yards on three sides of the site to the north, east and south. Along the north and east there will be a larger front yard area landscaped with trees, shrubs and grasses. This meets a minimum standard in the CGS zoning and the approved Master Plan of having at least a minimum 20 feet or greater front yard. The front yards have a mixture of shrubs, decorative grasses and overstory trees. A small detention pond will be located to the southeast of the building between the parking lot and GW Carver Avenue.

The parking lot area and maneuvering areas have an assortment of Overstory trees around the perimeter of the parking and maneuvering area to the west, east and south and immediately southeast of the building. The site is credited with 55 parking spaces provided on site. This includes 39 spaces of striped parking including ADA stalls, plus the 16 fuel station positions for vehicles.

Pedestrian access from abutting streets is provided to the north, east and south connecting to sidewalks along all abutting public streets. A connection will extend eastward along the building out to GW Carver Avenue. Additionally, pedestrian access through the site will extend along the west side of the site north and south connecting through the site and providing for future access to the west to future neighboring development. The sidewalk along the street are requirements of the prior Final Plat approval, the Kwik Star sidewalks must be installed no later than occupancy of the building.

Parking lot lighting will be provided along the boundaries of the parking lot as well as lighting underneath the canopy. The plan includes pole mounted lights, wall packs, and underneath canopy lighting. The poles are set along the perimeter of the paving, which allow for dissipation of light towards the street within the front yard landscape area.

The proposed lighting plan shows poles with a luminaire mounted height of 30 feet, which exceed the CGS standard of 25 feet. A condition is included to modify the design to meet lighting standards. The lighting temperature (which relates to whiteness (cool/warm) look of the light) has not been identified on the plan, but applicant indicates a typical of 5000 Kelvin. This light temperature will have a cool white tone with “daylight” type color rendering and brightness. The developer indicates this is their typical approach for a

commercial site. Generally, gas station operators favor high levels of lighting output and color rendering, especially under a canopy, compared to other commercial uses. However, the combination of light temperature with a high intensity of lighting in terms of lumens per luminaire can cause indirect glow of a site. Typical shielding controls of luminaires intended to meet dark sky and horizontal compatibility requirements of the Ames Zoning Ordinance do not directly address total lumen output or color temperature. **Staff has recommended a condition to explore with the applicant alternative light temperature ratings for the site lighting.**

A lighting strip will be located underneath the gables on the building which will project inward to the building wall. A lighting plan is included from the applicant depicting the site lighting. **Staff is finalizing a detail for a cut off strip to fully shield this light from shining outward per City requirements. Prior to final occupancy a cut off shield and compliant wall pack lights must be approved by staff.**

Kwik Star proposes signage to be located at three locations as wall signs under the gables located on the south, east and north side of the building. Additionally, they propose two monument signs. One located along GW Carver Avenue east of the building and one along Cameron School Road north of the building. **The signage is not reviewed as part of the Special Use Permit and is reviewed as a separate administrative permit. Kwik Star is currently requesting a text amendment to the CGS sign standards to permit the size and quantity of signs shown. Additionally, there is a pending request to initiate a sign code change to allow for an electronic message center sign with a monument sign.**

SHARED DRIVEWAY ACCESS:
The site the convenience store is proposed on abuts two lots to the west of this site that are zoned CGS zoning. The CGS zone standards require interconnectivity between abutting CGS zoned lots. Kwik Star has secured preliminary agreements for cross access of pedestrians and vehicles between these properties. This is being required at this stage of Site Plan approval with the Special Use Permit. The easements have been drafted with final language. **Signatures must still be secured with the neighboring property owners prior to any issuance of a Building Permit.**

BUILDING DESIGN:
The CGS standards place requirements on the building design such as the roof design, facade relief and façade treatment. The standards require pitched roofs and gables for roof design. Façade treatments such as brick or other high-quality masonry. Also breaks and relief in wall planes and intervals along walls such as wall variation, windows and other openings to break up large expanses of solid walls. The full design standards are found in Zoning Ordinance Section 29.810. (4).

The building being proposed has a pitched roof with gables on three sides of the building, numerous windows will be located along the east and south sides of the building along with building entrances. The roof material will consist of standing seam metal roofing. A carwash extension will be located on the north side of the building which provides for façade relief. Additionally, some façade relief will be located along the west side of the building. The façade treatment will consist of all brick on all sides with tan soldier course accents and tan stucco treatment on the gabled portions of the building. (See architectural Elevations)

PUBLIC COMMENTS:

Notification was made to all owners of property within 400 feet. A notice of public hearing was placed on the property and published in the newspaper.

Staff received one email from a neighbor to the west of the site along Cameron School Road. The letter is included for ZBA consideration. The letter addresses concerns about the timing of planned roadway improvements and the compatibility of Convenience Store facility with the surroundings believing the proposal does not attain the standards for approval.

APPLICABLE LAW:

Findings for consistency with applicable law are included as an attachment. The primary standards are listed below.

Chapter 29, Section 29.1503(4)(a)(b) and (e) of the *Municipal Code* states the following:

(4) ***Review Criteria.*** *Before a Special Use Permit application can be approved, the Zoning Board of Adjustment shall establish that the following general standards, as well as the specific standards outlined in subsection (b) below, where applicable, have been or shall be satisfied. The Board's action shall be based on stated findings of fact. The conditions imposed shall be construed as limitations on the power of the Board to act. A mere finding that a use conforms to those conditions or a recitation of those conditions, unaccompanied by specific findings of fact, shall not be considered findings of fact for the purpose of complying with this Ordinance.*

(a) General Standards. The Zoning Board of Adjustment shall review each application for the purpose of determining that each proposed use meets the following standards, and in addition, shall find adequate evidence that each use in its proposed location will: (The standards are listed in this report below.)

(*b) Commercial Zone Standards. The Zoning Board of Adjustment shall review each application for the purpose of determining that each proposed use located in a commercial zone meets the following standards as well as those set forth in Section 29.1503(4)(a) above and, in addition, shall find adequate evidence that each use in its proposed location will… [The specific criteria are listed in this report below.]*

(e) Conditions. The Board may impose such additional conditions it deems necessary for the general welfare, for the protection of individual property rights, and for ensuring that the intent and objectives of this Ordinance will be observed."

STATEMENT OF APPLICANT IN SUPPORT OF PROPOSAL:

The applicant has provided the attached application including statements as to how the proposed Convenience Store meets the requirements for a Special Use Permit.

ALTERNATIVES:

1. The Zoning Board of Adjustment can approve the request for a Special Use Permit to construct a new Convenience Store at 3218 Cameron School Road with the following conditions:
   A. Signatures on cross access easements between Kwik Star and the property owner of the two lots abutting this site to the west be finalized before issuance of a building permit.
   B. A final cut off shield for the lighting proposed under the eaves on the building gables must be approved by staff.
   C. Removal of or modification of the wall pack lights to City standards as approved by City staff prior to issuance of building permit.
   D. Modify the lighting plan for pole height to not exceed 25 feet per CGS standards, and submit the lighting plan for staff review of maximum lighting levels and uniformity levels prior to issuance of a building permit.
   E. Explore light temperature ratings of less than 5000 Kelvin with staff to reduce potential site glow and indirect glare with warmer color tones prior to approval of a building permit.

2. The Zoning Board of Adjustment can approve the request for a Special Use Permit to construct a new Convenience Store at 3218 Cameron School Road with modified or additional conditions.

3. The Zoning Board of Adjustment can deny the request for a Special Use Permit to construct a new Convenience Store at 3218 Cameron School Road if it finds the request does not meet the General standards or Commercial Standards of the Special Use Permit criteria

RECOMMENDED ACTION:

Staff has reviewed the Special Use Permit request and finds that the proposed Convenience Store can be found to meet the standards of the CGS zone as well as the General Standards and Commercial Standards to receive a Special Use Permit, subject to conditions. The store can be found to be harmonious in its appearance and is not expected to produce operational effects that would be adverse to the existing and planned surrounding neighborhood.

Staff has worked to ensure that lighting output meets city lighting standards and with the conditions listed in Alternative #1 believes that the remaining items can be addressed prior to issuance of a building permit and final occupancy.

Therefore, based upon the Findings of Fact and Conclusions above, it is the recommendation of the Department of Planning and Housing that the Zoning Board of Adjustment act in accordance with Alternative #1, including the conditions of approval.

FINDINGS OF FACT & CONCLUSIONS:

Based upon the submitted information and site plan provided in the application, the following findings of fact and conclusions may be made regarding the standards of approval.

Special Use Permit – General Standards.

(i) Be harmonious with and in accordance with the general principles and proposals of the Comprehensive Plan of the City.

Findings of Fact: *Ames Plan 2040* designates the property as Neighborhood Core (NC). The land use designation supports the CGS zone which this property is zoned. The CGS zone allows for construction of a convenience store with a permit approved by the Zoning Board of Adjustment.

Conclusions: The CGS zone allows for construction of a convenience store subject to review of a Special Use Permit by the Zoning Board of Adjustment. The CGS zone has standards that a convenience store must meet in terms of site and building design. Based on staff review the standards have been met. **Therefore, it can be concluded that the use meets General Standard (i) for a Special Use Permit.**

(ii) Be designed, constructed, operated and maintained so as to be harmonious and appropriate in appearance with the existing and intended character of the general vicinity and that such a use will not change the essential character of the area in which it is proposed.

Findings of Fact: The building is proposed with a design and materials that meet the standards of the CGS zone with gabled elements to the roofs as well as the appropriate roof pitch as required by the CGS zone. The façade of the building has relief elements in the walls which vary at the required intervals as well as a material treatment consisting of brick which is an approvable and encouraged façade treatment in CGS. These features support design compatibility and scale with the surroundings.

The Site Plan includes fully landscape 20 foot front yards with low growth buffering vegetation and trees. The light plan identifies project lighting levels for the site. All lighting has to meet down light requirements of the City. The Plan as proposed is similar to lighting levels of recently built stores in other commercial areas with substantial lighting levels averaging over 4-foot candles across the site, with a maximum under the canopy of 51-foot candles. Foot candle levels dissipate at the property lines to minimize light trespass.

The operations will be that of a 24/7 convenience store with daily deliveries, typical of this type of use.

Conclusions: The proposed building is designed to be harmonious with the surrounding area, which is planned for a mix of residential and commercial uses. Its brick façade and gabled roof resemble what would be expected near single-

family neighborhoods, such as those being built to the west, and near small-scale commercial uses and the medium-density 1-story senior living facility planned to the south. As a convenience store, the use is intended for refueling vehicles and for customers who walk in to buy food and minor daily items. The signage and lighting proposed on the building, canopy, and site meet the City's lighting output standards, subject to conditions. **Therefore, it can be concluded that the use meets General Standard (ii) for a Special Use Permit.**

(iii) Not be hazardous or disturbing to existing or future uses in the same general vicinity.

Findings of Fact: The use will be that of a convenience store located in the CGS zone. The expected activities will include passenger vehicles coming and going for retail items and fuel. The store will have some wall signage and monument signage as well as on-site lighting on the perimeter of the parking lot and underneath the canopy. A carwash will be located on the north side of the building, the applicant has included noise attenuation with the carwash design. The carwash with blowers will be on the east side exiting towards GW Carver and provided a noise assessment that indicates noise levels to the east will meet City requirements on a five minute average level.

There are two CGS zoned lots abutting the site to the west. The intersection of Cameron School Road and GW Carver Avenue is adjacent to the site to the northeast. A senior living facility will be located directly south of the site. Future residential will be located further east across GW Carver Avenue. Emerging single-family residential is being built one block to the southwest, beyond the commercial sites. Future commercial or housing may exist across GW Carver with the extension of Stange Road.

The closest existing home to the west is approximately 400 feet. The closest existing home to the east is approximately 280 feet from the site.

Conclusions: Based upon the anticipated use the operation of a convenience store is not seen to be hazardous to the surrounding area and will not disturb the surrounding area in a manner that is unexpected of a convenience store use along an arterial street that meets CGS zone standards. Access to the site is planned from commercial streets and is not planned to occur from residential streets. The noise assessment indicates the property will be able to conform with City decibel levels for commercial and residential areas of 65 dBa and 55 dBa.

The developer is aware of the gas transmission line and its easement and other uses throughout the city have been built adjacent to a gas main easement within incident.

Therefore, it can be concluded that the use meets General Standard (iii) for a Special Use Permit.

(iv) Be served adequately by essential public facilities and services such as highways, streets, police, fire protection, drainage structures, refuse disposal, water and sewage facilities, and/or schools.

Findings of Fact: The site will take access from Columbus Drive to the south, a local street and Cameron School Road to the north. GW Carver Avenue will abut the site to the east and connects to Cameron School Road and Columbus Drive. All city services will be available to the site, water is provided by Xenia in accordance with a water service agreement. All other public services as seen as adequate to serve the site.

The site is serviced by regional storm water management facilities within the Bluff subdivision and include additional onsite storm water management at the southeast corner of the site.

At the time of rezoning the City Council determined the current level of service for fire response time was satisfactory for development of this area. The City plans to improve fire response time to the area with a future fire house within the planned Greenbriar development to the east.

Conclusions:

The proposed use is consistent with the land use assumptions at the time of rezoning, including the Master Plan. The applicant anticipates starting the store construction in 2028, which is planned to be coordinated with street improvements being negotiated with the original developer. Sidewalks are required to be installed per the final plat approval. The use is consistent with assumed sanitary sewer capacity of the Zoning Master Plan. **Therefore, it can be concluded that the use meets General Standard (iv) for a Special Use Permit.**

(v) Not create excessive additional requirements at public cost for public facilities or services.

Findings of Fact: The convenience store is not seen to create unforeseen or excessive requirements of public facilities. Planned full public services and infrastructure are available to the site. The use is consistent with prior public service and infrastructure studies at the time of zoning and final plat approval.

Conclusions: **Therefore, it can be concluded that the use meets General Standard (v) for a Special Use Permit.**

(vi) Not involve uses, activities, processes, materials, and equipment or conditions of operation that will be detrimental to any person, property, or general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

Findings of Fact: The convenience store use will produce varying levels of traffic on Columbus Drive and Cameron School Road as well as GW Carver Avenue, which is an arterial street, throughout the day. The store will serve passenger vehicles and customers as well as provide a single bay carwash service consistent with other Kwik Star facilities in the City. The carwash is a unique use associated with the proposal due to potential noise generation. The facility is on the north side

and most sound would occur with blowers at the exit, but sound will dissipate per the applicant's analysis in conformance with City standards.

Conclusions: Based upon the anticipated operation of the store, the level of traffic will be typical of what is anticipated of a convenience store that serves the immediate area along an arterial street. This use as a permitted use in the CGS zone can be anticipated from time to time. As an 11,033 square foot convenience store there is not seen to be any unusual activities or conditions that would produce excessive noise, smoke, fumes, glare or odors based upon experience with similar facilities in other areas of the City. **Therefore, it can be concluded that the use meets General Standard (vi) for a Special Use Permit.**

(vii) Be consistent with the intent and purpose of the Zone in which it is proposed to locate such use.

Findings of Fact: The use of a Convenience Store is allowed in the CGS zone subject to review and approval of a Special Use Permit. Staff has completed its review. The use meets the zoning standards and any conditions imposed.

Conclusions: **Therefore, it can be concluded that the use meets General Standard (vii) for a Special Use Permit.**

Special Use Permit – Commercial Standards.

(i) Be compatible with the potential commercial development and use of property planned to occur in the area.

Findings of Fact: The site abuts two smaller unbuilt commercial lots to the west which will have cross access rights among one another with this site. As a convenience store use in CGS zone. The site is coordinated for cross access with other commercial development.

Conclusions: **Therefore, it can be concluded that the use meets Commercial Standard (i) for a Special Use Permit.**

(ii) Represent the sufficiently desirable need for the entire community that the loss of commercial land is justifiable in relation to the benefit.

Findings of Fact: The proposed use is a convenience store which is allowed when approved with a Special Use Permit. CGS is a commercial zone and allows convenience stores as a commercial use.

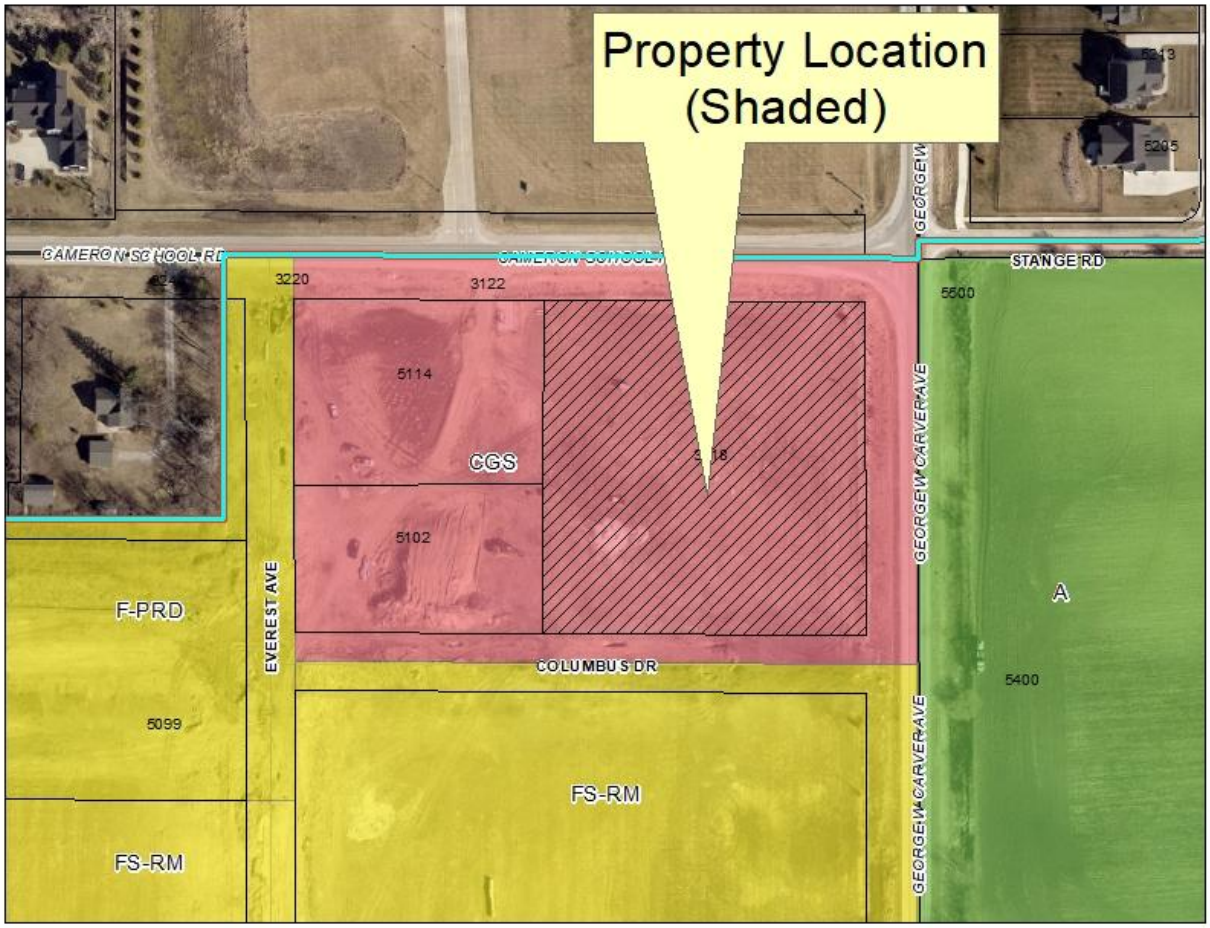
Conclusions: The proposed use is a commercial use as a convenience store allowed in the CGS zone when approved with a Special Use Permit. There is not seen to be a loss of commercial land relative to what would otherwise be anticipated. **Therefore, it can be concluded that the use meets Commercial Standard (ii) for a Special Use Permit.**

(iii) Be consistent with all other applicable standards in the zone.

Findings of Fact: The proposed convenience store meets all applicable site development and design standards in the CGS zone based on staff review and the conditions attached in this report..

Conclusions: **Therefore, it can be concluded that the use meets Commercial Standard (iii) for a Special Use Permit.**

Attachment A – Location Map





Location & Zoning Map
3218 Cameron School Road

Legend
AMES INCORPORATED LIMITS
PARCELS
Zoning District
Agriculture
Agricultural Zone "A" (sec 29.600)
Residential
Residential Low Density Zone "RL" (sec 29.701)
Commercial
Convenience General Service "CGS" (sec 29.810)
Floating Zones
Suburban Residential Zone Residential Low Density "FS-RL" (sec 29.1202(4)-1)
Suburban Residential Zone Residential Medium Density "FS-RM" (sec 29.1202(4)-2)
Planned Residence District "F-PRD" (sec 29.1203)
STREET LABELS - ALL @ 50000FT
Private
ISU Road
City Road
County Secondary
County Hwy
State Hwy
US Hwy
US Interstate Hwy
AddressPoint
48876E344203N.sid
RGB
Red: Band 1
Green: Band 2
Blue: Band 3

Attachment B- Site Development Plan & Architecturals (In Packet)

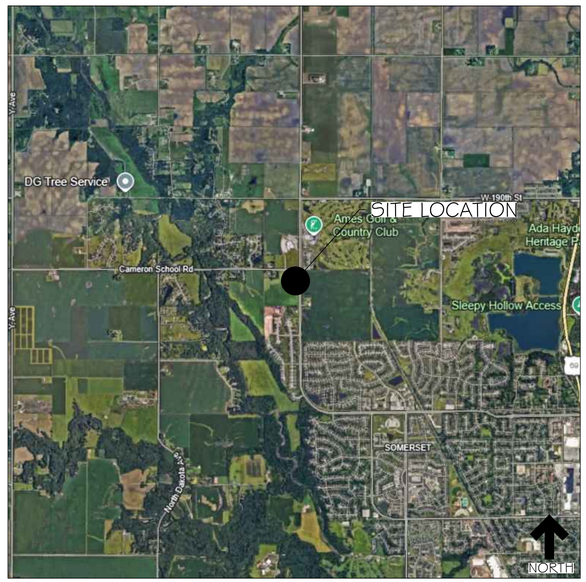
Attachment C- Rezoning Master Plan (In Packet)

Attachment D- Noise Study(In Packet)

SITE IMPROVEMENT PLANS FOR:

KWIK STAR #1904
AMES, IA

SITE LOCATION MAP:



SITE AERIAL MAP:



DRAWING INDEX	
C001	TITLE SHEET
C010	ALTA SURVEY
C100	SITE PLAN
C101	SITE KEYNOTE PLAN
C180	SITE CIRCULATION PLAN
C181	SITE DIMENSION PLAN
C200	GRADE PLAN
C201	GRADE PLAN DETAIL
C300	STORM SEWER PLAN
C301	STORM SEWER NOTES & DETAILS
C400	UTILITY PLAN
C401	UTILITY NOTES & DETAILS
C500	SITE PLAN DETAILS
C501	SITE PLAN DETAILS
C502	SUDAS SITE PLAN DETAILS
C600	EROSION CONTROL PLAN
C601	EROSION CONTROL NOTES
C602	EROSION CONTROL DETAILS
C603	EROSION CONTROL DETAILS
C700	LANDSCAPE PLAN
C701	LANDSCAPE CALCULATIONS
C702	LANDSCAPE COMPLIANCE PLAN
C800	PHOTOMETRIC SITE PLAN
C801	PHOTOMETRIC RENDERING PLAN
C802	PHOTOMETRIC SCHEDULE

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Mike Kettler, Reg. No. 18845
My license renewal date is December 31, 2027
Pages or sheets covered by this seal:
C300, C301, C400, C401

I hereby certify that this document was prepared by me or under my direct personal supervision and that I am a duly licensed Landscape Architect under the laws of the State of Iowa.

Robert Mueller, Reg. No. 00377
My license renewal date is June 30, 2027
Pages or sheets covered by this seal:
C100, C180, C181, C200, C201,C500
C501, C502, C600, C601, C602, C603, C700, C701, C702

I hereby certify that this document was prepared by me or under my direct personal supervision and that I am a duly licensed Architect under the laws of the State of Iowa.

Amy Sullivan, Reg. No. 08860
My license renewal date is June 30, 2027
Pages or sheets covered by this seal:
C800, C801, C802

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KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
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PH. (608) 781-8988
FAX (608) 781-8960

TITLE SHEET

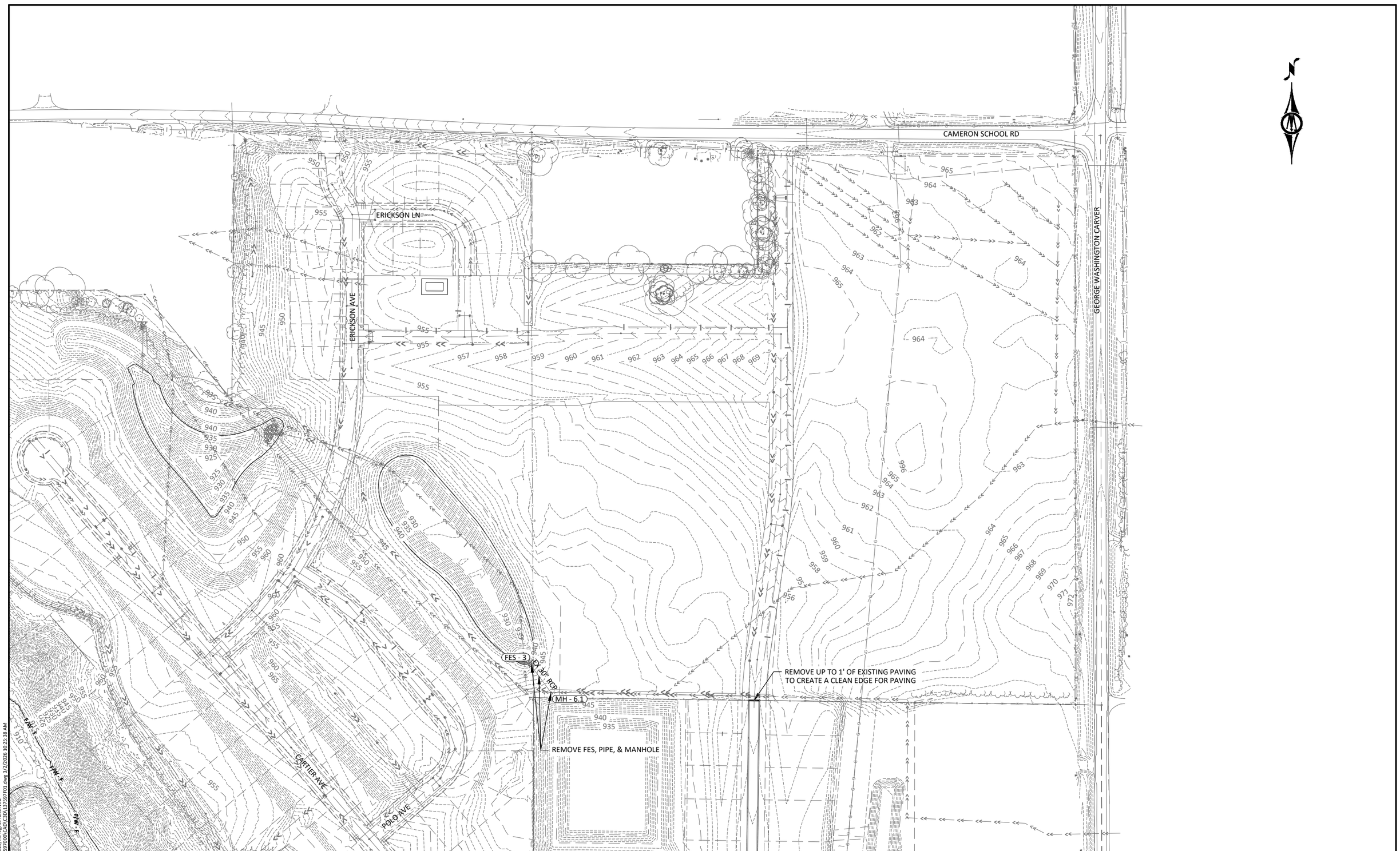
CONVENIENCE STORE 1904

AMES, IOWA

NO.	DATE	DESCRIPTION
	05-21-26	INTERNAL REVIEW
	07-08-26	ISSUE FOR SUBMITTAL
	2026-08-21	IFS2
	2026-10-27	IFS3
	2026-11-03	IFS4

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C001**

INSITES 26-013 PM N.B.



HORZ. 0 100 200
SCALE FEET

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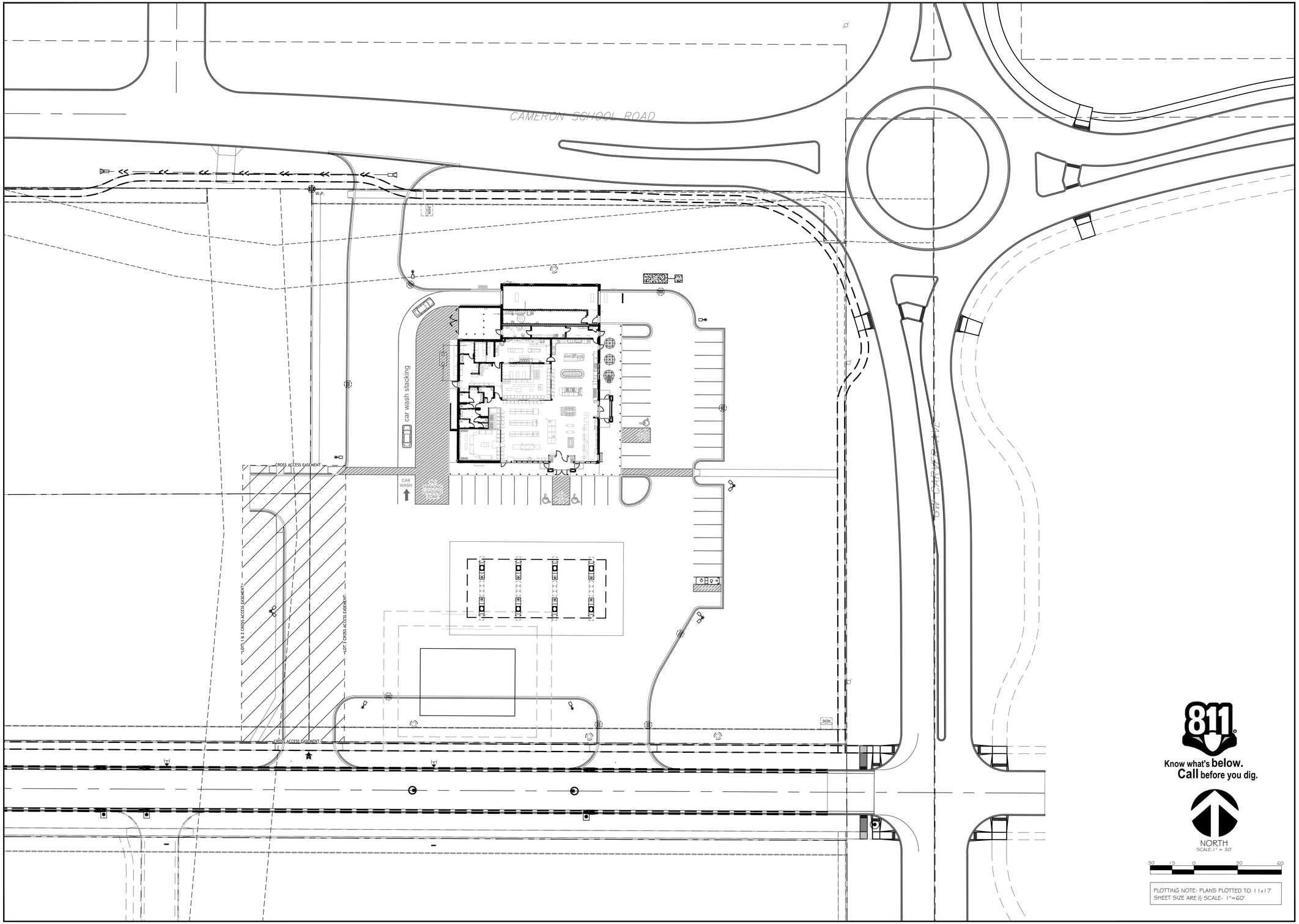
BOLTON & MENK
1519 BALTIMORE DRIVE
AMES, IOWA 50010
Phone: (515) 233-6100
Email: Ames@bolton-menk.com
www.bolton-menk.com

DESIGNED	TWA
DRAWN	TWA
CHECKED	GAB
BMI PROJ. NO.	24X.137597

REV	DESCRIPTION	DATE

FRIEDRICH LAND DEVELOPMENT LLC
THE BLUFFS
EXISTING CONDITIONS & REMOVALS

SHEET
F.01



811 Know what's **below.** **Call** before you dig.

NORTH
SCALE: 1" = 30'

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

insites
SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insitesinc.net mail@insitesinc.net

LICENSED LANDSCAPE ARCHITECT
Robert Mueller
0037
IOWA
11/03/26

SITE PLAN

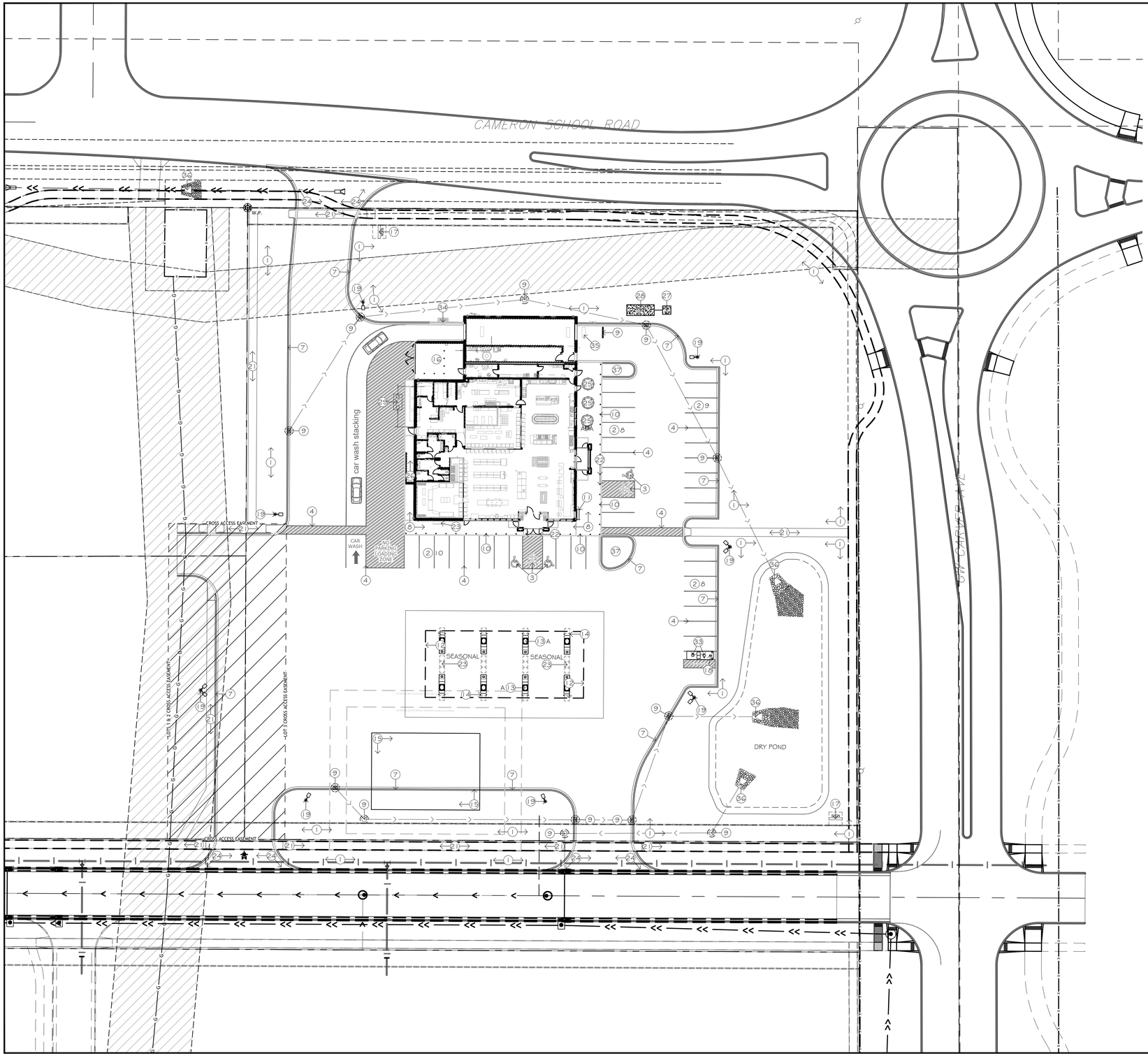
CONVENIENCE STORE 1904

AMES, IOWA

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	2026-11-03	IFS4

DRAWN BY	
SCALE	GRAPHIC
PROJ. NO.	26-1904
DATE	04/21/2026
SHEET	C100

INSITES 26-013 PM N.B.



SITE PLAN KEYNOTES

1. LANDSCAPE AREA. SEE SHEET C700.
2. OFF-STREET PARKING STALLS
   STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY WHITE PAINT.
   SPACES PROVIDED
   (16) SERVICE POINTS
   (2) DIESEL POINTS
   (34) 9'-0"x 18'-0"(MIN.) GENERAL PARKING
   (3) 8'-0"x 20'-0" ACCESSIBLE PARKING WITH
   (1) 11'-0"x 18'-0" ACCESSIBLE ZONE
   (2) 11'-0"x 18'-0" VACUUM STALLS WITH
   (1) 5'-0"x 18'-0" VACUUM ACCESSIBLE ZONE
   (1) 23'x 90' LOADING ZONE
3. A.D.A. ACCESSIBLE PARKING SPACE WITH LOADING ZONE. PROVIDE APPROPRIATE STRIPING AND PAVEMENT MARKINGS.
4. 4" WIDE, HIGH VISIBILITY PAINT
5. (NOT USED) 6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C.
   CONCRETE SEALER: TK-26UV
6. (NOT USED) 8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 3' O.C.
   CONCRETE SEALER: TK-26UV
7. BG-12 CONCRETE CURB AND GUTTER PER DETAIL 11/C500.
8. 6" INTEGRAL CONCRETE WALK/CURB. SEE DETAIL 7/C500 FOR NON-FLUSH SECTIONS.
   CONCRETE SEALER: TK-26UV
9. STORM STRUCTURE. SEE SHEETS C200-C400 FOR FURTHER STORM SEWER INFORMATION.
   A. CATCH BASIN CURB INLET PER DETAIL 5/C501
   B. MANHOLE, FRAME AND COVER PER DETAIL 8/C501
   C. TRENCH DRAIN PER DETAIL 6/C501
   D. OIL SKIMMER CATCH BASIN PER DETAIL ON SHEET C300
10. 30" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD PER DETAIL 9/C500.
11. 8 STALL BIKE RACK WITH 4" CONCRETE PAD
    (BRP 300 TRADITIONAL BIKE RACK-SINGLE SIDE
    PORTABLE/ SURFACE MOUNT ENDS
    FUSION COATINGS - A DIVISION OF RTM INC.
    TO BE PROVIDED BY OWNER)
12. 40'-0"x 120'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. COLUMNS TO BE BRICKED FROM GRADE TO CANOPY DECK. CANOPY GRAPHICS PER OWNER.
13. CONCRETE ISLANDS W/ 6" EXPOSURE WITH FUEL DISPENSERS. DISPENSER PER OWNER.
    A. 3'-6"x 7'-0"
14. 36" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD PER DETAIL 8/C500.
15. UNDERGROUND FUEL STORAGE TANKS PER OWNER. PROVIDE PIPING AND VENTING PER OWNER'S SPECIFICATIONS.
16. EXTERNAL TRASH ENCLOSURE TO MATCH BUILDING. SEE ARCHITECTURAL DETAILS.
17. KWIK TRIP TRADEMARK SIGN (VERIFY LOCATION WITH SIGN PERMIT)
18. 'FREE AIR' COMPRESSOR. PROVIDE SIGNAGE PER OWNER.
19. SITE AREA LIGHT WITH CONCRETE BASE PER DETAIL 12/C500
20. (NOT USED) PVC IRRIGATION SLEEVE UNDER PAVEMENT. VERIFY W/ IRRIGATION PLAN FOR EXACT SIZE AND LOCATION BEFORE INSTALLATION.
21. 4" DEPTH CONCRETE WALK PER DETAIL 3/C500
22. HC PVC BOLLARD SLEEVE PER OWNER. VAN ACCESS SIGNAGE AT 48" HT. STALL PARKING AT 60" HT.
23. OUTDOOR MERCHANDISING AREA
24. 8" CONCRETE APPROACH
25. PICNIC TABLE PER OWNER. PROVIDE 1 HC. ACCESS TABLE SPACE. PROVIDE TRASH CONTAINER PER OWNER.
26. EXTERIOR DELIVERY 'TOTE' STORAGE WITH SCREEN WALL
27. ELECTRICAL TRANSFORMER
28. ELECTRIC DISCONNECT
29. GREASE INTERCEPTOR
30. 5' WIDE, 5" DEPTH CONCRETE SIDEWALK. PROVIDE PEDESTRIAN ACCESS THROUGH APPROACH LOCATIONS. WALK TO MEET ADA STANDARDS
31. (NOT USED UNTIL BID) REJECT GUTTER- TIP GUTTER AWAY FROM FACE OF CURB FOR SHEET FLOW
32. (NOT USED UNTIL BID) PAINT TAPERING EDGE FOR HIGH VISIBILITY
33. VACUUM PER MANUFACTURE'S SPECIFICATIONS, SEE DETAIL 2/SP5
34. CAR WASH KEY PAD/ CONTROLLER. PROVIDE TRASH CONTAINER
35. 6" CONCRETE PAD WITH SNOW MELT PER MECHANICAL PLANS
36. STORM OUTFALL WITH RIP RAP, SEE DETAIL 3/C501
37. CONCRETE CURB ISLAND

811 Know what's below. Call before you dig.

NORTH
SCALE: 1" = 30'

30 15 0 30 60

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
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FAX (608) 781-8960

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Plymouth, Minnesota 55441
763 . 383 . 8400
insitesinc.net mail@insitesinc.net

LANDSCAPE ARCHITECT Robert Mueller 00376 IOWA
11/03/26

SITE KEYNOTE PLAN

CONVENIENCE STORE 1904

AMES, IOWA

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PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C101**

INSITES 26-013 PM N.B.

CAMERON SCHOOL ROAD

W.P.

SIGN

car wash stacking

CAR WASH

ENTRY ONLY

EXIT ONLY

WB-67 - Interstate Semi-Trailer

SIGN

GW CARVER BLVD

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LICENSED LANDSCAPE ARCHITECT
Robert Mueller
00377
IOWA
11/03/26

SITE CIRCULATION PLAN

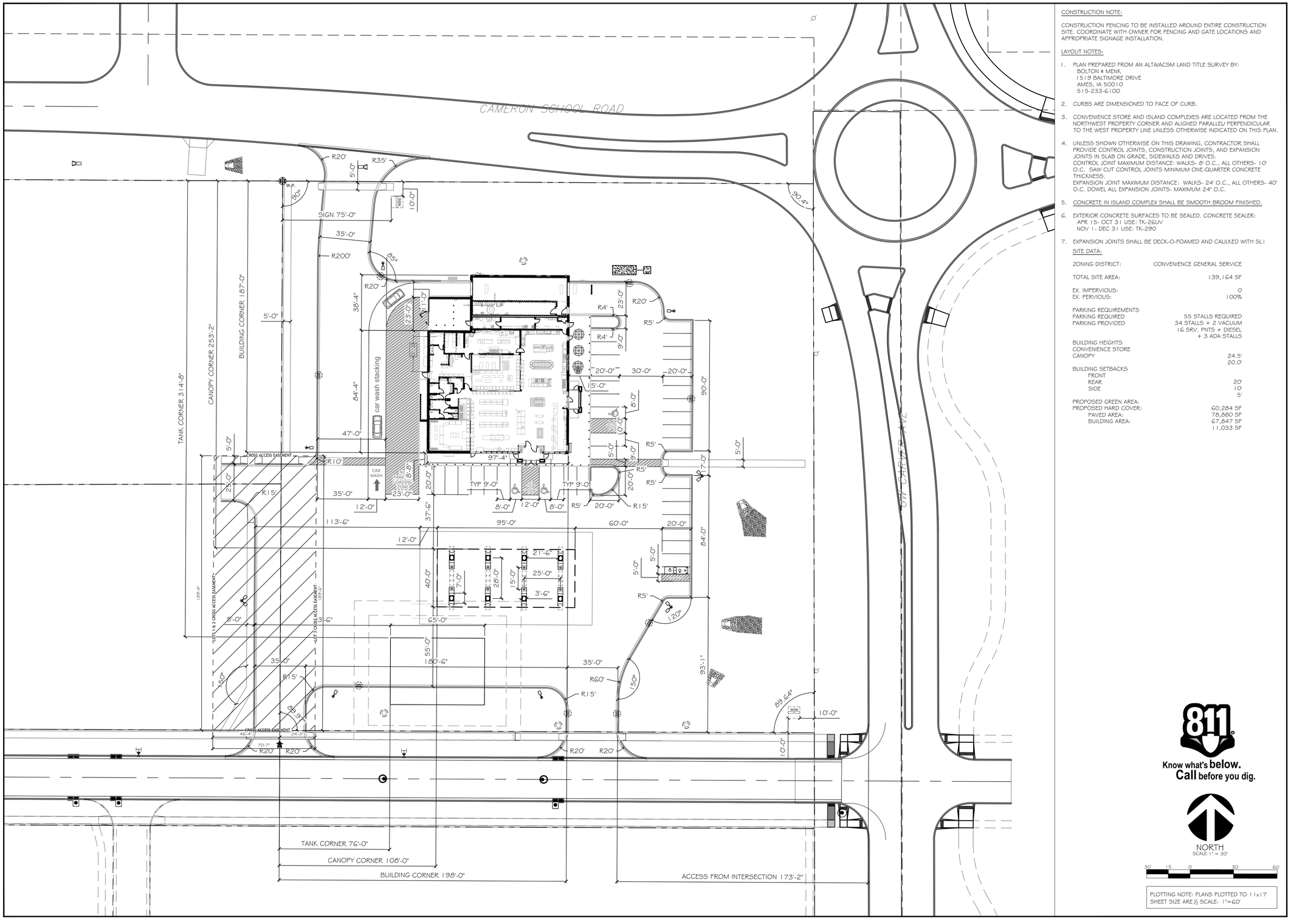
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DATE 04/21/2026
SHEET **C180**

INSITES 26-013 PM N.B.



CONSTRUCTION NOTE:

CONSTRUCTION FENCING TO BE INSTALLED AROUND ENTIRE CONSTRUCTION SITE. COORDINATE WITH OWNER FOR FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

LAYOUT NOTES:

1. PLAN PREPARED FROM AN ALTA/ACSM LAND TITLE SURVEY BY:
   BOLTON & MENK
   1519 BALTIMORE DRIVE
   AMES, IA 50010
   515-233-6100
2. CURBS ARE DIMENSIONED TO FACE OF CURB.
3. CONVENIENCE STORE AND ISLAND COMPLEXES ARE LOCATED FROM THE NORTHWEST PROPERTY CORNER AND ALIGNED PARALLEL/ PERPENDICULAR TO THE WEST PROPERTY LINE UNLESS OTHERWISE INDICATED ON THIS PLAN.
4. UNLESS SHOWN OTHERWISE ON THIS DRAWING, CONTRACTOR SHALL PROVIDE CONTROL JOINTS, CONSTRUCTION JOINTS, AND EXPANSION JOINTS IN SLAB ON GRADE, SIDEWALKS AND DRIVES.
   CONTROL JOINT MAXIMUM DISTANCE: WALKS- 8' O.C., ALL OTHERS- 10' O.C. SAW CUT CONTROL JOINTS MINIMUM ONE-QUARTER CONCRETE THICKNESS.
   EXPANSION JOINT MAXIMUM DISTANCE: WALKS- 24' O.C., ALL OTHERS- 40' O.C. DOWEL ALL EXPANSION JOINTS- MAXIMUM 24" O.C.
5. CONCRETE IN ISLAND COMPLEX SHALL BE SMOOTH BROOM FINISHED.
6. EXTERIOR CONCRETE SURFACES TO BE SEALED. CONCRETE SEALER:
   APR 15- OCT 31 USE: TK-26UV
   NOV 1- DEC 31 USE: TK-290
7. EXPANSION JOINTS SHALL BE DECK-O-FOAMED AND CAULKED WITH SL1

SITE DATA:

ZONING DISTRICT:	CONVENIENCE GENERAL SERVICE
TOTAL SITE AREA:	139,164 SF
EX. IMPERVIOUS:	0
EX. PERVIOUS:	100%
PARKING REQUIREMENTS	
PARKING REQUIRED	55 STALLS REQUIRED
PARKING PROVIDED	34 STALLS + 2 VACUUM 16 SRV. PNTS + DIESEL + 3 ADA STALLS
BUILDING HEIGHTS	
CONVENIENCE STORE	24.5'
CANOPY	20.0'
BUILDING SETBACKS	
FRONT	20'
REAR	10'
SIDE	5'
PROPOSED GREEN AREA:	60,284 SF
PROPOSED HARD COVER:	78,880 SF
PAVED AREA:	67,847 SF
BUILDING AREA:	11,033 SF

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30 15 0 30 60

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LICENSED LANDSCAPE ARCHITECT Robert Mueller 0037 IOWA 11/03/26

SITE DIMENSION PLAN

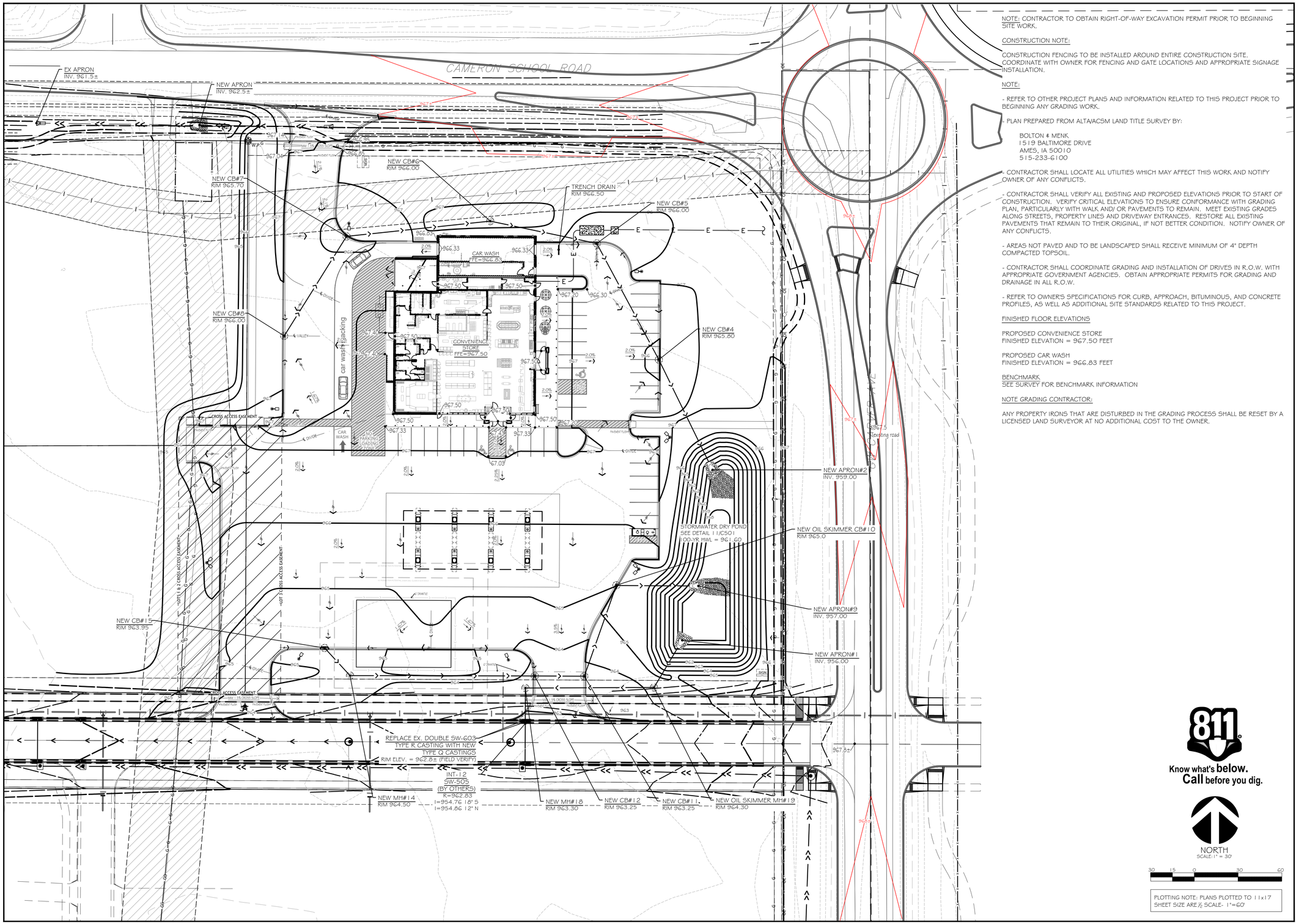
CONVENIENCE STORE 1904

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PROJ. NO. 26-1904
DATE 04/21/2026
SHEET C181

INSITES 26-013 PM N.B.



NOTE: CONTRACTOR TO OBTAIN RIGHT-OF-WAY EXCAVATION PERMIT PRIOR TO BEGINNING SITE WORK.

CONSTRUCTION NOTE:

CONSTRUCTION FENCING TO BE INSTALLED AROUND ENTIRE CONSTRUCTION SITE. COORDINATE WITH OWNER FOR FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

NOTE:

- REFER TO OTHER PROJECT PLANS AND INFORMATION RELATED TO THIS PROJECT PRIOR TO BEGINNING ANY GRADING WORK.

- PLAN PREPARED FROM ALTA/ACSM LAND TITLE SURVEY BY:

BOLTON & MENK
1519 BALTIMORE DRIVE
AMES, IA 50010
515-233-6100

- CONTRACTOR SHALL LOCATE ALL UTILITIES WHICH MAY AFFECT THIS WORK AND NOTIFY OWNER OF ANY CONFLICTS.

- CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED ELEVATIONS PRIOR TO START OF CONSTRUCTION. VERIFY CRITICAL ELEVATIONS TO ENSURE CONFORMANCE WITH GRADING PLAN, PARTICULARLY WITH WALK AND/ OR PAVEMENTS TO REMAIN. MEET EXISTING GRADES ALONG STREETS, PROPERTY LINES AND DRIVEWAY ENTRANCES. RESTORE ALL EXISTING PAVEMENTS THAT REMAIN TO THEIR ORIGINAL, IF NOT BETTER CONDITION. NOTIFY OWNER OF ANY CONFLICTS.

- AREAS NOT PAVED AND TO BE LANDSCAPED SHALL RECEIVE MINIMUM OF 4" DEPTH COMPACTED TOPSOIL.

- CONTRACTOR SHALL COORDINATE GRADING AND INSTALLATION OF DRIVES IN R.O.W. WITH APPROPRIATE GOVERNMENT AGENCIES. OBTAIN APPROPRIATE PERMITS FOR GRADING AND DRAINAGE IN ALL R.O.W.

- REFER TO OWNER'S SPECIFICATIONS FOR CURB, APPROACH, BITUMINOUS, AND CONCRETE PROFILES, AS WELL AS ADDITIONAL SITE STANDARDS RELATED TO THIS PROJECT.

FINISHED FLOOR ELEVATIONS

PROPOSED CONVENIENCE STORE
FINISHED ELEVATION = 967.50 FEET

PROPOSED CAR WASH
FINISHED ELEVATION = 966.83 FEET

BENCHMARK
SEE SURVEY FOR BENCHMARK INFORMATION

NOTE GRADING CONTRACTOR:

ANY PROPERTY IRONS THAT ARE DISTURBED IN THE GRADING PROCESS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.

Know what's **below.**
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LICENSED LANDSCAPE ARCHITECT
Robert Mueller
0037
IOWA
11/03/26

GRADE PLAN

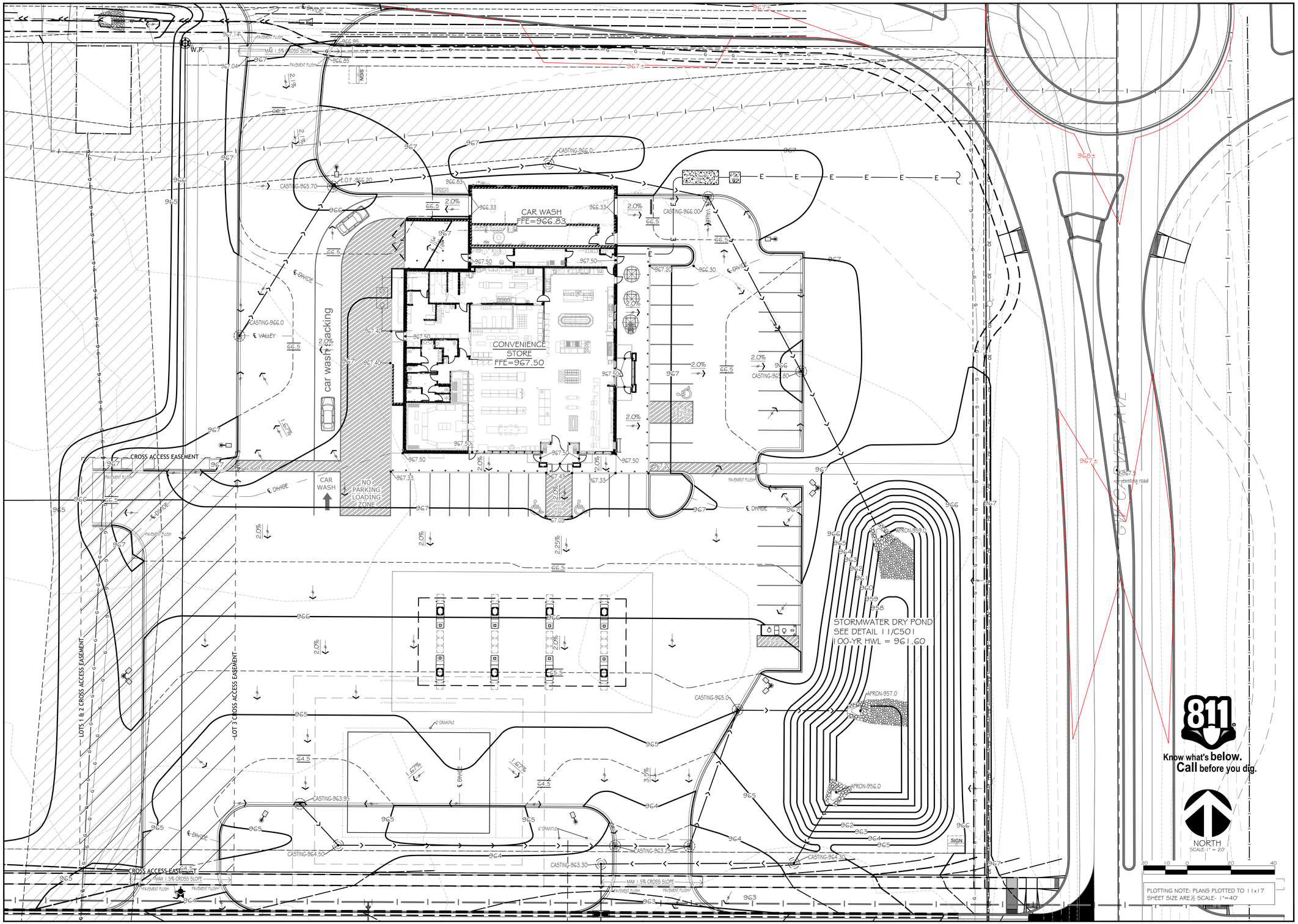
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SHEET C200

INSITES 26-013 PM N.B.



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IOWA
00377
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GRADE PLAN ENLARGED

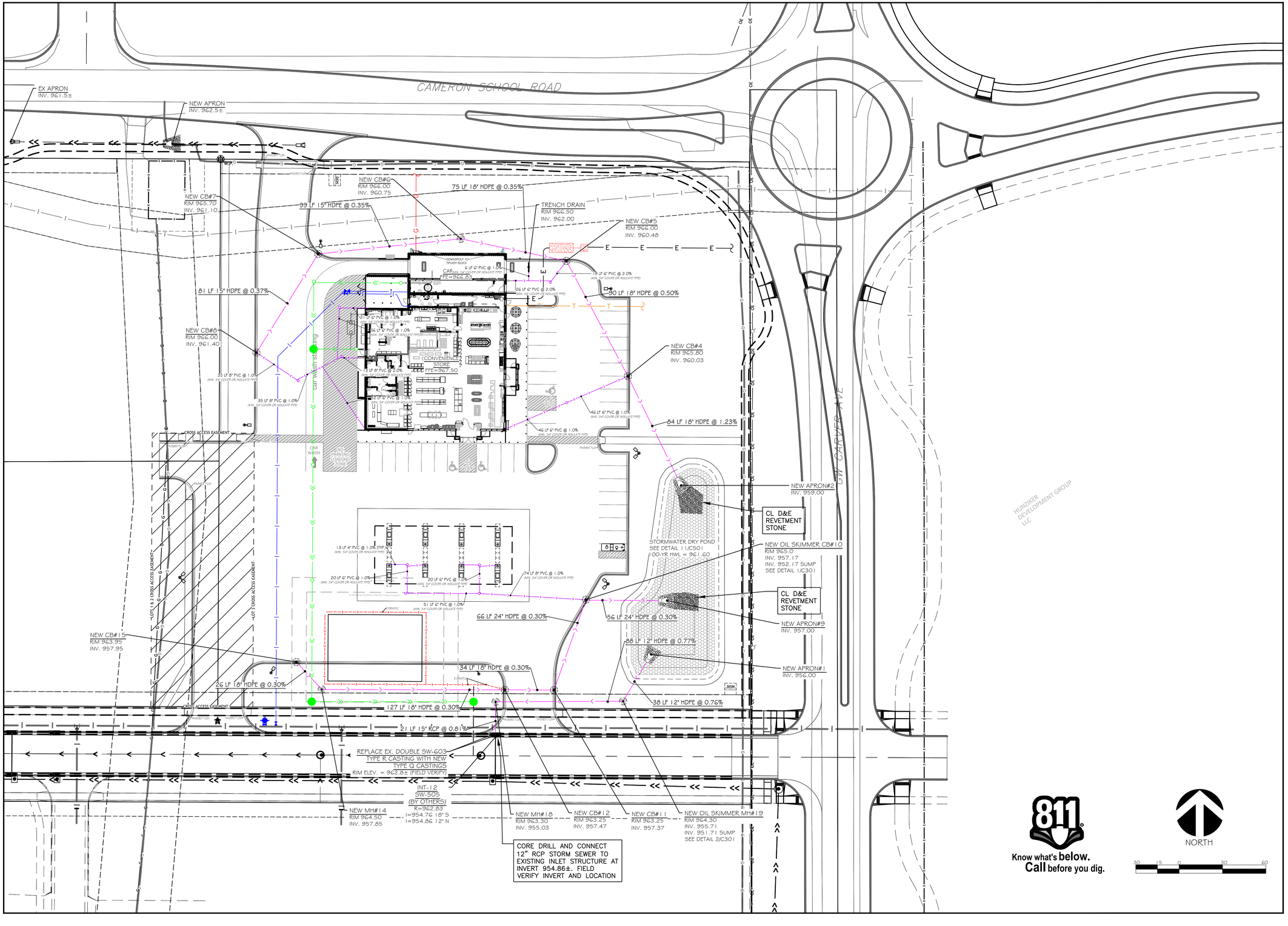
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SHEET C201

INSITES 26-013 PM N.B.



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FAX (608) 781-8960

SUNDE ENGINEERING
10930 NESBITT AVENUE SOUTH
BLOOMINGTON, MINNESOTA 55437
(952) 881-3344 TELEPHONE
www.sundecivil.com

PROFESSIONAL ENGINEER — MIKE KETTLER 18845 — IOWA

STORM SEWER PLAN

CONVENIENCE STORE 1904 - AMES, IOWA

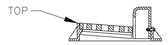
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2026-11-03	IFS4

DRAWN BY	MW
SCALE	GRAPHIC
PROJ. NO.	24-1768
DATE	04/21/2026
SHEET	C300

KWIK TRIP PM N.B.

STORM DRAINAGE:

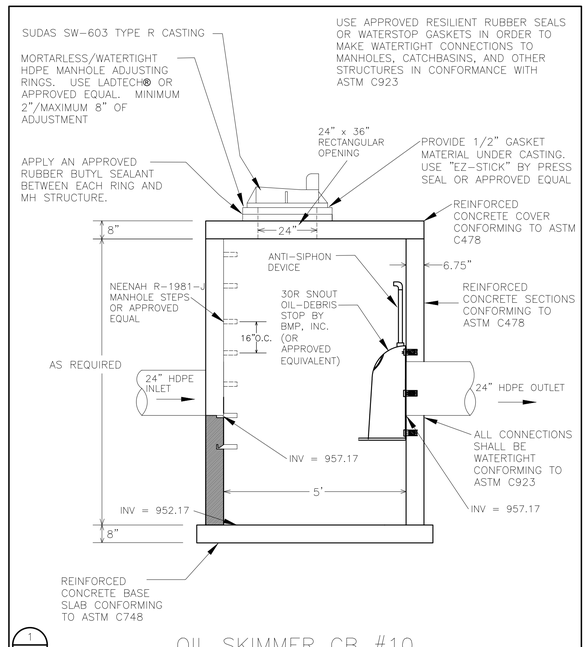
1. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.
2. Submit shop drawings for all structures to the Owner and Engineer for review and comment prior to ordering/purchasing and installation.
3. Storm Sewer Structures: Unless otherwise indicated, use reinforced, precast, concrete maintenance holes and catchbasins conforming to ASTM C478, furnished with water stop rubber gaskets and precast bases. Joints for all precast maintenance hole sections shall have confined, rubber "O"-ring gaskets in accordance with ASTM C443. These joints are normally used in sewers to hold infiltration and exfiltration to a practical minimum and are adequate for hydrostatic heads up to 30'. The inside barrel diameter shall not be less than 48 inches. See SUDAS Std. SW-401 for circular storm sewer manholes and SUDAS Std. SW-502 for circular single grate intake catchbasins.
4. Storm Sewer Pipe Connections: All joints and connections in the storm sewer system shall be gastight or watertight. Joints between concrete structures and piping shall be made with mechanical joints. Use approved resilient rubber seals or waterstop gaskets in order to make watertight connections to manholes, catchbasins, and other structures in conformance with ASTM C923 or as otherwise permitted by the local authority. Use Press-Seal "PSX Direct Drive," Press-Seal "PSX Nylo Drive," Hamilton Kent "Tylox Mechanically Installed Boot (MIB) Connectors," A-Lok Products "Z-Lok," or approved equal. Cement mortar joints are permitted only for repairs or connections to existing lines having such joints, or unless otherwise permitted by the administrative authority.
5. Install catchbasin castings with specified top elevation at the front rim.



6. The building sewer starts 2 feet outside of the building. See Uniform Plumbing Code (UPC) part 715.1. Material installed within 2 feet of the building must be of materials approved for use inside of or within the building.
7. PVC Pipe (Outside of the Building): Use solid-core, SDR-35, ASTM D3034 Polyvinyl Chloride (PVC) Pipe for designated PVC storm sewer services 4 to 15-inches in diameter outside of the building. Use solid-core, SDR-35, ASTM F679 Polyvinyl Chloride (PVC) pipe for designated PVC storm sewer services 18 to 27-inches in diameter outside of the building. Joints for all storm sewer shall have push-on joints with elastomeric gaskets. Use of solvent cement joints is allowed for building services. Solvent cement joints in PVC pipe must include use of a primer which is of contrasting color to the pipe and cement in accordance with Uniform Plumbing Code (UPC), part 605.2.2. Pipe with solvent cement joints shall be joined with PVC cement conforming to ASTM D2564. Lay all PVC pipe on a continuous granular bed. Installation must comply with ASTM D2321.
8. Cleanouts: Install cleanouts on all roof drains. Cleanouts shall be installed at every wye, sweep, and bend. Install cleanouts on all storm sewer services in accordance with UPC part 719.0 and 1101.13. The distance between cleanouts in horizontal piping shall not exceed 100 feet for pipes 10-inches and under in size. Cleanouts shall be of the same nominal size as the pipes they serve. Install a meter box frame and solid lid (Neenah R-1914-A, or approved equal) over all cleanouts. Provide cleanouts at the base of the roof leader connections at the gas island pump stations.
9. Fittings: Provide directional fittings for the storm piping serving the gas island pump stations. All changes in direction of flow in drain piping shall be made by the appropriate use of 45 degree wyes, long or short sweep quarter bends, sixth, eighth, or sixteenth bends, or by a combination of these or other equivalent fittings.
10. RCP: Reinforced concrete pipe (RCP) and fittings shall conform to ASTM C76, Design C, with circular reinforcing for the class of pipe specified. Use Class IV RCP for pipes 21" and larger. Use Class V RCP for pipes 18" and smaller. Joints shall be made up of concrete surfaces with a groove on the spigot for an O-ring rubber gasket (also referred to as a confined O-ring type joint) in accordance with ASTM C361. These joints are normally used in gravity sewers where exceptional tightness is required. This type of joint provides excellent inherent water tightness in both the straight and deflected position and meets all the joint requirements of ASTM C443.
11. RC Aprons: Install a reinforced concrete apron on the free end of all daylighted RCP storm sewer pipes. Tie the last three sections (including apron) of all daylighted RCP storm sewer with a minimum of two tie bolt fasteners per joint. This requirement applies to both upstream and downstream pipe inlets and outlets. For concrete culverts, tie all joints. Ties to be used only to hold the pipe sections together, not for pulling the sections tight. Nuts and washers are not required on inside of 675 mm (27 inch) or less diameter pipes.
12. Grates on horizontal pipes: Install safety-trash grates on all horizontal inlets/outlets greater than 6 inches in diameter. The grates shall be placed so that the rods or bars are not more than 3 inches downstream of the inlet/outlet. Rods or bars shall be spaced so that the openings do not permit the passage of a 6-inch sphere.
13. Testing: Test all portions of storm sewer that are within 10 feet of buildings, within 10 feet of buried water, lines, within 50 feet of water wells, or that pass through soil or water identified as being contaminated in accordance with UPC part 1107.0. Test all flexible storm sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.
14. Draintile: Perforated under-drains shall be slotted single wall corrugated HDPE. Install draintile with high permittivity circular knit polymeric filament filter sock per ASTM D6707-01.
15. Use SUDAS Std. SW-603 Type R casting with curb inlet grate, or approved equal, on CB#4, CB#5, CB#7, CB#8, CB#10, CB#11, CB#12 and CB#15. Casting shall include the "DUMP NO WASTE. DRAINS TO FRESH WATER." environmental notice.
16. Use SUDAS Std. SW-602 casting with self-sealing, solid, Type E lid, or approved equal, on all storm sewer maintenance holes. Covers shall bear the "Storm Sewer" label.
17. Use SUDAS Std. SW-604 Type 5 ditch stool grate and frame, or approved equal, on CB #6.
18. Use Zurn ZF817-12 12-inch x 24-inch long reveal fiber reinforced polymer catch basin with 8-inch end outlet and galvanized heel-proof ductile grate – Class C for the roof overflow PVC downspouts.
19. Use Zurn Z886 trench drain model 8606N with black acid resistant epoxy coated ductile grate – Class C for proposed trench drain.
20. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the MRWA Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.
21. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.
22. The minimum depth of cover for building and canopy roof drain leaders without insulation is 5 feet. Insulate roof drain leaders at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 2 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI-40 plastic foam insulation.
23. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.
24. Line ponds with 2' thick impervious clay liner per detail 11/C501.
25. Clean sediment and debris from sewers, sumps and stormwater basins prior to final owner acceptance.
26. Televise all existing lines prior to connection.
27. Provide a final storm water management report that will serve to verify that the intent of the approved storm water management design has been met. The report shall include record drawings, measurements, and photographic evidence of the as-built storm water management system. The report shall substantiate that all aspects of the original design have been adequately provided for by the construction of the project.
28. Install finger drains at each and every proposed catchbasin (see detail). Finger drains around catch basin inlets shall not be installed below the crown of the storm drain piping.

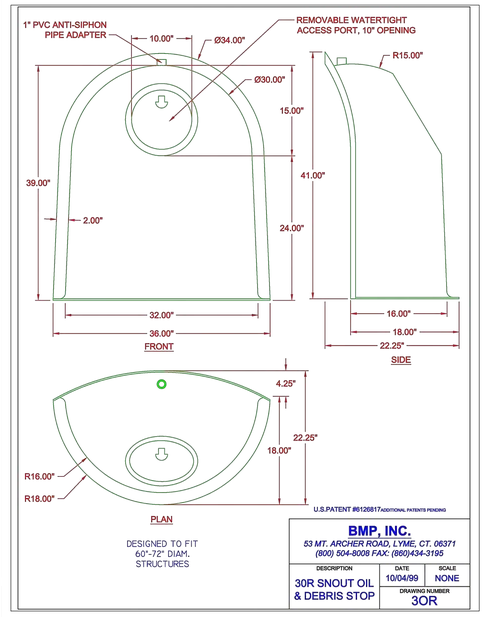
HDPE REQUIREMENTS:

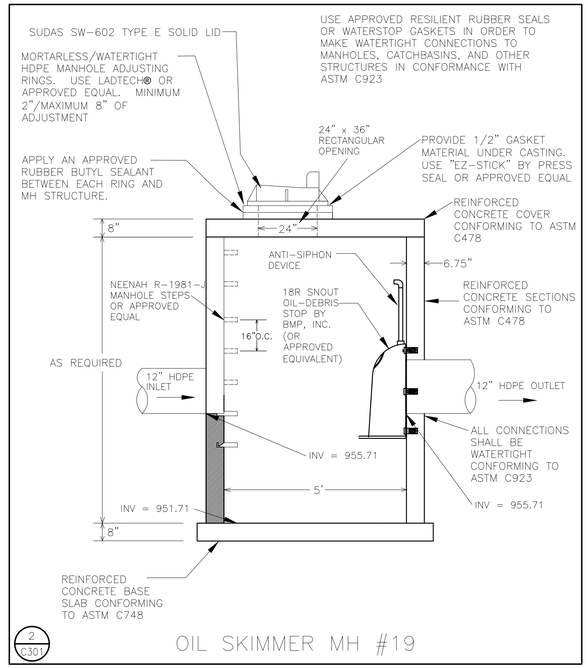
1. Install dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe at locations indicated on the plan. High-density polyethylene (HDPE) storm sewers must meet ASTM F714.
2. Dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe shall conform to the requirements of AASHTO M252 for pipe sizes 4-inch to 10-inch diameter. Dual-wall, smooth interior, corrugated high-density polyethylene (HDPE) pipe shall conform to the requirements of ASTM F2306 (virgin PE material) for pipe sizes 12-inch to 60-inch diameter.
3. All fittings must comply with ASTM Standard D3212.
4. Water-tight joints must be used at all connections including pipe connections to structures in conformance with ASTM F2510 and ASTM C923.
5. HDPE pipes must be listed and labeled.
6. The connection between HDPE and a different pipe material must be made by means of an approved transition coupling for the specific application.
7. HDPE pipes must be installed with a minimum 10-feet separation from water piping and may not cross above water service lines (see UPC Section 720.1).
8. HDPE pipes must not be installed within 10 feet of building.
9. HDPE pipe connections into all concrete structures must be water tight and in accordance with ASTM C923. Use Press-Seal "PSX Direct Drive," Press-Seal "PSX Nylo Drive," Hamilton Kent "Tylox Mechanically Installed Boot (MIB) Connectors," A-Lok Products "Z-Lok," or approved equal. Where the alignment precludes the use of the above approved watertight methods, Conseal 231 WaterStop sealant, or approved equal will only be allowed as approved by the Administrative Authority.
10. HDPE pipe installation must be open-trench on a continuous granular bed per ASTM D2321 and manufacturer's installation instructions. All sections of the corrugated HDPE pipe shall be coupled in order to provide water tight joints.
11. Perform deflection tests on all HDPE pipe after the sewer lines have been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and perform the test again until acceptable. Supply the mandrel for deflection testing. If the deflection test is to be run using a rigid ball or mandrel, it shall have a diameter equal to 95% of the inside diameter of the pipe. The ball or mandrel shall be clearly stamped with the diameter. Perform the tests without mechanical pulling devices.



1 C301

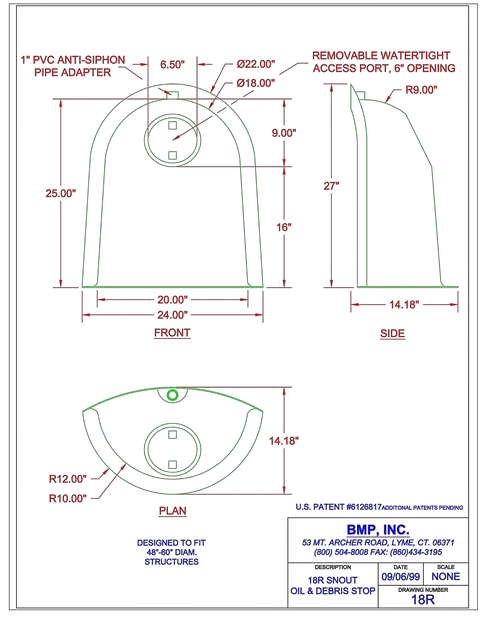
OIL SKIMMER CB #10





2 C301

OIL SKIMMER MH #19



KWIK TRIP

KWIK STAR

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MIKE KETTLER 18845 LICENSED PROFESSIONAL ENGINEER

STORM SEWER NOTES & DETAILS

CONVENIENCE STORE 1904 - AMES, IOWA

DATE	DESCRIPTION
05/21/26	IR
07/08/26	ISSUE FOR SUBMITTAL
2026-08-21	IFS2
2026-10-27	IFS3
2026-11-03	IFS4

DRAWN BY:	MW
SCALE	GRAPHIC
PROJ. NO.	24-1768
DATE	04/21/2026
SHEET	C301

KWIK TRIP PM N.B.

CAMERON SCHOOL ROAD

CONNECT TO 6" PVC SAN. S. FROM PLUMBING WITH NEW 6" CLEANOUT @ INV. ELEV. = 960.20

60LF 6" SCH 40 PVC SAN. S. @ 1.77%

4" GATEVALVE AND VALVE BOX

2" CURB STOP AND VALVE BOX

SAN. S. CLEANOUT INV. = 959.14

46LF 6" PVC SAN. S. @ 1.78%

GREASE TRAP. REFER TO PLUMBING PLANS.

A | SAN. S. MH
TOP = 966.80
INV. = 958.33

30LF 6" PVC SAN. S. @ 8.6%

80LF 6" PVC SAN. S. @ 1.78%

COORDINATE NEW UG GAS SERVICE WITH UTILITY COMPANY

GAS SERVICE AND METER LOCATION

ELECTRIC SERVICE LOCATION

TRANSFORMER AND CT CABINET PAD LOCATION

TELEPHONE SERVICE LOCATION

COORDINATE NEW UG ELECTRIC SERVICE WITH UTILITY COMPANY

COORDINATE NEW UG TELEPHONE SERVICE WITH UTILITY COMPANY

CAR WASH FFE=966.83

4" DIP WATER

4" SAN. S. SERVICE INV. @ BLDG = 960.30 (REFER TO PLUMBING)

4" DOMESTIC WATER SERVICE AND METER LOCATION

CONVENIENCE STORE FFE=967.50

2" DOMESTIC WATER SERVICE AND METER LOCATION

4" SAN. S. SERVICE INV. @ BLDG = 961.0 (REFER TO PLUMBING)

CONNECT TO 6" PVC SAN. S. FROM PLUMBING WITH NEW 6" CLEANOUT @ INV. ELEV. = 960.90

CAR WASH EXIT ONLY

NO PARKING LOADING ZONE

SAN. S. CLEANOUT INV. = 956.91

80LF 6" PVC SAN. S. @ 1.78%

4" DIP WATER

SAN. S. CLEANOUT INV. = 955.48

84LF 6" PVC SAN. S. @ 1.78%

B | SAN. S. MH
TOP = 964.50
INV. = 953.99

4" GATEVALVE

112LF 6" PVC SAN. S. @ 1.78%

C | SAN. S. MH
TOP = 963.40
INV. = 952.00±

STORMWATER DRY POND SEE DETAIL 11/C501 100-YR HWL = 961.60

SW CARVER AVE

LOT 1 & 2 CROSS ACCESS EASEMENT

LOT 1 CROSS ACCESS EASEMENT

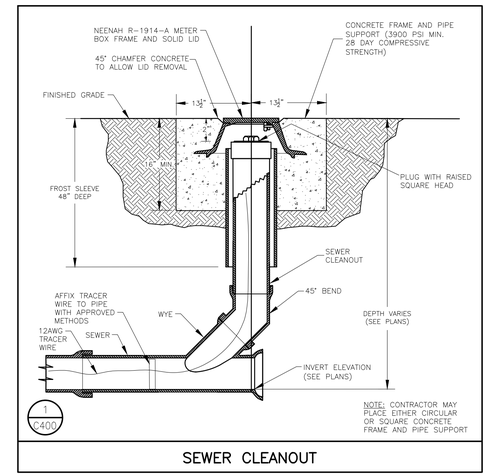
CROSS ACCESS EASEMENT

RELOCATE HYDRANT TO THE EAST. PRESSURE TAP CONNECT TO EX. 8" WATERMAIN. FIELD VERIFY SIZE AND LOCATION PRIOR TO START OF CONSTRUCTION.

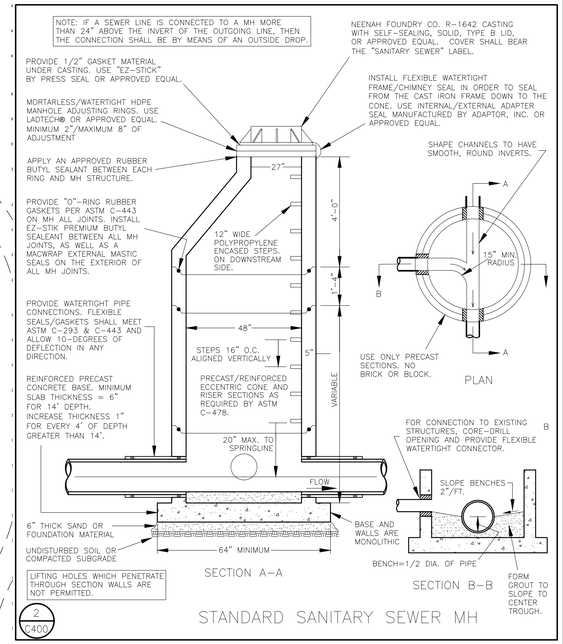
PRESSURE TAP CONNECT TO EX. 8" WATERMAIN. FIELD VERIFY SIZE AND LOCATION PRIOR TO START OF CONSTRUCTION.

CONSTRUCT NEW SAN. S. MH @ INV. = 952.00± ON EXISTING 6" STUB. FIELD VERIFY INVERT, SIZE AND LOCATION PRIOR TO LAYING SAN. S.

EX. SAN. S. MH SW-301 (PP)
R = 963.15±
I = 950.50±



SEWER CLEANOUT



STANDARD SANITARY SEWER MH

KEYNOTES:

① – LOWER WATERMAIN TO PROVIDE 18" MINIMUM CLEARANCE BETWEEN SEWER AND WATER AT CROSSING.

811 Know what's below. Call before you dig.

NORTH

30 15 0 30 60

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MIKE KETTLER 18845 OWA PROFESSIONAL ENGINEER

TILIT PLACE - COLLEGE STORE 1904 - AMES, IOWA

DATE	DESCRIPTION
05/21/26	IR
07/08/26	ISSUE FOR SUBMITTAL
2026-08-21	IFS2
2026-10-27	IFS3
2026-11-03	IFS4

DRAWN BY	MW
SCALE	GRAPHIC
PROJ. NO.	24-1768
DATE	04/21/2026
SHEET	C400

KWIK TRIP P.M.N.B.

GENERAL:

1. Existing boundary, location, topographic, and utility information shown on this plan is from an undated construction plan set by Bolten & Menk, Inc. The Engineer is not responsible for inaccuracies related to the survey information.

2. Perform all construction work in accordance with State and Local requirements.

3. Hold safety paramount. Comply with all applicable local, state, and federal safety regulations. Comply with the work safety practices specified by the Occupational Safety and Health Administration (OSHA). OSHA prohibits entry into "confined spaces," such as manholes and inlets (see 29 CFR Section 1910.146), without undertaking certain specific practices and procedures. Perform excavations in accordance with the requirements of O.S.H.A. 29 CFR, Part 1926, Subpart P, Excavations. Trenching standards require protective systems on trenches deeper than 5 feet. Bench or slope sidewalls in order to provide safe working conditions and stability for the placement of engineered fill. Do not expose workers to the dangers of being struck by material and equipment. Keep soil and other materials at least 2 feet from the edge of any trenches. Trenches must be inspected by a competent individual, be free of standing water and atmospheric hazards, and have a safe means of entering and exiting before allowing a worker to enter. The Contractor is responsible for naming the "Competent Individual" in accordance with CFR 1926.6. Sloping or benching for excavations greater than 20 feet deep must be approved by a registered professional engineer (www.osha.gov).

4. Safety is solely the responsibility of the Contractor, who is also solely responsible for the construction means, methods, techniques, sequences or procedures, and for safety precautions and programs in connection with the Work.

5. The Engineer shall not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work. The Engineer's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures.

6. Examine all local conditions at the site, and assume responsibility as to the grades, contours, and the character of the earth, existing conditions, and other items that may be encountered during excavation work above or below the existing grades. Review the drawings, specifications, and geotechnical report covering this work and become familiar with the anticipated site conditions.

7. Refer to the architectural plans for building and stoop dimensions, site layout and dimensions, pavement sections and details, striping, and other site features.

8. A licensed surveyor shall perform construction staking. The Contractor shall provide and be responsible for the staking. Verify all plan and detail dimensions prior to construction staking. Stake the limits of walkways and curbing prior to valvebox, maintenance hole, and catchbasin installation. Adjust valvebox and maintenance hole locations in order to avoid conflicts with curb and gutter. Adjust catchbasin locations in order to align properly with curb and gutter.

9. Provide temporary fences, barricades, coverings, and other protections in order to preserve existing items to remain, and to prevent injury or damage to person or property.

10. Provide all traffic control required in order to construct the proposed improvements. Traffic control design and associated government approvals are the responsibility of the Contractor. Comply with local authorities, the latest version of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), and the Iowa Department of Transportation Office of Design Design Manual. If the temporary traffic control plan affects the movement of pedestrians, provide adequate temporary pedestrian access and walkways. If the temporary traffic control zone affects an accessible and detectable pedestrian facility, maintain accessibility and detectability along the alternate pedestrian route in accordance with the provisions for pedestrian and worker safety contained in Part 6 of the MUTCD.

11. Connect to existing sanitary sewer MH's by coredrilling. Connect to existing storm sewer MH's by either executing or coredrilling. Use saws or drills that provide water to the blade. Meet all City standards and specifications for the the connection. Reconstruct inverts after installation. Use water stop gaskets in order to provide watertight seals when penetrating a structure wall with a pipe. Take measurements before beginning construction to ensure that service connections do not cut into maintenance access structure joints or pipe barrel joints.

12. Completely remove existing concrete and masonry structures that are located within the proposed building and future building expansion areas. All other existing sewer and watermain pipes that are to be abandoned shall either be removed, or completely filled with sand or controlled low strength material (CLSM) also known as flowable concrete fill. Bulkhead ends of the pipe segment to be decommissioned with concrete. All other existing sanitary sewer and storm sewer structures that are to be abandoned in place shall be abandoned as follows: (1) remove castings, rings, and top sections, (2) bulkhead any pipe openings, (3) break two 4-inch diameter holes in the barrel at the bottom of the structures for drainage and cover the holes with geotextile filter fabric, and (4) fill the structures with sand or CLSM.

13. Testing and Inspections: Coordinate testing and inspection with the State Health Department and the City Public Works Department. No drainage or plumbing work may be covered prior to completing the required tests and inspections.

14. Coordinate building utility connection locations at 2 ft. out from the proposed building with the interior Plumbing Contractor prior to construction. Verify water and sewer service locations, sizes, and elevations with the Mechanical Engineer prior to construction. Coordinate construction and connections with the Mechanical Contractor.

15. The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" by the FHA.

16. The locations of existing utilities shown on this plan are from record information. The Engineer does not guarantee that all existing utilities are shown or, if shown, exist in the locations indicated on the plan. It is the Contractor's responsibility to ascertain the final vertical and horizontal location of all existing utilities (including water and sewer lines and appurtenances). Notify the Engineer of any discrepancies.

17. The Contractor is solely responsible for all utility locates. Contact utility companies for locations of all public and private utilities within the work area prior to beginning construction. Contact Iowa One Call at 1-800-292-8989 for exact locations of existing utilities at least 72 hours (not including weekends and holidays) before beginning any construction. Obtain ticket number and meet with representatives of the various utilities at the site. Provide the Owner with the ticket number information. One Call is a free service that locates municipal and utility company lines, but does not locate private utility lines. Use an independent locator service or other means in order to obtain locations of private utility lines including, but not limited to, underground electric cables, telephone, TV, and lawn sprinkler lines.

18. Pothole to verify the positions of existing underground facilities at a sufficient number of locations in order to assure that no conflict with the proposed work exists and that sufficient clearance is available.

19. Where existing gas, electric, cable, or telephone utilities conflict with the Work, coordinate the abandonment, relocation, offset, or support of the existing utilities with the appropriate local utility companies. Coordinate new gas meter and gas line installation, electric meter and electric service installation, cable service, and telephone service installation with the local utility companies.

20. When working near existing telephone or electric poles, brace the poles for support. When working around existing underground utilities that become exposed, provide sufficient support in order to prevent excessive stress on the existing piping. The location and preservation of existing underground utilities is solely the responsibility of the Contractor.

21. Temporary support systems are the responsibility of the Contractor, who is also solely responsible for the construction means, methods, techniques, sequences or procedures, and for safety precautions and programs in connection with the temporary support systems. Temporary support systems include, but are not limited to, sharing, sheeting, bracing, anchorages, excavation support walls, directional boring, auger jacking, soil stabilization, and other methods of protecting existing improvements.

22. Arrange for and secure suitable disposal areas off-site. Dispose of all excess soil, waste material, debris, and all materials not designated for salvage. Waste material and debris includes trees, stumps, pipe, concrete, asphaltic concrete, cans, or other waste material from the construction operations. Obtain the rights to any waste area for disposal of unsuitable or surplus material either shown or not shown on the plans. All work in disposing of such material shall be considered incidental to the work. All disposal must conform to applicable solid waste disposal permit regulations. Obtain all necessary permits at no cost to the Owner.

23. Store and protect existing site features that need to be removed and replaced in connection with the Work. Replace damaged or stolen site features at no additional cost to the Owner.

24. Straight line saw-cut existing bituminous or concrete surfacing at the perimeter of pavement removal areas. Use saws that provide water to the blade. Do not allow the slurry produced by this process to be tracked outside of the immediate work area or discharged into the sewer system. Tack and match all connections to existing bituminous pavement.

25. Relocate overhead power, telephone, and cable lines as required. Seal and report any existing unused on-site wells and septic systems.

26. All materials required for this work shall be new material conforming to the requirements for class, kind, grade, size, quality, and other details specified herein or as shown on the Plans. Do not use recycled or salvaged aggregate, asphaltic pavement, crushed concrete, or scrap shingles. Unless otherwise indicated, the Contractor shall furnish all required materials and labor in order to perform the construction in accordance with the construction documents, specifications, and regulatory agencies.

27. Reconstruct driveways and patch street to match existing pavement section and grade. Sod right-of-way. Restore the public right-of-way at temporary construction entrance locations. Replace any concrete curb and gutter, bituminous pavement, sidewalk, or vegetative cover damaged by the construction activity. Restore damaged turf with sod within the public right-of-way. The work area shown is general and may need to be adjusted in the field.

28. Cut turf edges in order to allow for a uniform straight edge at locations where new sod meets existing turf. No jagged or uneven edges are allowed. Remove topsoil as required at joints between existing and new turf in order to allow the surface of the new sod to be flush with the existing.

29. Document existing conditions (photographs, video, field survey, etc.) in order to enable restoration to match existing conditions and in order to ensure that restored areas have positive drainage similar to existing conditions.

30. Provide positive drainage away from buildings at all times. Provide and maintain temporary drainage throughout construction until the permanent drainage system and structures are in place and operational. Install temporary ditches, piping, pumps, or other means as necessary in order to insure proper drainage at all times. Provide low points at building pads or roadways with positive outfalls. Do not block drainage from or direct excess drainage to adjacent property.

31. Protect all structures and landscaping not labeled for demolition from damage during construction. Provide protective coverings and enclosures as necessary to prevent damage to existing work that is to remain. Existing work to remain may include items such as trees, shrubs, lawns, sidewalks, drives, curbs, utilities, buildings and/or other structures on or adjacent to the site. Provide temporary fences and barricades as required for the safe and proper execution of the work and the protection of persons and property. Provide building surveys and seismic monitoring in locations where demolition, excavation, underpinning, pile driving, compacting, or similar work is to be performed adjacent to or in the vicinity of existing structures. Return any on-site or off-site areas disturbed directly or indirectly due to construction to a condition equal to or better than the existing condition.

32. Protect sub grades from damage by surface water runoff.

33. Full design strength is not available in bituminous pavement areas until the final lift of asphalt is compacted into place. Protect pavement areas from overloading by delivery trucks, construction equipment, and other vehicles.

34. When sawing or drilling concrete or masonry, use saws that provide water to the blade. Do not allow the slurry produced by this process to be tracked outside of the immediate work area or discharged into the sewer system.

35. Adjust all public and private structures including curb stops, valve boxes, maintenance hole castings, catchbasin castings, cleanout covers, and similar items to finished grade. Comply with the requirements of each structure's owner. Structures being reset in paved areas must meet the owner's requirements for traffic loading.

36. Grading for all sidewalks and accessible routes, including driveway crossings, shall conform to current State and Federal Americans with Disabilities Act (ADA) requirements. In accordance with ADA Section 403.3, slopes shall not exceed exceed 2% cross slope or 5% in the direction of travel. Sidewalk access to external building doors shall be ADA compliant. Accessible parking stalls shall not exceed 2% slope in any direction.

37. Curb ramps on accessible routes shall comply with sections 405 and 406 of the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

38. Accessible parking spaces shall include the International Symbol of Accessibility complying with ADA Section 703.7.2.1 painted in the center of the parking space, 4-ft. high. Hatch handicapped access aisles with white 4-inch wide painted stripes 18-inches on center and at 45 degree angles to the stalls.

39. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.

40. Obtain and pay for all permits, tests, inspections, etc. required by agencies that have jurisdiction over the project including the NPDES permit from the State. The Contractor is responsible for all bonds, letters of credit, or cash sureties related to the work. Execute and inspect work in accordance with all local and state codes, rules, ordinances, or regulations pertaining to the particular type of work involved.

41. Measure pipe lengths from center-of-structure to center-of-structure, or to the end of aprons.

42. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.

43. Submit shop drawings for all structures to the Owner and Engineer for review and comment prior to ordering/purchasing and installation.

44. Refer to the geotechnical report by the Soils Engineer for dewatering requirements.

45. Test boring data shown on the plans were accumulated for designing and estimating purposes. Their appearance on the plan does not constitute a guarantee that conditions other than those indicated will not be encountered.

46. Insulate utility lines at locations indicated on the plans. Provide a minimum insulation thickness of 4 inches. The minimum depth of cover for building and canopy roof drain leaders without insulation is 5 feet. Insulate roof drain leaders at locations where the depth of cover is less than 5 feet. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam HI-40 plastic foam insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

47. Construct sanitary sewer, watermain, and storm sewer utilities in accordance with State and City requirements.

48. These plans, prepared by Sunde Engineering, PLLC., do not extend to or include systems pertaining to the safety of the construction contractor or its employees, agents, or representatives in the performance of the work. The seal of Sunde Engineering's registered professional engineer hereon does not extend to any such safety systems that may nor or hereafter be incorporated into these plans. The construction contractor shall prepare or obtain the appropriate safety systems which may be required by U.S. Occupational Safety and Health Administration (OSHA) and/or local regulations.

49. Existing utilities shown on this plan are located as accurately as possible. However, the Engineer does not guarantee that all utilities are shown, or if shown are in the exact locations indicated on the plan. It is the Contractor's responsibility to ascertain the final vertical and horizontal location of all existing utilities (including municipal water and sewer lines and appurtenances) and to notify the owners of the utilities a minimum of 48 working hours before starting construction in a given area, requesting location in the field, as exact as possible, of all utilities which may be affected by the construction.

50. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the MRWA Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.

51. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.

52. See architectural for building waterproofing and foundation drainage.

53. Place #3 rebar at 3' on center in all 6" thick concrete pavement locations. Place #4 rebar at 4' on center in all 8" thick concrete pavement locations.

54. Place #4 x 2'-0" tie bar at 3' on center in all concrete curb and gutter.

55. Provide as-builts in accordance with City and Watershed District requirements. Record as-built information as construction progresses or at appropriate construction intervals. Secure and deliver to the Owner as-built information showing locations, top, and invert elevations of maintenance holes, catchbasins, cleanouts, inlet and outlet pipes, valves, hydrants, and related structures. Location ties shall be to permanent landmarks or buildings.

56. In order to document and verify acceptance for adequate storm water treatment, provide a post-construction as-built survey in accordance with City and Watershed District requirements for all storm water infrastructure. This as-built survey shall include, but is not limited to, locations, top, and invert elevations of maintenance holes, catchbasins, cleanouts; all basin/swale grades; pipe inlets, outlet pipes and structures; emergency overflows, orifices, weirs; pipe sizes; draintile elevations and sizes; ponds, tanks, infiltration or filtration basins; and any associated storm water infrastructure.

57. Test reports required for project close-out include, but are not limited to: density test reports, bacteriological tests on the water system, pressure tests on the water system, leak tests on the sewer system, deflection tests on all HDPE pipe.

58. Install a concrete square (MH Boxout) around MHs per the SUDAS detail PV-103 OR PV-201.

59. Property Corners: Take care during construction and excavation in order to protect survey markers, monuments, and/or property irons.

WATER DISTRIBUTION SYSTEM:

1. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.

2. Bring all site utilities to 2' outside of the building line with the exception of the water service. Extend the domestic water service into the building and up through the floor to the flange for the water meter.

3. Bring all site utilities to 2' outside of the building line with the exception of the water service. Extend the combination fire and domestic water service into the building and up to terminate with a thread-on-flange or a MJ-to-flange adapter.

4. Separation of Water and Sewer: Construct sewer and water services in accordance with Uniform Plumbing Code (UPC) parts 720.0 and 721.0. Provide a minimum horizontal separation of 10 feet between all water and sewer lines, including manholes, catch basins, storm sewer, sanitary sewer, drainfile, or other potential sources for contamination in accordance with Uniform Plumbing Code (UPC) part 609.6. Measure the separation distance from the outer edge of the pipe to the outer edge of the contamination source (outer edge of structures, piping, etc.).

5. Water and Sewer Crossings: Per SUDAS 5010, 3.06, "C", (page 10) the sewer must cross at least 18 inches below the water main. If the sewer must be above the water main, then maintain 18 inches of vertical clearance and construct the sewer of watermain materials (or RCP with O-ring gaskets for storm sewer) to a distance of 10 feet on each side of the crossing. If the sewer must cross below the water main, but at less than 18 inches clearance, then construct the sewer of water main materials (or RCP with O-ring gaskets for storm sewer) to a distance of 10 feet on each side of the crossing and place it no closer than 6 inches below the water main.

6. Watermain Depth: Maintain 6-feet of cover over the top of the water lines to the finished grade. Verify elevation of proposed and existing water lines at all utility crossings. Install the water lines at greater depths in order to clear storm sewers, sanitary sewers, or other utilities as required. Include costs to lower water lines in the base bid.

7. Disinfection: Disinfect all completed watermains in accordance with AWWA Standard C651. If the tablet or continuous feed methods are used, disinfect the completed watermain with water that contains at least 50 ppm of available chlorine in accordance with UPC part 609.9. Do not use the tablet method on solvent-welded plastic or on screwed-joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite. Retain the treated water in the pipeline for at least 24 hours. Measure the chlorine residual at the end of the 24 hour period. The free chlorine residual must be at least 10 mg/l measured at any point in the line. Measurement of the chlorine concentration at regular intervals shall be in accordance with Standard Methods, AWWA M-12, or using appropriate chlorine test kits.

8. Testing: Pressure test and perform bacteriological tests on all water lines under the supervision of the City Public Works Department. Notify the City at least 24 working hours prior to any testing. Pressure test the water system in accordance with the UPC part 609.4. Pressurize the waterline to a water pressure of 1034-kPa (150-psi) gauge pressure (measured at the point of lowest elevation) by means of a pump connected to the pipe in a satisfactory manner. Do not add water to the watermain in order to maintain the required pressure during the water main pressure testing. The test section of pipe shall withstand the test without leaking for a period of not less than 15 minutes.

9. All water supply piping connected to municipal water main must have a 150 psi minimum pressure rating.

10. Copper water services must meet ASTM B88 and be type K soft temper or type L soft temper (see UPC part 604.0.) with compression fit connections.

11. Ductile iron pipe (DIP) water services must comply with AWWA C151/ANSI A21.51 or AWWA C115/ANSI A21.15 (See UPC part 604.0.). Use Thickness Class 52 DIP with push-on joints. Use petroleum resistant gaskets, Nitrile (NBR), or approved equal. Use only ANSI 316 stainless steel bolts and nuts on all watermain fittings, valves, and hydrants.

12. Polyethylene Sheet Or Tubes For Corrosion Protection Of Buried Ductile Iron: Polyethylene encasement is required on all buried ductile iron pipe, fittings, valves, and other appurtenances. Polyethylene encasement must comply with AWWA C105/ANSI A21.5. Use V-Bio Enhanced Polyethylene Encasement (www.mcwaneductile.com) or approved equal.

13. Use mechanical joint restraint devices for joint restraint on all watermain bends having a vertical or horizontal deflection of 22-1/2 degrees or greater, all valves, stubs, extensions, tees, crosses, plugs, all hydrant valves, and all hydrants in accordance with City requirements. Use "Series 1100 Megalug" manufactured by EBAA Iron Inc., Eastland, Texas, or approved equal, installed in accordance with manufacturer's recommendations for restraint on Ductile Iron Pipe. Restraining devices are to have epoxy coating or approved equivalent. Restraining device hardware shall be ANSI 316 stainless steel, or approved equivalent.

14. Watermain Valves: At all valve locations which require a 12" or smaller valve, install gate valves which are of the compression resilient seated (CRS) type. Use American Flow Control's Series 2500 Ductile Iron Resilient Wedge Gate Valve, or approved equal. Gate valves shall conform to AWWA C509. Install cast iron valve boxes conforming to ASTM A48 at each valve location. Valve boxes shall be the three-piece type with 5-1/4" shafts. Use Tyler 6860-G with No. 6 base, or equivalent. Valve boxes shall have at least 6" of adjustment above and below finished grade. Drop covers on valve boxes shall be round and bear the word "WATER" cast on the top. Use Tyler 6860-G "Stayput" covers with extended skirt, or equivalent. All valve hardware shall be ANSI 316 stainless steel, or approved equivalent.

15. Curb Valves and Boxes: Use Mueller H-10334 extension type curb box with Minneapolis pattern base, or approved equal, at all 1" through 2" curb stop locations. Stationary rod is required on all curb stops. Use Mueller Company Mark II Oriseal No. H-15154N curb stop, or approved equal, and stainless steel stem rod.

16. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the MRWA Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.

17. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.

18. Threaded hose connections including hose bibbs and hydrants must include a back flow prevention device in accordance with UPC part 603.0.

19. All newly installed or replacement pipes, pipe fittings, plumbing fittings and fixtures, including backflow preventers, that are installed on potable water systems or systems that are designed to distribute water for potable use, are required to meet the Reduction of Lead in Drinking Water Act, which establishes a maximum lead content of 0.25 percent by weighted average of the wetted surfaces.

20. Fire hydrants shall be in accordance with the requirements of the local municipality. Do not connect hydrant drains to sanitary sewers or storm sewers. When placing fire hydrants in locations where the groundwater table is less than 8 feet below the ground surface, plug the hydrant drain holes and equip the hydrants with a tag stating the need for pumping after use. Maintain a 3-foot clear space around the circumference of all fire hydrants. All hydrant hardware shall be ANSI 316 stainless steel, or approved equivalent.

21. Fire Hydrant Removal: A fire hydrant assembly consist of a bottom piece, a lower barrel, an upper barrel, and a cap or nozzle section. Each fire hydrant may also have an auxiliary gate valve. At each fire hydrant removal location, completely remove the entire fire hydrant assembly as well as the associated auxiliary gatevalve.

22. Do not exceed the manufacturer's specifications for curvature of pipe and deflection at pipe joints. Securely close all open ends of pipe and fittings with watertight plugs when work is not in progress. Keep the interior of all pipes clean and remove any dirt or debris from joint surfaces after the pipes have been lowered into the trench. Install all valves plumb and located according to the plans.

23. Insulate the watermain at locations indicated on the plans. Provide a minimum insulation thickness of 4 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam Highload 40 Polystyrene Insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

SANITARY SEWER:

1. Secure all permits and pay all fees prior to the start of construction. Obtain permits from the City for work in the public right-of-way.

2. Submit shop drawings for all structures to the Owner and Engineer for review and comment prior to ordering/purchasing and installation.

3. Sanitary Sewer Structures: Unless otherwise indicated, use reinforced, precast, concrete maintenance holes conforming to ASTM C478, furnished with precast bases. Sanitary sewer maintenance holes shall be supplied with pre-formed inverts and flexible neoprene sleeve connections for all lateral lines 375 mm (15 inches) in diameter or less, unless otherwise indicated. Joints for all precast maintenance hole sections shall have confined, rubber "O"-ring gaskets in accordance with ASTM C443. These joints are normally used in sewers to hold infiltration and exfiltration to a practical minimum and are adequate for hydrostatic heads up to 30'. The inside barrel diameter shall not be less than 48 inches. See SUDAS Standard SW-301 for circular sanitary sewer MHs.

4. Sanitary Pipe Connection: All joints and connections in the sewer system shall be gastight or watertight. Inlet and outlet connections to sewer manholes must use flexible compression joints located between 12 and 36 inches from the manhole (see Uniform Plumbing Code (UPC) Section 719.6). Where permitted by the administrative authority as an alternate installation method, approved resilient rubber joints or waterstop gaskets may be used in order to make watertight connections to manholes and other structures (see UPC Section 301.2). Use Press-Seal "PSX Direct Drive," Press-Seal "PSX Nylo Drive," Hamilton Kent "Tylox Mechanically Installed Boot (MIB) Connectors," A-Lok Products "Z-Lok," or approved equal. Cement mortar joints are permitted only for repairs or connections to existing lines having such joints.

5. The building sewer starts 2 feet outside of the building. See Uniform Plumbing Code (UPC) part 715.1. Material installed within 2 feet of the building must be of materials approved for use inside of or within the building.

6. Verify the sewer service location, size, and elevation with the Mechanical Engineer prior to construction. Coordinate the sewer service location at 2 ft. out from the proposed building with the interior Plumbing Contractor.

7. Pipe: Solid-wall Polyvinyl Chloride (PVC) Plastic Pipe in accordance with SUDAS STANDARD SPECIFICATIONS, Division 4, Sewers and Drains, Section 4010, Sanitary Sewers, Part 2.01 and as follows. Use SDR 26 Polyvinyl Chloride (PVC) Plastic Pipe for all designated PVC sanitary sewer services outside of the building. The PVC pipe shall meet or exceed the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) D3034. Pipe stiffness per ASTM D2412. Minimum pipe stiffness of 115 psi for SDR 26. PVC plastic meeting ASTM D 1784, Cell Classification 12454 or 12364. Fittings must comply with ASTM D1866, D2665, or F794. Joints must be Integral bell and spigot joints with elastomeric seals complying with ASTM D 3212 and ASTM F 477. The installation must comply with ASTM D2321, which requires open-trench installation on a continuous granular bed.

8. Cleanouts: Install cleanouts on all sanitary sewer services in accordance with UPC part 719.0 and 1101.12. The distance between cleanouts in horizontal piping shall not exceed 100 feet for pipes 4-inch and over in size. Cleanouts shall be of the same nominal size as the pipes they serve. Include frost sleeves and concrete frame and pipe support. Install a meter box frame and solid lid (Neenah R-1914-A, or approved equal) over all cleanouts.

9. Testing: Pressure test all sanitary sewer lines in accordance with the UPC parts 712.0 and 723.0. Test all flexible sanitary sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.

10. Install flexible watertight frame/chimney seals on all sanitary sewer maintenance holes in order to seal the outside of the chimney from the cast iron frame down to the cone. The seal shall be a continuous seamless band made of high quality EPDM (Ethylene Propylene Diene Monomer) rubber with a minimum thickness of 65 mils. Use Internal/External Adapter Seal as manufactured by Adaptor, Inc. (www.adaptorinc.com/wp-content/uploads/2019/04/ADAP_IEManholeSeal.pdf), Infi-Shield Uni-band one piece molded sealing system as manufactured bySealing Systems, Inc. (www.ssisealingsystems.com), or approved equal.

11. Use SUDAS Standard SW-601 casting with self-sealing, solid, type A lid, or approved equal, on all sanitary sewer maintenance holes. Covers shall bear the "Sanitary Sewer" label.

12. Grease Interceptor: The grease interceptor shall be readily accessible. Manhole risers for grease interceptor tanks shall be provided with a substantial, fitted, gas-tight cover of concrete, steel, cast iron or other approved material. Manhole covers shall terminate at or above grade and shall have an approved locking device. A minimum 4x6-inch permanent label shall be affixed to the manhole cover, identifying the interceptor tank with the words GREASE INTERCEPTOR.

13. Trace Wire: Install locating wires on all conductive and non-conductive storm sewer, sanitary sewer, and water lines in accordance with the MRWA Trace Wire Specification Guide and Details (www.mrwa.com/PDF/TracerWireSpecGuideFinalweb9.pdf). Use #12 HDPE-insulated copper-clad steel wire rated for underground service. The color of the insulating jacket shall be as follows: ground=red, storm sewer=green, sanitary sewer=green, and water lines=blue. Install the wire on the bottom side of the pipe below the spring line. Fasten the wire to the pipe with tape or plastic ties at 5' intervals. Do not wrap the trace wire around the corresponding utility. Do not connect the trace wire to existing conductive utilities. Use Copperhead Dryconn 3-Way or Locking Snake Bite connectors rated for underground direct bury applications or approved equal at all crossings or service connections. Twist on connectors are not allowed. Trace wire must be properly grounded at all dead ends and services. Install grade-level/in-ground trace wire access boxes and drive-in magnesium grounding anodes at all dead ends, services, and fire hydrants. Trace wire access boxes shall be color coded as follows: storm sewer=green, sanitary sewer=green, and water lines=blue.

14. Detectable Warning Tape: Install detectable underground warning tape directly above all underground utilities at a depth of 457 mm (18 inches) below finished grade, unless otherwise indicated. Underground warning tape shall be 3-inches wide with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 mil solid aluminum foil core, and then laminated to a 3.75 mil clear virgin polyethylene film. The aluminum backing makes underground assets easy to find using a non-ferrous locator. Tape shall be printed using a diagonally striped design for maximum visibility and meet the APWA Color-Code standard for identification of buried utilities. Use Pro-Line Safety Products (www.prolinesafety.com) detectable marking tape or approved equal.

15. The minimum depth of cover for sanitary sewer without insulation is 5 feet. Insulate sanitary sewer services at locations where the depth of cover is less than 5 feet. Provide a minimum insulation thickness of 4 inches. The insulation must be at least 4 feet wide and centered on the pipe. Install the insulation boards 6 inches above the tops of the pipes on mechanically compacted and leveled pipe bedding material. Use high density, closed cell, rigid board material equivalent to DOW Styrofoam Highload 40 Polystyrene Insulation. Individual insulation board dimensions typically measure 4' wide by 8' long by 2" thk.

16. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Field verify that there is positive drainage at the outfall location. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.

17. Televise all existing lines prior to connection.

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LICENSED PROFESSIONAL ENGINEER
MIKE KETTLER
18845
OWA

UTILITY NOTES

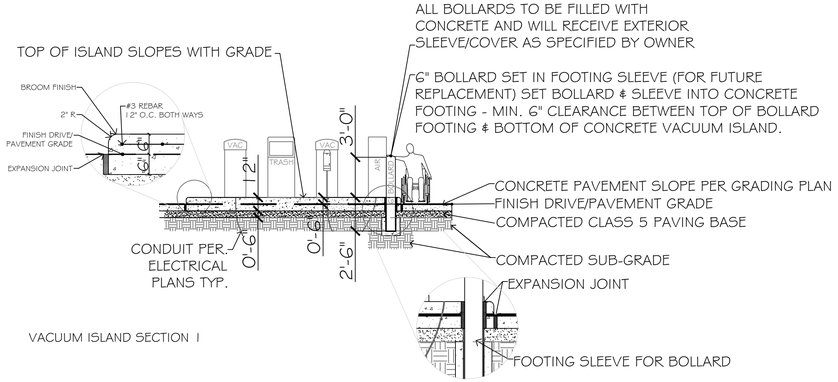
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- AMES, IOWA

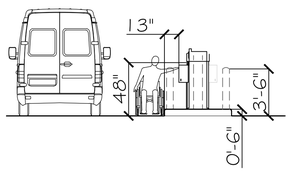
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07/08/26	ISSUE FOR SUBMITTAL
2026-08-21	IFS2
2026-10-27	IFS3
2026-11-03	IFS4

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PROJ. NO.	24-1768
DATE	04/21/2026
SHEET	C401

KWIK TRIP PM N.B.

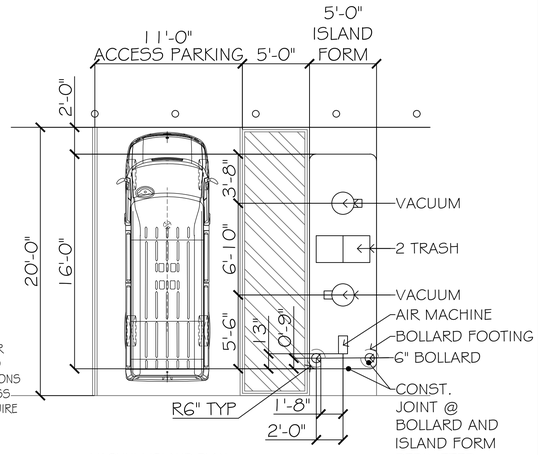


VACUUM ISLAND SECTION 1



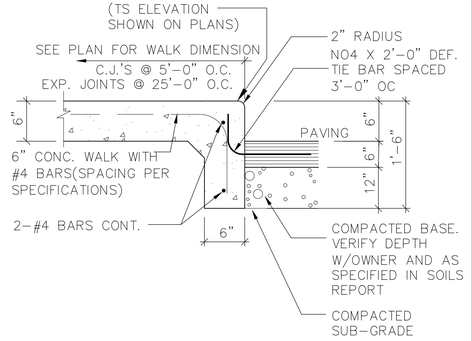
VACUUM ISLAND SECTION 2

NOTE: ACCESS PARKING FOR VACUUM AND AIR NEEDS TO CONFORM TO ADA DIMENSIONS AND MAXIMUM GRADE CROSS SLOPE BUT DOES NOT REQUIRE DESIGANATED ACCESSIBLE SPACE SIGNAGE SO ALL INDIVIDUALS CAN USE THE ISLAND COMPLEX

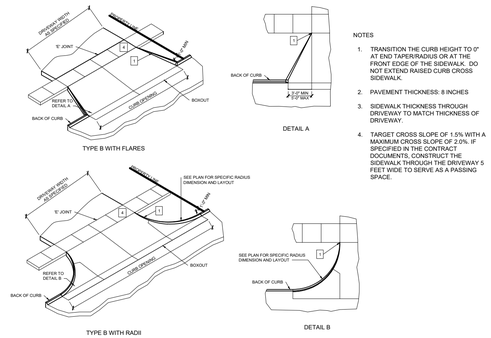


VACUUM ISLAND PLAN

C500	VACUUM ISLAND DETAILS
	NOT TO SCALE



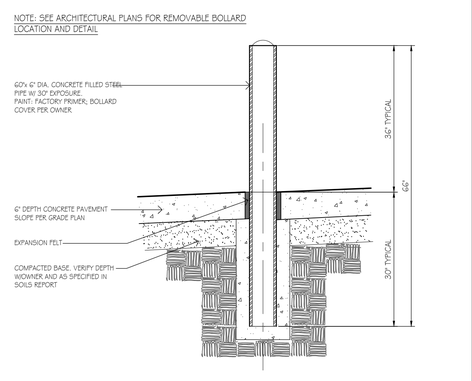
7	SIDEWALK/ CURB DETAIL
C500	NOT TO SCALE



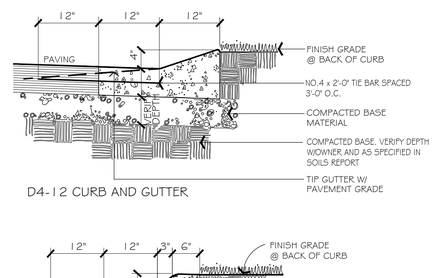
NOTES

1. TRANSITION THE CURB HEIGHT TO 0" AT END TAPER/RADIUS OR AT THE FRONT EDGE OF THE SIDEWALK. DO NOT EXTEND RAISED CURB CROSS SIDEWALK.
2. PAVEMENT THICKNESS: 8 INCHES
3. SIDEWALK THICKNESS THROUGH DRIVEWAY TO MATCH THICKNESS OF DRIVEWAY.
4. TARGET CROSS SLOPE OF 1.5% WITH A MAXIMUM CROSS SLOPE OF 2.0%. IF SPECIFIED IN THE CONTRACT DOCUMENTS, CONSTRUCT THE SIDEWALK THROUGH THE DRIVEWAY 5 FEET WIDE TO SERVE AS A PASSING SPACE.

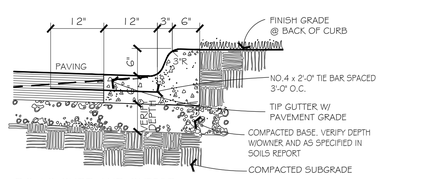
10	CONCRETE APPROACH DETAIL
C500	NOT TO SCALE



8	36" HEIGHT PIPE BOLLARD
C500	SCALE - 3/8" = 1'-0"

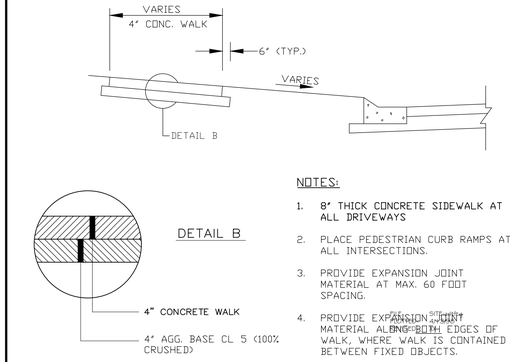


D4-12 CURB AND GUTTER



B6-12 CURB AND GUTTER

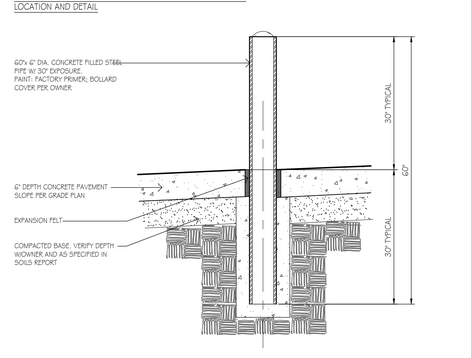
11	CONCRETE CURB DETAIL
C500	SCALE - 3/4" = 1'-0"



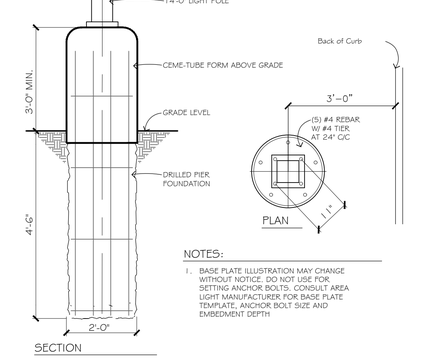
NOTES:

1. 8" THICK CONCRETE SIDEWALK AT ALL DRIVEWAYS
2. PLACE PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS.
3. PROVIDE EXPANSION JOINT MATERIAL AT MAX. 60 FOOT SPACING.
4. PROVIDE EXPANSION JOINT MATERIAL ALONG BOTH EDGES OF WALK, WHERE WALK IS CONTAINED BETWEEN FIXED OBJECTS.

3	CONCRETE WALK/ PAD DETAIL
C500	NOT TO SCALE



9	30" HEIGHT PIPE BOLLARD
C500	SCALE - 3/8" = 1'-0"



NOTES:

1. BASE PLATE ILLUSTRATION MAY CHANGE WITHOUT NOTICE. DO NOT USE FOR SETTING ANCHOR BOLTS. CONSULT AREA LIGHT MANUFACTURER FOR BASE PLATE TEMPLATE, ANCHOR BOLT SIZE AND EMBEDMENT DEPTH

12	ROUND AREALIGHT FOUNDATION
C500	SCALE - 1/2"=1'-0"

KWIK TRIP

KWIK STAR

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insites
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4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insitesmn.net mail@insitesmn.net

REGISTERED LANDSCAPE ARCHITECT Robert Mueller 00370 IOWA
11/03/26

SITE PLAN DETAILS

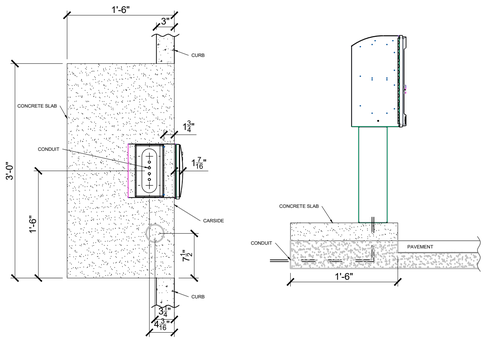
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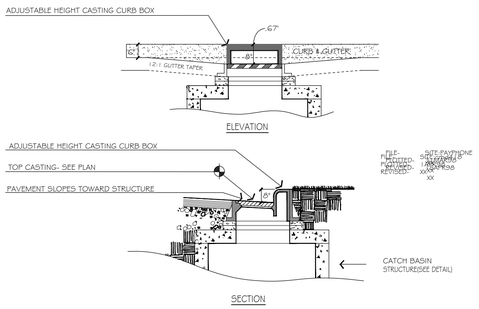
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	2026-10-27	IFS3
	2026-11-03	IFS4

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SCALE	GRAPHIC
PROJ. NO.	26-1904
DATE	04/21/2026
SHEET	**C500**

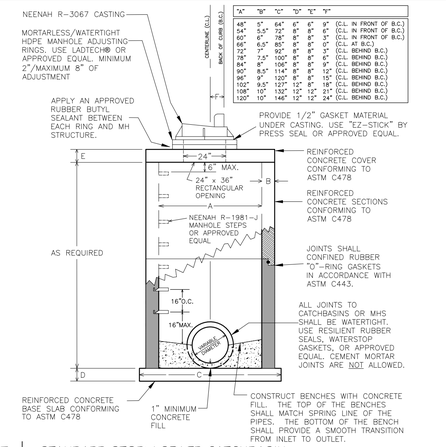
INSITES 26-013 PM N.B.



1 | C501 — CAR WASH PAY STATION
NOT TO SCALE

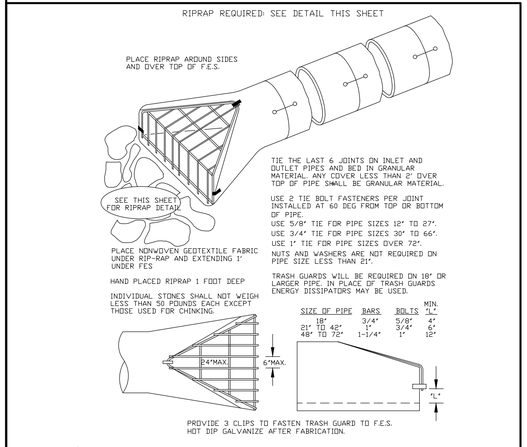


4 | C501 — CURBLINE DETAIL AT CATCHBASIN CURB/PAVEMENT LOW POINTS (SPECIFIC LOCATIONS)
NOT TO SCALE



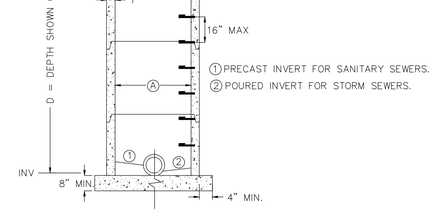
"A"	"B"	"C"	"D"	"E"	"F"
48"	5"	64"	6"	6"	9" (C.L. IN FRONT OF B.C.)
54"	5.5"	72"	8"	8"	6" (C.L. IN FRONT OF B.C.)
60"	6"	78"	8"	8"	3" (C.L. IN FRONT OF B.C.)
66"	6.5"	85"	8"	8"	0" (C.L. AT B.C.)
72"	7"	92"	8"	8"	3" (C.L. BEHIND B.C.)
78"	7.5"	100"	8"	8"	6" (C.L. BEHIND B.C.)
84"	8"	106"	8"	8"	9" (C.L. BEHIND B.C.)
90"	8.5"	114"	8"	8"	12" (C.L. BEHIND B.C.)
96"	9"	120"	8"	8"	15" (C.L. BEHIND B.C.)
102"	9.5"	127"	12"	8"	18" (C.L. BEHIND B.C.)
108"	10"	132"	12"	12"	21" (C.L. BEHIND B.C.)
120"	10"	146"	12"	12"	24" (C.L. BEHIND B.C.)

7 | C501 — STANDARD STORM SEWER CATCHBASIN
NOT TO SCALE



SIZE OF PIPE	BARS	BOLTS	MIN. "L"
18"	3/4"	5/8"	4"
21" TO 42"	1"	3/4"	6"
48" TO 72"	1-1/4"	1"	12"

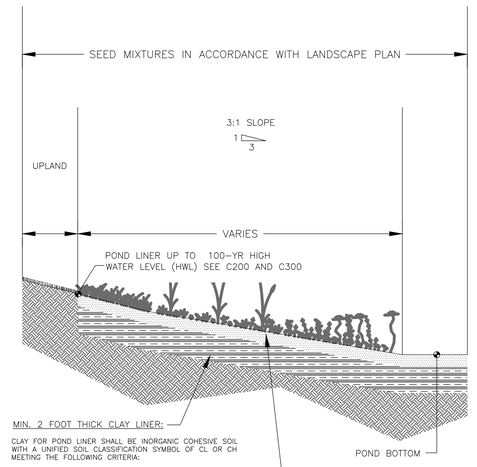
2 | C501 — FLARED END SECTION WITH TRASH GUARD
NOT TO SCALE



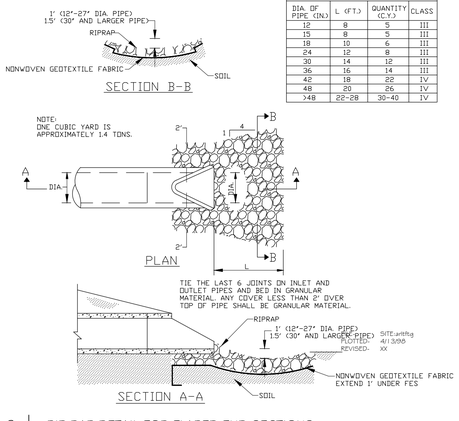
TYPE	DIAMETER Ⓐ	T
I	48"	5"
II	60"	6"
III	72"	8"
IV	27"	3 1/4"

STEPS NEEDED WHEN D > 4'
① PRECAST INVERT FOR SANITARY SEWERS.
② POURED INVERT FOR STORM SEWERS.

8 | C501 — PRECAST REINFORCE CONC. MANHOLE
NOT TO SCALE

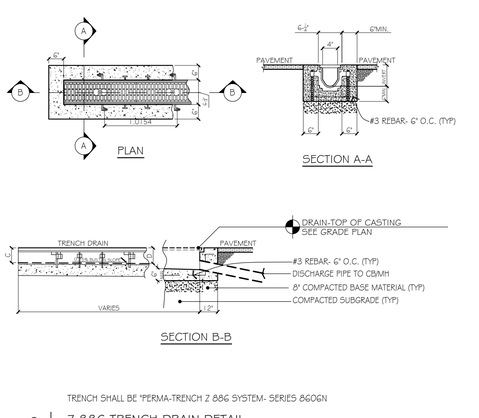


12 | C501 — DRY POND CROSS-SECTION
NOT TO SCALE



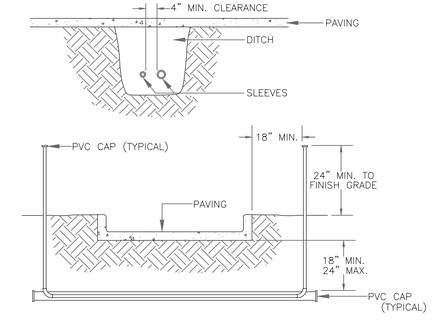
MINIMUM RIPRAP REQUIRED			
DIA. OF PIPE (IN.)	L (FT.)	QUANTITY (C.Y.)	CLASS
12	8	5	III
15	8	5	III
18	10	6	III
24	12	8	III
30	14	12	III
36	16	14	III
42	18	22	IV
48	20	26	IV
>48	22-28	30-40	IV

3 | C501 — RIP RAP DETAIL FOR FLARED END SECTIONS
NOT TO SCALE



TRENCH SHALL BE "PERMA-TRENCH Z 886 SYSTEM- SERIES 860GN

6 | C501 — Z 886 TRENCH DRAIN DETAIL
SCALE - 1/4"= 1'-0"



NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE SCH 40 PVC PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP TO 95% PROCTOR.

9 | C501 — TYPICAL SLEEVING
NOT TO SCALE

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KWIK STAR

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LICENSED LANDSCAPE ARCHITECT
Robert Mueller
00377
IOWA
11/03/26

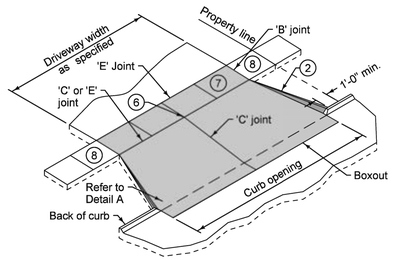
SITE PLAN DETAILS

CONVENIENCE STORE 1904
AMES, IOWA

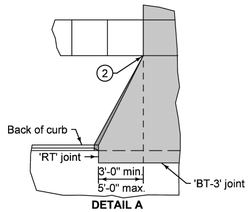
NO.	DATE	DESCRIPTION
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	2026-08-21	IFS2
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	2026-11-03	IFS4

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SCALE	GRAPHIC
PROJ. NO.	26-1904
DATE	04/21/2026
SHEET	C501

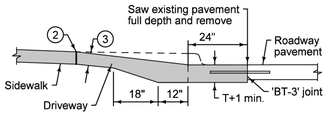
INSITES 26-013 PM N.B.



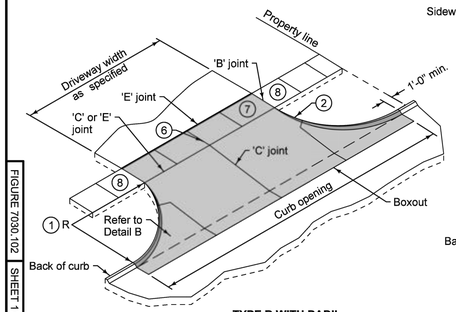
TYPE B WITH FLARES



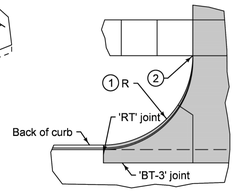
DETAIL A



SECTION A-A



TYPE B WITH RADII



DETAIL B

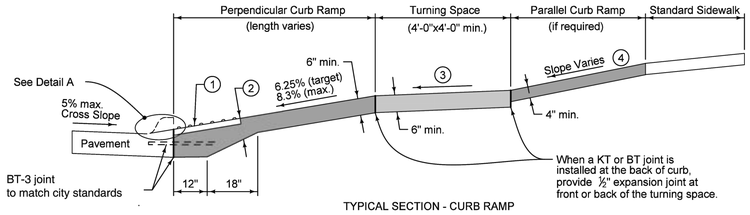
1. Driveway radius (R).
   Residential: 10 foot minimum, 15 foot maximum.
   Commercial and industrial: As specified in the contract documents.
2. Transition the curb height to 0 inches at end of taper/radius or at the front edge of sidewalk. Do not extend raised curb cross sidewalk.
3. Pavement thickness.
   Residential: 6 inches minimum.
   Commercial and industrial: 7 inches minimum.
4. Sidewalk thickness through driveway to match thickness of driveway.
5. If longitudinal joint is located 48 inches or less from the back of curb, extend boxout to joint line. Full depth saw cut is still required.
6. For alleys, invert the pavement crown 2% toward the center of the alley.
7. Target cross slope of 1.5% with a maximum cross slope of 2.0%. If specified in the contract documents, construct the sidewalk thorugh the driveway 5 feet wide to serve as a passing space.
8. If cross slope of adjacent sidewalk panel exceeds 2.0%, remove and replace to transition from existing sidewalk to sidewalk through driveway. If the elevation change requires a curb ramp, comply with Figure 7030.205; verify need for detectable warning panel with Engineer.

SUDAS	REVISION	
	2	10-20-15
7030.102	SHEET 1 of 1	

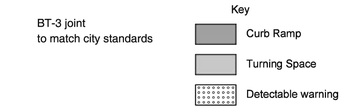
SUDAS Standard Specifications

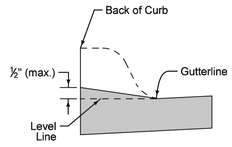
CONCRETE DRIVEWAY, TYPE B

FIGURE 7030.102 | SHEET 1 OF 1

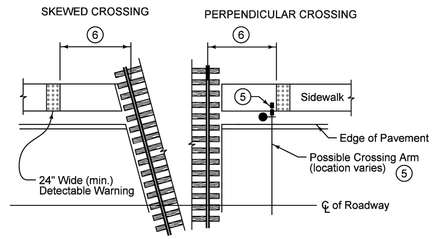


TYPICAL SECTION - CURB RAMP





DETAIL A



DETECTABLE WARNING LOCATION AT RAILROAD CROSSING

1. Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.
2. Provide a minimum of 6 inches of concrete below the detectable warning panel.
3. Minimum 4 feet by 4 feet. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
4. If normal sidewalk elevation cannot be achieved with the perpendicular ramp between the street and landing due to limited ramp length, provide a parallel ramp to make up the elevation difference between the landing and the standard sidewalk.

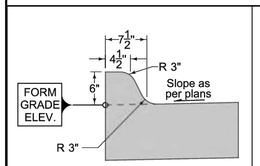
   The length of the parallel ramp is not required to exceed 15 feet, regardless of the resulting slope. Do not exceed 8.3% slope for parallel ramps shorter than 15 feet.
5. If crossing gate conflicts with location of detectable warning or if pedestrian crossing gate is provided, place detectable warning panel in advance of the crossing gate.
6. Locate front edge of detectable warning panel 12 to 15 feet from centerline of nearest rail. Orient truncated domes parallel to the direction of pedestrian travel.

SUDAS	REVISION	
	1	10-20-15
7030.205	SHEET 1 of 1	

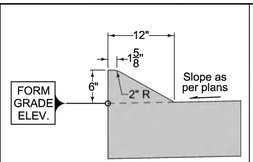
SUDAS Standard Specifications

GENERAL SIDEWALK AND CURB RAMP DETAILS

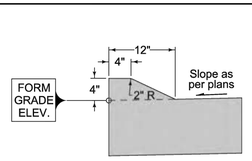
FIGURE 7030.205 | SHEET 1 OF 1



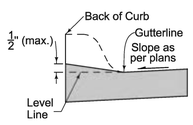
6" STANDARD CURB



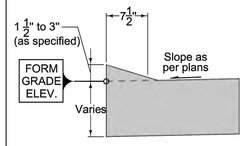
6" SLOPED CURB



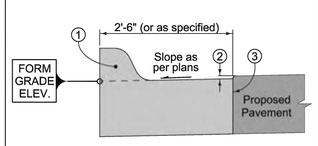
4" SLOPED CURB



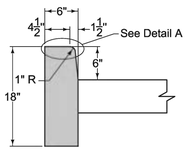
DROP CURB AT SIDEWALK



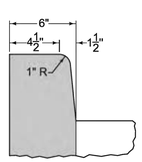
DRIVEWAY DROP CURB



CURB AND GUTTER UNIT



BEAM CURB*
*For short replacement sections, match existing curb profile



DETAIL A

For joint details, see PV-101.

1. 6" Standard Curb, 6" Sloped Curb, or 4" Sloped Curb as specified.
2. ⅛" if Proposed Pavement is HMA. No elevation difference if Proposed Pavement is PCC.
3. 'BT' , 'KT', or 'L' joint if Proposed Pavement is PCC. 'B' joint if Proposed Pavement is HMA.

SUDAS	IOWA DOT	REVISION	
		4	10-18-16
FIGURE 7010.102	STANDARD ROAD PLAN	PV-102	SHEET 1 of 2

REVISIONS: Added note, 'Slope as per plans' on Drop Curb views on page 1. Updated DOT logo to new version.

Rick D. Wiegand, SUDAS DIRECTOR — Shiran Smith, DESIGN METHODS ENGINEER

PCC CURB DETAILS

FIGURE 7010.102 | SHEET 1 OF 2

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4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763 . 383 . 8400
insitesinc.net mail@insitesinc.net

LICENSED LANDSCAPE ARCHITECT — Robert Mueller — 00377 — IOWA — 11/03/26

SUDAS SITE PLAN DETAILS

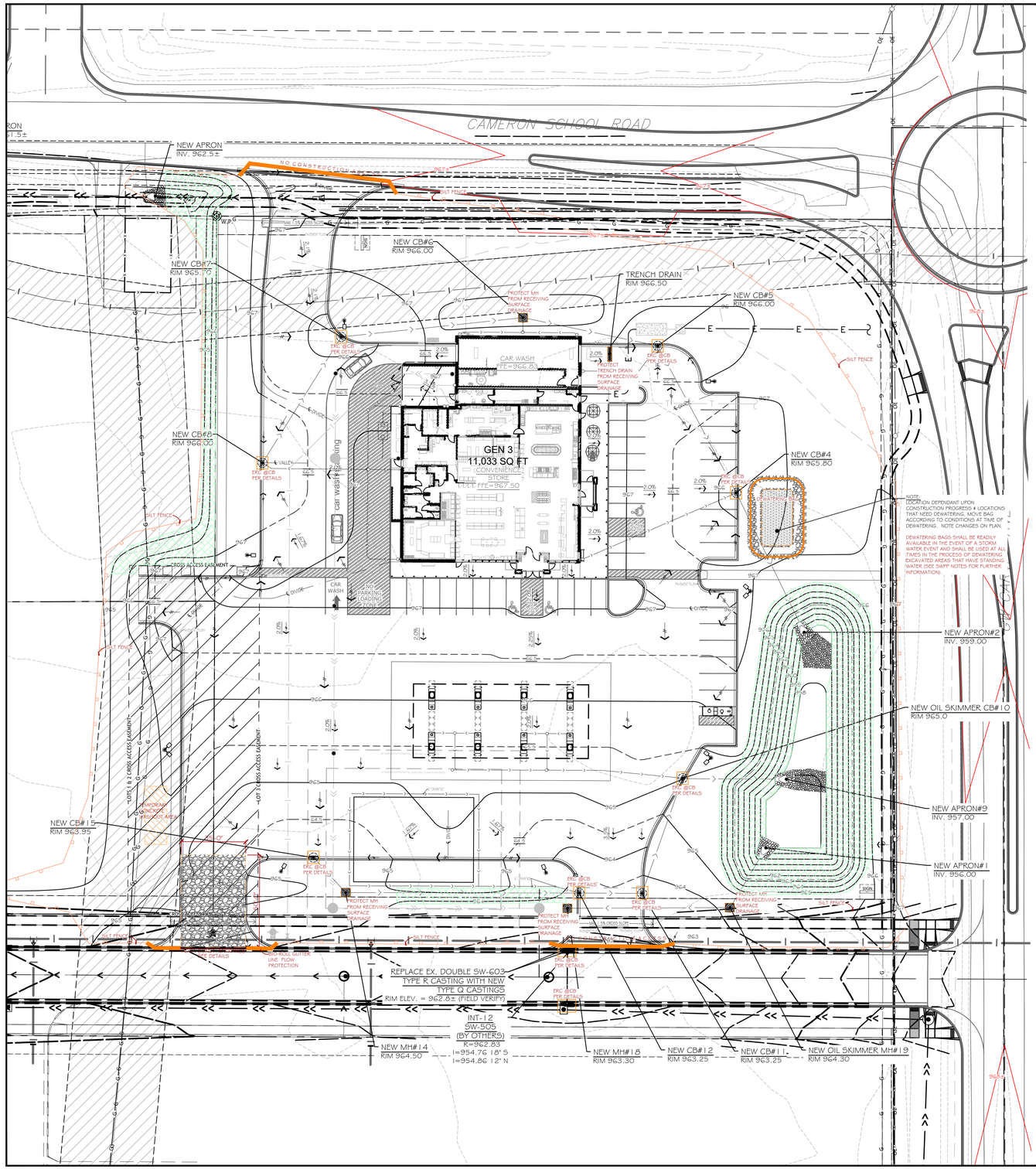
CONVENIENCE STORE 1904

AMES, IOWA

NO.	DATE	DESCRIPTION
	05-21-26	INTERNAL REVIEW
	07-08-26	ISSUE FOR SUBMITTAL
	2026-08-21	IFS2
	2026-10-27	IFS3
	2026-11-03	IFS4

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C502**

INSITES 26-013 PM N.B.



SWPPP DESIGN CERTIFICATION STATEMENT

THESE PLANS MEET ALL CURRENT MINIMUM MANDATORY REQUIREMENTS OF THE IDNR FOR SWPPPS IN CONNECTION WITH THE ISSUANCE OF A NPDES GENERAL PERMIT NO.2, AS STATED IN THE SUMMARY GUIDANCE FOR THE PERMIT.

THIS PLAN COMPLIES WITH THE MINIMUM MANDATORY REQUIREMENTS OF THE JOINT APPLICATION FORM, PROTECTING IOWA WATERS; IOWA DEPARTMENT OF NATURAL RESOURCES AND THE U.S. ARMY CORPS OF ENGINEERS.

I HEREBY CERTIFY THAT THIS PLAN COMPLIES WITH ALL OTHER APPLICABLE STATE OR FEDERAL PERMIT REQUIREMENTS IN EXISTENCE AT THE TIME OF THE APPLICATION AND ALL REQUIREMENTS OF THE CITY CODE FOR CONSTRUCTION.

NAME: ROBERT J. MUELLER
TITLE: LICENSED LANDSCAPE ARCHITECT

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE AS PART OF THIS CERTIFICATION. FURTHER, BY MY SIGNATURE, I UNDERSTAND THAT I AM BECOMING A CO-PERMITTEE, ALONG WITH THE OWNER(S) AND OTHER CONTRACTORS AND SUBCONTRACTORS SIGNING SUCH CERTIFICATIONS, TO THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES" AT THE IDENTIFIED SITE. AS A CO-PERMITTEE, I UNDERSTAND THAT I, AND MY COMPANY, ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE CODE OF IOWA, TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE STORM WATER POLLUTION PREVENTION PLAN DEVELOPED UNDER THIS NPDES PERMIT AND THE TERMS OF THE NPDES PERMIT."

NAME (PRINTED OR TYPED): _____
TITLE: _____
SIGNATURE: _____
DATE: _____
NAME OF CONTRACTING FIRM: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____
ADDRESS OF THE SITE: _____

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

NAME (PRINTED OR TYPED): _____
TITLE: _____
SIGNATURE: _____
DATE: _____
NAME OF COMPANY, IF APPLICABLE: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____
ADDRESS OF THE SITE: _____

CONSTRUCTION SEQUENCE

*INSTALL EROSION/SEDIMENT CONTROL MEASURES
*INSTALL STORMWATER MANAGEMENT AND/OR POND/SEDIMENT BASINS
*INSTALL STORM SEWER
*INSTALL STRUCTURES
*INSTALL PAVEMENTS
*INSTALL SMALL UTILITIES (GAS, ELECTRIC, PHONE, CABLE, ETC.)
*INSTALL LAWN/ LANDSCAPE
*FLUSH STORM SEWER
*REMOVE EROSION CONTROL MEASURES ONLY AFTER ALL PAVEMENTS HAVE BEEN INSTALLED AND ALL SOILS HAVE BEEN STABILIZED

Estimated Preliminary Erosion Control Quantities

(actual quantities subject to change)

Item	Quantity	
Rock Construction Entrance	195	SQ. YD.
Silt Sack	15	TOTAL STRUCTURES
Erosion Control Blanket (basin)	1,411	SQ. YD.
Rip Rap	6	CU. YD.
Silt Fence	1,507	L. FT.
Rock Filtration Dikes	XXX	L. FT.
Bio Roll/Erosion Log	211	L. FT.

Note: for maintenance purposes contractor shall all sufficient quantities for repair and replacement of erosion control devices throughout all phases of the projects construction.

PROJECT DATA

PROJECT START DATE	MARCH 2027
PROJECT COMPLETION DATE	OCTOBER 2027

SITE AREA DATA

TOTAL SITE AREA	139,164 SF
PRE-CONSTRUCTION IMPERVIOUS AREA	0 SF
POST-CONSTRUCTION IMPERVIOUS AREA	83,518 SF
APPROX. AREA OF LAND DISTURBANCE	100%

SITE RUNOFF COEFFICIENT (CN)

PRE-CONSTRUCTION	74
POST-CONSTRUCTION	88

SOIL DATA

SURFACE SOIL	Nicollet loam; canisteo clay loam; harps clay loam
SUB-SURFACE SOIL	--
DEPTH OF GROUND WATER	--FT
DOWN-STREAM TRIBUTARY	IOWAY CREEK WATERSHED

ALL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AND CONSTRUCTED IN ACCORDANCE TO STATE AND DNR TECHNICAL STANDARDS

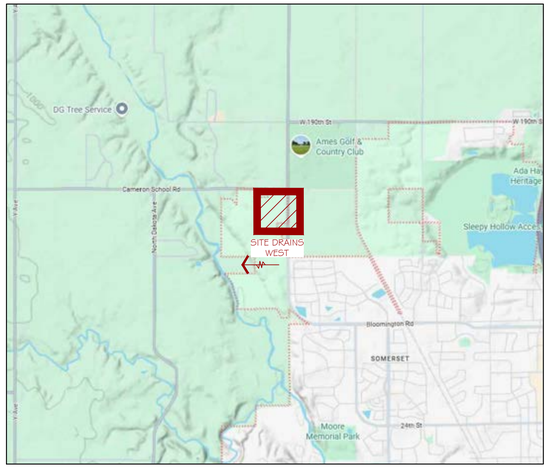
-ALL SILT FENCE MUST BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY THE CITY PRIOR TO ANY SITE WORK.

-SITE EROSION CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES. SHOULD DEVICES BE REMOVED FOR WORK ACCESS, THEY SHALL BE REINSTALLED AT THE END OF EACH WORK DAY UNTIL PAVEMENTS HAVE BEEN INSTALLED AND ALL LANDSCAPE AREAS HAVE BEEN MULCHED AND SODDED. SEEDED AREAS MUST EXHIBIT MINIMUM OF 70% SOIL COVERAGE.

-REFER TO THE SWPPP PLAN NOTES AND DETAIL SHEETS C601-603 FOR MORE INFORMATION.

CONTACT NATE BYOM
KWIK TRIP INC
1626 OAK STREET
LACROSSE, WI 54602
608-791-7448

EROSION CONTROL BLANKET ON SIDE SLOPES OF 3:1 OR GREATER DOUBLE NETTED LIGHT DUTY



811 Know what's below. Call before you dig.

NORTH
SCALE: 1" = 30'

30 15 0 30 60

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
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1626 OAK STREET
LACROSSE, WI 54602-2107
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763.383.8400
insitesinc.net mail@insitesinc.net

LICENSED LANDSCAPE ARCHITECT
Robert Mueller
0037
IOWA
11/03/26

EROSION CONTROL PLAN

CONVENIENCE STORE 1904
AMES, IOWA

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SHEET C600

INSITES 26-013 PM N.B.

GENERAL STORMWATER POLLUTION PREVENTION:

Apply for and obtain all necessary permits.

Stormwater Pollution Prevention Plan (SWPPP): The SWPPP includes this narrative, Plan Sheets CG00-603, and the Stormwater Management Calculations. Keep a copy of the SWPPP, all changes to it, and inspections and maintenance records at the site during the construction. During the construction process the SWPPP will have to be amended to reflect the changes performed by the contractor. the owner shall be aware of the amendments prior to changes made in the SWPPP. All notes, photographs, recorded dates, sketches, references, and diagrams will have to be recorded and made available as part of the SWPPP permit.

Individual(s) preparing the SWPPP for the project, overseeing implementation of the SWPPP, revising and amending the SWPPP, and at least one individual on the project performing installation, inspection, maintenance, and repairs of BMP's must be trained. The training must be done by a local, state, federal agencies; professional organization; or other entities with expertise in erosion prevention, sediment control, or permanent Stormwater management. Training information and those certified must be noted in the SWPPP. Documentation of this information must be included in the SWPPP or made available within 72 hours. All trained individuals must be identified, including DESIGNER, INSTALLER and INSPECTOR.

Responsible Parties: The contractor must designate a person knowledgeable and experienced in the application of erosion prevention and sediment control BMPs who will oversee the implementation of the SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control BMPs before and during construction.

CONTACT NATE BYOM
KWIK TRIP INC
1626 OAK STREET
LACROSSE, WI 54602
608-791-7445

The owner is responsible for identifying who will have responsibility for the long term operation and maintenance of the permanent stormwater management systems.

SITE INVESTIGATION, INSTALLATION, IMPLEMENTATION :

1. Prior to any work, contractor shall visit the site, document existing conditions as necessary (photos, notes, etc) and note existing drainage patterns on and off site that are related to the project. These notes shall be part of the SWPPP.
2. Install all temporary erosion and sediment control measures including silt fence, rock construction entrance(s), erosion control berms, rock filters, silt sacks, rock /earth berms, and sedimentation basins. Protect all receiving waters, catch basins, ditches, inlets etc. in and around the site. All protective and preventative measures must be in place and inspected prior to beginning site cleaning, grading, or other land-disturbing activity.
3. Prior to beginning site cleaning and grading, protect all storm sewer inlets that receive runoff from disturbed areas. In order to prevent sediment from leaving the site and entering the downstream storm sewer system, seal all storm sewer inlets that are not needed for site drainage during construction. Protect all other storm sewer inlets by installing sediment control devices, such as silt sacks, or rocked filtration logs/wiers. Straw bales or fabric under the grates are not acceptable forms of inlet protection. Protect new storm sewer inlets as they are completed. Maintain storm sewer inlet protection in place until all sources with potential for discharging to the inlets are stabilized.
4. Before beginning construction, install a TEMPORARY ROCK CONSTRUCTION ENTRANCE at each point where vehicles exit the construction site When at all possible contractor shall designate only one access point for vehicles entering and exiting the site. The rock on the entrance will have to be inspected daily and replaced or rock supplemented by the contractor when over 50% of the voids in the rock are filled. A cleaning station should be made available to drivers and visibly signed to see. Provide shovels, brooms and/or hose with a wash out area so soils can be removed from vehicles on site.
5. Avoid entire removal of trees and surface vegetation all at once whenever possible as this limits the amount of site susceptible to erosion. Schedule construction zones and note this on the SWPPP in order to expose the smallest practical area of soil at any given time. Utilize vegetation removed by on site grinding and mulching and using this material to protect the soil from erosion.
6. Areas That Discharge to Special or Impaired Waters: Following initial soil disturbance or redisturbance, complete permanent or temporary stabilization against erosion due to rain, wind, and running water within 7 calendar days on all disturbed or graded areas. This requirement does not apply to those areas that are currently being used for material storage on a daily basis or for those areas on which grading, site building, or other construction activities are actively underway. Provide temporary cover on all stacked topsoil piles, and other areas of stockpiled excavated material in order to prevent soil erosion and rapid runoff during the construction period. Stockpiles can be mulched, covered with poly or fabric, and or seeded during prolonged exposure. Prolonged periods of open, bare earth without grass cover will not be permitted. Stabilize all disturbed greenspace areas (not paved) with a minimum of 4" topsoil immediately after final subgrade completion. Seed and mulch, or sod and protect these areas within 48 hours after completion of final grading work (weather permitting). Stabilize all disturbed areas to be paved using early application of gravel base. Stabilize the normal wetted perimeter of any temporary or permanent drainage ditch that conveys water from the construction site, or diverts water around the construction site, within 200 lineal feet from the point of discharge to any surface water. Stabilize temporary or permanent drainage ditches within 24 hours of connecting to a surface water. Protect outfalls minimum of 200feet down stream and to the side of the discharge point. Additional settling "pots" achieved by filter logs or filtered stick bales staked in the channel will dissipate the water energy. Provide pipe outlets with temporary or permanent energy dissipation within 24 hours of connection to a surface water.
7. Receiving Waters - It is the contractors responsibility to inspect the site discharge point as well as downstream to the receiving body of water (pond, lake, stream, etc.) on a regular basis including after each storm event and document if any differences or changes in normal in discharge and if material is leaving the construction site. If so it shall be documented and removed immediately.

NOTE: ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE CHECKED BY THE CONTRACTOR AFTER EACH STORM EVENT AND BE MAINTAINED, OR IMPROVED UPON AFTER EVERY STORM EVENT TO ENSURE ADEQUATE PERFORMANCE.

POLLUTION CONTROL:

1. Designate a Concrete Wash-out and truck wash area:
   Make it visible in the field to vehicle operators and note this on the SWPPP.

   a. When washouts occur on the site, concrete washout water must be contained in a leak-proof containment facility or impermeable liner. Liquid and solid wastes may not touch the ground and there must not be runoff from the concrete washout operations or areas.

   b. Limit external washing of trucks and other construction vehicles to a defined area preferably before the construction access/exit point. Wash vehicles only on an area stabilized with stone that drains into an approved sediment trapping device. Contain runoff and properly dispose of waste. Engine degreasing is prohibited.
2. Solid Waste: All materials hauled off-site shall be secured to prevent littering. Dumpsters shall be covered to prevent storm water contamination. Properly dispose of collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris, and other wastes in compliance with State of Iowa requirements.
3. Hazardous Materials: Properly dispose of all waste and unused building materials (including garbage debris, cleaning wastes, oil, gasoline, paint, wastewater, toxic materials, and hazardous materials) off-site. Do not allow waste and unused building materials to be carried by runoff into a receiving channel or storm sewer system. Properly store oil, gasoline, paint, and other hazardous materials in order to prevent spills, leaks, or other discharge. Include secondary containment. Restrict access to storage areas in order to prevent vandalism. Storage and disposal of hazardous materials must be in compliance with PCA regulations.
4. Machinery: and mechanized equipment that leaks waste shall have a protective barrier or containment under the device adequate to contain the waste. Properly dispose of the waste.
5. Emergency spill station: Contractor shall locate and sign an emergency spill station that has necessary containment or cleanup devices for all workers to access.
6. Sanitary wastes: Sanitary wastes generated on site shall be treated and disposed in accordance with state and local requirements.

EROSION CONTROL :

Apply necessary moisture to the construction area and haul roads to prevent the spread of dust.

Contractor shall utilize coarsely ground wood and tree mulches to cover exposed soils. Mulches shall be stored on site to supplement and use in problem areas during all phases of the construction project.

Contractor shall use star tack or other organic substances in situations to prevent soil from eroding away by wind or rain.

Whenever possible contractor shall grade areas of soil to limit potential of erosion, to include tracking perpendicular to fall line of grades as well as diverting water flows from problematic areas on the site.

Seeding, fiber blankets, polyltarps or cover mulches, disked mulches and compost can be used to cover temporarily exposed areas from wind and rain. Other methods by the contractor shall be documented in the SWPPP.

SEDIMENT CONTROL:

Inlet Sediment Control Protection Devices:
The following area approved Inlet Sediment Control Devices:

a. Road Drain Top Slab Model RD 23 (fits rough opening for 2'x3' inlet), Road Drain Top Slab Model RD 27 (fits rough opening for 27" inlet), or Road Drain Top Slab Model CG 3067 (fits Neenah Casting with 35-1/4"x17-3/4" dimensions) manufactured by:
WIMCO
799 Theis Drive
Shakopee, MN, 55379
Phone (952) 233-3055
or approved equal

b. Silt Sack manufactured by:
ACF ENVIRONMENTAL
2831 Cardwell Road
Richmond, VA, 23234
Phone (800) 448-3636
or approved equal

c. InfraSafe Sediment Control Barrier. Install geotextile sock on the outside of the barrier in order to trap additional fines. Standard frames are available to fit 24" to 30" diameter and 2'x3' openings.
Distributed by:
ROYAL ENTERPRISES AMERICA
30622 Forest Boulevard
Stacy, MN, 55079
Phone (651) 462-2130
or approved equal

d. Rudge Bag Rock Log. Use rock logs only for curb inlets after pavement is in place.
Manufactured by RED BARN RIDGE, 3135
County Road 136, Saint Cloud, MN, 35301
Phone (320) 253-3744
or approved equal

e. Inflatable drain plugs by Interstate Products www.interstateproducts.com *or approved equal*

Riprap:
Place stones of at least 5 lbs or greater that conform to Iowa DOT section 4130 on 225 mm (9 inch) thick layer of Fill Stone gradation number 34 at locations indicated on the plan in accordance with Iowa DOT Articles 4130.01 and 4130.05. Install two layers of non-woven filter fabric beneath the granular filter material conforming to Iowa DOT Section 4131. At pipe outfalls the discharge location may be into a receiving stream or an existing storm sewer system (open channel or closed conduit). Refer to Section 4A-4 for the Concept Plan. Consult with a drainage engineer before planning to discharge to an undefined swale, ditch, or stream.

Silt Fence:
Install silt fence along the contour (on a level horizontal plane) with the ends turned up (J-hooks) in order to help pond water behind the fence. Install the silt fence on the uphill side of the support posts. Provide a post spacing of 1.2 m (4 feet) or less. Drive posts at least 0.6 m (2 feet) into the ground. Anchor the silt fence fabric in a trench at least 152 mm (6 inches) deep and 152 mm (6 inches) wide dug on the upslope side of the support posts. Lay the fabric in the trench and then backfill and compact with a vibratory plate compactor. Make any splices in the fabric at a fence post. At splices, overlap the fabric at least 152 mm (6 inches), fold it over, and securely fasten it to the fence post. Silt fence supporting posts shall be 51 mm (2 inch) square or larger hardwood, pine, or standard T- or U-section steel posts. T- or U-section steel posts shall weigh not less than 1.8Kg/2 kg per meter (1.25 lb per lineal foot). Posts shall have a minimum length of 1524 mm (5 feet). Posts shall have projections to facilitate fastening the fabric and prevent slippage. Geotextile fabric shall meet the requirements of Iowa DOT Specification for pre-assembled silt fence, furnished in a continuous roll in order to avoid splices. Geotextile fabric shall be uniform in texture and appearance and have no defects, flaws, or tears. The fabric shall contain sufficient ultraviolet (UV) ray inhibitor and stabilizers to provide a minimum two-year service life outdoors. Fabric color shall be international orange. In high traffic areas contractor shall reinforce silt fence with wire fencing and metal posts. extreme circumstances will require temporary concrete median sections to support material backing of stock piled soil or filled earth.

Stockpiles:
Install silt fence, or other effective sediment controls, around all temporary soil stockpiles for soil and materials preserved on site. Locate soil or dirt stockpiles containing more than 10 cubic yards of material such that the downslope drainage length is no less than 8 m (25 feet) from the toe of the pile to a roadway or drainage channel. If remaining for more than seven days, stabilize the stockpiles by mulching, vegetative cover, tarps, or other means. Control erosion from all stockpiles by placing silt fence barriers around the piles. During street repair, cover construction soil or dirt stockpiles located closer than 8 m (25 feet) to a roadway or drainage channel with tarps, and protect storm sewer inlets with silt sacks or staked silt fence. Do not stock pile soil or material near catch basins or drainage ways.

Temporary Rock Construction Entrance:
Use 25 mm (1 inch) to 50 mm (2 inch) diameter rock, Use Iowa DOT 4122, Gradation 13, Macadam crushed stone in a layer at least 152 mm (6 inches) thick across the entire width of the entrance. Extend the rock entrance at least 15 m (50 feet) into the construction zone. Maintain the entrance in a condition that will prevent tracking or flowing of sediment onto paved roadways. Provide periodic top dressing with additional stone as required. Close entrances not protected by temporary rock construction entrances to all construction traffic.

Temporary Sediment Basins:
In the construction process or if noted on the plan the contractor shall construct temporary sediment basin(s). As per general rule the sediment basin shall be sized appropriately to a capacity related to the drainage area on a ratio of 3,600 cubic feet per acre of drainage zone entering the basin. Basins shall be inspected after every rainfall event, material removed and stabilized. If changes to the basin are made, document and amend the SWPPP.

Dewatering:
If dewatering is required and sump pumps are used, all pumped water must be discharged through an erosion control facility (temporary sedimentation basin, grit chamber, sand filter, upflow chamber, hydro-cyclone, swirl concentrator, dewatering bag or other appropriate facility) prior to leaving the construction site. Proper energy dissipation must be provided at the outlet of the pump system. Discharge clear water only. To achieve better separation of the material suspended in the water a biodegradable not toxic flocculant agent may be required.

If the contractor determines that dewatering will be necessary, a dewatering plan may have to be submitted to the watershed and/or DNR by the contractor for approval. A trench permit may also have to be submitted and will be the responsibility of the contractor. Water pumped from the site shall be pumped and treated for water quality per watershed and/or DNR.

For more information and materials on dewatering go to by Interstate Products www.interstateproducts.com

INSPECTIONS-MAINTENANCE-DAILY RECORD-AMEND THE SWPP PLAN

1. Inspect all erosion and sediment control devices, stabilized areas, and infiltration areas on a daily basis until land-disturbing activity has ceased. Thereafter, inspect at least on a weekly basis until vegetative cover is established. Remove accumulated sediment deposits from behind erosion and sediment control devices as needed. Do not allow sediment to accumulate to a depth of more than one-third of the height of the erosion and sediment control devices. Immediately replace deteriorated, damaged, rotted, or missing erosion control devices. Document inspections and dates of rainfall events. Maintain a written log of all inspection, maintenance, and repair activities related to erosion and sediment control facilities. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow access.
2. All inspections and maintenance activities must be recorded in writing DAILY in a detailed record (notes, photographs, sketches, etc., and kept with the SWPPP.
3. Remove all soils and sediments tracked or otherwise deposited onto adjacent property, pavement areas, sidewalks, streets, and alleys. Removal shall be on a daily basis throughout the duration of the construction. Clean paved roadways by shoveling or wet-sweeping. Do not dry sweep. If necessary, scrape paved surfaces in order to loosen compacted sediment material prior to sweeping. Haul sediment material to a suitable disposal area. Street washing is allowed only after sediment has been removed by shoveling or sweeping.
4. All soil hauled from the site shall be accounted for and documented in the SWPPP. Its final destination and how the soil has been stored and stabilized.
5. Maintain all temporary erosion and sediment control devices in place until the contributing drainage area has been stabilized (hard-surfaced areas paved and vegetation established in greenspace). Repair any rilling, gully formation, or washouts. After final establishment of permanent stabilization, remove all temporary synthetic, structural, and nonbiodegradable erosion and sediment control devices and any accumulated sediments. Dispose-of off site. Restore permanent sedimentation basins to their design condition immediately following stabilization of the site.
6. Clean sedimentation basins, storm sewer catch basins, ditches, and other drainage facilities as required in order to maintain their effectiveness. Temporary and permanent sedimentation basins must be drained, and the sediment removed when the depth of sediment collected in the basin reaches 1/2 of the storage volume. Drainage and removal must be completed within 72 hours, or as soon as field conditions allow access.
7. Inspect infiltration areas to ensure that no sediment from ongoing construction activities is accumulating. Remove sediment immediately ensuring subsoils are not compacted by machinery.
8. Every vehicle shall not track material off-site. Clean the wheels of construction vehicles in order to remove soils before the vehicles leave the construction site. Wash vehicles only on an area stabilized with stone that drains into an approved sediment trapping device.
9. Reinforce erosion control facilities in areas where concentrated flows occur (such as swales, ditches, and areas in front of culverts and catch basins) by backing them with snow fence, wire mesh, or stiff plastic mesh reinforcement until paving and turf establishment operations have been completed. Posts for the reinforcing fence shall be 100 mm (4 inch) diameter wood posts, or standard steel fence posts weighing not less than 0.59 kg (1.3 lbs) per lineal foot, with a minimum length of 762 mm (30 inches) plus burial depth. Space posts for the reinforcing fence at intervals of 3 m (10 feet) or less. Drive posts for the reinforcing fence at least 0.6 m (2 feet) into the ground.

GENERAL SOIL STABILIZATION:
(SEE LANDSCAPE PLAN FOR MORE INFORMATION)

Establishment of lawn, prairie/wildflower and/or plant bed areas will be noted on the landscape plan to ensure stabilization of soils, restaking of sod where applicable, proper watering and mulch maintenance will be required. Inspect seeded or sodded areas on a timely day-to-day basis. In the event of a seeding failure, reseed and remulch the areas where the original seed has failed to grow and perform additional watering as necessary at no additional cost to the Owner. Special maintenance provisions for wild and prairie grass seeded areas as noted in the landscape plan. Promptly replace all sod that dries out to the point where it is presumed dead and all sod that has been damaged, displaced, weakened, or heavily infested with weeds at no additional cost to the Owner.

Soil Stabilization:
Soils must be stabilized immediately when cleaning, grading or excavating processes have ceased permanently or if work will not resume for fourteen (14) days in accordance to the 0/14 day rule outlined by the NPDES General Permit No.2 guidelines

Top Soil Preservation:
Minimize soil compaction where allowable and preserve all possible top soil in accordance to NPDES General Permit No.2 guidelines.

Seedbed Preparation, Temporary:
Till the soil to a minimum depth of 5 inches with a disk, harrow, or field cultivator.

Seed Preparation:
In areas to be temporarily seeded, use introduced seed mixtures, Iowa DOT Type 4 (Urban Temporary Erosion Control Mixture) or Type 5 (Rural Temporary Erosion Control Mixture). For temporary seeding prepare by tilling the soil to a minimum depth of 5 inches with a disk, harrow, or field cultivator.

a. Thoroughly mix all seed specified for the contract prior to placing the seed in the seed hopper. Provide 48 hours notice prior to mixing the seed, and give the Engineer an opportunity to witness the seed mixing. The mixing of a certified blue tag seed mix at an approved (by Iowa Crop Improvement Association) seed conditioner's facility need not be witnessed.

b. Treat all legume seed with a commercial sticking agent to be applied prior to application of inoculant, or as a mixture when the sticking agent is compatible with other materials. A sticking agent is not required if a liquid formulation of inoculant is used. Use mechanical mixing equipment to apply sticking agent and inoculant on seed quantities over 50 pounds.

c. Inoculate all legumes with a standard product humus culture before being mixed with other seeds for sowing.

d. Inoculate all legumes with a standard culture at the rate specified by the manufacturer of the inoculant according to Iowa DOT Article 4169.04. Do not expose inoculated seed to direct sunlight for more than 30 minutes. Re-inoculate seed that is not sown within 8 hours after inoculation prior to use. Pre-inoculated seed with manufacturer's recommended protective coating may be used in lieu of seed with Contractor-applied inoculant.

e. When the gravity or cyclone seeder is used for application of seed, inoculate legume seed according to the manufacturer's recommended procedures, before mixing with other grass seeds for sowing. Furnish and apply inoculant.

Seed Application, Temporary:
a. On areas accessible to field machinery, sow seed with an endgate cyclone seeder.

b. On areas inaccessible to field machinery, the use of hand-operated cyclone seeders will be allowed, but no other hand-operated seeding methods will be accepted.

c. Cover the seed and fertilizer by lightly tilling the seeded area with a disk, rigid harrow, spring tooth harrow, or field cultivator.

For additional reference see SUDAS Standard Specifications Division 9 - Site Work and Landscaping, Section 9010.

In seeded areas with slopes steeper than 3:1 and lengths less than 15 meters (50 feet), install Wood Excelsior Mat per Specification Section 4169.10 uniformly over the soil surface by hand within 24 hours after seeding in accordance with manufacturers recommendations. The contractor may substitute coconut fiber mat for Ditch Control, Wood Excelsior Mat. Straw mat is not allowed as a substitution in ditches or swales. Materials I.M. 469.10, Appendix A provides a list of approved sources, the type of material and allowed use (slope protection and/or ditch control).

NOTE: THE PROJECT'S LANDSCAPE PLAN IS PART OF THE SWPP FOR SOIL STABILIZATION. REFERENCES SHALL BE MADE TO THE APPROVED LANDSCAPE PLAN. AMENDMENTS TO THE LANDSCAPE PLAN SHALL BE APPROVED BY THE OWNER AND DOCUMENTED AS PART OF THE SWPP

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KWIK STAR

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1626 OAK STREET
LACROSSE, WI 54602-2107
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insites
SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
763.383.8400
insites@insites.net mail@insites.net

LICENSED LANDSCAPE ARCHITECT Robert Mueller 00372 IOWA
11/03/26

EROSION CONTROL NOTES

CONVENIENCE STORE 1904

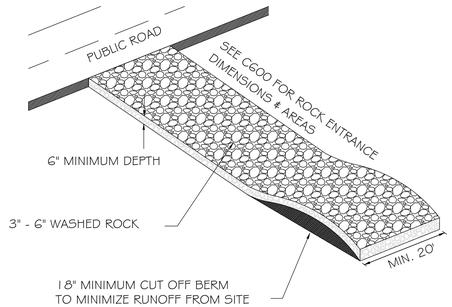
AMES, IOWA

NO.	DATE	DESCRIPTION
	05-21-26	INTERNAL REVIEW
	07-08-26	ISSUE FOR SUBMITTAL
	2026-08-21	IFS2
	2026-10-27	IFS3
	2026-11-03	IFS4

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C601**

INSITES 26-013 PM N.B.

NOTE- ROCK ENTRANCE DIMENSIONS MAY VARY AND MUST MEET MUNICIPAL REQS.



1 8" MINIMUM CUT OFF BERM TO MINIMIZE RUNOFF FROM SITE

FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK.

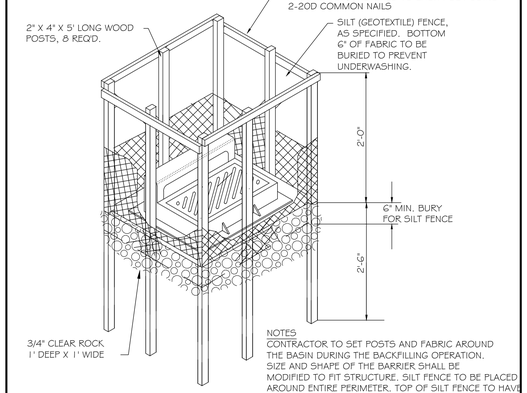
1 | ROCK CONSTRUCTION ENTRANCE
C602

WOODEN LATHE SHALL BE NAILED SECURELY TO THE POST MEMBER TO SECURE FILTER FABRIC.

2" X 4" HORIZONTAL MEMBERS CONTINUOUS AROUND TOP, FASTENED TO EACH POST USING 2-20D COMMON NAILS

2" X 4" X 5' LONG WOOD POSTS, 8 REQ'D.

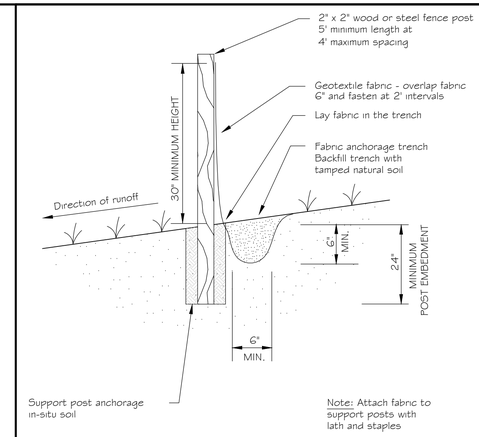
SILT (GEOTEXTILE) FENCE, AS SPECIFIED. BOTTOM 6" OF FABRIC TO BE BURIED TO PREVENT UNDERWASHING.



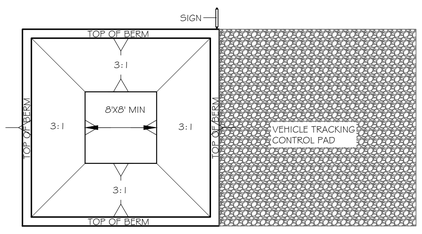
3/4" CLEAR ROCK 1' DEEP X 1' WIDE

NOTES
CONTRACTOR TO SET POSTS AND FABRIC AROUND THE BASIN DURING THE BACKFILLING OPERATION. SIZE AND SHAPE OF THE BARRIER SHALL BE MODIFIED TO FIT STRUCTURE. SILT FENCE TO BE PLACED AROUND ENTIRE PERIMETER. TOP OF SILT FENCE TO HAVE 12" MIN. CLEARENCE TO EXISTING GRADE.

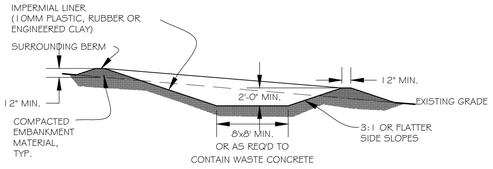
2 | EROSION CONTROL AROUND CATCH BASIN
C602



4 | SILT FENCE
C602



PLAN
1/8"= 1'-0"



TYPICAL SECTION
1/8"= 1'-0"

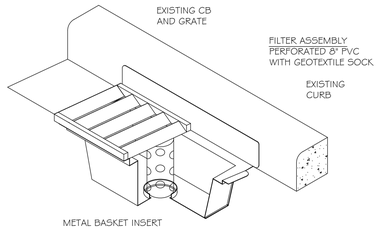
CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE EROSION CONTROL PLAN FOR LOCATIONS OF CONCRETE WASHOUT AREA(S). TO BE PLACED A MIN. OF 50' FROM DRAINAGEWAYS, BODIES OF WATER, AND INLETS.)
2. THE CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL PAD IS REQ'D AT THE ACCESS POINT(S).
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA(S), AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREAS TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

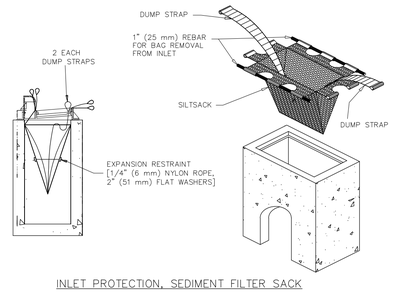
CONCRETE WASHOUT AREA MAINTENANCE NOTES

6. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE
7. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
8. WHEN CONCRETE WASHOUT AREA(S) IS REMOVED, THE DISTURBED AREA SHALL BE STABILIZED PER SITE EROSION CONTROL MEASURES.
9. INSPECT WEEKLY AND DURING AND AFTER ALL STORM EVENTS. CLEAN-OUT OR COVER WASHOUT AREA PRIOR TO PREDICTED STORM EVENTS TO PREVENT OVER-FLOW.

5 | CONCRETE WASHOUT AREA
C602



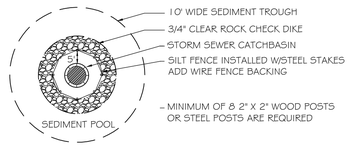
INLET PROTECTION, METAL BASKET TYPE



INLET PROTECTION, SEDIMENT FILTER SACK

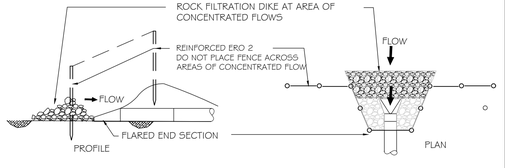
6 | INLET PROTECTION AT CATCH BASIN
C602

A. EROSION CONTROL AROUND BEEHIVE BASINS

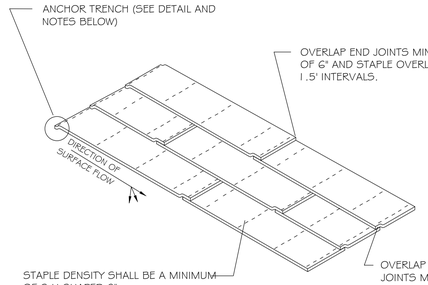


PLAN

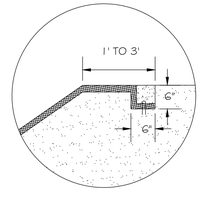
B. EROSION CONTROL AT FLARED END SECTION
TOP OF SILT FENCE TO BE LOWER THAN LOWEST ADJACENT OVERFLOW



7 | EROSION CONTROL FOR OPEN SPACE CATCH BASINS AND FLARED-END SECTIONS
C602



ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



8 | EROSION CONTROL BLANKET INSTALLATION
C602

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LICENSED LANDSCAPE ARCHITECT
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IOWA
11/03/26

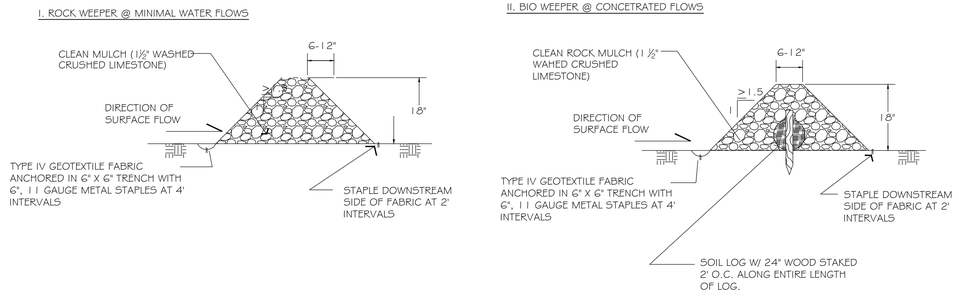
EROSION CONTROL DETAIL

CONVENIENCE STORE 1904
AMES, IOWA

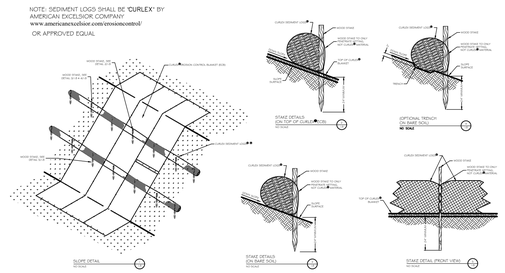
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PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C602**

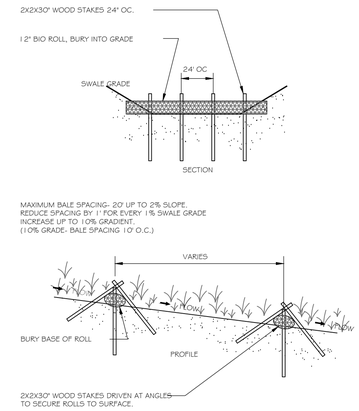
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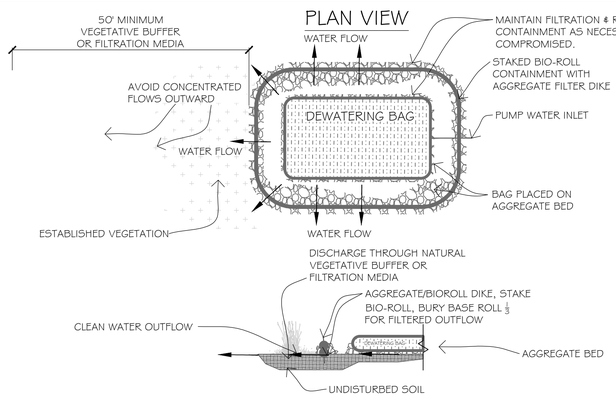
1 | C603 | DITCH CHECKS, ROCK WEEPERS, & ROCK BIO WEEPERS
EROSION CONTROL



2 | C603 | BIO ROLL INSTALLATION



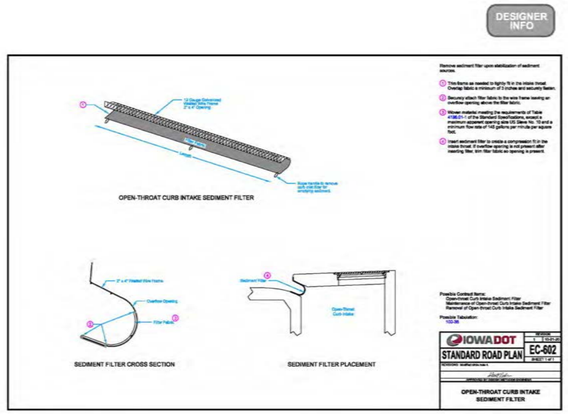
3 | C603 | DITCH CHECKS FOR DRAINAGE SWALES



NOTES:
MAINTAIN 50' MINIMUM SEPARATION FROM DISCHARGE CONTAINMENT AND WETLANDS, WATER BODIES, OR STORM SEWERS.

THE OWNER OR CONTRACTOR SHALL OBTAIN DEWATERING PERMIT, AS MAY BE REQUIRED, FROM THE STATE PRIOR TO ANY DEWATERING OPERATIONS DISCHARGING FROM THE SITE. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT.

4 | C603 | DEWATERING BAG INSTALLATION, FOR DISCHARGING ERODED, SUSPENDED PARTICLES IN WATER
NOT TO SCALE



CONTRACTOR/SUBCONTRACTOR CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE AS PART OF THIS CERTIFICATION. FURTHER, BY MY SIGNATURE, I UNDERSTAND THAT I AM BECOMING A CO-PERMITTEE, ALONG WITH THE OWNER(S) AND OTHER CONTRACTORS AND SUBCONTRACTORS SIGNING SUCH CERTIFICATIONS, TO THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES" AT THE IDENTIFIED SITE. AS A CO-PERMITTEE, I UNDERSTAND THAT I, AND MY COMPANY, ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE CODE OF IOWA, TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE STORM WATER POLLUTION PREVENTION PLAN DEVELOPED UNDER THIS NPDES PERMIT AND THE TERMS OF THE NPDES PERMIT."

NAME (PRINTED OR TYPED): _____
TITLE: _____
SIGNATURE: _____
DATE: _____
NAME OF CONTRACTING FIRM: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____
ADDRESS OF THE SITE: _____

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TITLE: _____
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DATE: _____
NAME OF CONTRACTING FIRM: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____
ADDRESS OF THE SITE: _____

OWNER CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

NAME (PRINTED OR TYPED): _____
TITLE: _____
SIGNATURE: _____
DATE: _____
NAME OF COMPANY, IF APPLICABLE: _____
ADDRESS: _____
CITY, STATE, ZIP CODE: _____
TELEPHONE NUMBER: _____
ADDRESS OF THE SITE: _____

KWIK TRIP
KWIK STAR

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
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insitesinc.net mail@insitesinc.net

Robert Mueller 00372 LICENSED LANDSCAPE ARCHITECT IOWA
11/03/26

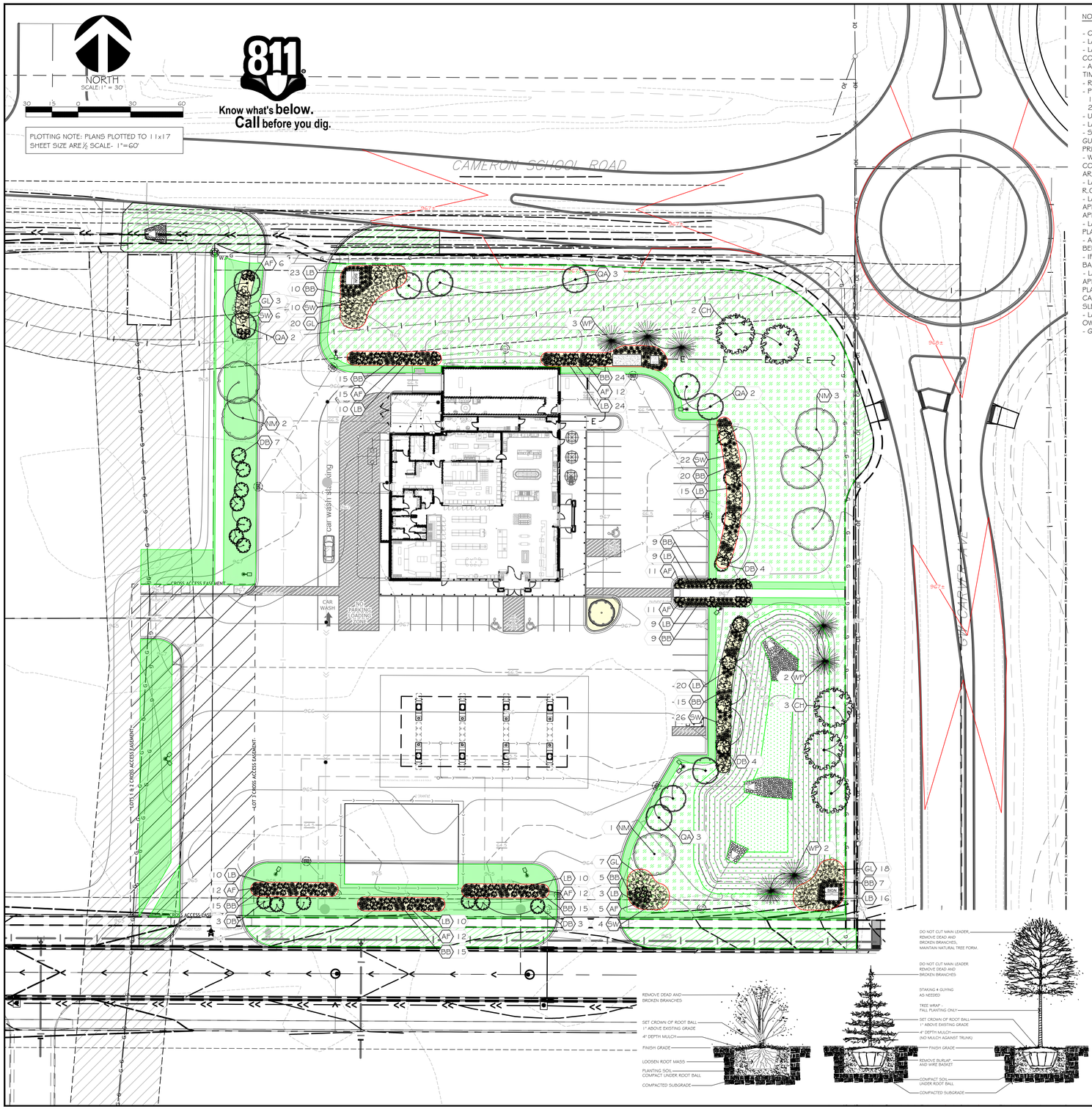
EROSION CONTROL DETAILS

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SHEET **C603**

INSITES 26-013 PM N.B.



NOTES:

- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR PLANTING IN ALL R.O.W.
- LANDSCAPE CONTRACTOR SHALL VERIFY ALL UTILITIES WHICH MAY EFFECT HIS WORK.
- LANDSCAPE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHERS AT SITE AND COMPLETE HIS WORK PER OWNERS CONSTRUCTION SCHEDULE.
- ALL PLANT MATERIALS SHALL BE GUARANTEED ONE (1) FULL YEAR UPON TOTAL COMPLETION AND ACCEPTANCE BY OWNER, WITH ONE TIME REPLACEMENT AT APPROPRIATE TIME OR UPON REQUEST OF OWNER.
- REPLACEMENT TOPSOIL SHALL BE CLEAN, FREE OF STONES, WEEDS, AND OTHER UNDESIRABLE DEBRIS.
- PLANTING SOIL MIX (INCIDENTAL COST ITEM)
  1. MIX 1 LB. 5-20-20 COMMERCIAL FERTILIZER PER CU. YD. TOPSOIL
  2. THOROUGHLY MIX 1-PART SAND AND 1-PART PEAT MOSS WITH 5-PARTS FERTILIZER AND TOP SOIL.
- USE PLANTING SOIL AT ALL LOCATIONS PER DETAILS THIS SHEET.
- LANDSCAPE CONTRACTOR SHALL VERIFY TOPSOIL DEPTH AND NOTIFY OWNER OF ANY DEFICIENCY.
- SOD SHALL BE CULTURED WITH PREDOMINATELY KENTUCKY BLUEGRASS SEED OF RECENT DISEASE RESISTANT INTRODUCTIONS. NO GUARANTEE ON SOD EXCEPT ANY SOD NOT SATISFACTORY AT TIME OF COMPLETION INSPECTION SHALL BE PROMPTLY REPLACED PRIOR TO COMPLETION OF JOB. STAKE SOD ON SLOPES 3:1 AND GREATER.
- WHERE EXISTING CONCRETE/ ASPHALT AREAS ARE TO BE REPLACED WITH LANDSCAPING, PROVISIONS SHOULD BE TAKEN TO COORDINATE EXCAVATION OF SUBSOIL TO A DEPTH OF 2' WITH GRADING CONTRACTOR. REPLACE WITH COMPACTED TOPSOIL. ALL AREAS TO BE LANDSCAPED AND SODDED SHALL BE GRADED SMOOTH AND EVEN.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR SODDING ALL AREAS WHICH ARE DISTURBED BY CONSTRUCTION INCLUDING ALL R.O.W. AND ADJACENT PROPERTIES.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR PROVIDING BLANKET ON ALL SEEDED AREAS THAT ARE SLOPED. MULCH APPLICATION FOR ALL OTHER SEEDED AREAS SHALL BE EITHER HYDROMULCH OR DISKED STRAW DEPENDING ON SEED TYPE, APPLICATION, AND OWNER REQUEST.
- LANDSCAPE CONTRACTOR TO INSTALL 'VALLEY VIEW', "BLACK DIAMOND" EDGING AROUND ALL PLANTING BEDS AS SHOWN ON THIS PLAN.
- ALL MULCH TO BE FINELY SHREDDED HARDWOOD ORGANIC BARK MULCH. NO DYED MULCHES. INSTALL 4" DEPTH. NO FILTER FABRIC BENEATH ORGANIC MULCHES. NO EDGING AROUND ALL TREES OUTSIDE SHRUB BEDS.
- IF SPECIFIED, ALL GRAVEL MULCH SHALL BE 1"+ DIA. WASHED "RIVER ROCK". INSTALL 4" DEPTH WITH APPROVED WEED FABRIC BARRIER IF INDICATED PLAN.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR IRRIGATION SYSTEM INSTALLATION PER IRRIGATION PLAN. DESIGN SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION. IRRIGATION DESIGN SHOULD ENCOMPASS ALL LANDSCAPE AREAS WITH SOD AND/ OR PLANTINGS, FROM CURB TO CURB. R.O.W. SHOULD BE IRRIGATED FROM SPRINKLER HEADS LOCATED WITHIN PROPERTY BOUNDARY. CARE SHOULD BE TAKEN IN VICINITY OF ALL WALKS AND DRIVES TO MINIMIZE OVER SPRAY. COORDINATE INSTALLATION OF ALL PVC SLEEVE UNDER DRIVE AREAS WITH GENERAL CONTRACTOR.
- LANDSCAPE CONTRACTOR SHALL CLEAN ALL PAVEMENT AREAS AFTER ALL LANDSCAPE INSTALLATION IS COMPLETE AND ACCEPTED BY OWNER AND DAILY AS DEEMED NECESSARY BY THE CITY.
- GENERAL CONTRACTOR TO SWEEP PAVEMENT AREAS PRIOR TO TURN OVER TO OWNER.

PLANT MATERIAL

	QUANTITY	SIZE	ROOT TYPE	OVERALL %	COMMON NAME / BOTANICAL NAME	HEIGHT' X WIDTH'
OVERSTORY TREES						
CH	5	2.5" CAL.	B&B	10%	COMMON HACKBERRY Celtis occidentalis	60' x 50'
DB	21	1.5" CAL.	B&B	42%	DAKOTA PINNACLE BIRCH Betula platyphylla 'Fargo'	30' x 8'
NM	6	2.5" CAL.	B&B	12%	NORTHWOOD MAPLE Acer rubrum 'Northwood'	50' x 35'
QA	10	10' HT	B&B	20%	QUAKING ASPEN Populus tremuloides	50' x 25'
AM	1	2.5" CAL.	B&B	2%	ARMSTRONG RED MAPLE Acer x freemanii 'Armstrong'	50' x 15'
EVERGREEN TREES						
WP	7	10' HT	B&B	14%	WHITE PINE Pinus strobus	65' x 35'
SHRUBS						
SW	68	#3 CONT	pot	32%	SUMMER WINE NINEBARK Physocarpus opulifolius 'Seward'	5' x 5'
GL	48	#3 CONT	pot	23%	GRO-LOW FRAGRANT SUMAC Rhus aromatica 'Gro-Low'	2' x 7'
AF	96	#3 CONT	pot	45%	ARCTIC FIRE DOGWOOD Cornus stolonifera 'Farrow'	4 X 4'
GRASSES						
BB	159	#1 CONT	pot	50%	BIG BLUESTEM Andropogon gerardii	5' x 3'
LB	159	#1 CONT	pot	50%	LITTLE BLUE STEM Schizachyrum scoparium	4' x 3'

SEED SPEC: FALL SEEDING IS PREFERABLE (AUG. 20 TO OCT. 20). SPRING SEEDING SHOULD BE BETWEEN MARCH 15- MAY 15. NO SUMMER SEEDING.

	3,156 SY	LAWN MIXTURE: BLUE GRASS MIX. IADOT STATE URBAN AREA MIX 2601.03-4 (OR APPROVED EQUAL). PROVIDE EROSION CONTROL BLANKET ON SIDE SLOPES.
	824 SY	STORM BASIN SLOPES: IADOT STATE URBAN STABILIZING MIX 2601.03-2 (OR APPROVED EQUAL). PROVIDE EROSION CONTROL BLANKET ON SIDE SLOPES.
	194 SY	DETENTION BASIN: IADOT MIX #2601.03-6 SEED WETLAND GRASS. OR APPROVED EQUAL TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING SPECIES BELOW:

- Blue vervain, Boneset, Nodding bur marigold, swamp milkweed, sneezeweed, water plantain, arrowhead, New England aster, Big bluestem, switchgrass, Praine cordgrass, Virginia wild-rye, Bluejoint grass, Rice cutgrass, Dark Green bulrush, Fox sedge, Softstem bulrush, Spike rush, Porcupine sedge, Broom sedge, Tussock sege.

ALL MIXTURES SHALL BE SUBMITTED & APPROVED BY OWNER.
INSTALL PER STATE DOT SPECIFICATIONS, FOR PRAIRIE & DITCH INSTALLATIONS THAT MAY INCLUDE SPECIFIC EROSION PROTECTION ON THE SEED.

EDGING - 1,419 LF
MULCH - 91 CY
SOD - 1,513 SY
SEED REPAIR - 740 SY

LANDSCAPE REQUIREMENTS:

-ZONING
- CGS - CONVENIENCE GENERAL SERVICE

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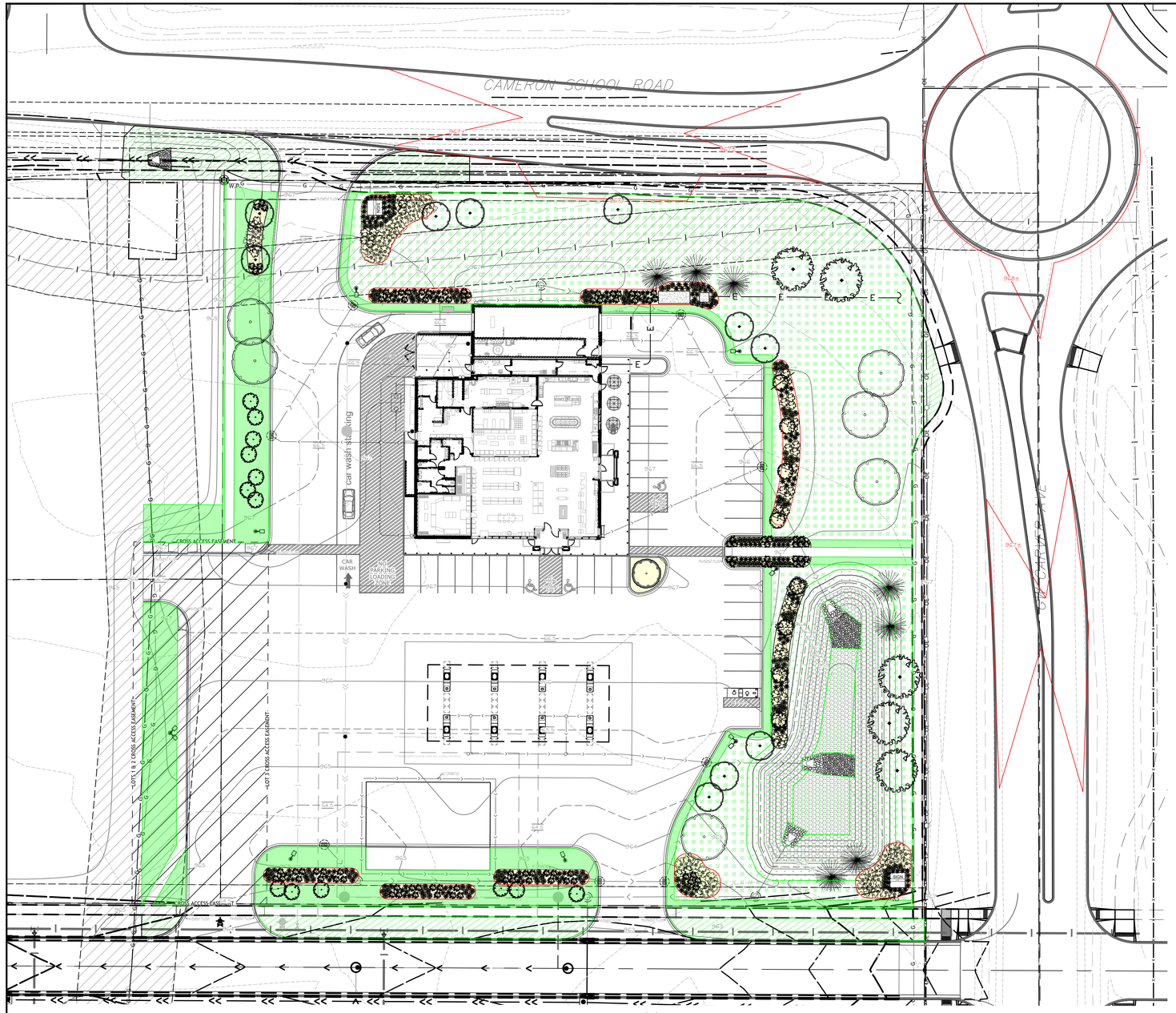
LANDSCAPE PLAN

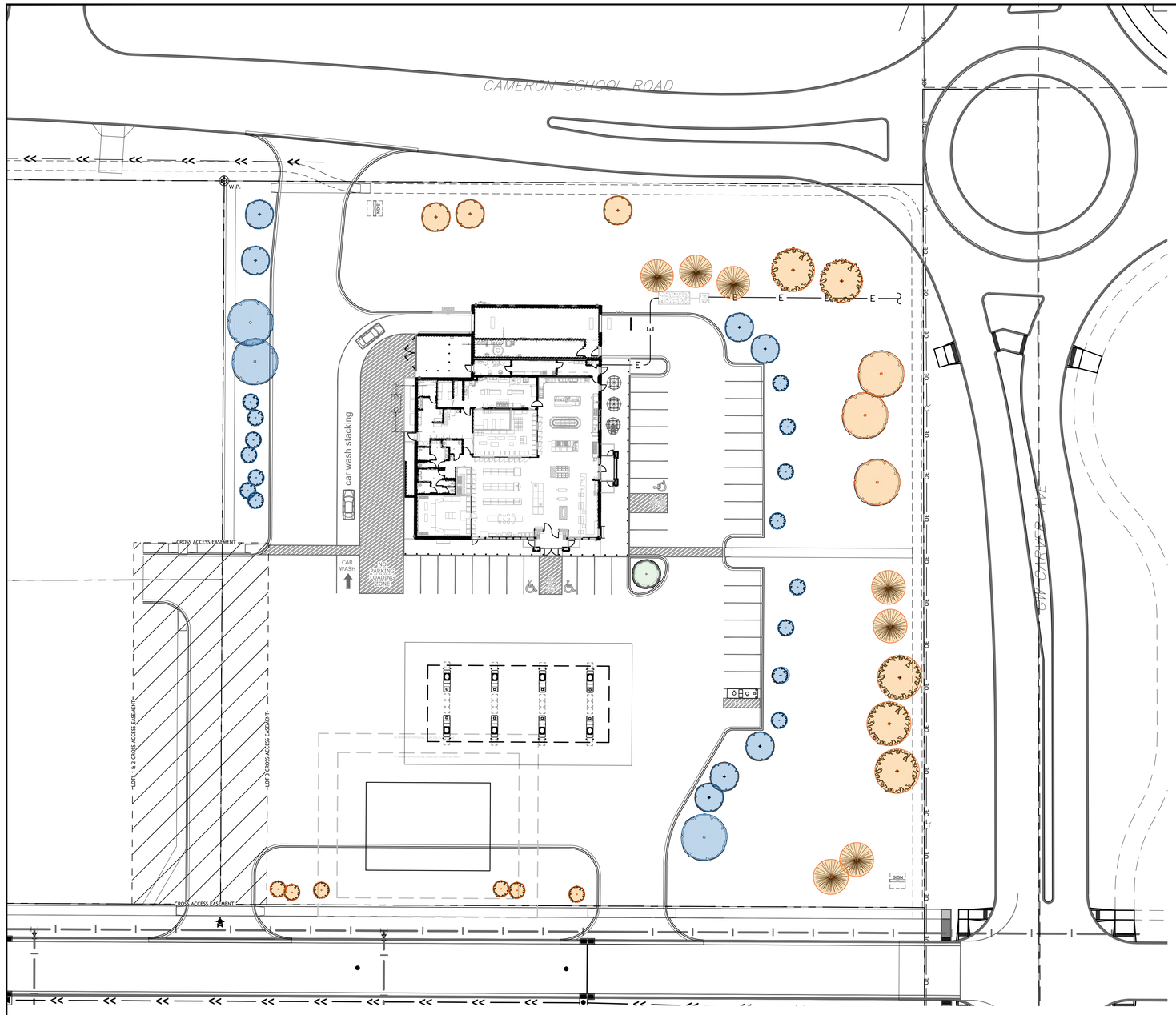
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INSITES 26-013 PM N.B.


CAMERON SCHOOL ROAD
GW CARVER AVE
car wash stacking
CROSS ACCESS EASEMENT
CAR WASH
NO PARKING LOADING ZONE
LOT 1 & 2 CROSS ACCESS EASEMENT
LOT 1 CROSS ACCESS EASEMENT
CROSS ACCESS EASEMENT
DOMINATE
SUBMERGE
SUBMERGE
SUBMERG



PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

811 Know what's **below.** **Call** before you dig.

TREE COMPLIANCE KEY

REQUIREMENT CATEGORY	TREE SYMBOL	REQUIRED TREES	PROVIDED TREES
FRONT YARD PLANTING		8 OVERSTORY TREES PER STREET FRONTAGE	8 OVERSTORY TREES PER STREET FRONTAGE
PARKING LOT PLANTING		26 OVERSTORY TREES	26 OVERSTORY TREES
PARKING ISLAND PLANTING		N/A	1 OVERSTORY TREE

TREE REQUIREMENTS

FRONT YARD PLANTING
a. Requirement - (1 OVERSTORY TREE PER 50' LINEAL FT OF STREET FRONTAGE)

a.a. calculation:
a.a.a. -Cameron School Road ------- 366' / 50 = 8 overstory trees or 16 understory trees
PROVIDED: 8 OVERSTORY TREES
a.a.b. -GW Carver Ave ---------- 378' / 50 = 8 overstory trees or 16 understory trees
PROVIDED: 8 OVERSTORY TREES
a.a.c. - Southern Proposed Road ---- 368' / 50 = 8 overstory trees or 16 understory trees
PROVIDED: 8 OVERSTORY TREES

PARKING LOT PLANTING
a. Requirement - (LANDSCAPED AREA EQUAL TO 10% OF TOTAL GROSS PARKING AND LOADING AREA, 1 OVERSTORY TREE FOR EVERY 200 SF OF THE REQUIRED 10% LANDSCAPED AREA)

a.a. parking lot area, required trees
a.a.a. 63,183 sf x .1 = 6,318 / 200 = 32 trees required - 20% = 26 trees required
PROVIDED: 26 OVERSTORY TREES

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LANDSCAPE COMPLIANCE PLAN

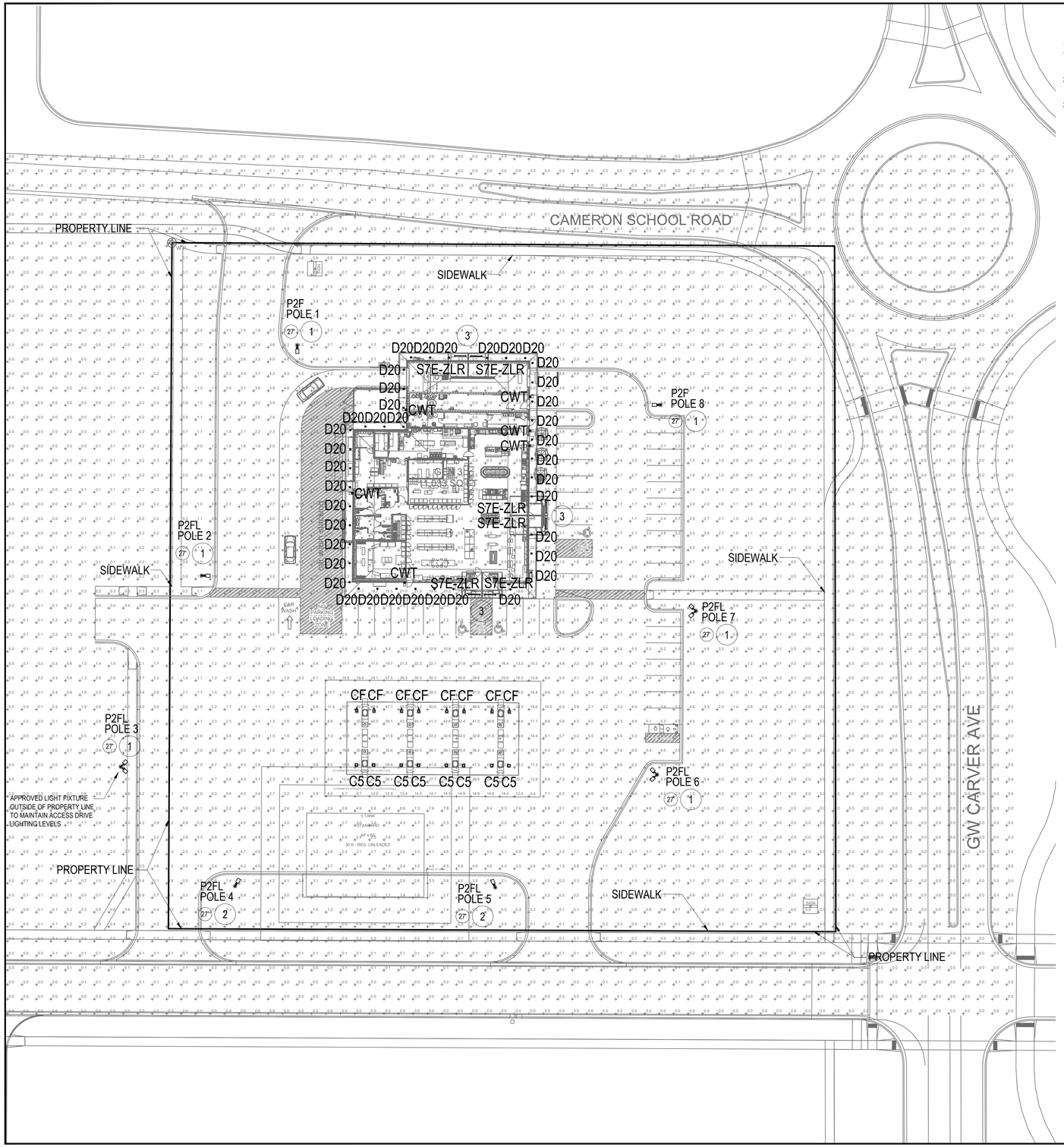
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INSITES 26-013 PM N.B.



GENERAL NOTES:

1. FOOTCANDLE LEVELS SHOWN ON THIS PLAN ARE CALCULATED AT GRADE LEVEL.
2. ALL POLES SHALL BE INSTALLED A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE UNLESS NOTED.
3. POLES THAT ARE LOCATED AT CORNER OF ISLAND SHALL BE A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE. POLES THAT MUST BE INSTALLED LESS THAN 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE SHALL HAVE PROTECTIVE BOLLARDS INSTALLED AROUND THE POLE BASE. COORDINATE WITH KWIK TRIP PRIOR TO INSTALLATION.

KEYED NOTES:

1. CONTRACTOR SHALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE.
2. CONTRACTOR SHALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB AND 14'-0" FROM THE OVER DIG OF UNDERGROUND FUEL TANK TO EDGE OF POLE BASE.
3. CONTRACTOR SHALL INSTALL ASYMMETRIC ZLR REFLECTORS TO DIRECT LIGHT INWARD TOWARD THE BUILDING.

FIXTURE QUANTITIES

D20	- 39
S7E	- 6
ZLR REFLECTORS	- 12 (2 PER S7E FIXTURE)
CF	- 8
C5	- 8
P2F	- 2
P2FL	- 9
CWT	- 6

PROVIDE (8) 27' POLES.

FIXTURE TYPES:

D20 - RECESSED LED DOWNLIGHT
GOTHAM EVO8-35/30-AR-WD-120-TRW

S7E - LED STRIP LIGHT MOUNTED IN GABLE LITHONIA
TZL1N-L96-10000LM-FST-MVOLT-50K-90CRI

ZLR - ASYMMETRIC REFLECTORS (2 PER S7E STRIP LIGHT FIXTURE). LITHONIA ZLR-L48-ASY-WH

CF - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

C5 - LSI LIGHTING: SCV-LED-15L-SC-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY

P2F - LSI LIGHTING: MRS-LED-30L-SIL-FT-UNV-50-70CRI-WHT

P2FL - LSI LIGHTING: MRS-LED-30L-SIL-FT-UNV-50-70CRI-WHT-IL

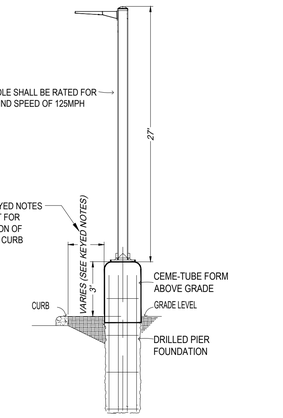
CWT - TWS LED ALO @2400LM SWW2 @30K MVOLT

CALCULATION STATISTICS

OVERALL SITE:
AVERAGE: 4.1 FC
MAXIMUM: 53.5 FC
MINIMUM: 0.0 FC

FIXTURE SYMBOLS:

- LED FORWARD THROW LIGHT MOUNTED UNDER FUEL CANOPIES
- LED LIGHT MOUNTED UNDER FUEL CANOPIES
- LED STRIP LIGHT MOUNTED IN GABLE
- RECESSED LED DOWNLIGHT
- POLE MOUNTED LED FIXTURE
- WALL MOUNTED FIXTURE
- (27') POLE HEIGHT



LOT LIGHT ELEVATION DETAIL

NOT TO SCALE

DETAIL APPLIES TO POLES 1 THRU 8

Know what's **below.** **Call** before you dig.

NORTH
SCALE: 1" = 30'

30 15 0 30 60

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE ARE ½ SCALE- 1"=60'

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

insites
SITE PLANNING LANDSCAPE ARCHITECTURE
4205 Lancaster Lane North Suite 113
Plymouth, Minnesota 55441
7 6 3 . 383 . 8400
insitesmn.net mail@insitesmn.net

LICENSED ARCHITECT Amy A. Sullivan 08802 IOWA 11/03/26

PHOTOMETRIC SITE PLAN

CONVENIENCE STORE 1904

AMES, IOWA

NO.	DATE	DESCRIPTION
-	05-21-26	IR
-	07-08-26	IFS
	2026-08-21	IFS2
	2026-10-27	IFS3
	2026-11-03	IFS4

DRAWN BY	
SCALE	GRAPHIC
PROJ. NO.	26-1904
DATE	04/21/2026
SHEET	C800

INSITES 26-013 PM N.B

RELATED CITY OF AMES ORDINANCES AND EXTERIOR LIGHTING REQUIREMENTS:

ALL INFORMATION BELOW IS TAKEN FROM THE CITY OF AMES MUNICIPAL CODE CHAPTER 29 ZONING, DIVISION 1 GENERAL PROVISION, ARTICLE 4 DEVELOPMENT STANDARDS, SEC. 29.413 OUTDOOR LIGHTING CODE:

29.413 - 4. CONTROL OF GLARE - LUMINAIRE DESIGN FACTORS

a. ANY LUMINAIRE WITH A LAMP RATED AT MORE THAN 1800 LUMENS SHALL NOT EMIT, IN ITS INSTALLED POSITION, ANY DIRECT LIGHT ABOVE A HORIZONTAL PLANE THROUGH THE LOWEST DIRECT LIGHT EMITTING PART OF THE LUMINAIRE.

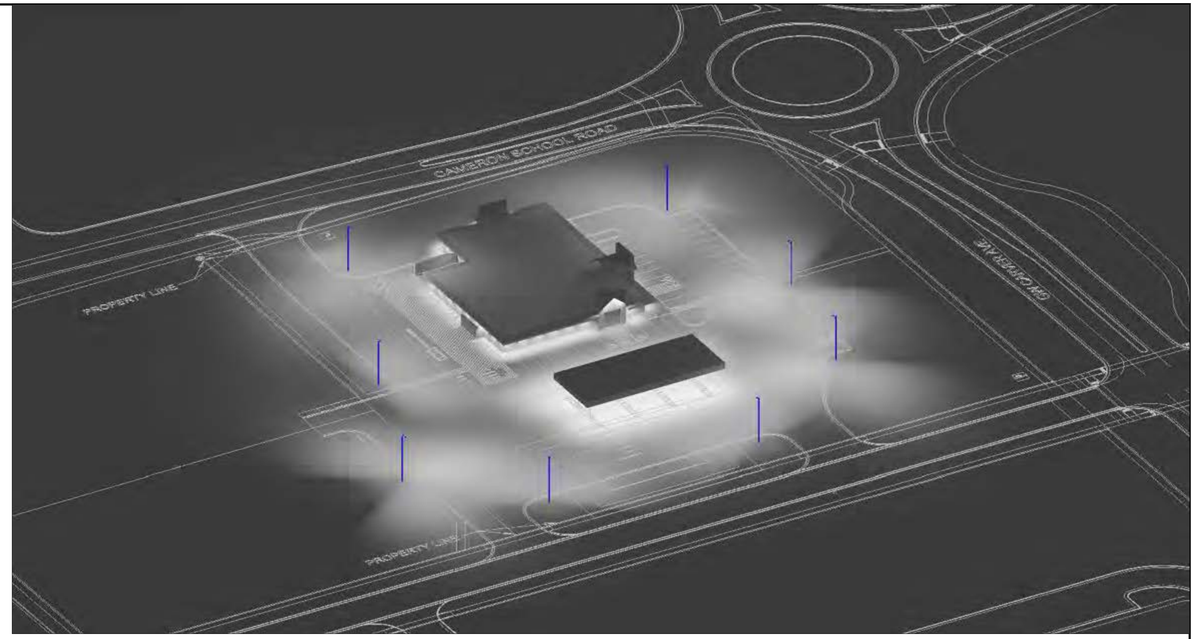
b. ANY LUMINAIRE WITH A LAMP RATED AT MORE THAN 1800 LUMENS, SHALL NOT EMIT IN ITS INSTALLED POSITION ANY MORE THAN 5% OF ITS TOTAL LIGHT OUTPUT IN THE ZONE FROM 10 DEGREES BELOW THE HORIZONTAL TO THE HORIZONTAL PLANE THROUGH THE LOWEST DIRECT LIGHT EMITTING PART OF THE LUMINAIRE.

29.413 - 5. EXCEPTIONS TO CONTROL OF GLARE

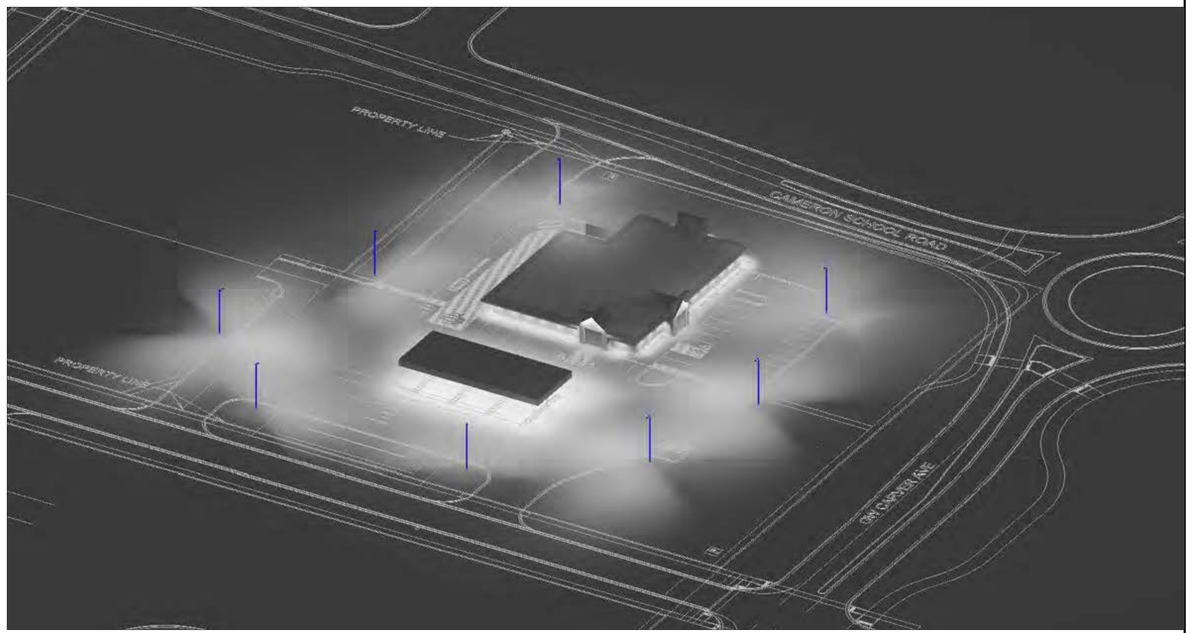
a. ANY LIGHTING SOURCE PRODUCING 1800 LUMENS OR LESS SHALL BE EXEMPT FROM THE OUTDOOR LIGHTING CODE.

29.413 - 11. LIGHT TRESPASS

a. ALL NONEXEMPT OUTDOOR LIGHTING FIXTURES SHALL BE DESIGNED, INSTALLED, AND MAINTAINED TO PREVENT LIGHT TRESPASS. OUTDOOR LIGHTING FIXTURES SHALL BE INSTALLED AND THEREAFTER MAINTAINED SO AS NOT TO CAUSE DIRECT LIGHT FROM THE LUMINAIRE TO BE DIRECTED TOWARD RESIDENTIAL BUILDINGS ON ADJACENT OR NEARBY PROPERTY OR NEARBY LAND. IF SUCH CONDITION SHOULD OCCUR, THE LUMINAIRE SHALL BE REDIRECTED, OR ITS LIGHT OUTPUT SHALL BE CONTROLLED AS NECESSARY TO ELIMINATE SUCH CONDITION.



PHOTOMETRIC RENDERING PLAN
NOT TO SCALE



PHOTOMETRIC RENDERING PLAN
NOT TO SCALE

KWIK TRIP

KWIK STAR

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LICENSED ARCHITECT
Amy A. Sullivan
08860
IOWA
11/03/26

PHOTOMETRIC RENDERING PLAN

CONVENIENCE STORE 1904

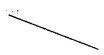
AMES, IOWA

NO.	DATE	DESCRIPTION
-	05-21-26	IR
-	07-08-26	IF5
	2026-08-21	IF52
	2026-10-27	IF53
	2026-11-03	IF54

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C801**

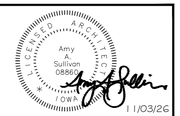
INSITES 26-013 PM N.B

AMES EXTERIOR LIGHTING SELECTIONS

LABEL	QUANTITY	PLAN SYMBOL	EXAMPLE IMAGE - *may not represent actual color*	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING TYPE	TOTAL LUMENS (PER FIXTURE)	WATTAGE (PER FIXTURE)
D20	39			Gotham | EVO	EVO8 35/30 AR WD 120 TRW	**EVO 8" Round Open Recessed LED Downlight:** 3500K Color Temperature, 3000 Lumens, Clear, Wide (1.2 s/mh), 120 Volts, White Painted Flange	Recessed - Overhead	2,537.23	47.07
S7E	6			Lithonia	TZL1N L96 10000LM FST MVOLT 50K 90CRI	**Lithonia LED Strip Light:** TZL1N, 96", 10,000 Lumens, Frosted Diffuser, Multi-Volt 120-277V, 5,000K Color Temperature, 90 CRI	Surface - Overhead	7,592.43	68.24
C5	8			LSI Lighting	SCV-LED-15L-SC-UNV-DIM-50-WHT	**Scottsdale Vertex Canopy Fixture:** Petroleum Canopy Luminaire, LED, 15,000 Lumens, Standard Symmetric, Universal Voltage (120-277V), 0-10V Dimming, 5,000K Color Temperature, White Finish	Surface - Overhead	14,960.23	102
CF	8			LSI Lighting	SCV-LED-23L-SCFT-UNV-DIM-50-WHT	**Scottsdale Vertex Canopy Fixture:** Petroleum Canopy Luminaire, LED, 23,000 Lumens, Combination Standard Symmetric and Forward Throw, Universal Voltage (120-277V), 0-10V Dimming, 5,000K Color Temperature, White Finish	Surface - Overhead	23,101.79	188
P2F	2			LSI Lighting	MRS-LED-30L-SIL-FT-UNV-50-70CRI-WHT	**Miranda Small Area Light:** LED, 30,000 Lumens, Silicone Lens, Forward Throw, Universal Voltage (120-277V), 5,000K CCT Color Temperature, 70CRI, White Finish	Pole Mounted	32,248.55	209
P2FL	9			LSI Lighting	MRS-LED-30L-SIL-FT-UNV-50-70CRI-WHT-IL	**Miranda Small Area Light:** LED, 30,000 Lumens, Silicone Lens, Forward Throw, 5,000 CCT Color Temperature, 70 CRI, White Finish, Integral Louver (Sharp Spill Light Cutoff)	Pole Mounted	20,075.31	209 (SINGLE PRONG) 418 (DOUBLE PRONG)
CWT	6			Lithonia	TWS LED ALO @2400LM SWW2 @30K MVOLT	**TWS Mini Wall Pack:** LED Adjustable Lumen Output, 2,400 High Lumen Setting, Switchable Color Temperature, set to 3000K Color Temperature, Multi-Volt 120-277V	Surface - Wall Mounted	2,321.74	16.6

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PHOTOMETRIC SCHEDULE

CONVENIENCE STORE 1904

AMES, IOWA

NO.	DATE	DESCRIPTION
-	05-21-26	IR
-	07-08-26	IFS
	2026-08-21	IFS2
	2026-10-27	IFS3
	2026-11-03	IFS4

DRAWN BY
SCALE GRAPHIC
PROJ. NO. 26-1904
DATE 04/21/2026
SHEET **C802**

INSITES 26-013 PM N.B

OWNER(S):
FRIEDRICH LAND DEVELOPMENT COMPANY LLC
100 6TH ST
AMES IA 50010

&

FRIEDRICH, R & SONS INC
100 SIXTH ST
AMES IA 50010

APPLICANT:
FRIEDRICH LAND DEVELOPMENT
100 6TH ST
AMES, IA 50010

PREPARED BY:
BOLTON & MENK
1519 BALTIMORE DRIVE
AMES, IA 50010

SUBMITTAL DATE:
MAY 2025

LEGAL DESCRIPTION - REZONING TRACT 1:

THAT PART OF OUTLOT 'ZZ', THE BLUFFS AT DANKBAR FARMS, FIRST ADDITION, CITY OF AMES, STORY COUNTY, IOWA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID OUTLOT 'ZZ'; THENCE S89°42'18"E, 650.63 FEET ALONG THE NORTH LINE OF SAID OUTLOT 'ZZ'; THENCE N00°06'04"W, 50.00 FEET ALONG THE WEST LINE OF SAID OUTLOT 'ZZ'; THENCE S89°42'16"E, 60.01 FEET ALONG SAID NORTH LINE OF OUTLOT 'ZZ' TO THE NORTHEAST CORNER THEREOF; THENCE S00°05'47"E, 461.70 FEET ALONG THE EAST LINE OF SAID OUTLOT 'ZZ'; THENCE N89°44'23"W, 710.19 FEET TO THE WEST LINE OF SAID OUTLOT 'ZZ'; THENCE N00°09'30"W, 412.13 FEET ALONG SAID WEST LINE TO THE POINT OF BEGINNING.

PARCEL CONTAINS A COMBINED 6.79 ACRES (295,622 SQ. FT.)
EXISTING ZONING: A (AGRICULTURE)
PROPOSED ZONING: CGS (COMMERCIAL)

LEGAL DESCRIPTION - REZONING TRACT 2:

THAT PART OF OUTLOT 'ZZ', THE BLUFFS AT DANKBAR FARMS, FIRST ADDITION, CITY OF AMES, STORY COUNTY, IOWA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

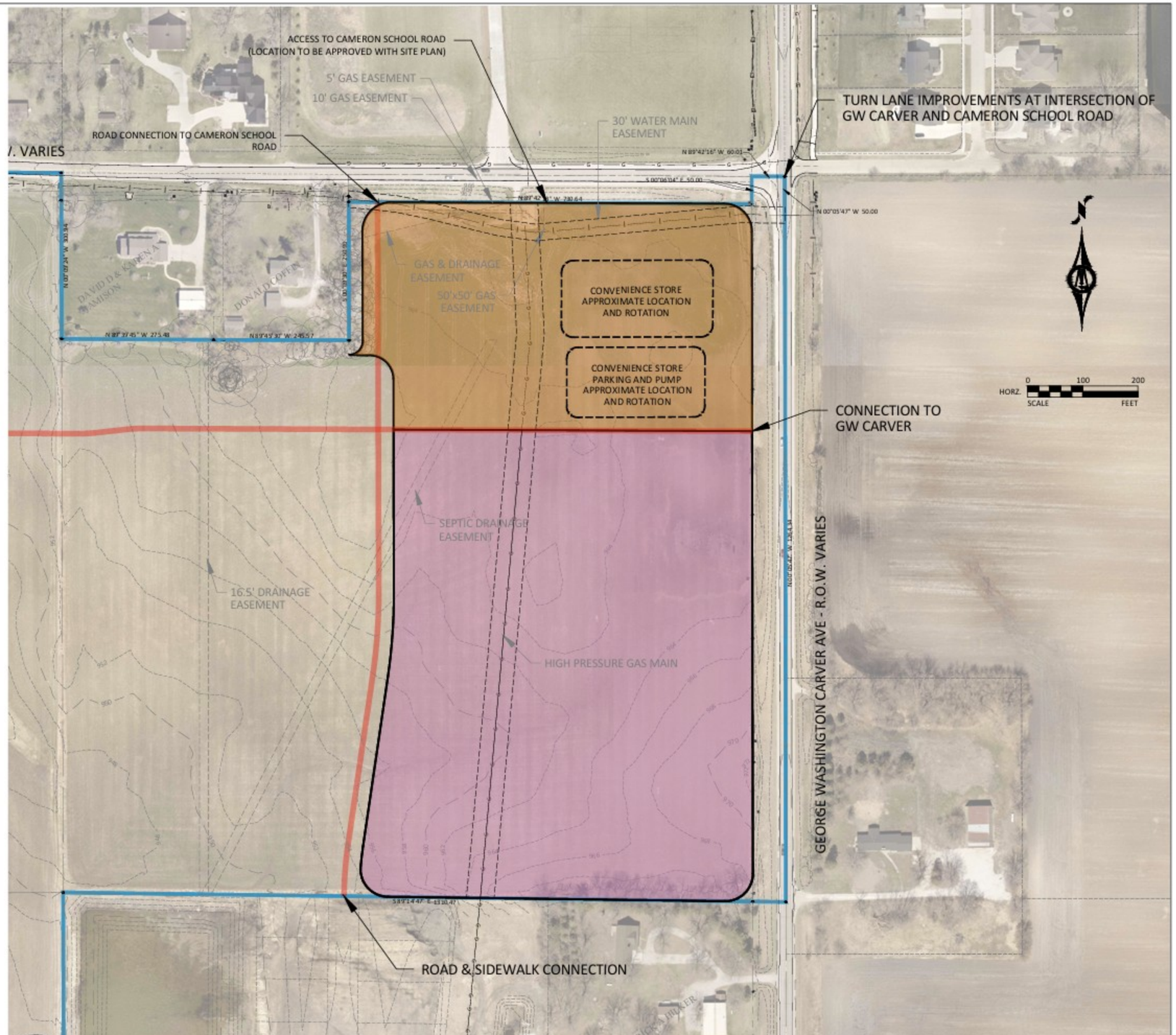
BEGINNING AT THE SOUTHWEST CORNER OF SAID OUTLOT 'ZZ'; THENCE S89°14'47"E, 773.79 FEET ALONG THE SOUTH LINE OF SAID OUTLOT 'ZZ' TO THE EAST LINE THEREOF; THENCE N00°05'47"W, 852.64 FEET ALONG SAID EAST LINE; THENCE N89°44'23"W, 710.19 FEET TO THE WEST LINE OF SAID OUTLOT 'ZZ'; THENCE S00°09'30"E, 295.77 FEET ALONG SAID WEST LINE TO THE BEGINNING OF 1027.50 FOOT RADIUS CURVE, CONCAVE NORTHWESTERLY; THENCE SOUTHWESTERLY 152.20 FEET ALONG SAID CURVE AND SAID WEST LINE, LONG CHORD BEARS S04°05'07"W, 152.06 FEET; THENCE S08°19'44"W, 310.85 FEET TO THE BEGINNING OF A 672.50 FOOT CURVE, CONCAVE SOUTHEASTERLY; THENCE SOUTHWESTERLY 88.91 FEET ALONG SAID CURVE AND SAID WEST LINE, LONG CHORD BEARS S04°32'28"W, 88.85 FEET; THENCE S00°45'13"W, 2.10 FEET ALONG SAID WEST LINE TO THE POINT OF BEGINNING.

PARCEL CONTAINS A COMBINED 14.23 ACRES (619,683 SQ. FT.)
EXISTING ZONING: A (AGRICULTURE)
PROPOSED ZONING: FS-RM (SUBURBAN RESIDENTIAL MEDIUM DENSITY)

COMMERCIAL (CGS) NOTES
- BUILDING CONFIGURATION APPLIES TO CONVENIENCE STORE ONLY.
- COMMERCIAL LOTS SHALL REQUIRE INTERCONNECTIVITY AND CROSS ACCESS EASEMENTS WHICH WILL BE REQUIRED AT THE TIME OF SITE PLANS. EASEMENT SHALL BE RECORDED PRIOR TO APPROVAL OF SITE PLAN
- COMMERCIAL LOTS SHALL HAVE 20' OF FRONT YARD LANDSCAPING ALONG GW CARVER AND CAMERON SCHOOL ROAD. NOT PARKING IS ALLOWED IN THE 20' FRONT YARD LANDSCAPING AREA

LEGEND

COLOR	USE	ZONING	AREA	APPROX R.O.W. & INTERNAL OPEN SPACE	NET AREA EXCLUDING ROW & OPEN SPACE	DWELLING UNITS
	COMMERCIAL	COMMERCIAL	6.79 AC	1.84 AC	4.95 AC	
	MEDIUM DENSITY RESIDENTIAL INDEPENDENT, ASSISTED AND MEMORY CARE FOR SENIOR LIVING	FS-RM	14.23 AC	2.62AC	11.61 AC	80-106



H:\FRIEREIA_PR\25X137597000\CAD\C3D\FIGR - 137597 - MASTER PLAN.dwg 9/18/2025 2:21:35 PM

SBP Associates, Inc.

22502 Beach Road
Deerwood, MN 56444
Phone: 952-920-1500

Memorandum

Date: July 2, 2026
To: John Wyciskalla, Braun Intertec
From: Stephen Platisha, P.E.
Re: Updated Kwik Trip Car Wash Noise Impacts Assessment

Attached are a figure and instructions to conduct a preliminary assessment the potential noise impacts of the Kwik Trip car was facilities that have the technology that is present at the Baxter, Minnesota store. The figure contains base noise levels with which impacts can be estimated at various distances from the car wash. These base levels were determined from the measurements taken near the Baxter store car wash.

Please contact me with any questions you may have regarding the noise study.

Kwik Trip Car Wash Impacts Assessment Notes and Instructions

Noise Descriptors

The figure provides projected base noise levels at 50 feet from the nearest edge of either the entrance door or the exit door of the car wash. Noise Levels are provided for the following noise descriptors:

L_{eq}

The L_{eq} can be though of as the average noise level for an entire wash cycle. Some regulatory authorities have restrictions based on a one-hour L_{eq}.

L_5

The L_5 is the noise level exceeded for 5 percent of the time during the wash cycle. It was found to correlate well with sound level readings taken when the car wash dryer is operating near maximum noise level.

L_{10}

The L_{10} is the noise level exceeded for 10 percent of the time during the wash cycle. Some regulatory authorities (including Minnesota) have restrictions based on the one-hour L_{10}. It normally is defined by the dryer portion of the wash cycle.

L_{50}

The L_{50} is the noise level exceeded for 50 percent of the time during the wash cycle. Some regulatory authorities have restrictions based on the one-hour L_{50}. It normally is defined by the washing portion of the wash cycle.

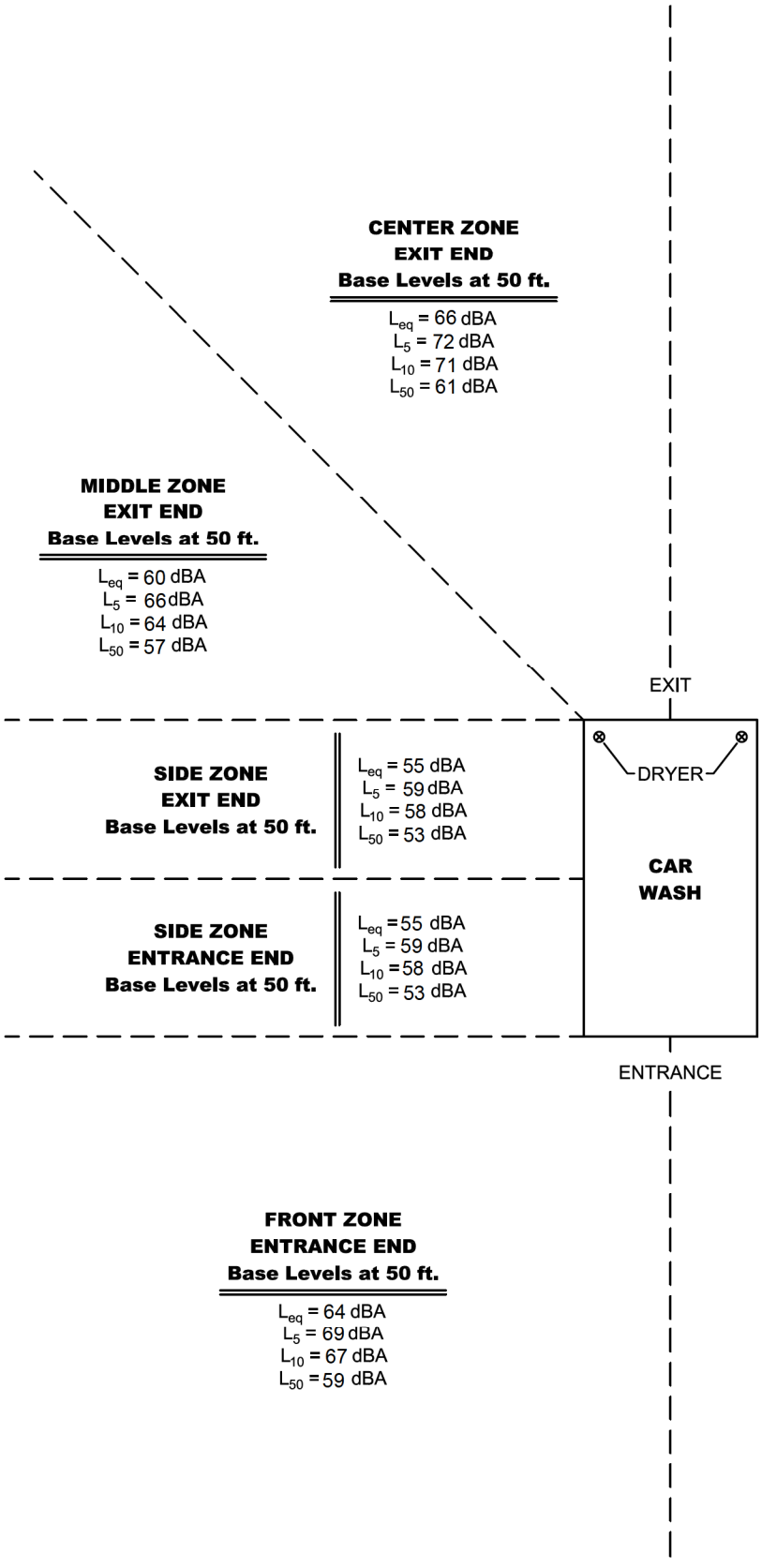
Calculating Noise Impacts at Various Distances

The noise levels at distances further from the car wash can be calculated by subtracting the following amount from the 50-foot base noise levels provided in the figure.

20 x log10(distance/50)

The following table presents the calculated amount (from the above equation) to subtract from the 50-foot Base value to determine the noise level at the more distant receiver.

Distance from Edge of Car Wash Door (feet)	Amount to Subtract from 50 ft. Base Value in Figure
75	3.5
100	6.0
125	8.0
150	9.5
175	10.9
200	12.0
225	13.1
250	14.0
275	14.8
300	15.6



BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Project No:	10014734_001
Drawing No:	10014734_001
Drawn By:	JAG
Date Drawn:	11/2/20
Checked By:	JJW
Last Modified:	7/8/26

Kwik Trip Car Wash Noise Impacts

Kwik Trip Store #1747 - Baxter, MN

7181 Novotny Road North, Baxter, MN

Choice Wash Version