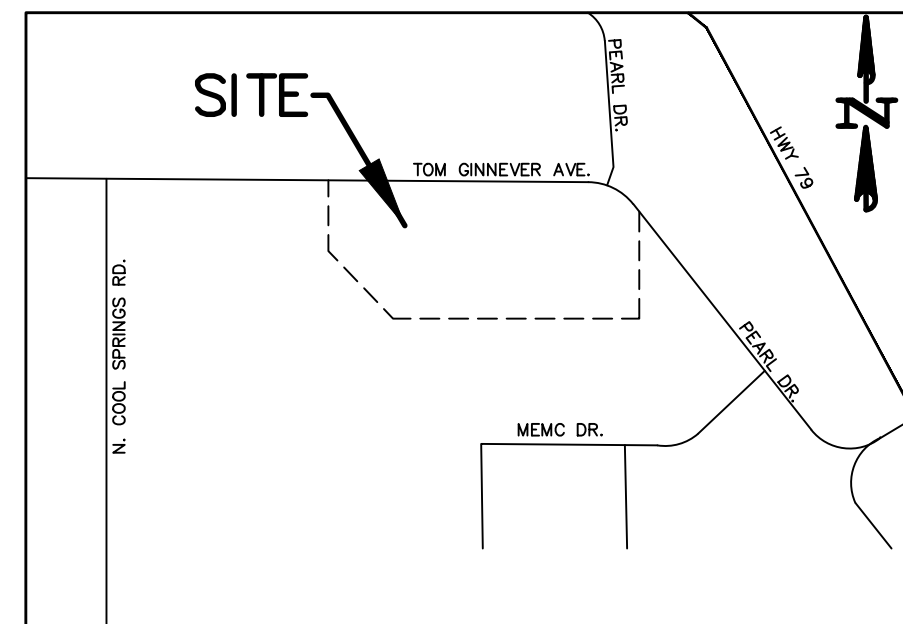


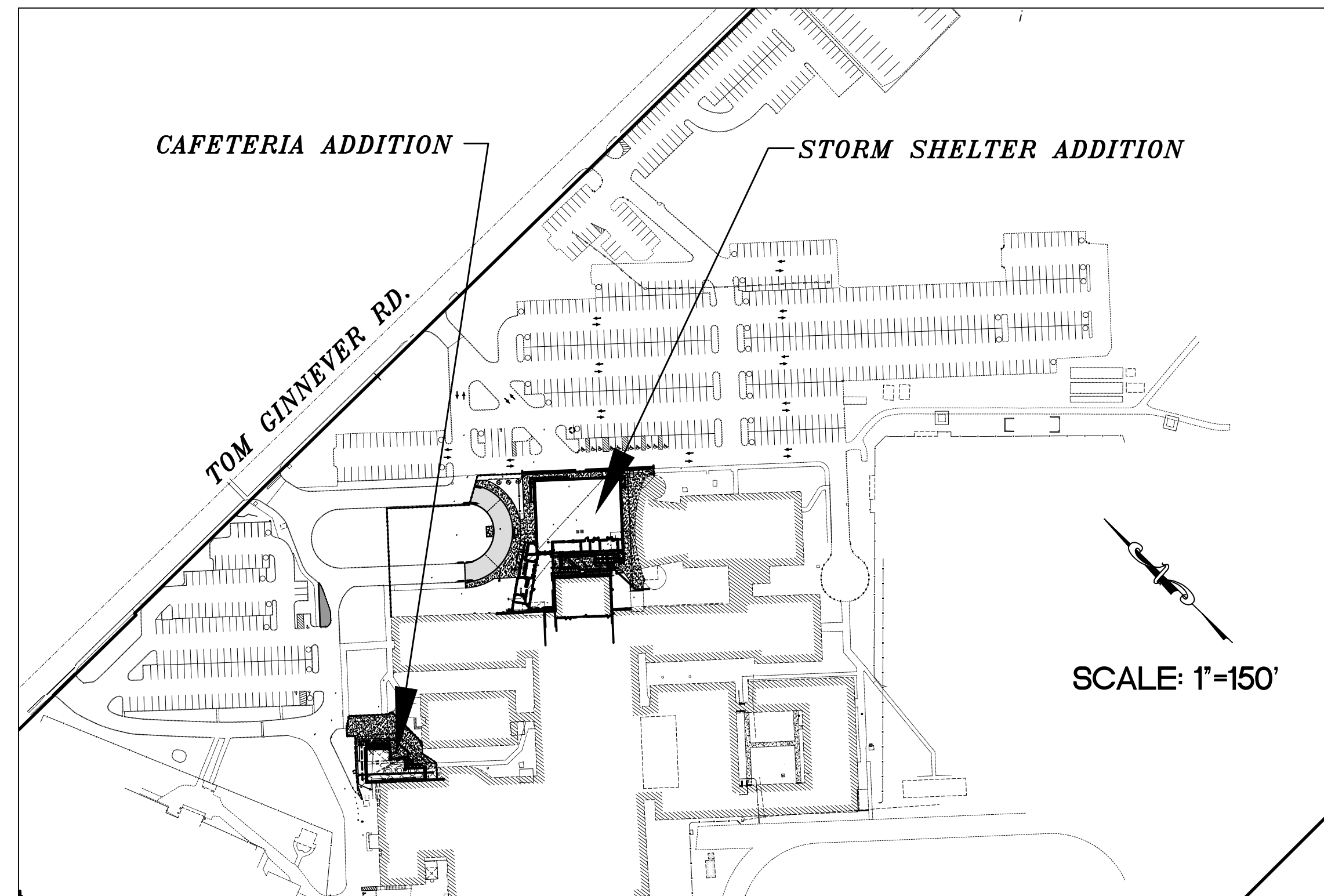
**A SET OF CONSTRUCTION PLANS FOR  
FORT ZUMWALT NORTH HIGH SCHOOL BUILDING ADDITIONS**  
A TRACT OF LAND BEING PART OF THE NORTH  
HALF OF THE SOUTHWEST QUARTER OF SECTION 24,  
TOWNSHIP 47 NORTH, RANGE 2 EAST  
OF THE FIFTH PRINCIPAL MERIDIAN  
CITY OF O'FALLON  
ST. CHARLES COUNTY, MISSOURI



**Locator Map**  
NOT TO SCALE

**Legend**

⊙	EX. SANITARY SEWER MANHOLE	⊙	GAS VALVE
⊙	EX. ELECTRIC MANHOLE	⊙	WATER VALVE
⊙	EX. GAS MANHOLE	⊙	FIRE HYDRANT
⊙	EX. TELEPHONE MANHOLE	⊙	YARD DRAIN
⊙	EX. WATER MANHOLE	⊙	CLEANOUT
⊙	EX. PIPELINE MARKER	⊙	DOWNSPOUT
⊙	EX. FIBER OPTIC MARKER	⊙	BOLLARD
⊙	EX. GAS DRIP	⊙	SIGN
⊙	EX. GAS VALVE	⊙	HANDICAP PARKING
⊙	EX. WATER VALVE	⊙	POWER POLE
⊙	EX. FIRE HYDRANT	⊙	GUY WIRE
⊙	EX. YARD DRAIN	⊙	LIGHT STANDARD
⊙	EX. CLEANOUT	⊙	TREE
⊙	EX. ELECTRIC STUB	⊙	BUSH
⊙	EX. GAS STUB	⊙	TREE STUMP
⊙	EX. TELEPHONE STUB		
⊙	EX. WATER STUB		
⊙	EX. DOWNSPOUT		
⊙	EX. BOLLARD		



**Plan View**

**Drawing Index**

1	COVER SHEET
2	O'FALLON NOTES
3	OVERALL SITE PLAN
4-5	DEMOLITION PLANS
6-7	SITE PLANS
8-9	GRADING PLANS / SWPP PLANS
10	CONSTRUCTION DETAILS

**DEVELOPMENT NOTES**

- Area of Tract: 75.026 Acres  
Disturbed area: 0.88 Acres
- Existing Zoning: R-1 Single Family
- Proposed Use: High School (City of O'Fallon)
- Area of Proposed Buildings: Storm Shelter-10,130 sq.ft.  
Cafeteria-2,055 sq.ft.
- The required height and building setbacks are as follows:  
Minimum Front Yard: 30 feet  
Minimum Side Yard: 20 feet  
Minimum Rear Yard: 35 feet  
Maximum Height of Building: 50 feet
- According to the Flood Insurance Rate Map of St. Charles County, (Community Panel number: 29183C02350 dated January 20, 2016) this property lies within Zone X and zone AE. Zone X is defined as an area outside the 500 year Flood Plain Limits. Zone AE is defined as area subject to inundation by the 1% annual chance flood.
- No Additional Parking Required.
- No Additional Landscaping Required.
- Estimated sanitary flow contributed by this site is 25,800 g.p.d.
- Property Owner: Fort Zumwalt School District  
555 East Terra Lane  
O'Fallon, MO 63366
- All HVAC and mechanical units on site shall be properly screened as required by City Code. Rooftop units shall be screened by a parapet wall that extends around the entire perimeter of the building; the parapet shall have a minimum height that is at least as tall as the tallest unit mounted on the roof; ground mounted HVAC and mechanical units shall be screened by fencing, vegetation or some other means (approved by the Planning and Zoning Commission) that has a minimum height that is at least as tall as the tallest unit being screened.
- Maximum slopes allowed are 3:1.
- All utilities will be located underground.
- All sidewalks, curb ramps, ramp and accessible parking spaces shall be constructed in accordance with the current approved "American with Disabilities Act Accessibility Guidelines" (ADAAG) along with the required grades, construction materials, specifications and signage.
- Detention for this site will be for the 100 year storm is provided with the existing detention basin.
- This site will be in compliance with Phase 2 Illicit Stormwater Discharge Guidelines per Ordinance 5082.
- Prior to Construction Plan approval, a photometric lighting plan in accordance with the City's Exterior Lighting Standards shall be submitted for review and approval for all proposed exterior lighting.

**REMEDIATION NOTES**

- The rerouting of water and gas lines around the northern portion of the storm shelter should be completed prior to the placement and compaction of the fill.
- SCJ personnel should observe a proofroll of the existing subgrade prior to fill placement, and any soft or otherwise unsuitable material should be removed and replaced.
- Place compacted fill, in accordance with Section 5.2 of the geotechnical report, to the planned subgrade elevation as soon as possible to allow for the occurrence of total and differential settlements prior to foundation construction in the northern half of the storm shelter.
- The fill should extend to the edge of the planned foundations and then may be sloped downward to the existing grade.
- SCJ will place settlement points upon completion of the fill placement and monitor the settlement and provide the owner and contractor notice when the rate of settlement is acceptable for foundation construction in the northern half of the storm shelter. For planning purposes, we expect settlement will be complete within four weeks of completion of grading.
- Contractor shall verify with Geotechnical Engineer on site before doing remediation work.
- Existing utilities to be removed shall be backfilled as recommended by Geotechnical Report.

**Utility Contacts**

Sanitary Sewer  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
Contact: 636-281-2858

Water  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
Contact: 636-281-2858

Storm Sewer  
City of O'Fallon  
100 N. Main St.  
O'Fallon, MO. 63366  
636-281-2858

Ameren UE  
200 Calhoun Road  
Wentzville, MO. 63385  
636-639-8312

Gas  
Spire Energy Company  
6400 Graham Road  
St. Louis, MO. 63134  
314-522-2297

Telephone  
Century Tel  
1151 Century Tel Dr.  
Wentzville, MO. 63385  
636-332-7261

Fire Department  
O'Fallon Fire Protection District  
119 E. Elm St.  
O'Fallon, MO. 63366  
636-272-3493

**REFERENCE BENCHMARK:**

THE OBSERVED VERTICAL CHECK STATION UTILIZED IS LISTED ON WWW.NGSOAA.GOV AS DESIGNATION "SC-06" WITH A PID OF AA8597 AND A PUBLISHED ELEVATION OF 559.02 (NAVD88).

**SITE BENCHMARK (NAVD 88)**

CHISELED "L" ON CONCRETE BASE OF TRANSFORMER PAD ON SOUTH SIDE OF BUILDING (ELEVATION=489.87) AND IS LOCATED AS SHOWN HEREON.

**VEGETATION ESTABLISHMENT  
For Urban Development Sites  
APPENDIX A**

**SEEDING RATES:**

**PERMANENT:**  
Tall Fescue - 150 lbs./ac.  
Smooth Brome - 100 lbs./ac.  
Combined - Fescue @ 75 lbs./ac. AND Brome @ 50 lbs./ac.

**TEMPORARY:**  
Wheat or Rye - 150 lbs./ac. (3.5 lbs. per 1,000 sq. ft.)  
Oats - 120 lbs./ac. (2.75 lbs. per 1,000 sq. ft.)

**SEEDING PERIODS:**  
Fescue or Brome - March 1 to June 1  
August 1 to October 1  
Wheat or Rye - March 15 to November 1  
Oats - March 15 to September 15

**MULCH RATES:**  
100 lbs. per 1000 sq. ft. (4,356 lbs. per ac.)

**FERTILIZER RATES:**  
Nitrogen 30 lbs./ac.  
Phosphate 30 lbs./ac.  
Potassium 30 lbs./ac.  
Lime 600 lbs./ac. ENM\*

\* ENM = effective neutralizing material as per State evaluation of quarried rock.

CITY OF O'FALLON  
COMMUNITY DEVELOPMENT DEPARTMENT  
ACCEPTED FOR CONSTRUCTION  
BY: Karl Ebert DATE 06/28/2023  
PROFESSIONAL ENGINEER'S SEAL  
INDICATES RESPONSIBILITY FOR DESIGN

**Conditions of Approval From  
Planning and Zoning**

- Provide the height of the building additions.
- Clarify the building materials to confirm compliance with the metal siding ordinance.

City approval of any construction site plans does not mean that any building can be constructed on the lots without meeting the building setbacks as required by the zoning codes.  
All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to make minor modifications in design and/or specifications during construction, they shall make such changes at their own risk, without any assurance that the City Engineer will approve the completed installation or construction. It shall be the responsibility of the developer to notify the City Engineer of any changes from the approved drawings. The developer may be required to correct the installed improvement so as to conform to the approved engineering drawings. The developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City Inspector.  
Lighting values will be reviewed on site prior to the final occupancy inspection.

\* City of O'Fallon Construction work hours per City Ordinance 3429 as shown in section 500.420 of the Municipal Code of the City of O'Fallon are as follows:

October 1 through May 31  
7:00 A.M. To 7:00 P.M. Monday Through Sunday  
June 1 Through September 30  
8:00 A.M. To 8:00 P.M. Monday Through Friday  
7:00 A.M. to 8:00 P.M. Saturday and Sunday

\* The area of this phase of development is \_\_\_\_\_

The area of land disturbance is \_\_\_\_\_  
Number of proposed lots is \_\_\_\_\_  
Building setback information. Front \_\_\_\_\_  
Side \_\_\_\_\_  
Rear \_\_\_\_\_

\* The estimated sanitary flow in gallons per day is \_\_\_\_\_

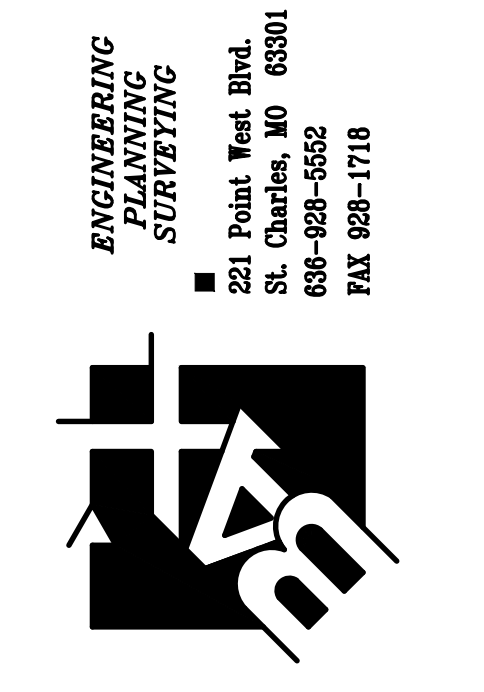
\* Parking calculations

\* Tree preservation calculations



CALL BEFORE  
YOU DIG!  
1-800-DIG-RITE

**PROJECT TITLE:**  
North High School  
Building Addition



DISCLAIMER OF RESPONSIBILITY  
I hereby certify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or attached to be used for any part or parts of the architectural or engineering project.

**CLIFFORD L. HEITMANN**  
REGISTERED PROFESSIONAL ENGINEER  
No. E-29817  
Civil Engineer

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Engineering Authority No. 000665  
Surveying Authority No. 000144  
All Rights Reserved

**Bid / Permit Set 03/20/2023**  
**Addendum 2 04/19/2023**  
**Addendum 3 04/21/2023**

**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**City of O'Fallon Cover**

**P+Z No. #22-010174**  
APPROVAL DATE: 12-01-22

**City No.**  
#

**Page No.**  
**C1**

UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

**GENERAL NOTES**

- 1. Driveway locations shall not interfere with the sidewalk handicap ramps, or curb inlet sumps
2. Sidewalks, curb ramps, ramps and accessible parking spaces shall be constructed in accordance with the current approved
3. American with Disabilities Act Accessibility Guidelines (ADAG) along with the required grades, construction materials,
specifications and signage. If any conflict occurs between the above information and the plans, the ADAG guidelines shall
take precedence and the contractor prior to any construction shall notify the Project Engineer.
2.1. Truncated domes for curb ramps located in public right of way shall meet PROWAG requirements and shall be
constructed using precast concrete pavers.
3. Any proposed pavilions or playground areas will need a separate permit from the Building Division.
4. The Contractor is responsible to call Missouri One Call and The City of O'Fallon for the location of utilities. Contact the City
of O'Fallon (636) 379-3814 for the location of city maintained cable for street lights and traffic signals, all other utilities
call Missouri One Call 1-800-DIG-RIE. 1-800-344-7483
5. All proposed utilities and/or utility relocations shall be located underground.
6. All proposed fencing requires a separate permit through the Building Safety Division.
7. All construction operations and work zone traffic control within the right of way will follow MoDOT or M.U.T.C.D. standards
whichever is more stringent.
8. (INTENTIONALLY OMITTED)
9. All subdivision identification or directional sign(s) must have the locations and sizes approved and permitted separately
through the Planning and Development Division.
10. Materials such as trees, organic debris, rubble, foundations, and other deleterious material shall be removed from the site
and disposed of in compliance with all applicable laws and regulations. If the material listed previously are reused, a letter
from a soil Engineer must clearly amount, location, depth, etc- and be approved with the construction plans. Landfill tickets
for such disposal shall be maintained on file by the developer. Burning on site shall be allowed only by permit from the
local fire district. If a burn pit is proposed the location and mitigation shall be shown on the grading plan and documented
by the soils engineer.
11. Twenty-four (24) hours prior to starting any of the work covered by the above plans and after approval thereof, the
developer shall make arrangements with the Construction Inspection Office to provide for inspection of the work, sufficient
in the opinion of the City Engineer, to assure compliance with the plans and specifications as approved.
12. The City Engineer or their duly authorized representative shall make all necessary inspections of City infrastructure, escrow
items or infrastructure located on the approved plans.
13. All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to
make minor modifications in design and/or specifications during construction, he/she shall make such changes at his/her
own risk, without any assurance that the City Engineer will approve the completed installation or construction. It shall be
the responsibility of the developer to notify the City Engineer of any changes from the approved drawings. The developer
may be required to correct the installed improvements so as to conform to the approved engineering drawings. The
developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City
inspectors.
14. City approval of the construction site plans does not mean that any building can be constructed on the lots without
meeting the building setbacks as required by the zoning code.

**Grading Notes**

- 1. Developer must supply City Construction Inspectors with an Engineer's soil reports prior to and during site grading. The soil
report will be required to contain the following information on soil test curves (Proctor reports) for projects within the City:
1.1. Maximum dry density
1.2. Optimum moisture content
1.3. Maximum and minimum allowable moisture content
1.4. Curve must be plotted to show density from a minimum of 90% Compaction and above as determined by the "Modified
AASHTO T-180 Compaction Test" (A.S.T.M.-D-1557) or from a minimum of 95% as determined by the "Standard Proctor
Test ASSHTO T-99, Method C" (A.S.T.M.-D-698). Proctor type must be designated on document.
1.5. Curve must have at least 5 density points with moisture content and sample locations listed on document
1.6. Specific gravity
1.7. Natural moisture content
1.8. Liquid limit
1.9. Plastic limit
Be advised that if this information is not provided to the City's Construction Inspector the City will not allow grading or
construction activities to proceed on any project site.
2. All fill placed in proposed storm sewers, sanitary sewers, proposed roads, and paved areas shall be
compacted from the bottom of the fill up in 8" lifts and compacted to 90% maximum density as determined by Modified
AASHTO T-180 compaction test or 95% of maximum density as determined by the Standard Proctor Test AASHTO T-99.
Ensure the moisture content of the soil in fill areas corresponds to the compactive effort as defined by the Standard or
Modified Proctor Test. Optimum moisture content shall be determined using the same test that was used for compaction. Soil
compaction curves shall be submitted to the City of O'Fallon prior to the placement of fill.
3. The surface of the fill shall be finished so it will not impound water. If at the end of a days work it would appear that there
may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for
any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen
ground, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.
4. All sediment and detention basins are to be constructed during the initial phase of the grading operation or in accordance
with the approved SWPPP.
5. When grading operations are complete or suspended for more than 14 days, permanent grass must be established at
sufficient density to provide erosion control on site. Between permanent grass seeding periods, temporary cover shall be
provided according to Missouri Department of Natural Resources Protecting Water Quality - a field guide to erosion, sediment
and stormwater best management practices for development sites in Missouri and Kansas. All finished grades (areas not to be
disturbed by improvements) in excess of 20% slopes (5:1) shall be mulched and locked at a rate of 100 pounds per 1000
square feet when seeded.
6. No slopes shall exceed 3 (horizontal): 1 (vertical) unless otherwise approved by the soils report and specifically located on
the plans and approved by the City Engineer.
7. All low places whether on site or off shall be graded to provide drainage with temporary ditches.
8. Any existing wells and/or springs which may exist on the property must be sealed in a manner acceptable to the City of
O'Fallon Construction Inspection Department and following Missouri Department of Natural Resources standards and
specifications.
9. (INTENTIONALLY OMITTED)
10. All trench back fills under paved areas shall be granular back fill, and compacted mechanically. All other trench back fills may
be earth material (free of large clods, or stones) and compacted using either mechanical tamping or water jetting. Granular
material and earth material associated with new construction outside of pavements may be jetted, taking care to avoid
damage to newly laid sewers. The jetting shall be performed with a probe route on not greater than 7.5 foot centers with the
jetting probe centered over and parallel with the direction of the pipe. Trench widths greater than 10 feet will require multiple
probes every 7.5 foot centers.
10.1. Depth. Trench back fills less than 8 feet deep shall be probed to a depth extending half the depth of the trench back
fill, but not less than 3 feet. Trench back fill greater than 8 feet in depth shall be probed to half the depth of the
trench back fill but not greater than 8 feet.
10.2. Equipment. The jetting probe shall be a metal pipe with an interior diameter of 1.5 to 2 inches.
10.3. Method. Jetting shall be performed from the lowest surface topographic point and proceed toward the highest point, and
from the bottom of the trench back fill toward the surface. The flooding of each jetting probe shall be started slowly
allowing slow saturation of the soil. Water is not allowed to flow away from the trench without first saturating the trench.
10.4. Surface Bridging. The contractor shall identify the locations of the surface bridging (the tendency for the upper surface to
crust and arch over the trench rather than collapse and consolidate during the jetting process). The contractor shall break
down the bridged areas using an appropriate method such as wheels or bucket of a backhoe. When surface crust is
collapsed, the void shall be back filled with the same material used as trench back fill and re-jetted. Compaction of the
materials within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.
11. Site grading.
11.1. Within City right-of-way. Material is to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted per the
approved compaction requirements. One (1) compaction test will be performed every two hundred fifty (250) feet along
the centerline for each lift.
11.2. Outside of City right-of-way. Material is to be placed in eight (8) inch to twelve (12) inch loose lifts and compacted
per the approved compaction requirements. One (1) compaction test will be performed at two (2) foot vertical intervals
and approximately every one thousand (1,000) cubic yards.
12. Access to the site from any other location other than the proposed construction entrance is strictly prohibited!

**Erosion Control Notes**

- 1. The Permittee shall assume complete responsibility for controlling all siltation and erosion of the project area. The Permittee
shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or
siltation fabric fences (possible methods of control are detailed in the plan). Control shall commence with the clearing
operations and be maintained throughout the project until acceptance of the work by City of O'Fallon and as needed by
MoDOT. The Permittee's responsibilities include all design and implementation as required to prevent erosion and the depositing
of silt. The City of O'Fallon and as required by MoDOT may at their option direct the Permittee in his methods as deemed fit
to protect property and improvements. Any depositing of silt or mud on new or existing pavement shall be removed
immediately. Any depositing of silts or mud in new or existing storm sewers and/or swales shall be removed after each rain
and affected areas cleaned to the satisfaction of the City of O'Fallon and as required by MoDOT."
2. All erosion control systems are to be inspected and corrected weekly, especially within 48 hours of any rain storm resulting in
one-quarter inch of rain or more. Any silt or debris leaving the site and affecting public right of way or storm water
drainage facilities shall be cleaned up within 24 hours after the end of the storm.
3. Erosion control devices (silt fence, sediment basin, etc.) shall be in accordance with Missouri Department of Natural Resources
Protecting Water Quality - a field guide to erosion, sediment and stormwater best management practices for development
sites in Missouri and Kansas.
4. This development is required to provide long term post construction BMP's such as; low impact design, source control and
treatment controls that protects water quality and controls run off to maximum extent practical in compliance with Phase II
Illicit Storm Water Discharge Guidelines. (Ord. 5092, section 405.243)
5. Graded areas shall be seeded and mulched (strawed) within 14 days of stopping land disturbance activities. Unless it can be
shown to the City Engineer that weather conditions are not favorable, vegetative growth is to be established within 6 weeks of
stopping grading work on the project. The vegetative growth established shall be sufficient to prevent erosion and the standard
shall be as required by EPA and DNR. (70% coverage per square foot) Ord. 6496, Section 405.095

**Sanitary Sewer Notes**

- 1. All sanitary sewer installation is to be in accordance with M.S.D. standards and specifications except as modified by the City
of O'Fallon Ordinances.
2. Brick shall not be used in the construction of sanitary sewer structures. Pre cast concrete structures are to be used unless
otherwise approved by the City of O'Fallon.
3. Connections at all sanitary structures are to be made with A-Lock joint or equal
4. All sanitary laterals shall be a minimum of 4" residential, 6" commercial diameter pipe.
5. All sanitary mains shall be a minimum of 8" diameter pipe.
6. All sanitary sewer line with a slope greater than 20% will require concrete cradle or concrete collar at each pipe joint.
Sanitary line with a slope greater than 50% will require a special approved design as shown on detail sheet.
7. All manholes built within the 100 year flood plain must have lock type watertight manhole covers.
8. All sanitary sewer mains must have a minimum of 42" cover.
9. When sanitary mains cross over storm line the sanitary main must be ductile iron pipe for 10 feet on each side of the
crossing.
10. Excuse with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary sewer.
Add concrete cradle to only RCP storm sewer and encase flexible storm sewer when it is more than 18 inches above
sanitary line. Show on profile sheet.
11. The sanitary sewers should run diagonally through the side yards to minimize any additional utility easements required.
12. All sanitary sewer structures shall be waterproofed on the exterior in accordance to Missouri DNR specifications 10CSR-8.120
(7)(E).
13. All sanitary sewer pipe shall be SDR35 or equal. All sanitary sewer laterals shall be Schedule 40.
14. All sanitary sewer manholes and pipes will be tested to the following specifications. ASTM C1244, Standard testing method for
Concrete Sewer Manhole with Negative Air Pressure (Vacuum), Latest revision ASTM F1417, Standard testing method for
Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air, Latest revision.
15. Add 1" minus rock back fill to all sanitary sewer and all other utilities that lie within the 1:1 shear plane of the road.

**Storm Sewer Notes**

- 1. All Storm Sewer installation is to be in accordance with M.S.D. standards and specifications except as modified by the City of
O'Fallon ordinances by the City of O'Fallon.
2. Brick shall not be used in the construction of storm sewer structures. Pre cast concrete structures are to be used unless
otherwise approved by the City of O'Fallon.
3. A 5/8" trash bar shall be installed horizontally in the center of the opening(s) in all curb inlets and area inlets.
4. (INTENTIONALLY OMITTED)
5. Encase with concrete both sanitary and storm sewer at crossing when storm sewer is within 18 inches above sanitary
sewer. Add concrete cradle to only RCP storm sewer and encase flexible storm sewer when it is more than 18 inches
above sanitary line. Show on profile sheet.
6. The storm sewers should run diagonally through the side yards to minimize any additional utility easements required.
7. All concrete pipes will be installed with O-ring rubber type gaskets.
8. Connections at all storm structures are to be made with A-lock joint or equal.
9. Pre cast concrete inlet covers are not to be used.
10. The swale in the detention basins shall have a minimum 2% longitudinal slope and be lined with a permanent erosion control
blanket that will allow infiltration of storm water.
11. All structures and flared end sections must be concrete. H.D.P.E. pipe will not be allowed for detention basin overflow, final
pipe run to detention basins, creek discharge or other approved means.
12. (INTENTIONALLY OMITTED)
13. Rip rap shown at flared end sections will be evaluated in the field by the Engineer, Contractor, and City Inspectors after
installation for effectiveness and field modified, if necessary to reduce erosion on and off site.
14. Add 1" minus rock back fill to all storm sewer that lie within the 1:1 shear plane of the road.
15. (INTENTIONALLY OMITTED)

**Flood plain Information**

- 1. Refer to Section 415 for Floodplain Development Information

**Retaining Walls: Terraced and Vertical**

- 1. A permit is required for all retaining walls that are 48 inches or taller in height, measured from the top of the footing to the
top of the wall or for walls that support a surcharge load or that alters the channelized drainage of any lot or drainage
area.
2. Retaining walls will not be allowed in public right-of-way without written approval from the City Engineer.
3. Any retaining wall more than thirty (30) inches tall which supports a walking surface that is within two (2) feet of the wall
will require a guard on the retaining wall.
4. Retaining walls that alter the channelized drainage of any lot or drainage area shall not be constructed without prior approval
and permitting from the City of O'Fallon Engineering Department regardless of the height of the wall.
5. See section 405.275 of the City code for additional design requirements.

**Water Notes**

- 1. Fire hydrants shall be a maximum of 600' apart. Local fire district approval is required.
2. Coordinate with the water company on the location of water meters. For meters in the City's district, meters shall be in the
right-of-way, otherwise an access easement from the right-of-way shall be provided.
3. All water mains must have a minimum of 42" of cover. (City water mains)
4. Provide water valves to isolate the system.
5. All water mains shall be class 200 SDR 21 or equal with locator/tracer wires
6. If the trench depth is less than the improved portion of the right-of-way, twelve inches of granular backfill will be placed over
exposed facilities and controlled low strength material (CLSM) aka flowable fill will fill the hole with eight inches of the finished
surface for concrete pavement. There will be a plastic membrane placed between the rock base and the CLSM to prevent the material
from bleeding into the rock base. The remaining eight inches will be restored by placing a 28 day, 4,000 psi concrete
mix.
7. DISINFECTING: Disinfecting shall be accomplished by placing sufficient hypo chlorite granule (HTH) on each section of pipe to
achieve a chlorine residual in the pipeline, upon initial filling, of 50 mg/L (PPM). HT tablets will not be allowed. Following
Protecting Water Quality - a field guide to erosion, sediment and stormwater best management practices for development sites
in Missouri and Kansas. It shall be slowly filled with water and a sample will be taken immediately and the chlorine
residual must be 50 mg/L or greater. The solution shall be allowed to stand for 24 hours and a sample shall then be
taken. The chlorine residual after 24 hours shall be 30 mg/L or greater. If the piping shows insufficient chlorine residuals in
either test, the piping shall be re-chlorinated by the injection of hypo chlorite solution until satisfactory results are achieved.
All disinfecting shall be done by the contractor. Only the testing to determine the chlorine residual will be done by the City.
8. PRESSURE TESTING: Immediately following disinfection, the piping shall be pumped to a pressure (at the HIGHEST point in the
project) of 150 psi or higher where the working pressure is higher than 150 PSI as determined by the City. In such cases,
the pressure shall be as specified by the City and two pressure tests shall be conducted. The first test shall be with the fire
hydrant auxiliary valve open and be to 50 PSI. The second test shall be with the fire hydrant auxiliary valve closed and be to
the higher pressure as directed by the City. All pumping equipment and pressure gauges shall be provided by the contractor.
After achieving the test pressure, the piping shall be left closed for a period of two (2) hours. At the end of this time the
pressure drop shall not exceed 2 psi. In addition, if the pressure appears, in judgment of the City's representative, to be
continuing to drop, the test shall be continued for another two (2) hours and if any further drops occur, the test shall be
considered a failure. If the pressure test fails, the contractor will be required to find and correct the source of the leakage.
If this requires draining of the pipeline, when the leakage is corrected, the pipeline must be re-disinfected and the pressure
tested again until satisfactory results are achieved. Any MDR required dechlorination will be performed by the contractor.
9. All tops for valves, meters, and manholes are to be constructed to within 1 inch (0.08') of finish grade. Grading
otherwise approved by the City of O'Fallon.
10. BACTERIOLOGICAL TESTING: After satisfactory disinfection and pressure testing, a sample shall be taken by the contractor in the
presence of a City representative and submitted to a laboratory approved by the Missouri Department of Natural
Resources and the City for bacteriological analysis. After 24 hours, a second sample shall be taken in a like manner and
submitted for analysis. The two samples taken on consecutive days a minimum of 24 hours apart, must be found to be
"safe" by the testing laboratory, and copies of the test results must be supplied to the City. If the samples are not found to be
"safe" further flushing and/or disinfection as directed by the City shall be conducted by the contractor until "safe"
samples on two consecutive test days are achieved. Following successful bacteriological testing and a determination by the
City that the samples are "safe", the mains may be placed into service.

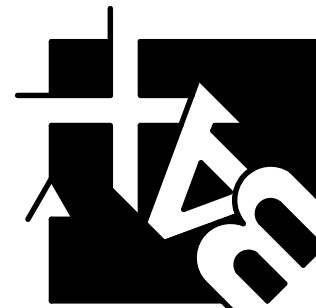
**Roadway Notes**

- 1. All paving (public and private) to be in accordance with St. Louis County Standards and Specifications except as modified by the City
of O'Fallon ordinances.
2. If the intersecting road does not have a curb, then the curb on the new entrance shall begin 10' from the edge of the existing
road.
3. Provide 6" of concrete over 5" of aggregate base rock or asphalt equivalent for minor residential streets per City Code 405.370.
3.1. Rock to meet the all the requirements of MoDOT type 5 rock with a tighter restriction on the fines being that no more than ten
percent (10%) fines shall pass a no. 200 sieve. (City Code 405.210.5.1) The gradation of this rock needs to be submitted to
the City for approval. Any deliveries made without the proper delivery ticket, including signature, will not be accepted. The delivery
ticket must list the project name or jobsite location. A separate certification sheet may be provided attached to the delivery
ticket with a signature of the company's quality control manager. The quality control certification must be current and dated
within 4 weeks of the delivery. (City Code 405.210.2.4)
4. Multi-use trail (when required) Shall have a minimum of 3" Type "CC" Asphalt over 4" aggregate base per City requirements.
5. Type C (BP-1) Compaction requirements shall be 98% minimum density according to St. Louis Co. Standard Specifications.
6. Provide pavement striping at any point where the multi-use trail crosses existing or proposed pavement
7. All street stub-outs over 250' in length will require a temporary turnaround.
8. All sub grade in cut or fill will need to conform to the City of O'Fallon Compaction requirements
9. Material Testing And Frequency. Materials for construction shall be tested and inspected per the appropriate ASTM code or at the City
Engineer's discretion. The developer's engineer shall perform quality control guidelines, in accordance with St. Louis County
requirements 501.3.1.
10. Approval Of Sub grade And Base (Sub base). The City Engineer or representative shall approve the sub grade before any base is
placed thereon and shall approve the base before concrete or surface course is placed. The sub grade and base shall be so
constructed that it will be uniform in density throughout.
11. In all fill areas in the roadways, soil tests shall be submitted and approved by the City Engineer for each foot of fill and at least
one (1) test and an average of one (1) test within every two hundred fifty (250) feet.
12. No traffic will be allowed on new concrete pavement until it has cured for seven (7) days and it reaches three thousand five hundred
(3,500) psi within 28 days.
12.1. Concrete pavements shall not be approved unless it reaches a strength of four thousand (4,000) psi. Cylinders/compressive
strength. One (1) set of four (5) cylinders within the first fifty (50) cubic yards and one (1) set per one hundred (100) cubic
yards thereafter. One (1) cylinder must be tested at seven (7) days, three (3) at twenty-eight (28) days, and one (1) held in
reserve.
12.2. Concrete pavements shall be tested at seven (7) days, three (3) at twenty-eight (28) days, and one (1) held in
reserve.
13. Prior to placement of aggregate base material on sub grade and prior to placement of pavement on base material, the sub grade
and base must be proof-rolled with a fully loaded (ten (10) ton load) tandem truck or equivalent tire vehicle with one (1) pass
down each driving lane no faster than three (3) miles per hour. If soft spots are detected, or pumping, rutting or heaving occurs
greater than one (1) inch at the sub grade, the roadbed shall be considered unsatisfactory and the soil in these areas shall be
remediated to the depth indicated by the contractor's testing firm and approved by a representative of the City Engineer.
14. Sub grade and base beneath pavements shall be compacted to St. Louis County Highway Department specifications. The moisture
range shall be determined by the Standard or Modified Proctor Density Method AASHTO T-99 and within -2/+4 percentage points
of the optimum moisture content.
15. The entire width and length will conform to line, grade and cross section shown on the plans or as established by the engineer. If
any settling or washing occurs, or where hauling results in ruts or other objectionable irregularities, the contractor shall improve the
sub grade or base to the satisfaction of the City before the pavement is placed. Additional rolling or methods to verify compaction
shall be at the discretion of the City Engineer. Tolerance allowed on all lines, grades and cross sections shall be plus or minus
four-hundredths (+0.04) feet.
16. Utility Work Prior To Base Construction. No base course work may proceed on any street until all utility excavations (storm and
sanitary sewers, water, gas, electric, etc.) have been properly back filled with granular material, crushed stone or gravel mechanically
tamped in ten (10) inch lifts. Utilities installed after sub grade preparation shall be bored. Compaction requirements shall follow St.
Louis County standards.
17. Equipment calibration. The developer's contractors and subcontractors must have their equipment calibrated by the following minimum
standards.
17.1. Air meter--weekly.
17.2. Cylinder compression--annually by independent calibration service.
17.3. Batch scales--monthly.
17.4. Nuclear testing devices--every six (6) months.
17.5. Proctor equipment--every six (6) months.
17.6. Slump cone--monthly.
18. All permanent traffic control will be per M.U.T.C.D. or MoDot standards. SI-1 from the M.U.T.C.D. manual will be used at all crosswalk
locations accompanied with other w16-9p or w16-7p signs.
19. All traffic signals, street signs, sign post, backs and bracket arms shall be painted black using Carboline Rust Bond Penetrating Sealer
SG and Carboline 133 HB paint (or equivalent as approved by City of O'Fallon and MoDOT)
20. If the excavations are made in the improved portion of the right-of-way, twelve inches of granular backfill will be placed over exposed
facilities and controlled low strength material (CLSM) aka flowable fill will fill the hole with eight inches of the finished surface for
concrete pavement. There will be a plastic membrane placed between the rock base and the CLSM to prevent the material from
bleeding into the rock base. The remaining eight inches will be restored by placing a 28 day, 4,000 psi concrete mix.

**PROJECT TITLE:**  
North High School  
Building Addition

ISSUE#03-22-23  
Box Project #03-126161

**ENGINEERING  
DRAWING  
STAMPING**  
221 Park West Blvd.  
St. Charles, MO 63801  
636-998-5552  
636-998-1718



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be used for any part or parts of the architecture or
engineering project.

**CLIFFORD  
L. HEITMANN**  
LICENSE  
NUMBER  
29812  
Professional Engineer  
State of Missouri

Clifford L. Heitmann  
Civil Engineer  
E29817  
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**Addendum 2 04/19/2023**  
**Addendum 3 04/21/2023**

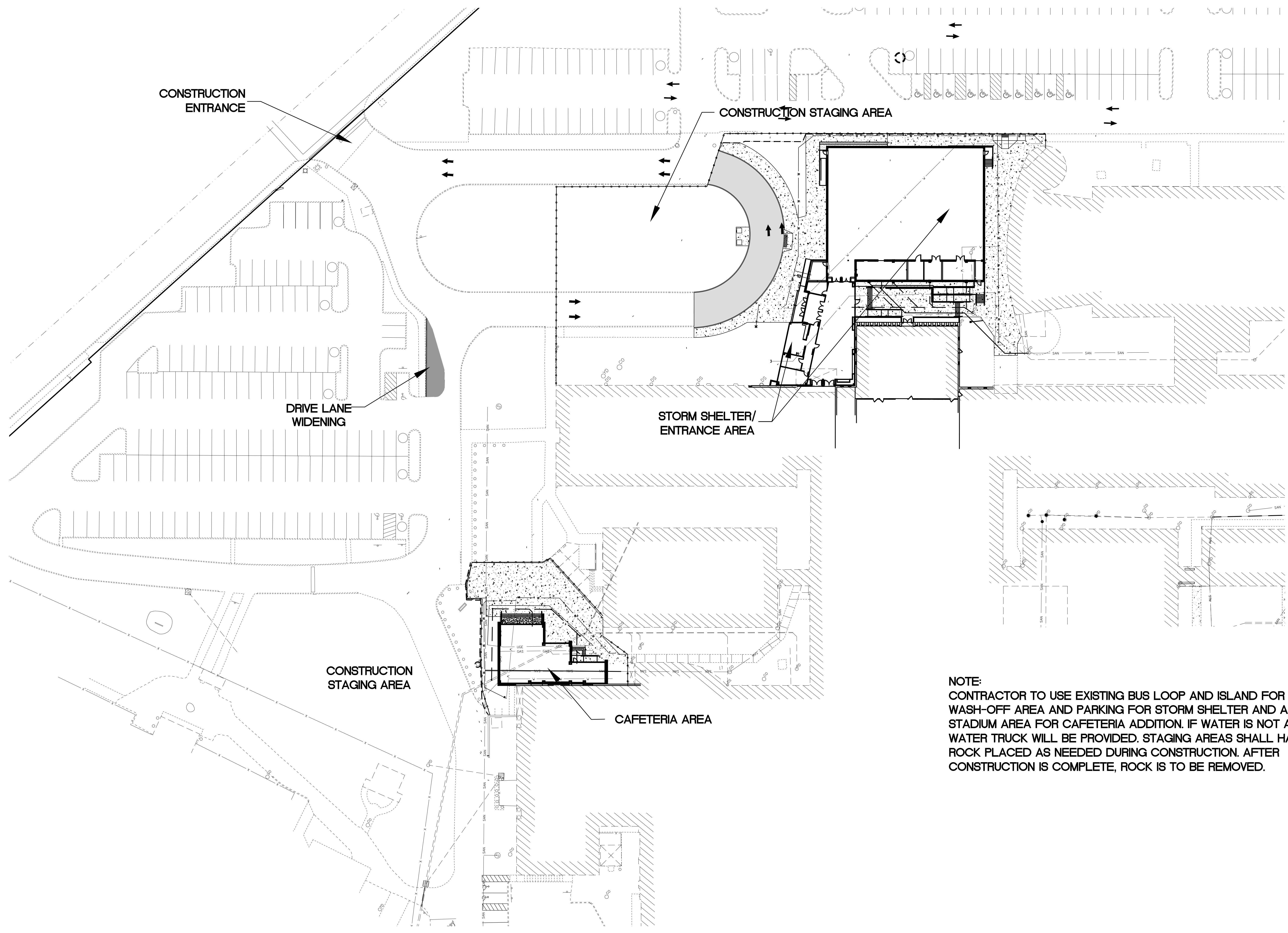
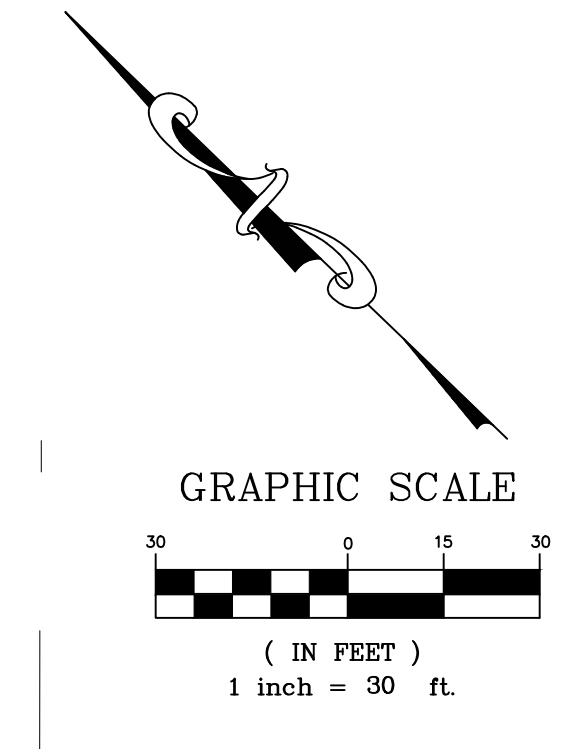
**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**City of O'Fallon Notes**

**P+Z No. #22-010174**  
APPROVAL DATE: 12-01-22

**City No.**  
#

**Page No.**  
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**NOTE:**  
 CONTRACTOR TO USE EXISTING BUS LOOP AND ISLAND FOR STAGING, WASH-OFF AREA AND PARKING FOR STORM SHELTER AND AREA EAST OF STADIUM AREA FOR CAFETERIA ADDITION. IF WATER IS NOT AVAILABLE, A WATER TRUCK WILL BE PROVIDED. STAGING AREAS SHALL HAVE 6" OF 2' ROCK PLACED AS NEEDED DURING CONSTRUCTION. AFTER CONSTRUCTION IS COMPLETE, ROCK IS TO BE REMOVED.

**PROJECT TITLE:**  
 North High School  
 Building Addition

Box Project #03-126181

**ENGINEERING  
 DRAWING  
 STAMPING**  
 221 Park West Blvd.  
 St. Charles, MO 63301  
 636-938-5552 FAX 636-938-1718

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Clifford L. Heitmann  
 Civil Engineer  
 E29812

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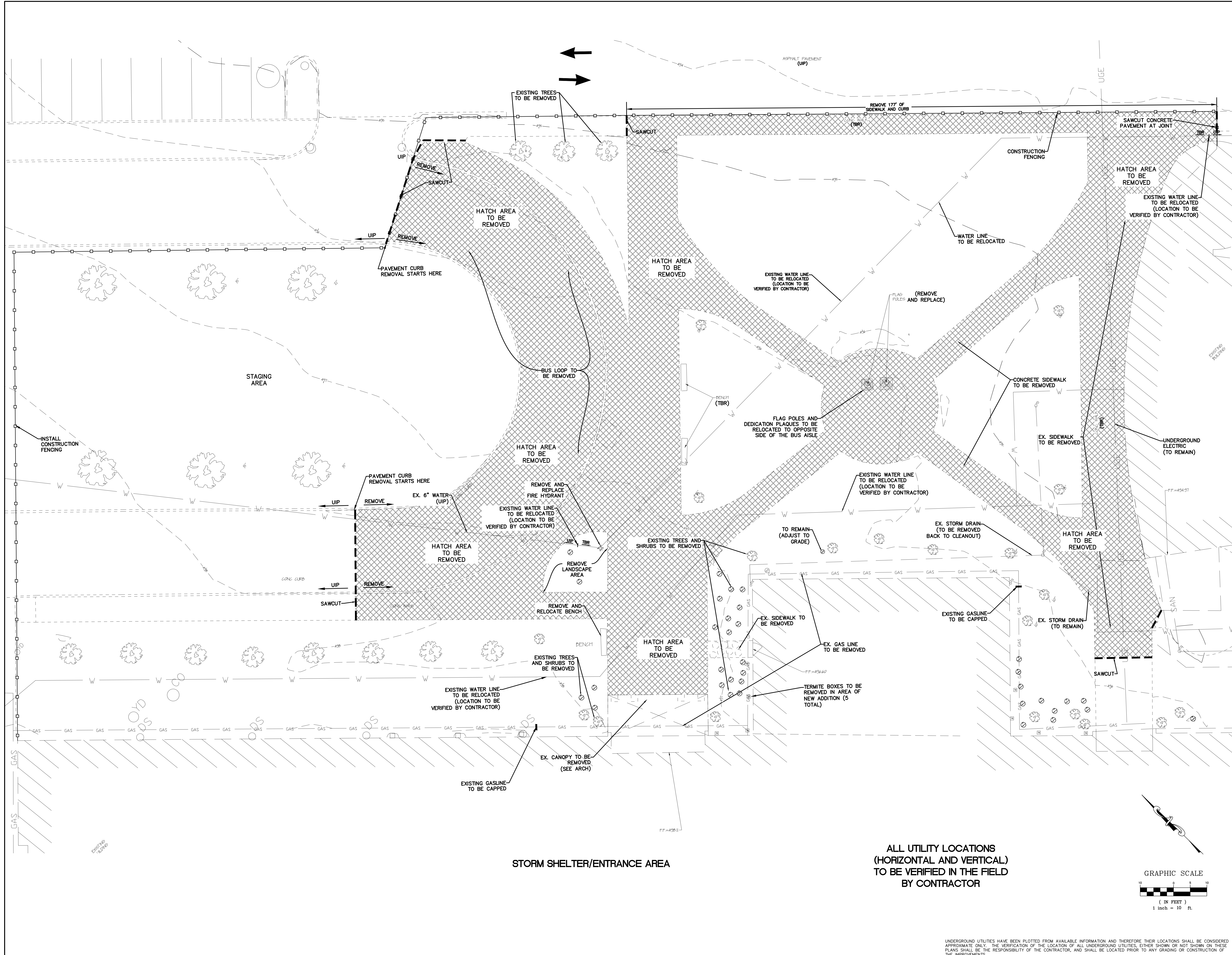
**Developer / Owner:**  
 Fort Zumwalt School District  
 555 E. Terra Ln  
 O'Fallon, MO 63367

**Overall Site Plan**

P+Z No. #22-010174  
 APPROVAL DATE: 12-01-22

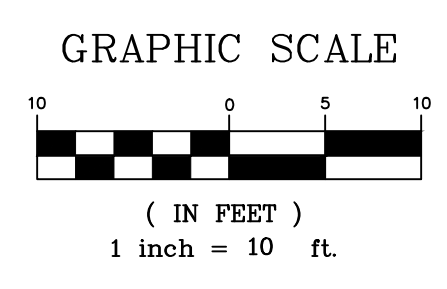
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STORM SHELTER/ENTRANCE AREA

ALL UTILITY LOCATIONS  
(HORIZONTAL AND VERTICAL)  
TO BE VERIFIED IN THE FIELD  
BY CONTRACTOR



**PROJECT TITLE:**  
North High School  
Building Addition

**ENGINEERING**  
CLIFFORD L. HEITMANN  
REGISTERED PROFESSIONAL ENGINEER  
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St. Charles, MO 63301  
636-938-5552  
FAX 636-938-1718

STATE OF MISSOURI  
CLIFFORD L. HEITMANN  
NUMBER E-29817  
REGISTERED PROFESSIONAL ENGINEER  
Civil Engineer  
E29817

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Addendum 3 04/21/2023

**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**P+Z No.** #22-010174  
**APPROVAL DATE:** 12-01-22

**City No.** #

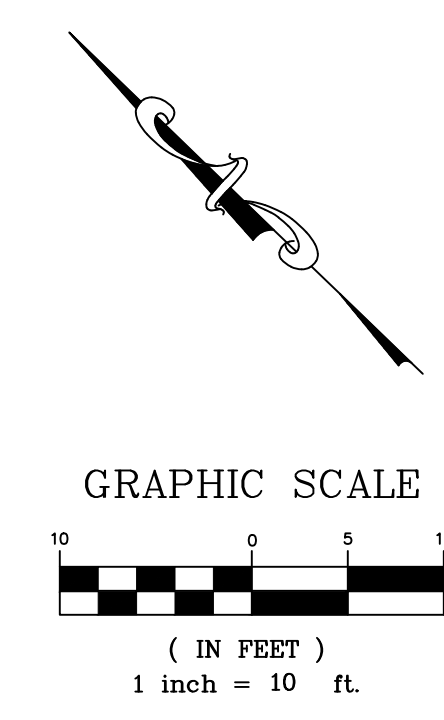
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Box Project #03-126181

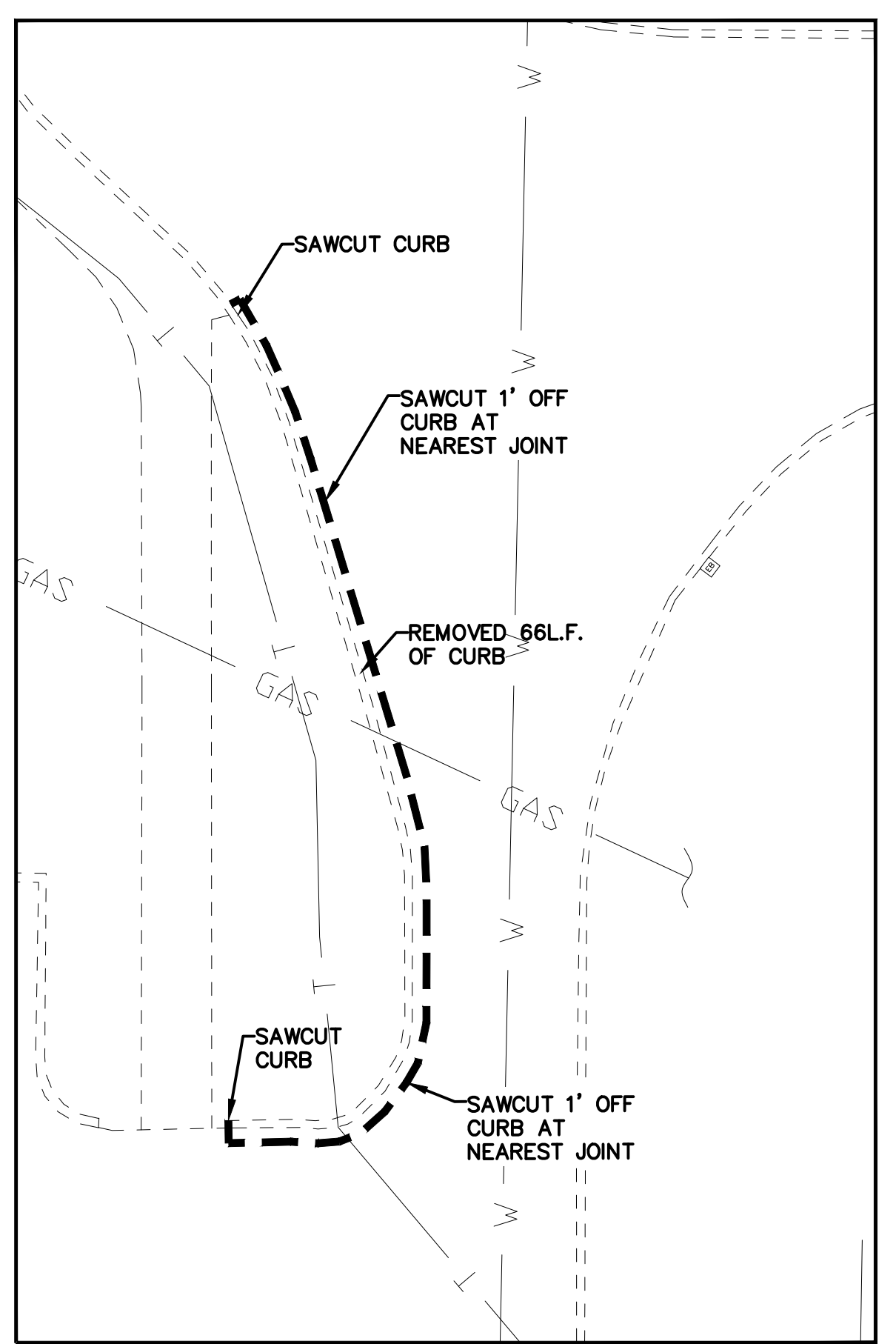
ISSUE 03-22-23

**Demolition Plan**

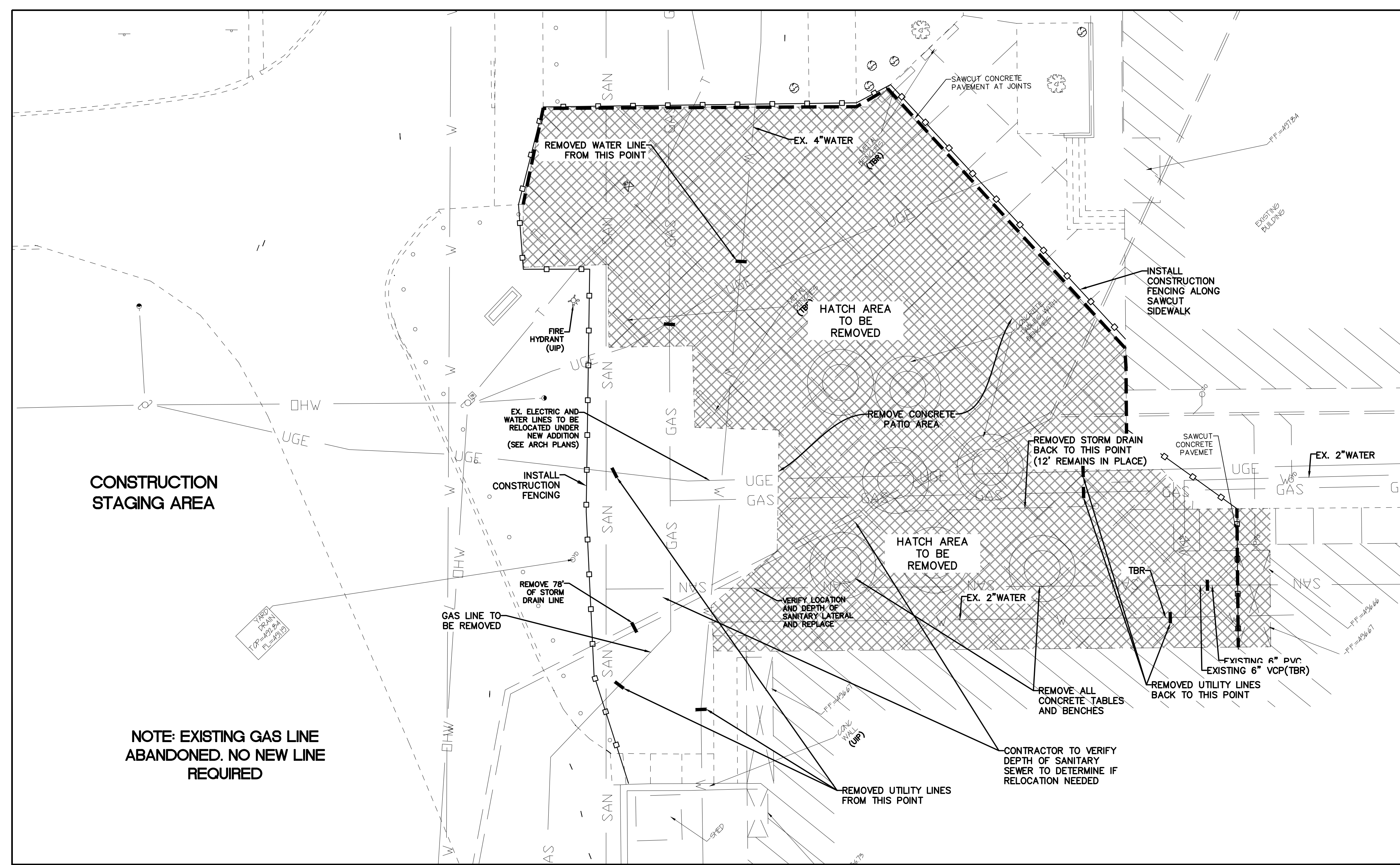
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BY CONTRACTOR



DRIVE LANE WIDENING



CAFETERIA AREA

CONSTRUCTION STAGING AREA

NOTE: EXISTING GAS LINE  
ABANDONED. NO NEW LINE  
REQUIRED

**PROJECT TITLE:**  
North High School  
Building Addition

Box Project #03-126181

**ENGINEERING**  
SURVEYING  
DRAWING

221 Park West Blvd.  
St. Charles, MO 63301  
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STATE OF MISSOURI  
CLIFFORD L. HEITMANN  
NUMBER E-29817  
REGISTERED PROFESSIONAL ENGINEER

Clifford L. Heitmann  
Civil Engineer  
E29817

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Addendum 3 04/21/2023

**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**Demolition Plan**

P-Z No. #22-010174  
APPROVAL DATE: 12-01-22

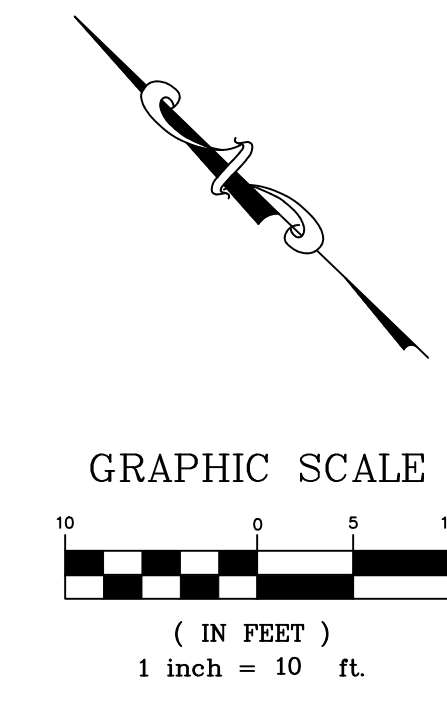
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**C5**

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**PROJECT TITLE:**  
North High School  
Building Addition

Box Project #03-126181

**ENGINEERING**  
CLIFFORD L. HEITMANN  
REGISTERED PROFESSIONAL ENGINEER  
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St. Charles, MO 63301  
636-938-5552  
FAX 636-938-1718

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CLIFFORD L. HEITMANN  
NUMBER E-29817  
Civil Engineer  
E29817

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**Developer / Owner:**  
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555 E. Terra Ln  
O'Fallon, MO 63367

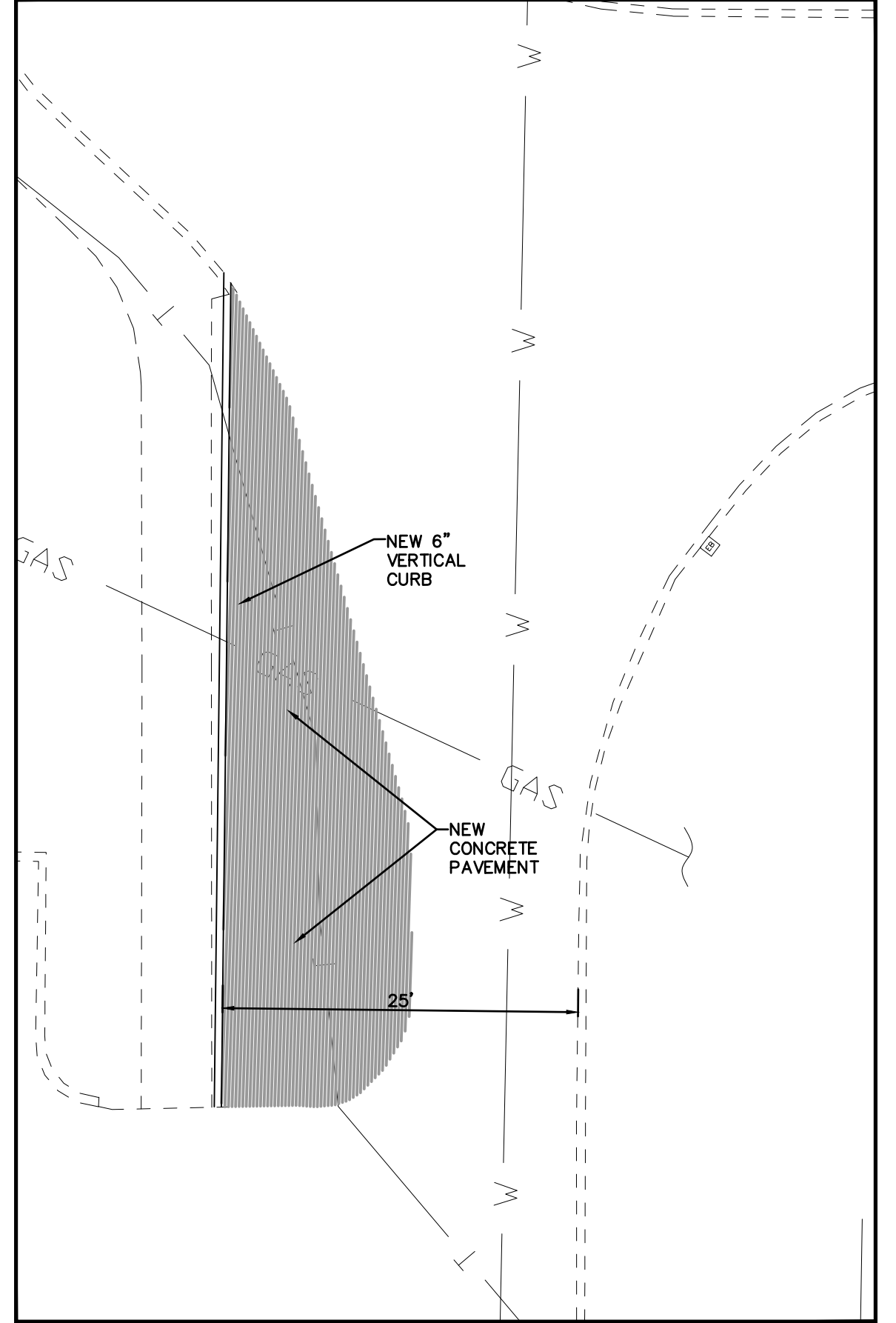
**Site Plan**

P-Z No. #22-010174  
APPROVAL DATE: 12-01-22

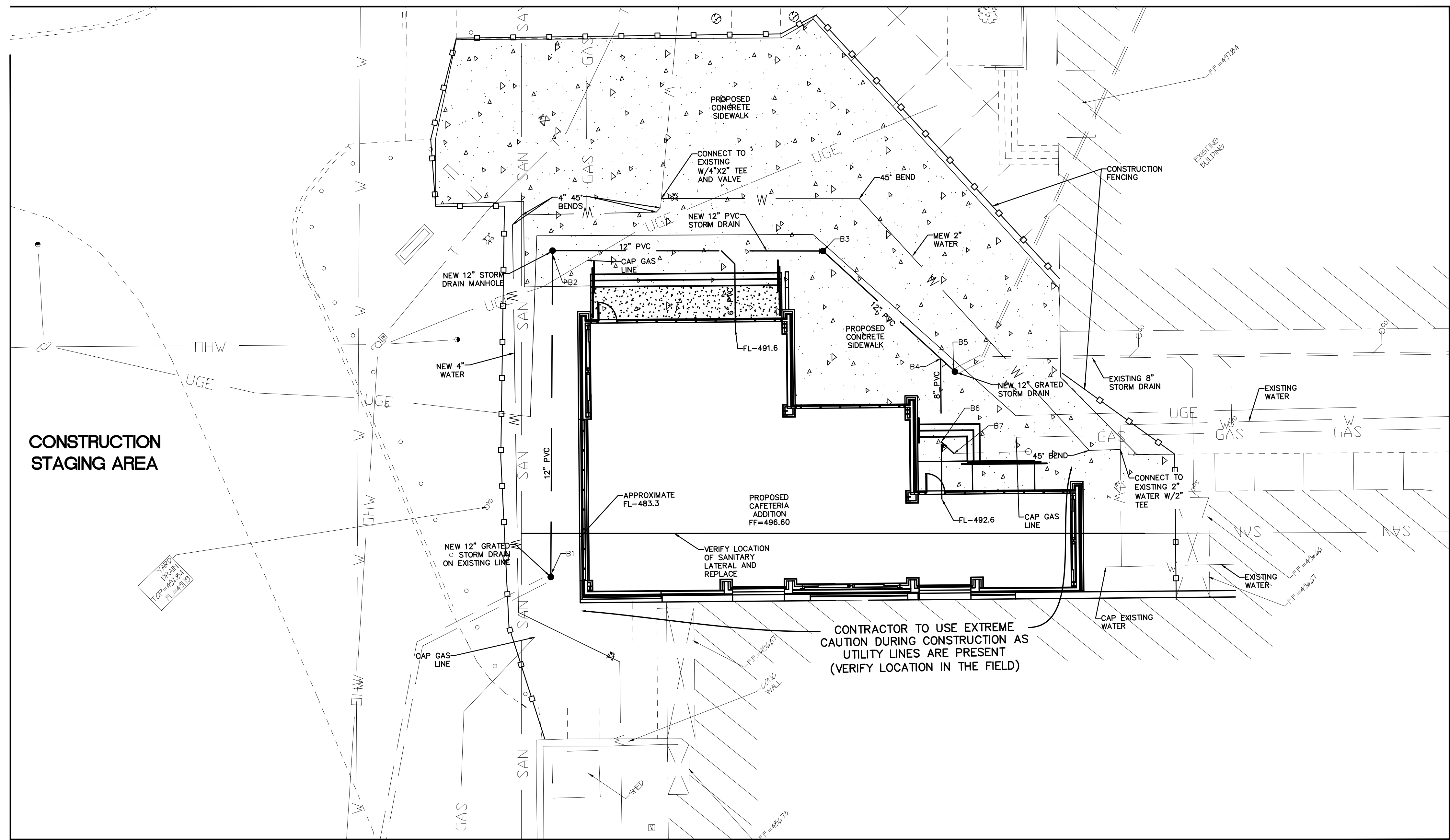
City No. #

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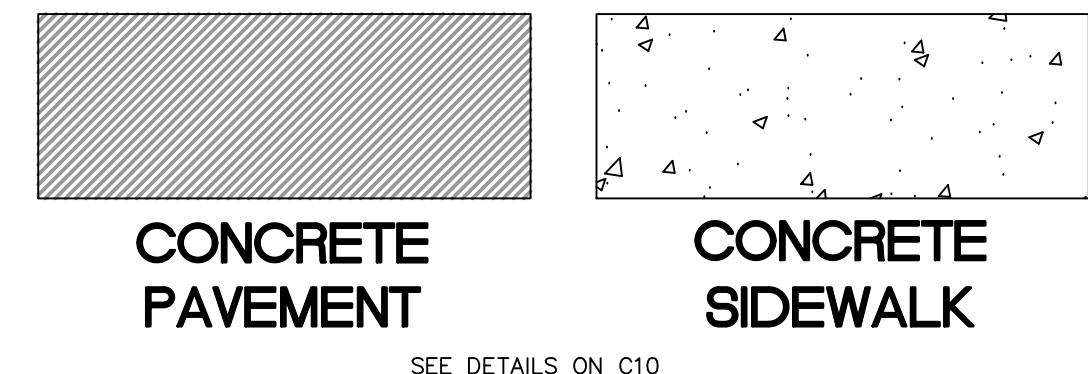
**ALL UTILITY LOCATIONS  
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BY CONTRACTOR**



**DRIVE LANE WIDENING**

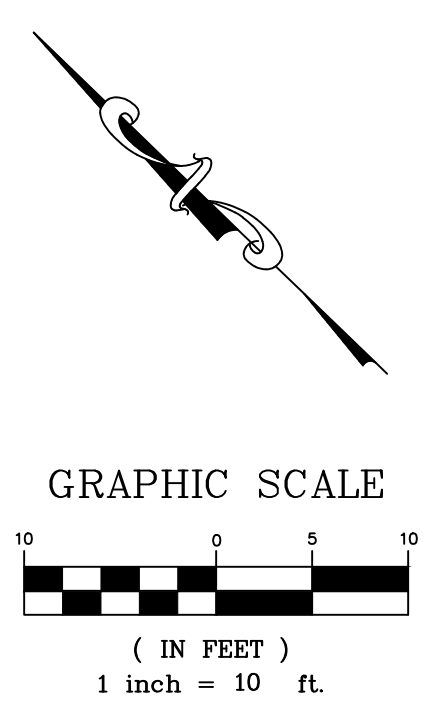
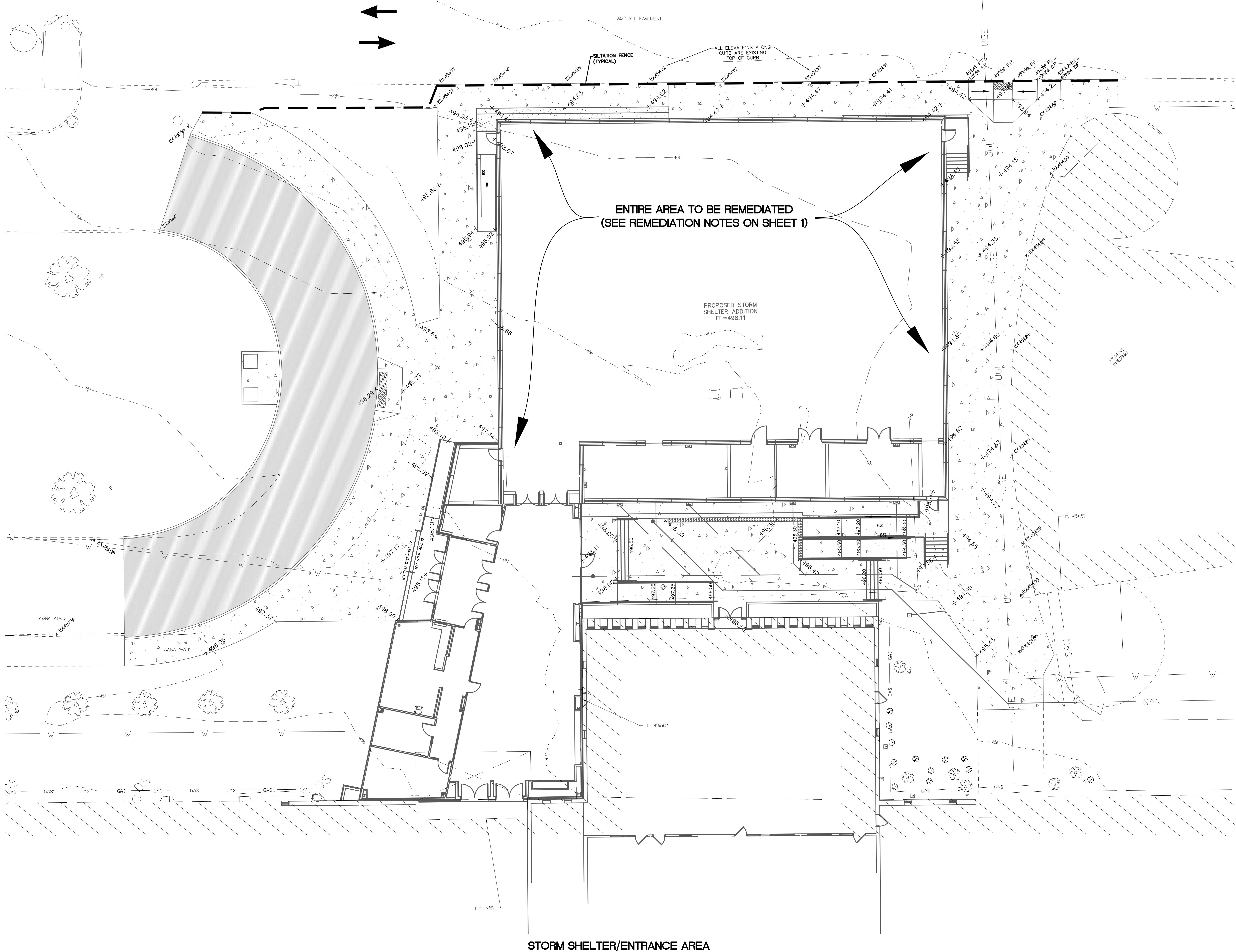


**CAFETERIA AREA**



DOWNSPOUT SYSTEM B			
No.	Sta.	Type	Elevation
B1	0+00	CONNECT TO GRATED INLET	FL491.00
B2	0+52	MANHOLE	FL491.30
B3	0+98	8" 45° ELBOW	FL491.61
B4	1+23	8"x6" WYE, DS-19"R	FL491.86
B5	1+26	CONNECT TO GRATED INLET	FL491.89
B6	0+13	8"x6" WYE	FL492.89
B7	1+24	8"x6" WYE, DRAIN-12"L	FL492.92

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ENTIRE AREA TO BE REMEDIATED  
(SEE REMEDIATION NOTES ON SHEET 1)

PROPOSED STORM SHELTER ADDITION  
FF=498.11

STORM SHELTER/ENTRANCE AREA

ALL UTILITY LOCATIONS  
(HORIZONTAL AND VERTICAL)  
TO BE VERIFIED IN THE FIELD  
BY CONTRACTOR

**PROJECT TITLE:**  
North High School  
Building Addition

Box Project #03-126181

**ENGINEERING  
DRAWING  
STAMP**

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St. Charles, MO 63301  
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Civil Engineer  
E29817

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**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**Grading Plan/Storm Water  
Pollution Prevention Plan**

**P+Z No. #22-010174**  
APPROVAL DATE: 12-01-22

**City No.**  
#

**Page No.**  
**C8**

UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

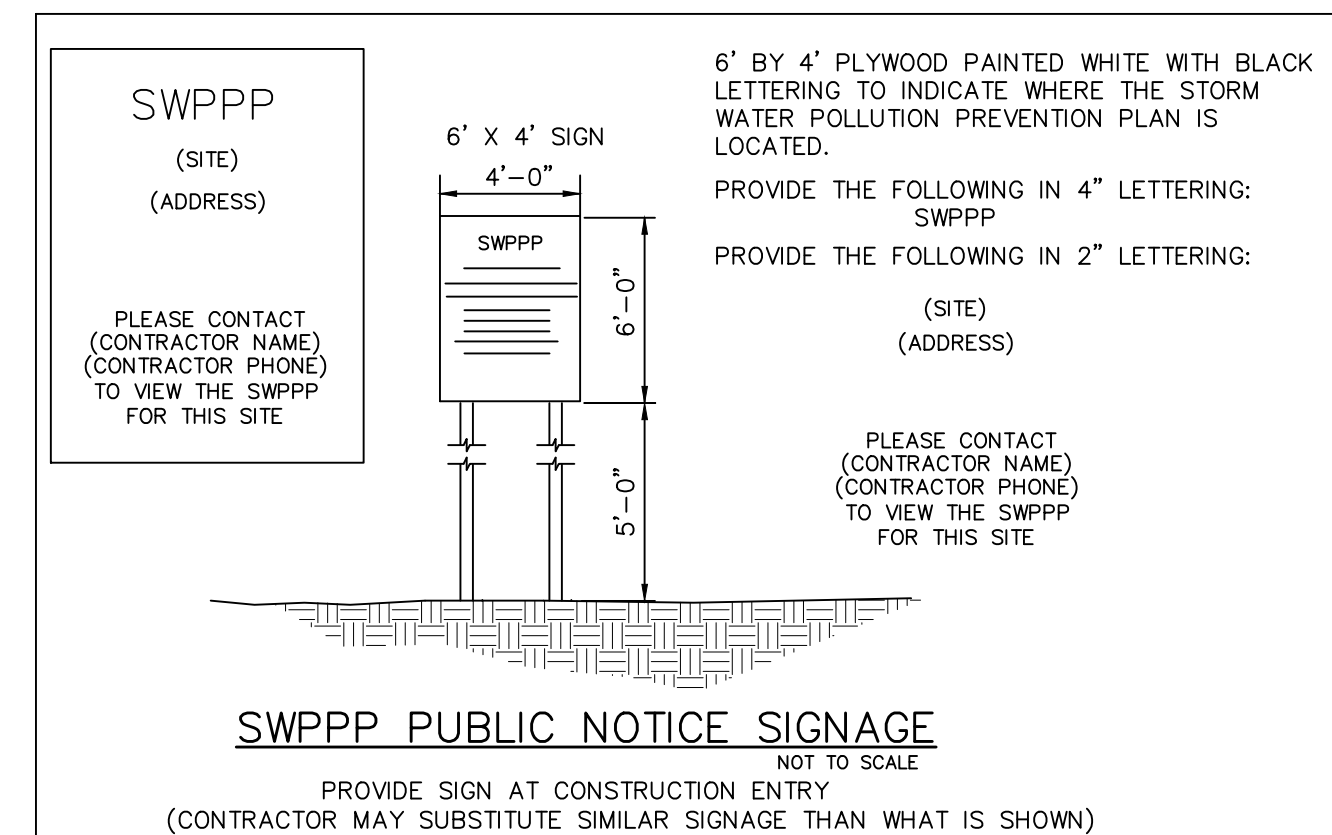


**Storm Water Pollution Prevention Plan**

- A. PURPOSE:**
- The purpose of the Storm Water Pollution Prevention Plan (SWPPP) is to inform the Developer/Contractor of the following objectives they are required to meet:
- Prevent erosion where construction activities shall occur.
  - Prevent pollutants from mixing with storm water.
  - Prevent pollutants from being discharged by trapping them on-site, before they can affect the receiving waters.
  - All regulations of Missouri Department of Natural Resources are met.
  - All regulations of the Environmental Protection Agency are met.
  - All regulations of the local municipality are met.

- B. PROJECT DESCRIPTION:**
- The project is located in the Big Creek watershed in St. Charles County, Missouri. This project disturbs approximately 1.13 acres.
- The project activities consist of construction of a new retail building and parking lot. The site will be protected by the various erosion protection measures listed below:
- Siltation Control:** The entire perimeter of the project that allows storm water to exit will have siltation control installed. Details of these devices are depicted on the detail plans prepared by Box Engineering Company, Inc.
  - Revegetation:** The site will consist of varying ground slopes, upon completion of the grading activities the slope prone to erosion will be seeded and strawed to stabilize the slope and prevent erosion.

- C. MAINTENANCE AND INSPECTION:**
- Regular Maintenance:** Weekly inspections of the project will include: (a) The repair of any sediment (silt) fence and/or silt sock damaged or out of place; (b) The removal of any accumulated trash and/or debris; and (c) The removal of any externally deposited waste materials.
- Periodic Inspections:** Following each rain of more than 0.25 inch in 24 hours, the site will be inspected, and any necessary maintenance will be provided for a period of one year following the completion of the above remediation measures. Summaries of the maintenance and the inspections will be maintained and shall be kept available from the owner. An inspection report shall be filed and kept on site for every inspection. The report shall detail the findings of the inspection and if any action was required. The inspection form needs to include, name of the site, name of the inspector, permit number, date of inspection, major observations and actions taken to correct problems and the signature of the inspector. The inspection reports need to be kept on file by the permittee for three years after the project is completed.
- The field inspections will be conducted in a systematic manner to minimize the possibility of any significant feature being overlooked. A detailed checklist will be developed and followed for the examination. Particular attention will be given to detecting evidence of erosion, slope instability, undue settlement, displacement, and tilting. Photographs and drawings will be used freely to record conditions in order to minimize descriptions. The field inspection will include appropriate features and items, including potential hazards to human life or property.
- The condition of the slopes and vegetative cover will be evaluated and examined for erosion.
- Measures will be taken to promote the growth of vegetation and repair of damage caused by erosion and sedimentation. The inspection will also provide recommendations for measures that need to be undertaken immediately, based on the experience and judgment of the inspector. Necessary follow up inspections will be made as necessary to verify that any maintenance, alteration, or repair measures are accomplished by methods acceptable by standard engineering practice.



**6' BY 4' PLYWOOD PAINTED WHITE WITH BLACK LETTERING TO INDICATE WHERE THE STORM WATER POLLUTION PREVENTION PLAN IS LOCATED.**

PROVIDE THE FOLLOWING IN 4" LETTERING: SWPPP (SITE) (ADDRESS)

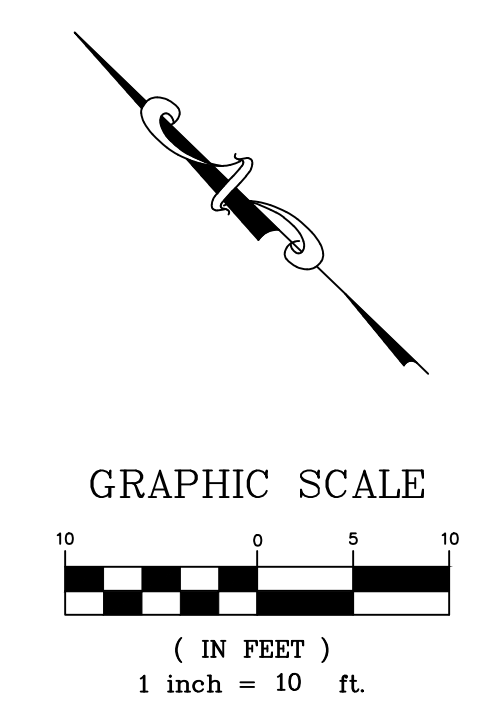
PROVIDE THE FOLLOWING IN 2" LETTERING: PLEASE CONTACT (CONTRACTOR NAME) (CONTRACTOR PHONE) TO VIEW THE SWPPP FOR THIS SITE

**SPILL AND SITE POLLUTION:**

SHOULD AN ACCIDENTAL SPILL OCCUR REFER TO MATERIAL SAFETY DATA SHEETS. ANY SPILLS OF HAZARDOUS MATERIALS IN QUANTITIES IN EXCESS OF REPORTABLE QUANTITIES AS DEFINED BY EPA OR THE STATE AGENCY REGULATIONS, SHALL BE IMMEDIATELY REPORTED TO THE EPA NATIONAL RESPONSE CENTER (800-424-8802) AND MISSOURI DEPARTMENT OF NATURAL RESOURCES (573-634-2436) AND THE ST. CHARLES COUNTY DIVISION OF ENVIRONMENTAL SERVICES, SOLID WASTE ENFORCEMENT (636-949-7415). REPORTABLE SPILLS FOR PETROLEUM PRODUCTS IS GREATER THAN 50 GALLONS. ALL OTHER REPORTABLE HAZARDOUS MATERIALS AND THEIR QUANTITIES MAY BE FOUND ON THE WEB SITE AT [HTTP://WWW.DNR.MO.GOV](http://www.dnr.mo.gov) AND THE LOCAL NUMBER IS 573-840-9750. FEDERAL LAW REQUIRES THE RESPONSIBLE PARTY TO REPORT ANY RELEASE OF OIL IF IT REACHES OR THREATENS A SEWER, LAKE, CREEK, STREAM, RIVER, GROUNDWATER, WETLANDS, OR AREA LIKE A ROAD DITCH, THAT DRAINS INTO THE ABOVE.

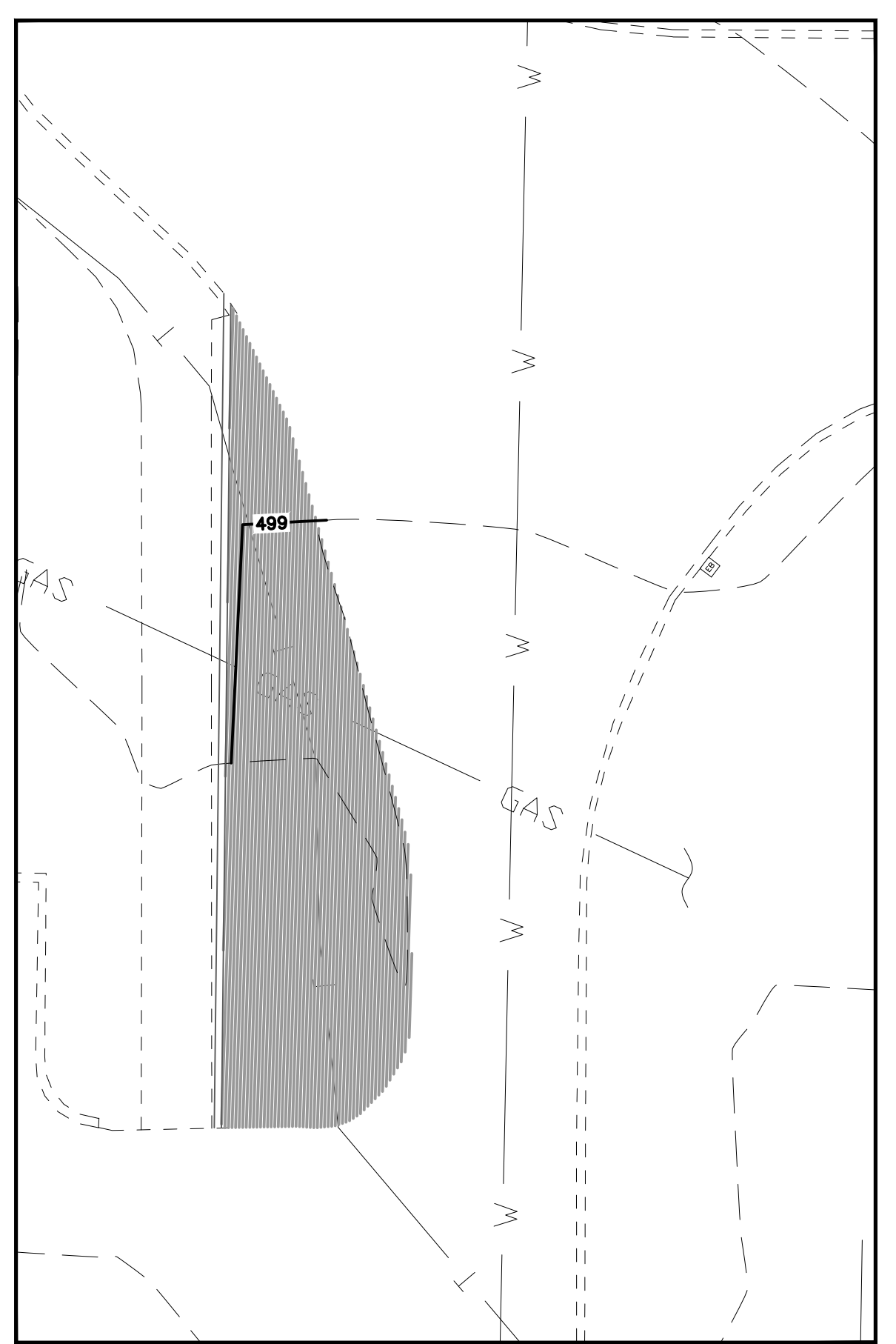
AN EMERGENCY SPILL KIT IS REQUIRED TO BE ONSITE.

THE CONTRACTOR IS TO PROVIDE THE CITY WITH ALL SWPPP INSPECTION REPORTS.

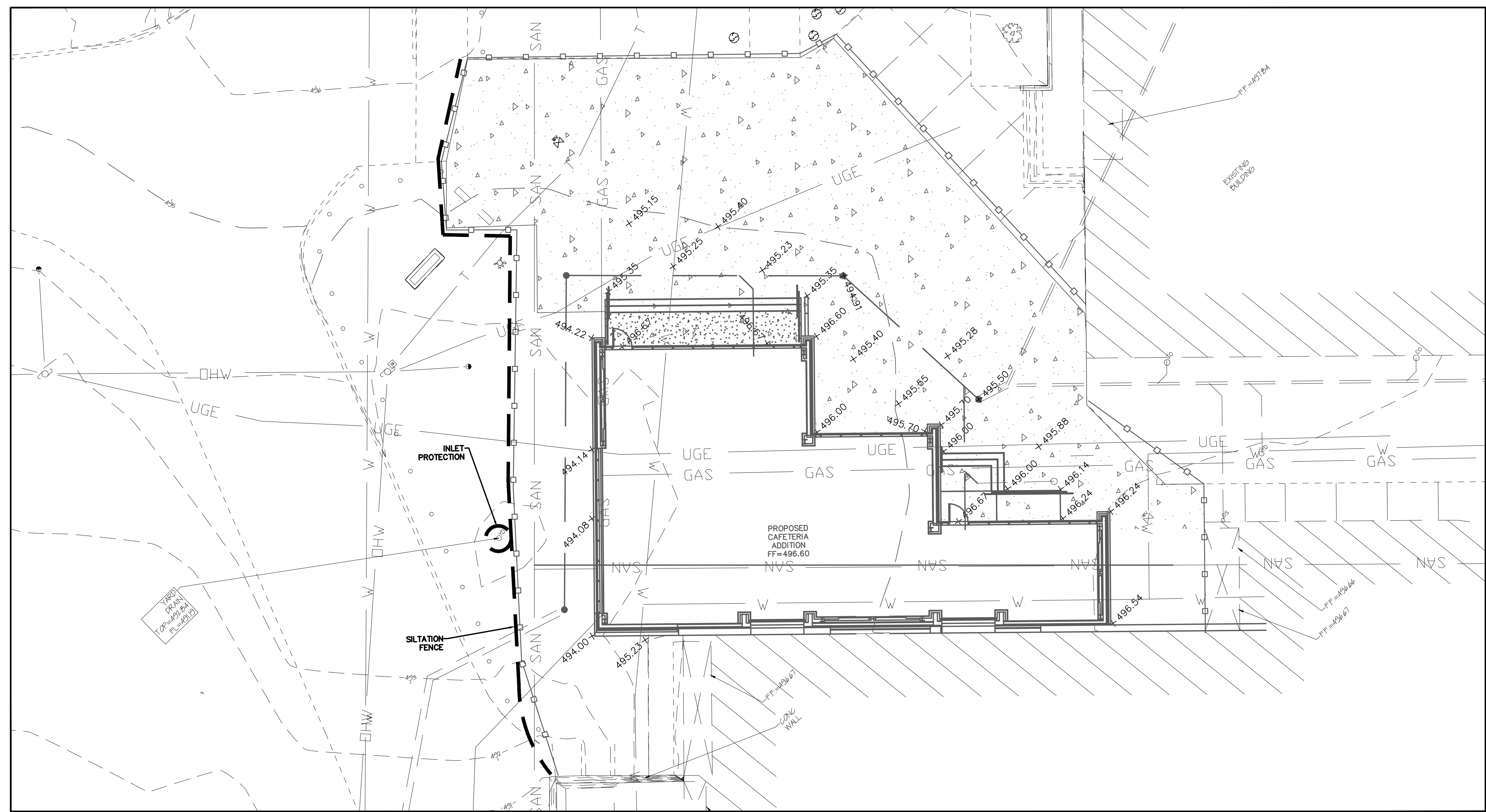


**ALL UTILITY LOCATIONS (HORIZONTAL AND VERTICAL) TO BE VERIFIED IN THE FIELD BY CONTRACTOR**

**NOTE: ALL FOOTINGS TO BE REMEDIATED AS DIRECTED BY GEOTECHNICAL ENGINEER. VERIFY WITH GEOTECH ONSITE BEFORE STARTING REMEDIATION WORK.**



DRIVE ISLE WIDENING



CAFETERIA AREA

**PROJECT TITLE:**  
North High School Building Addition

**Box Project #03-120161** | **ISSUE#03-22-23**

**ENGINEERING DRAWING SUBMITTING**  
221 Park West Blvd.  
St. Charles, MO 63001  
636-938-5552 | FAX 636-938-1718

**DISCLAIMER OF RESPONSIBILITY:**  
I hereby certify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or attached to be used for any part or parts of the architectural or engineering project.

**STATE OF MISSOURI**  
**CLIFFORD L. HEITMANN**  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER E-29812

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Box Engineering Company, Inc.  
Engineering Authority No. 000655  
Sweeping Authority No. 000144  
All Rights Reserved

**Developer / Owner:**  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

**Grading Plan/Storm Water Pollution Prevention Plan**

**Bid / Permit Set 03/20/2023**  
**Addendum 2 04/13/2023**  
**Addendum 3 04/21/2023**

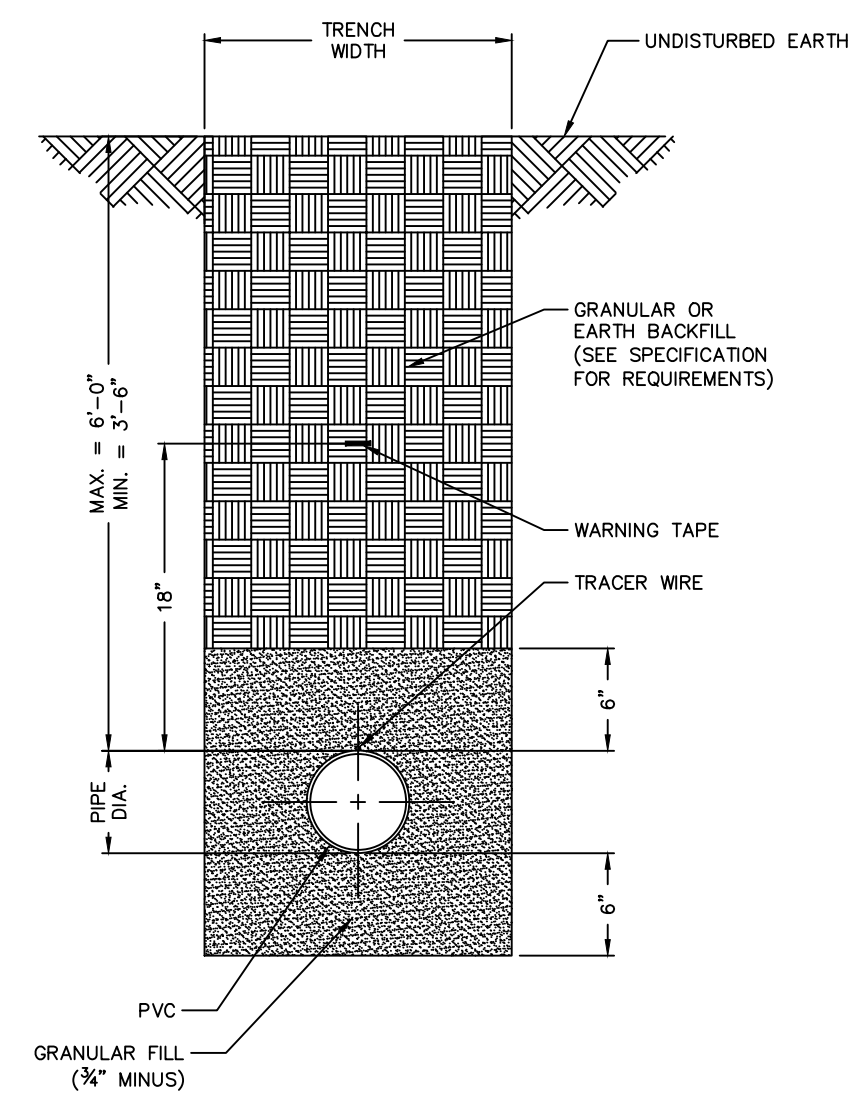
**P+Z No. #22-010174**  
APPROVAL DATE: 12-01-22

**City No.**  
#

**Page No.**  
**C9**

UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

NOTE: THIS DETAIL IS FROM PWS#2

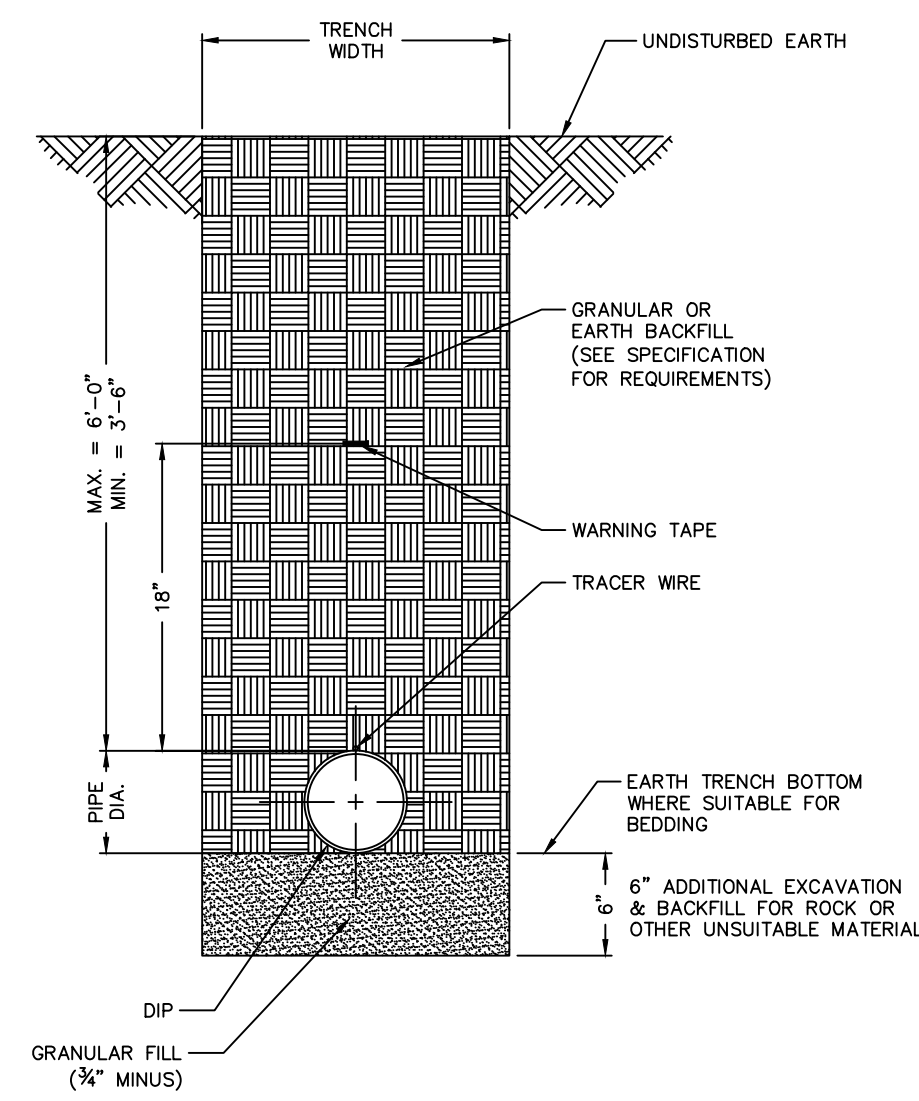


**NOTES**

- SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

TYPICAL TRENCH SECTION FOR PVC PIPE  
NOT TO SCALE  
**DETAIL "A"**  
PAGE 1 OF 2

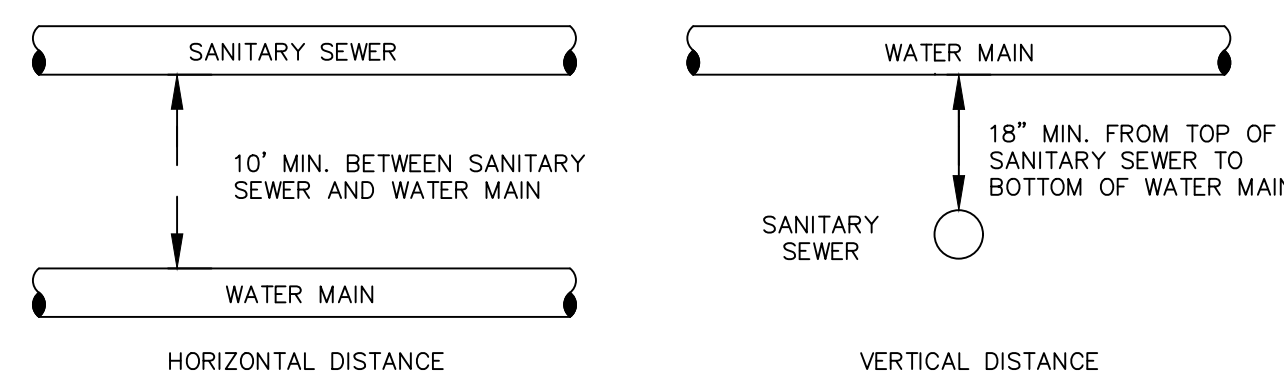
NOTE: THIS DETAIL IS FROM PWS#2



**NOTES**

- POLYWRAP REQUIRED FOR DUCTILE IRON PIPE
- SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

TYPICAL TRENCH SECTION FOR DUCTILE IRON PIPE  
NOT TO SCALE  
**DETAIL "A"**  
PAGE 2 OF 2

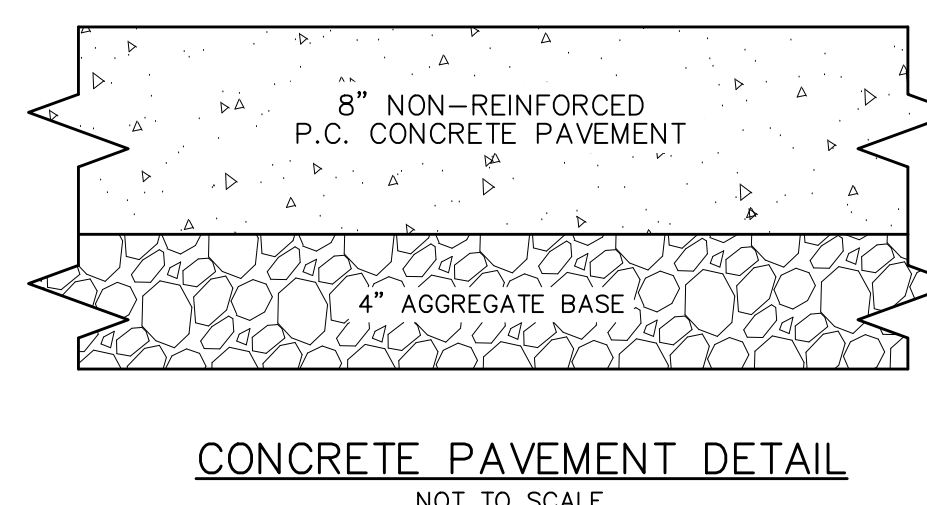


TYPICAL WATER AND SEWER SEPARATION  
NOT TO SCALE

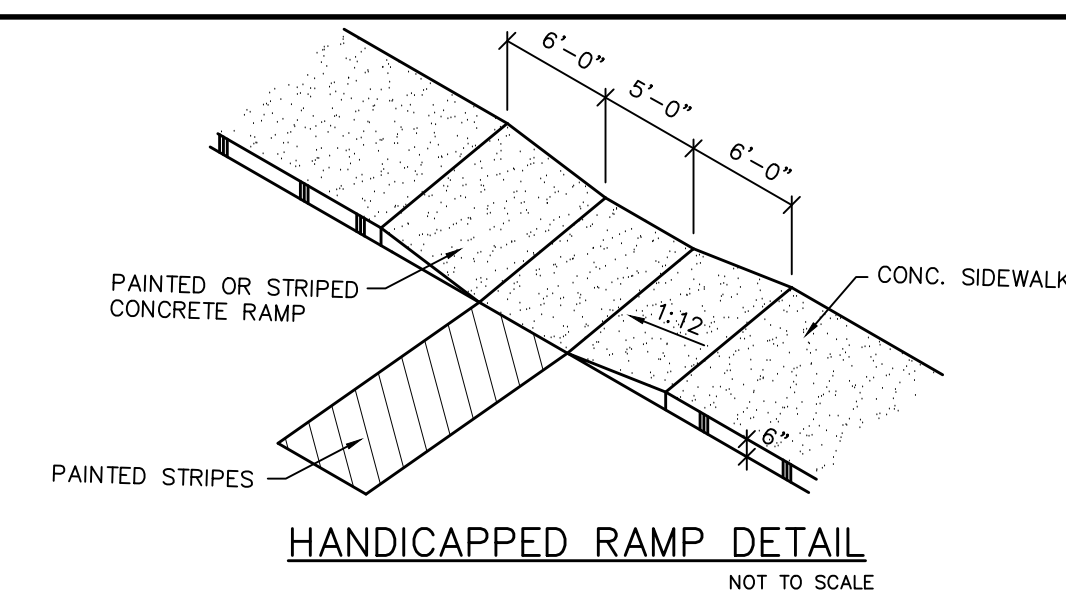
CITY OF ST. CHARLES  
ENGINEERING DEPARTMENT  
ST. CHARLES, MISSOURI

WATER AND SEWER SEPARATION DETAIL

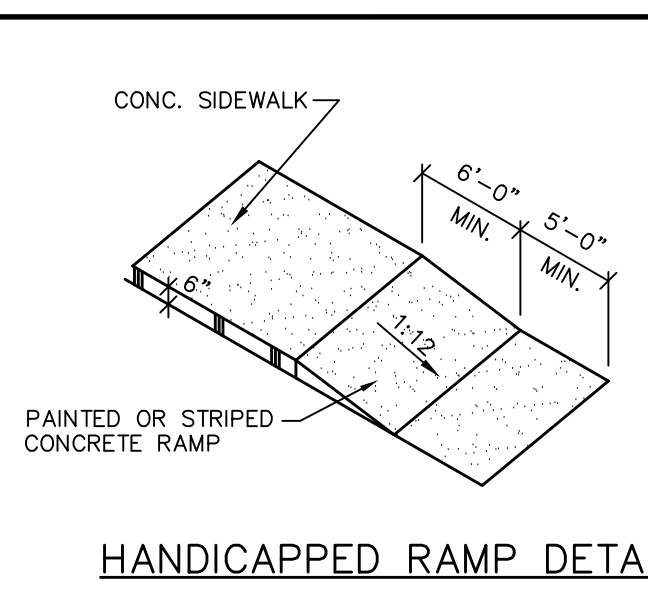
Ductile Iron Pipe installation shall follow the Ductile Iron Research Association (DIPRA) guide line.  
The Installation of PVC Pipe shall follow the Uni-Bell PVC Pipe Association Handbook of PVC Design and Construction.



CONCRETE PAVEMENT DETAIL  
NOT TO SCALE



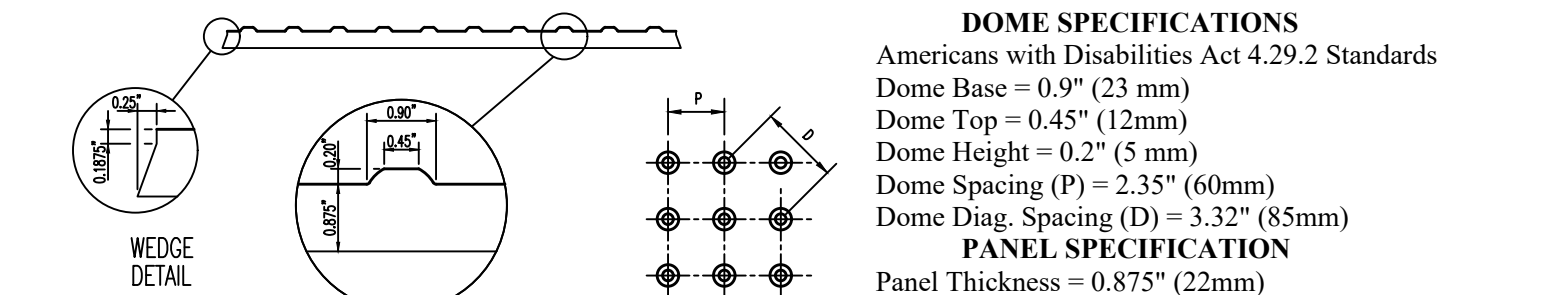
HANDICAPPED RAMP DETAIL  
NOT TO SCALE



HANDICAPPED RAMP DETAIL  
NOT TO SCALE

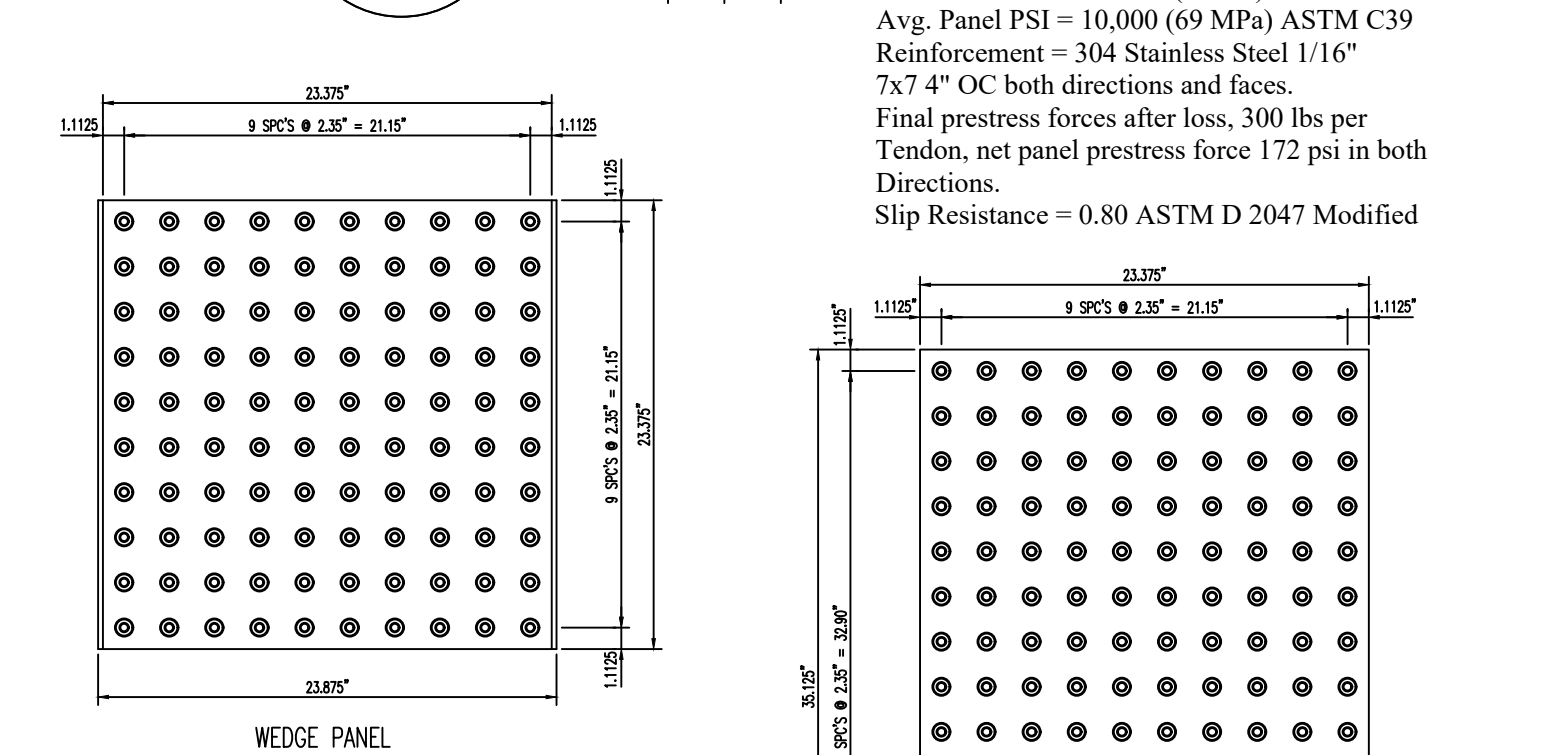
CASTinTACT™ Warning Panels are the latest innovation in detectable warning systems. A long term solution meeting both state and federal guidelines for handicap detection. CASTinTACT Warning Panels are designed for exterior use at the bottom of curb ramps and other locations such as depressed corners, raised crosswalks and raised intersections, borders of median and islands, at edge of transit platforms and where railroad tracks cross the sidewalk to warn people with visual impairments of potential hazards. Detectable warnings must be installed across the full width of ramps, and 24" minimum in length up the ramp. CASTinTACT Warning Panels are integrally colored to provide visual contrast with the adjacent walking surface.

CASTinTACT™ are cementitious based concrete panels with the same coefficient of expansion as the concrete base. 7/8" thick high strength concrete reinforced with stainless steel prestress strands resulting in a high strength and crack resistant panel. Abrasion resistant domes are achieved with an engineered mix design of granite and quartz aggregate that produces an average compressive strength of 10,000 psi (69 MPa). CASTinTACT are quality controlled manufactured to produce a dense, freeze thaw durable panel. Architectural concrete finished for safe wet and dry slip resistance. Concrete surfaces are easily maintained and cleaned with pressure washing.



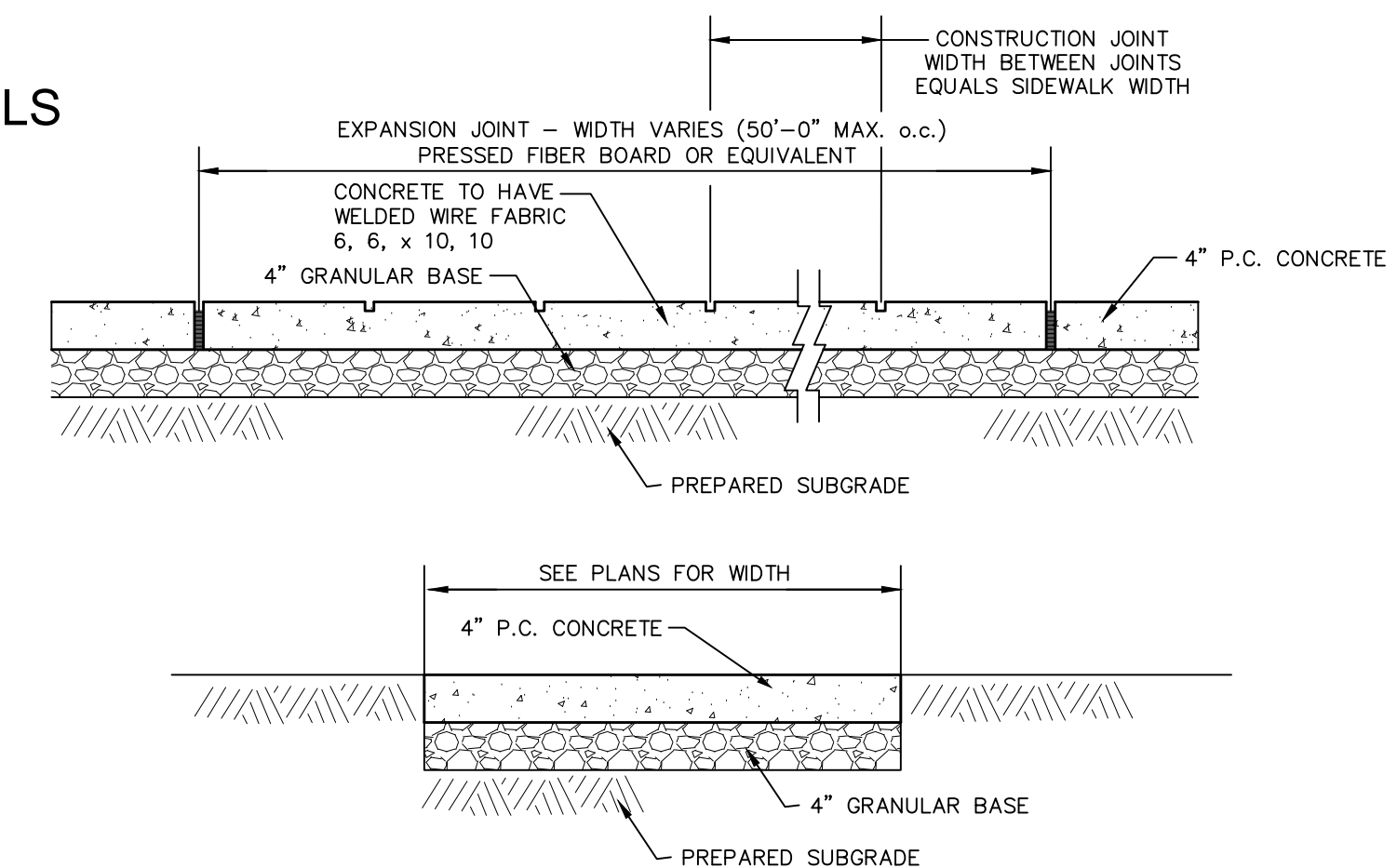
**DOMES SPECIFICATIONS**

- Americans with Disabilities Act 4.29.2 Standards
- Dome Base = 0.9" (23 mm)
- Dome Top = 0.45" (12mm)
- Dome Height = 0.2" (5 mm)
- Dome Spacing (P) = 2.35" (60mm)
- Dome Dia. Spacing (D) = 3.32" (85mm)
- Panel Thickness = 0.875" (22mm)
- Avg. Panel PSI = 10,000 (69 MPa) ASTM C39
- Reinforcement = 304 Stainless Steel 1/16"
- 7x7 4" OC both directions and faces.
- Final prestress forces after loss, 300 lbs per Tendon, net panel prestress force 172 psi in both Directions.
- Slip Resistance = 0.80 ASTM D 2047 Modified



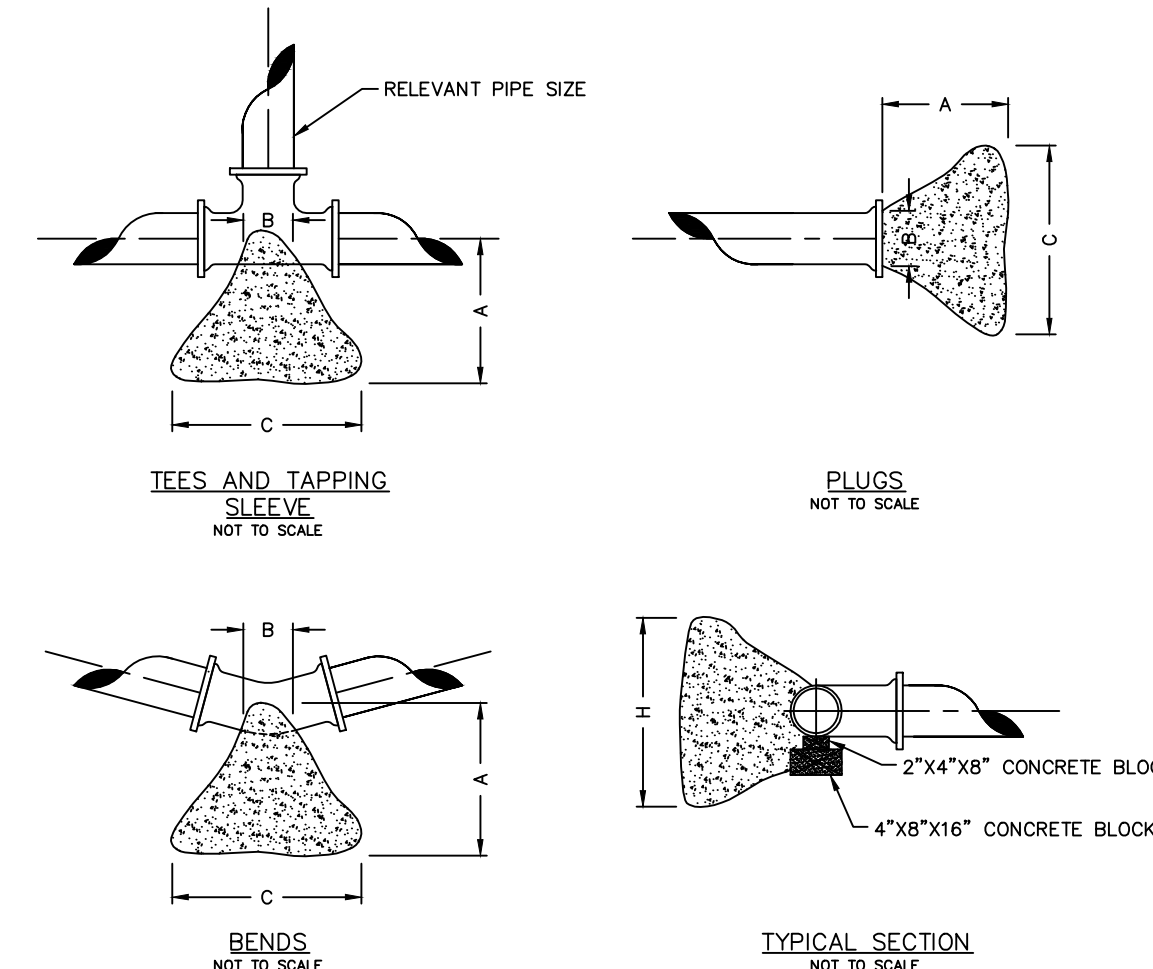
**PANEL SIZES AVAILABLE**  
Wedge Edge Panel includes 1'x2', 2'x2', 2.5'x2', 3'x2'  
Square Edge Panel includes 2'x2', 3'x2' and 4'x2'  
Sticking colors are yellow, red, black and white.  
Custom colors special order.

TYPICAL DETAIL OF DETECTABLE WARNING SURFACE  
NOT TO SCALE



NOTE:  
NYOPLAST, PWS#2 AND  
CITY OF ST. CHARLES DETAILS  
ARE REFERENCE ONLY

NOTE: THIS DETAIL IS FROM PWS#2



**THRUST BLOCK DIMENSIONS - INCHES**

PIPE DIA.	ALL FTGS.			90 DEGREE BEND		45 DEGREE BEND		22-1/2 BEND		11-1/4 BEND	
	A	B	C	H	C	H	C	H	C	H	
4	14	4	24	12	26	15	18	12	12	12	12
6	18	6	36	18	36	24	30	18	24	12	12
8	20	8	36	30	42	36	36	24	24	18	12
10	20	10	48	36	66	36	36	28	24	18	18
12	24	12	68	36	82	42	52	36	40	24	18

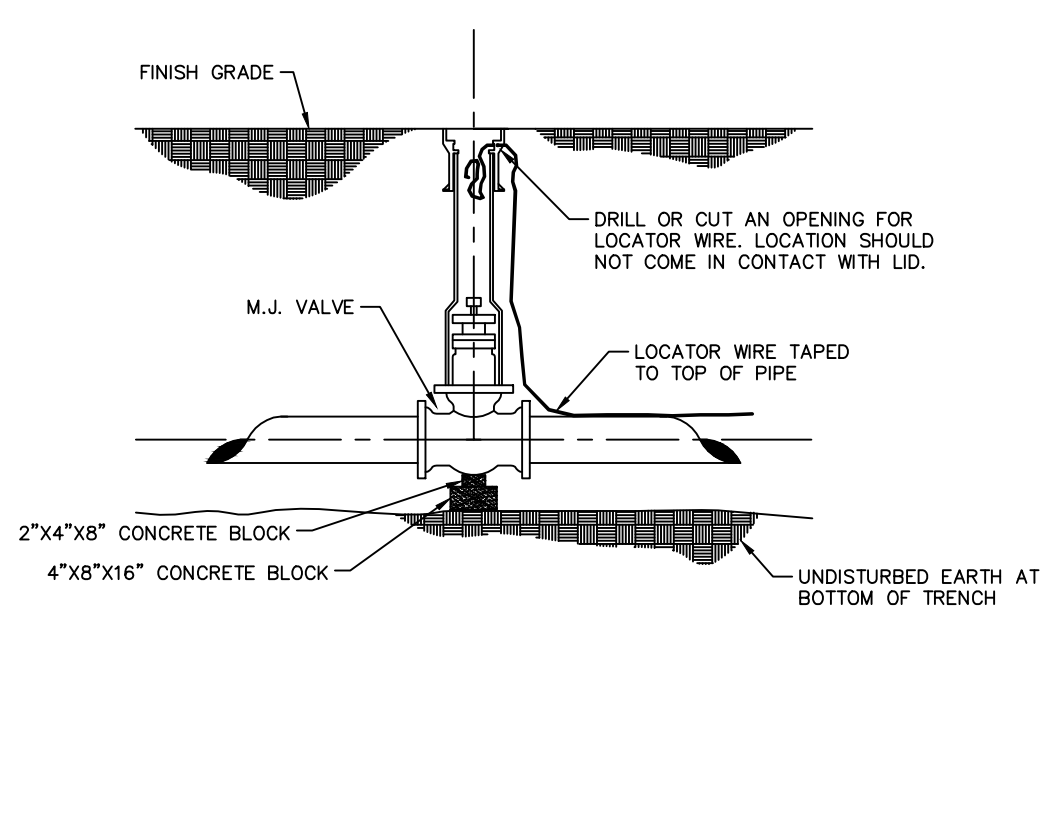
**NOTE**

FOR FITTINGS LARGER THAN 12", SPECIAL RESTRAINT DESIGNS ARE REQUIRED.

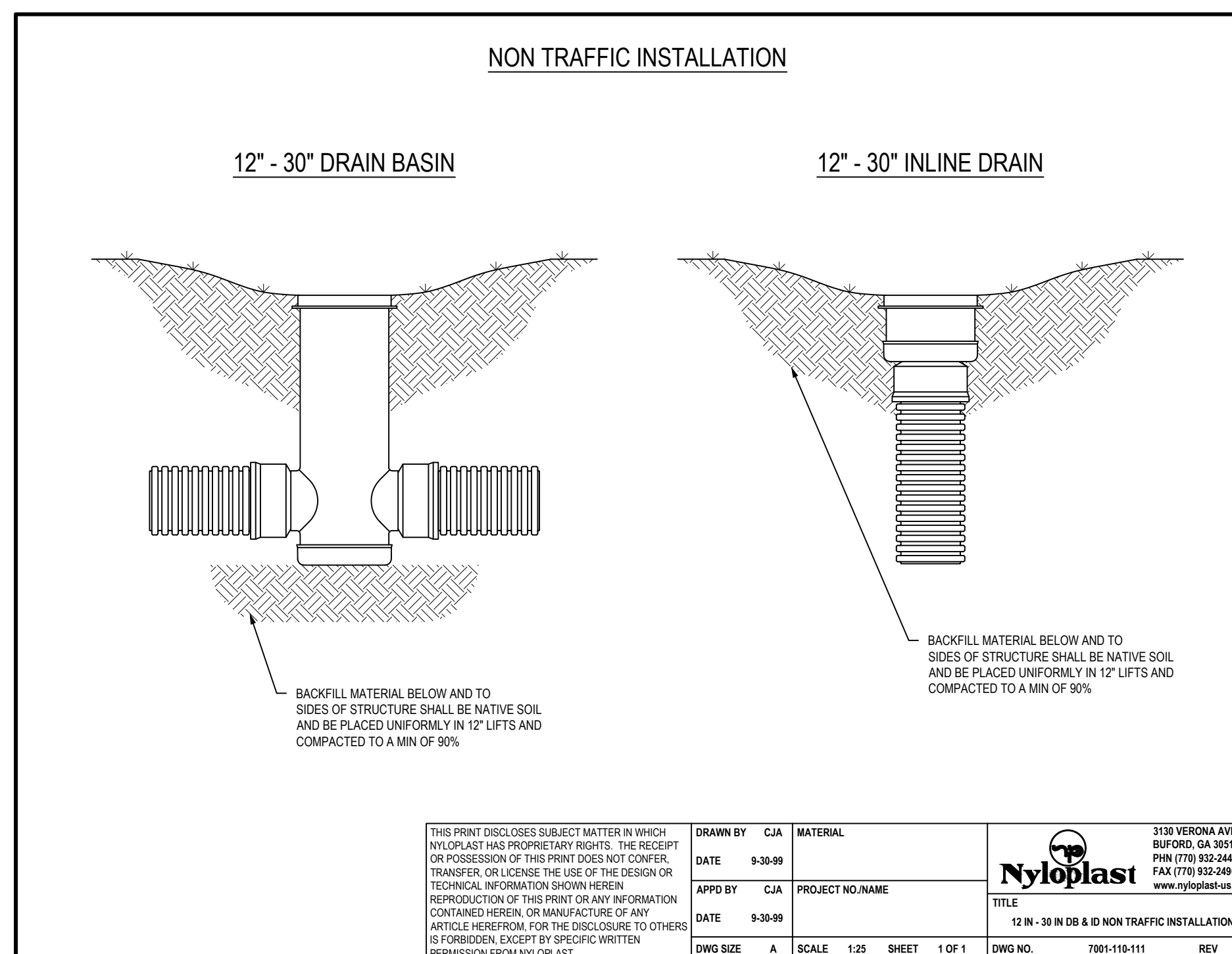
HORIZONTAL THRUST BLOCKING  
DETAIL "C"

NOTE: THIS DETAIL IS FROM PWS#2

Buffalo box is an acceptable product to use.  
Tyler 562-S and 564-S are acceptable products.



GATE VALVE DETAIL  
NOT TO SCALE  
**DETAIL "D"**



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DRAWN BY: GJA MATERIAL: NYLOPLAST  
DATE: 9-26-09 PWT (781) 832-2440  
APP'D BY: GJA PROJECT NO. NAME: NYLOPLAST  
DATE: 9-26-09 FAX (781) 832-2495  
DWG SIZE: A SCALE: 1:25 SHEET: 1 OF 1 DWG NO.: 788-118-111 REV: B

**ZURN P4-BZ**  
4-1/8" (103.5) WIDE BRONZE DECORATIVE GRATE  
SPECIFICATION SHEET TAG \_\_\_\_\_

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice

Please Check	Item No.	Part Number	Item I.D.
<input checked="" type="checkbox"/>	1	64304	P4-BZ

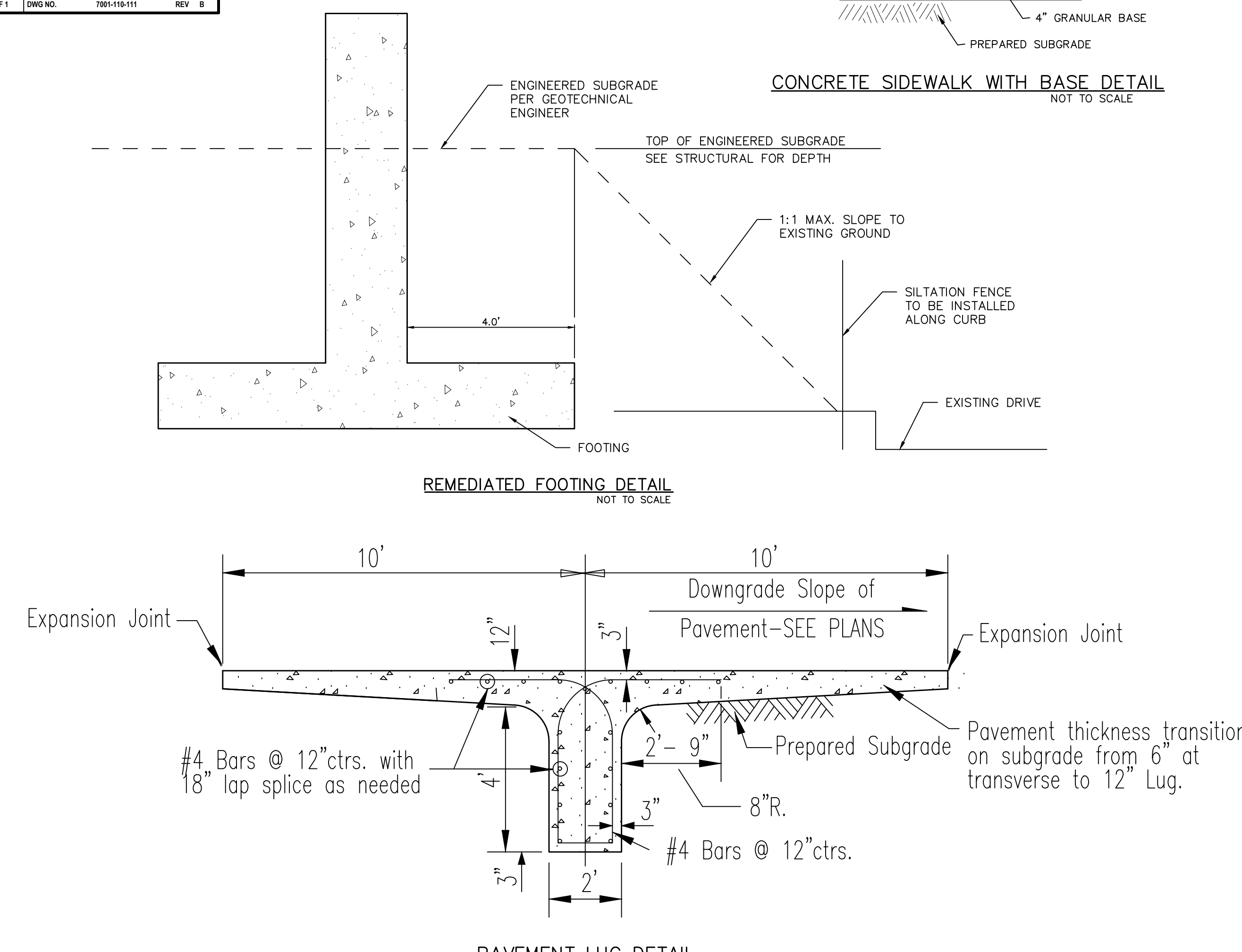
**GRATE ENGINEERING SPECIFICATION:** ZURN P4-BZ  
20" [1016mm] X 4-1/8" [106mm] Bronze Decorative Grate weighing 4.5 lbs. per linear foot [6.7 kg/m]. The grate has an open area of 11.5 square inches per linear foot [243.4 cm<sup>2</sup>/m] DIN Rating of Class A, ANSI rating of Light-Duty.

BZ - Bronze Decorative Grate	
Material:	Bronze
DIN Rating:	Class A
Weight:	4.5 lbs/ft. [6.7 kg/m]
Open Area:	11.5 in <sup>2</sup> /ft. [243.4 cm <sup>2</sup> /m]
ANSI Rating:	Light-Duty
Application:	Decorative Heel-Proof
Slot Width/Hole Size:	0.25" [6.4mm]
ADA:	No
H-20:	No
FAA:	No

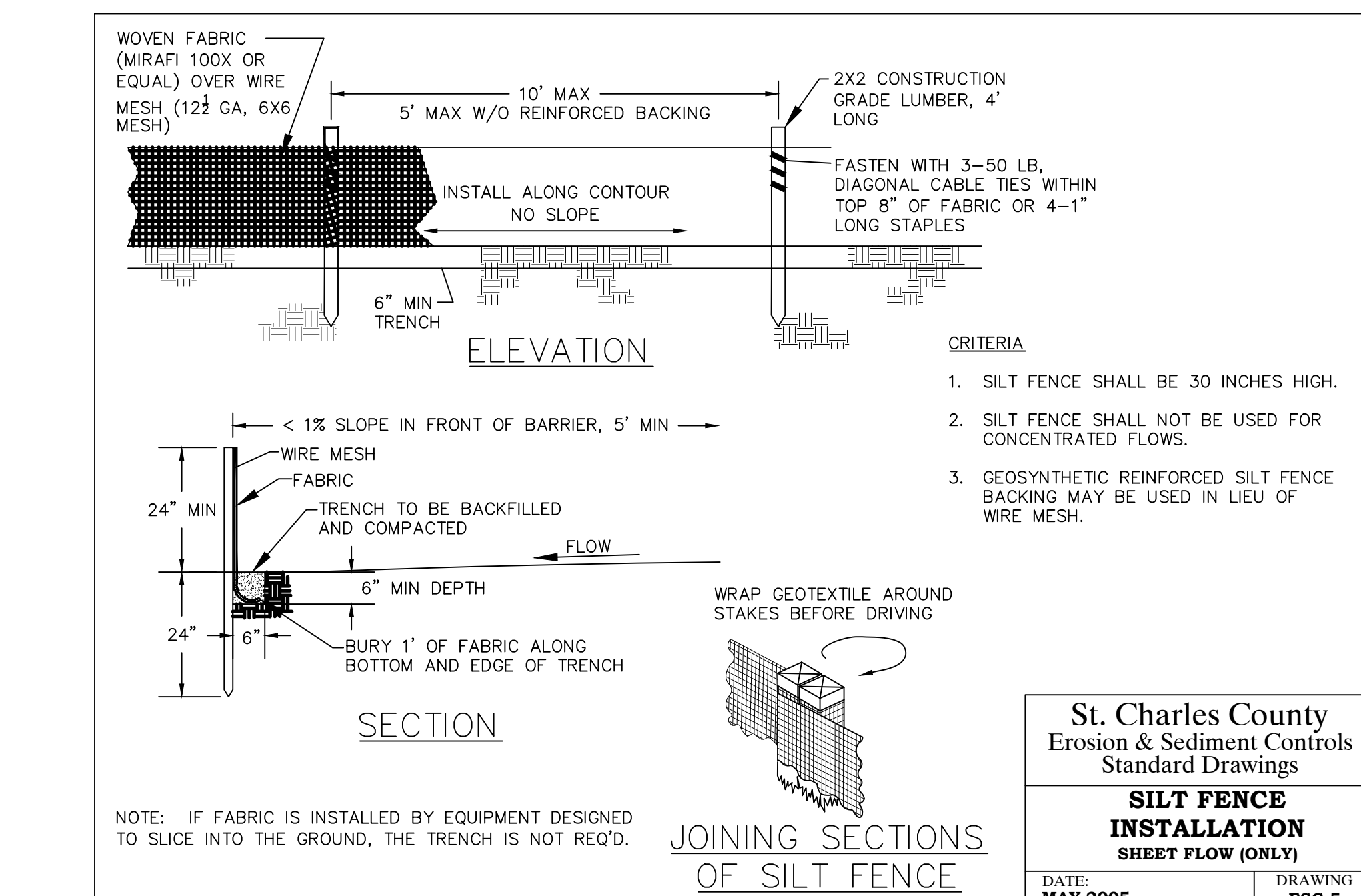
\* Regularly furnished unless otherwise specified.  
Zurn Industries, LLC | Specification Drainage Operation  
1801 Pittsburgh Avenue, Erie, PA, U.S.A. 16502 - Ph: 855-855-9876, Fax 814-454-7020  
In Canada: Zurn Industries Limited  
3544 Neuhar Drive, Mississauga, Ontario L4Y 1L2 - Ph: 905-405-8272, Fax 905-405-1392  
www.zurn.com

Rev: B  
Date: 11/18/15  
D.N. No. 132494  
Prod. / Dwg. No. FT955

Page 1 of 8



PAVEMENT LUG DETAIL  
NOT TO SCALE



- CRITERIA**
- SILT FENCE SHALL BE 30 INCHES HIGH.
  - SILT FENCE SHALL NOT BE USED FOR CONCENTRATED FLOWS.
  - GEOSYNTHETIC REINFORCED SILT FENCE BACKING MAY BE USED IN LIEU OF WIRE MESH.

St. Charles County  
Erosion & Sediment Controls  
Standard Drawings  
**SILT FENCE  
INSTALLATION  
SHEET FLOW (ONLY)**

DATE: MAY 2005 DRAWING: ESC-5

PROJECT TITLE:  
North High School  
Building Addition

ENGINEERING  
DRAWING  
STAMPING



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I hereby certify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or attached to be used for any part or parts of the architectural or engineering project.

CLIFFORD L. HEITMANN  
REGISTERED PROFESSIONAL ENGINEER  
No. 22812  
Civil Engineer  
E29817

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Surveying Authority No. 020144  
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Bid / Permit Set 03/20/2023  
Addendum 2 04/19/2023  
Addendum 3 04/21/2023

Developer / Owner:  
Fort Zumwalt School District  
555 E. Terra Ln  
O'Fallon, MO 63367

P+Z No. #22-010174  
APPROVAL DATE: 12-01-22

City No. #

Page No. #

C10

Box Project #03-126181 ISSUE#03-22-23

Construction Details