

A SET OF AS-BUILT PLANS FOR MOUNT HOPE ELEMENTARY SCHOOL STORM SEWER EXTENSION

A TRACT OF LAND BEING PART OF SECTION 13, TOWNSHIP 47 NORTH, RANGE 2 EAST, AND PART OF SECTION 18, TOWNSHIP 47 NORTH, RANGE 2 EAST OF THE FIFTH PRINCIPAL MERIDIAN ST. CHARLES COUNTY, MISSOURI

PRINCIPLES & STANDARDS:

- All excavations, grading, or filling shall have a finished grade not to exceed a 3:1 slope (33%). Steeper grades may be approved by the designated official if the excavation is through rock or the excavation or the fill is adequately protected (a designed head wall or toe wall may be required). Retaining walls that exceed a height of four (4) feet shall require the construction of safety guards as identified in the appropriate section(s) of the adopted BOCA Codes and must be approved by the Building Department. Permanent safety guards will be constructed in accordance with the appropriate section(s) of the adopted BOCA Codes.
- Sediment and erosion control plans for sites that exceed 20,000 square feet of grading shall provide for sediment or debris basins, silt traps or filter, stacked straw bales or other approved measures to remove sediment from run-off waters. The design to be approved by the Designated Official. Temporary siltation control measures (structural) shall be maintained until vegetative cover is established at a sufficient density to provide erosion control on the site.
- Where natural vegetation is removed during grading, vegetation shall be reestablished in such a density as to prevent erosion. Permanent type grasses shall be established as soon as possible during the next seeding period after grading has been completed.
- When grading operations are completed or suspended for more than 14 days permanent grass must be established at sufficient density to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the City Engineer's recommendations. All finished grades (areas not to be disturbed by future improvement) in excess of 20% slopes (5:1) shall be mulched and topped at the rate of 100 pounds per 1,000 square feet when seeded.
- Provisions shall be made to accommodate the increased runoff caused by changed soils and surface conditions during and after grading. Unvegetated open channels shall be designed so that gradients result in velocities of 2 fps (feet per second) or less. Open channels with velocities more than 2 fps and less than 5 fps shall be established in permanent vegetation by use of commercial erosion control blankets or lined with rock rip rap or concrete or other suitable materials as approved by the City Engineer. Detention basins, diversions, or other appropriate structures shall be constructed to prevent velocities above 5 fps.
- The adjoining ground to development sites (lots) shall be provided with protection from accelerated and increased surface water, all from erosion, and any other consequence of erosion. Run-off water from developed areas (parking lots, paved sites and buildings) above the area to be developed shall be directed to diversions, detention basins, concrete gutters and/or underground outlet systems. Sufficiently anchored straw bales may be temporarily substituted with the approval of the City Engineer.
- Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas or driveways set back a minimum of 25 feet from the top of the existing stream bank. The watercourse shall be maintained and made the responsibility of the subdivision trustees or in the case of a site plan by the property owner. Permanent vegetation should be left intact. Variances will include designed stream bank erosion control measures and shall be approved by the City Engineer, FEMA and U.S. Army Corps of Engineers guidelines shall be followed where applicable regarding site development areas designated as flood plains and wetlands.
- All lots shall be seeded and mulched at the minimum rates defined in Appendix A or sodded before an occupancy permit shall be issued except that a temporary occupancy permit may be issued by the Building Department in cases of undue hardship because of unfavorable ground conditions.

VEGETATIVE ESTABLISHMENT For Urban Development Sites APPENDIX A

Seeding Rates:

Permanent:

Tall Fescue - 80 lbs./ac.
Smooth Bromes - 100 lbs./ac.
Combined Fescue @ 40 lbs./ac. and Bromes @ 50 lbs./ac.

Temporary:

Wheat or Rye - 150 lbs./ac. (3.5 lbs. per 1,000 square foot)
Oats - 120 lbs./ac. (2.75 lbs. per 1,000 square foot)

Seeding Periods:

Fescue or Bromes - 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 1,000 sq. feet (4,356 lbs. per acre)

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.

O'FALLON NOTES

- 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.
- All filled places under proposed storm and sanitary sewer, proposed roads, and/or paved areas shall be compacted to 90% of the maximum density as determined by the Modified AASHTO T-180 Compaction Test, or 95% of maximum density as determined by the standard Proctor Test AASHTO T-99. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations. All filled places in proposed roads shall be compacted from the bottom up. All test shall be verified by a soils engineer concurrent with grading and backfilling operations. Ensure the moisture content of the soil in the fill areas is to correspond 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. Proof rolling may be required to verify soil stability at the discretion of the City of O'Fallon.
- No area shall be cleared without the permission of the Project Engineer.
- The City of O'Fallon shall be notified 48 hours prior to construction for coordination and inspection.
- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions.
- All construction and materials shall conform to the current construction standards of the City of O'Fallon.
- Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.
- No slopes shall exceed 3(Horizontal) : 1(Vertical).
- 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, stacked 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 the City of O'Fallon. The Permittee's responsibilities include all design and implementation as required to prevent erosion and the depositing of silt. The City of O'Fallon may at their option direct the Permittee in his methods as deemed fit to protect property and improvements. Any depositing of silts or mud on new or existing pavement shall be removed immediately. Any depositing of silts or mud in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the City of O'Fallon.
- Erosion control systems shall not be limited to what is shown on the plan. Whatever means necessary shall be taken to prevent siltation and erosion from entering natural streams and adjacent roadways, properties and ditches.
- All graded areas that are to remain bare for over 2 weeks shall be seeded and mulched per DNR requirements.
- Trees, organic debris, rubble, foundations and other deleterious material shall be removed for the site and disposed in compliance with all applicable laws and regulations. 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.
- Soil proctor shall be provided to the City of O'Fallon Construction Inspectors prior to the start of grading operations.
- Marking to be provided on storm sewer inlets. The City will allow the following markers and adhesive procedures only as shown in the table below. "Peel and Stick" adhesive pads will not be allowed.

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website
ACP International	3 7/8"	Epoxy	Crystal Cap	No Dumping Drains To Waterways (SD-W-CC)	www.acpinternational.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard	No Dumping Drains To Stream (#SDS)	www.dasmanufacturing.com

ESTIMATED CONSTRUCTION & GRADING SCHEDULE

-INSTALL EROSION CONTROL	04/26/10
-SEWER CONSTRUCTION	04/27/10-04/28/10
-FINISH GRADING, SEED AND MULCH	04/29/10

NOTE: DATES MAY VARY DUE TO INCLEMENT WEATHER.

A PERIOD OF ONE (1) YEAR FROM THE DATE OF THE PLANNING DEPARTMENT'S APPROVAL OF THE SITE PLAN IS PERMITTED. ANY COMPLETION DATE LONGER THAN THE ONE (1) YEAR PERIOD, OR AN EXTENSION OF THE TIME THEREOF, MUST BE REQUESTED IN WRITING BY THE DESIGN CONSULTANT AND APPROVED BY BOTH THE DIRECTOR OF PLANNING AND THE CITY ENGINEER.

NOTE: TEMPORARY VEGETATION TO BE IN PLACE DURING THE WINTER UNTIL THE TIME PERMANENT SEEDING AND MULCH CAN BE COMPLETED.

GRADING NOTES:

- A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soils tests shall be verified by the Geotechnical Engineer concurrent with the grading and back filling operations.
- The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied therefrom, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.
- The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
- All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
- A sediment control plan that includes monitored and maintained sediment control basins and/or straw bales should be implemented as soon as possible. No graded area is to be allowed to remain bare over the winter without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and siting up existing downstream storm drainage system.
- Any existing trash and debris currently on this property must be removed and disposed of off-site.
- Soft soil in the bottom and banks of any existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on storm sewer locations.
- Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds; the grubbing and removal of roots and other surface obstructions from the site; and the demolition and removal of any man-made structures. The unsuitable material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly disc'd prior to the placement of any fill. The Soils Engineer shall approve the discing operation.
- Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.
- The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner and the City of O'Fallon Construction Inspection Division at regular intervals.
- The Soils Engineer shall notify the Contractor of rejection of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.
- All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted in accordance with the specifications given below. Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches, cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.
- The surface of the fill shall be finished so that 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.
- All erosion control systems are to be inspected and corrected weekly, especially within 48 hours of any rainstorm resulting in 1/2" of rain or more. Any silt or debris leaving the site and affecting public right-of-ways or storm drainage facilities shall be cleaned up within 24 hours after end of the storm.
- No slope shall be steeper than 3(Horizontal):1(Vertical). All slopes shall be sodded or seeded and mulched.
- The location of and details for all siltation control devices (silt fences and sediment basins) must follow the "St. Charles County Soil and Water Conservation District Erosion and Sediment Control" guidelines.

CONSTRUCTION WORKING HOURS:

Construction work shall only be allowed during the following hours:

October 1 - May 31	7:00 A.M. to 7:00 P.M.	Monday - Sunday
June 1 - September 30	6:00 A.M. to 8:00 P.M.	Monday - Friday
	7:00 A.M. to 8:00 P.M.	Saturday and Sunday

* Construction work to be done outside of these hours requires prior written approval from the City Administrator or City Engineer.

STANDARD SYMBOLS & ABBREVIATIONS

TREE OR BUSH	○
LIGHT POLE	⊙
SANITARY SEWER & MANHOLE	⊕
STORM SEWER & INLET	⊕
MAILBOX	□
ELECTRIC LINE	—E—
GAS LINE	—G—
WATER LINE	—W—
TELEPHONE LINE	—T—
CABLE TV LINE	—CATV—
OVERHEAD WIRE	—OHW—
UTILITY POLE	⊕
UTILITY POLE W/ DOWN GUY	⊕
FIRE HYDRANT	⊕
WATER VALVE	⊕
WATER METER	⊕
GAS VALVE	⊕
ROAD SIGN	⊕
TELEPHONE PEDESTAL	⊕
FENCE	—X—

DEVELOPMENT NOTES:

- Area of tract: 11.78 Acres
Disturbed Area: 0.08 Acres
- Existing Zoning: R-1(City of O'Fallon)
- Required building & parking setbacks:
Front yard 25 feet
Side yard 5 feet
Rear yard 25 feet
Parking 10 feet along lot perimeter
- This property is served by the following utilities:
AmeriNet 800-552-7583
CenturyTel Telephone Company 866-261-2317
City of O'Fallon Water 636-281-2858
City of O'Fallon Sewers 636-281-2858
Laclede Gas Company 314-621-6960
- Flood Note:
According to the Flood Insurance Rate Map of the City of O'Fallon, Missouri, (community panel number 29183C 0230 F, dated March 17, 2003). This tract lies within Zone X. Zone X is defined as an area of minimal flood hazard.
- Current Owner:
Fort Zumwalt School District
110 Virgil Street
O'Fallon, MO 63366
(636) 272-6620
- Site Coverage:
Total: 513,289 sq.ft.=100%
Buildings: 57,402 sq.ft.=11.18%
Pavement: 96,377 sq.ft.=18.78%
Greenspace: 359,509 sq.ft.=70.04%
- Reference Benchmark: ELEV (USGS Datum) 459.35; Cut square on the northwest corner of the headwall of a 4x7 concrete box. Missouri State Highway P. Station 5064.64 - 20.5' left
Site Benchmark: ELEV=562.02; Sanitary Manhole at the end of Crestwood Lane at the east property line.
- All siltation control devices will be in accordance with the St. Charles County Soil and Water Conservation District Erosion and Sediment Control guidelines.
- Storm water runoff calculations for 100 year storm:
Increase in Impervious Area to Royal Oaks Basin = 7,066sq. ft. (0.16Acres)
0.16 Acres X (6.08-2.95) = 0.50c.f.a.
Approximate Area of Royal Oaks Subdivision = 53.7 Acres
53.7Acres X 4.17c.f.a./Acres = 223.93c.f.a. runoff from subdivision
0.50c.f.a./223.93c.f.a. = 0.22% increased flow to basin
- 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.
- HDPE Pipe is to be N-12WT or equal and to meet ASTM F1417 water tight field test.
- Granular materials and earth materials associated with new construction beyond the pavement 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 seven and one-half (7.5) foot centers with the jetting probe centered over and parallel with the direction of the pipe. Trench widths greater than ten (10) feet will require multiple probes every seven and one-half (7.5) foot centers.
a. Depth. Trench backfill less than eight (8) feet in depth shall be probed to a depth extending to half the depth of the trench backfill, but not less than three (3) feet. Trench backfill greater than eight (8) feet in depth shall be probed to half the depth of the trench backfill but not greater than eight (8) feet.
b. Equipment. The jetting probe shall be a metal pipe with an exterior diameter of one and one-half (1.5) to two (2) inches.
c. Method. Jetting shall be performed from the low surface topographic point and proceed toward the high point, and from the bottom of the trench backfill towards 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 ditch without first saturating the trench.
d. Surface bridging. The contractor shall identify the locations of the surface bridging (the tendency for the upper backfill crust to arch over the trench rather than collapse and consolidate during the jetting process). The contractor shall breakdown the bridged areas using an appropriate method such as wheels or bucket of a backhoe. When the surface crust is collapsed, the void shall be backfilled with the same material used as trench backfill and jetted. Compaction of the materials within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.
- The existing swale along the property line shall be regraded to provide positive drainage and to connect to the proposed swale to direct storm water into the proposed area inlet.

AS-BUILTS FOR SEWERS

THE EXISTING SEWER LENGTHS, SIZES, FLOWLINES, DEPTHS OF STRUCTURES AND SEWERS AND LOCATIONS WITH RESPECT TO EXISTING OR PROPOSED EASEMENTS HAVE BEEN MEASURED. THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS.

ALL PUBLIC SEWERS ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS EXCEPT AS FOLLOWS:

SIGNED:

P.E./A.S.



DATE

P&Z 'NO. 99-108.02 APPD. 7/17/09

MOUNT HOPE ELEMENTARY SCHOOL
STORM SEWER
PREPARED FOR:
FORT ZUMWALT SCHOOL DISTRICT
110 VIRGIL STREET
O'FALLON, MO 63366

DISCLAIMER OF RESPONSIBILITY
I hereby disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architectural or engineering project or survey other than those authenticated by my seal.

REVISIONS

NO.	DATE	DESCRIPTION



ENGINEERING
PLANNING
SURVEYING

221 Point West Blvd.
St. Charles, MO 63301
636-926-5552
FAX 926-1718

07/12/10

DATE

03-12485A

PROJECT NUMBER

1 OF 2

SHEET

12485A ASB

FILE NAME

CLM

DRAWN

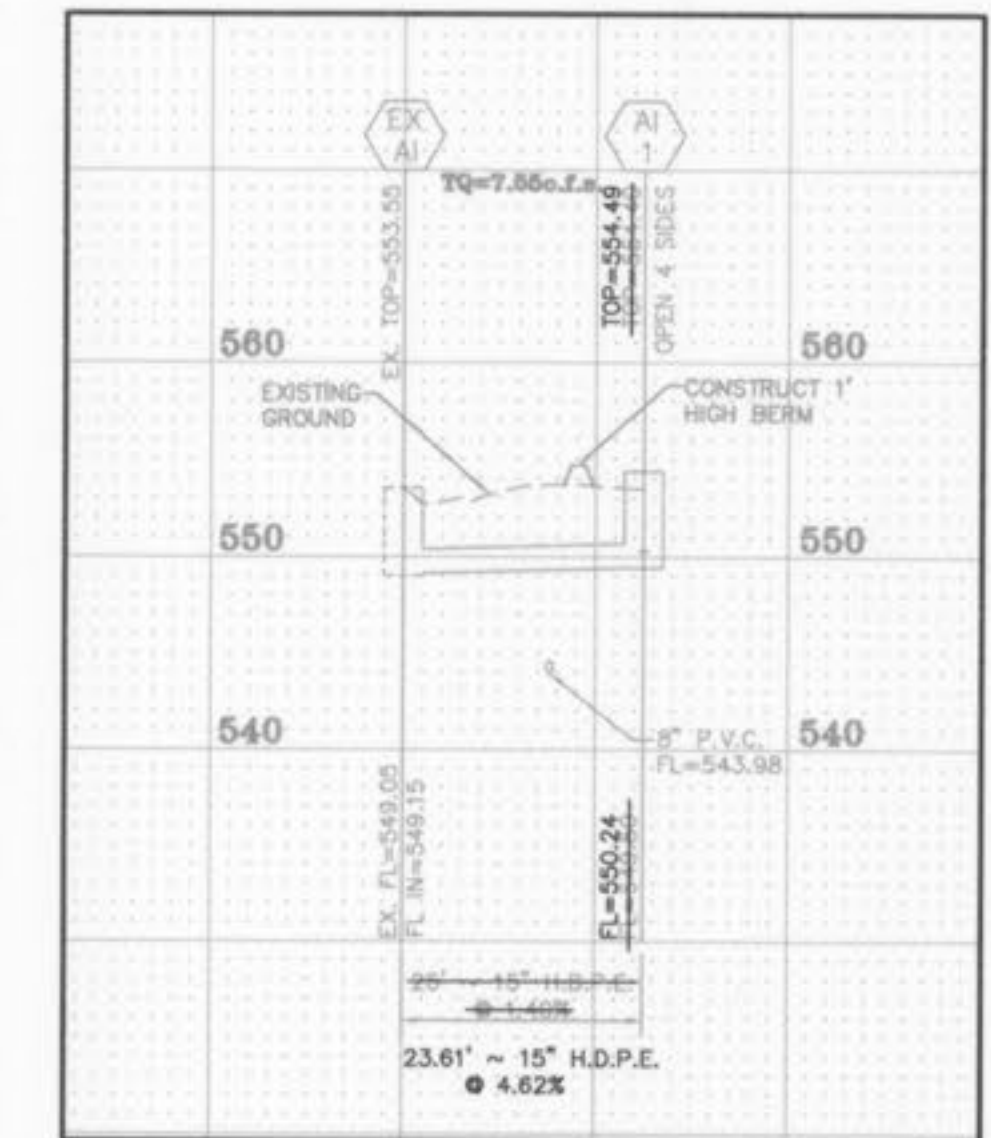
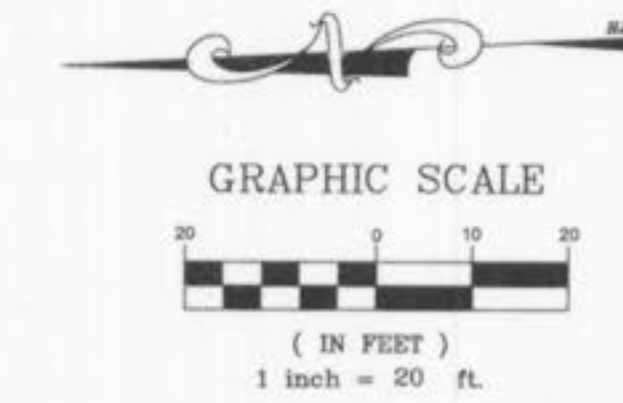
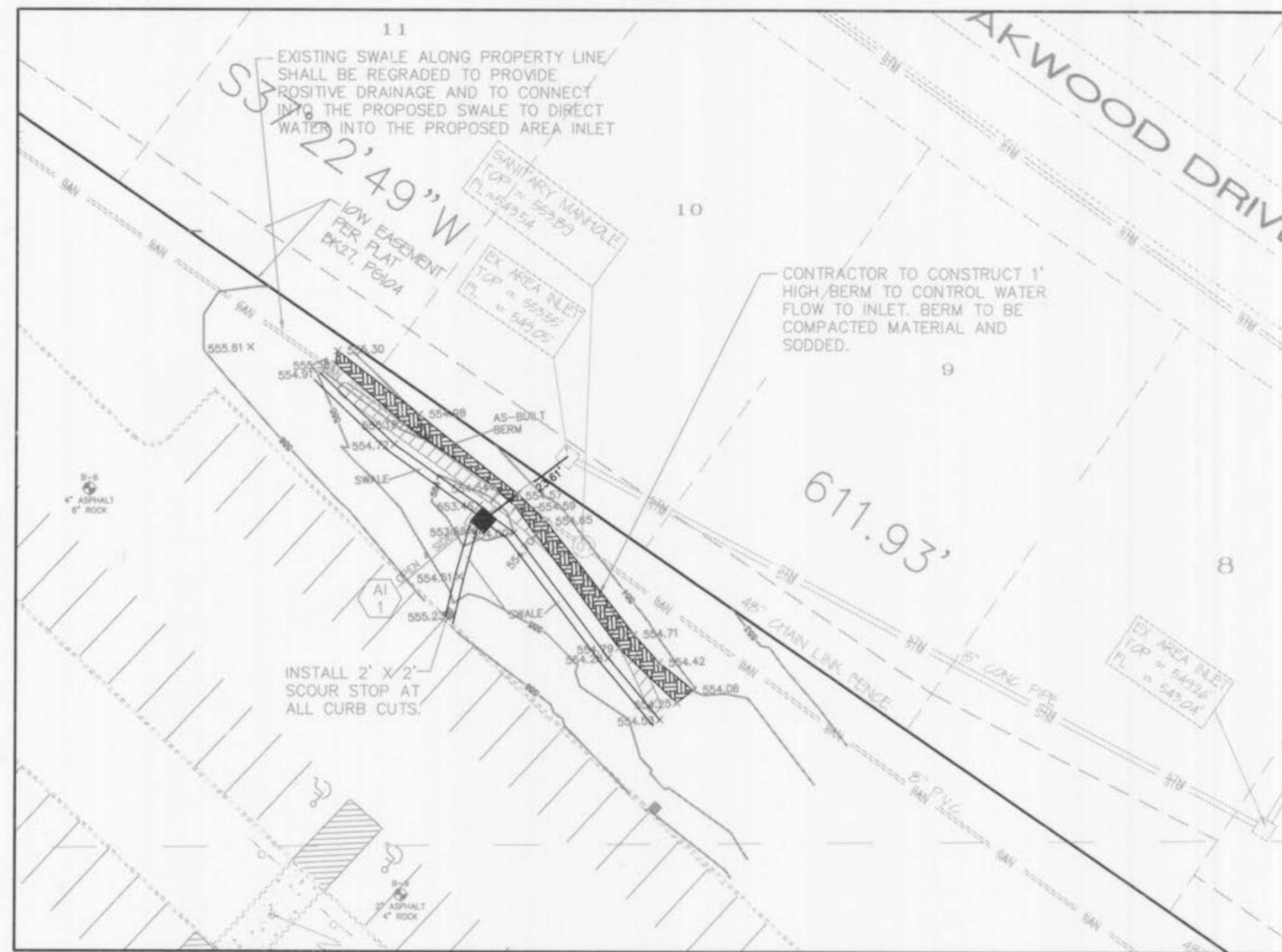
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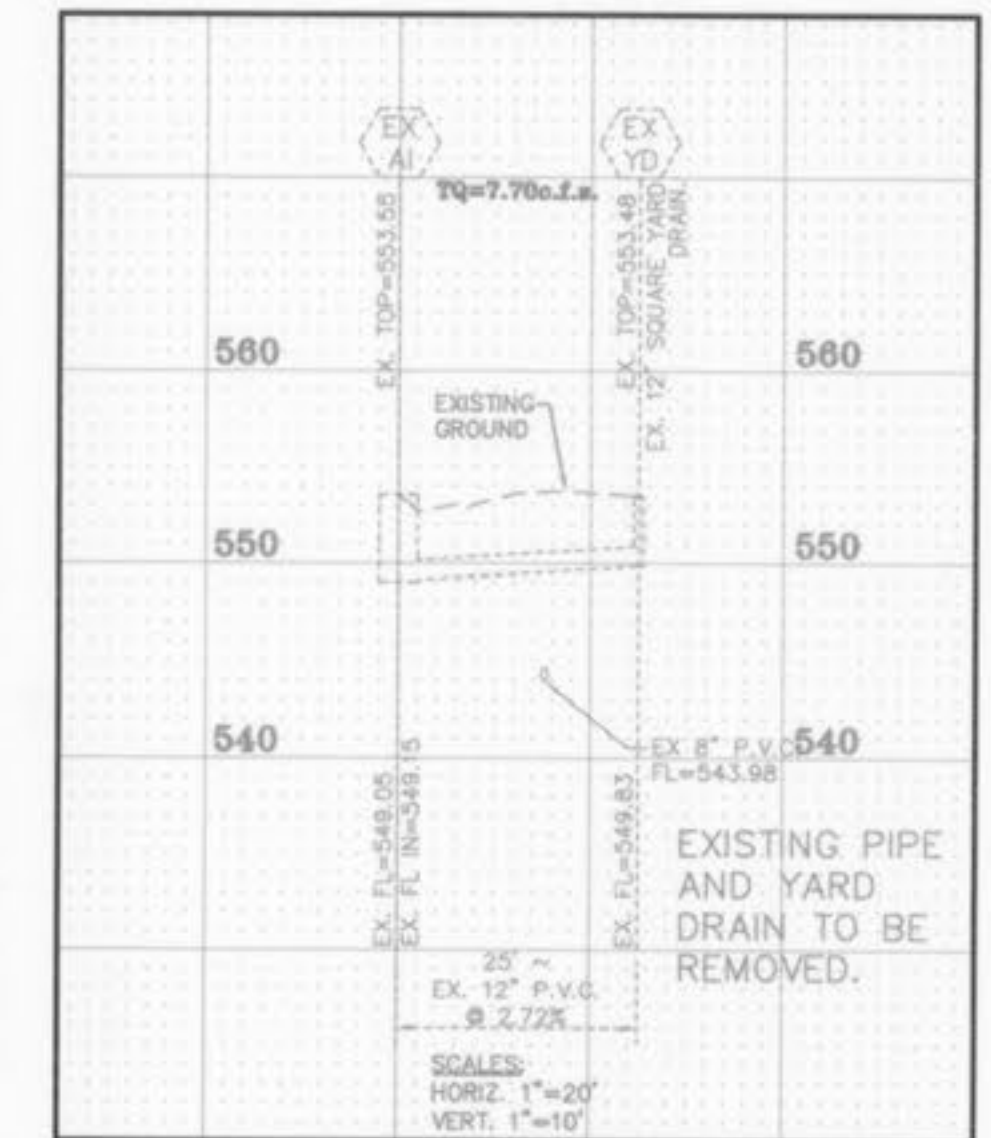


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ASBUILTS ADDED JUNE, 2010.



PROPOSED STORM SEWER



EXISTING STORM SEWER

AS-BUILTS ADDED
 JUNE, 2010



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.

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