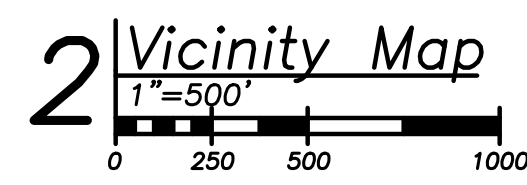
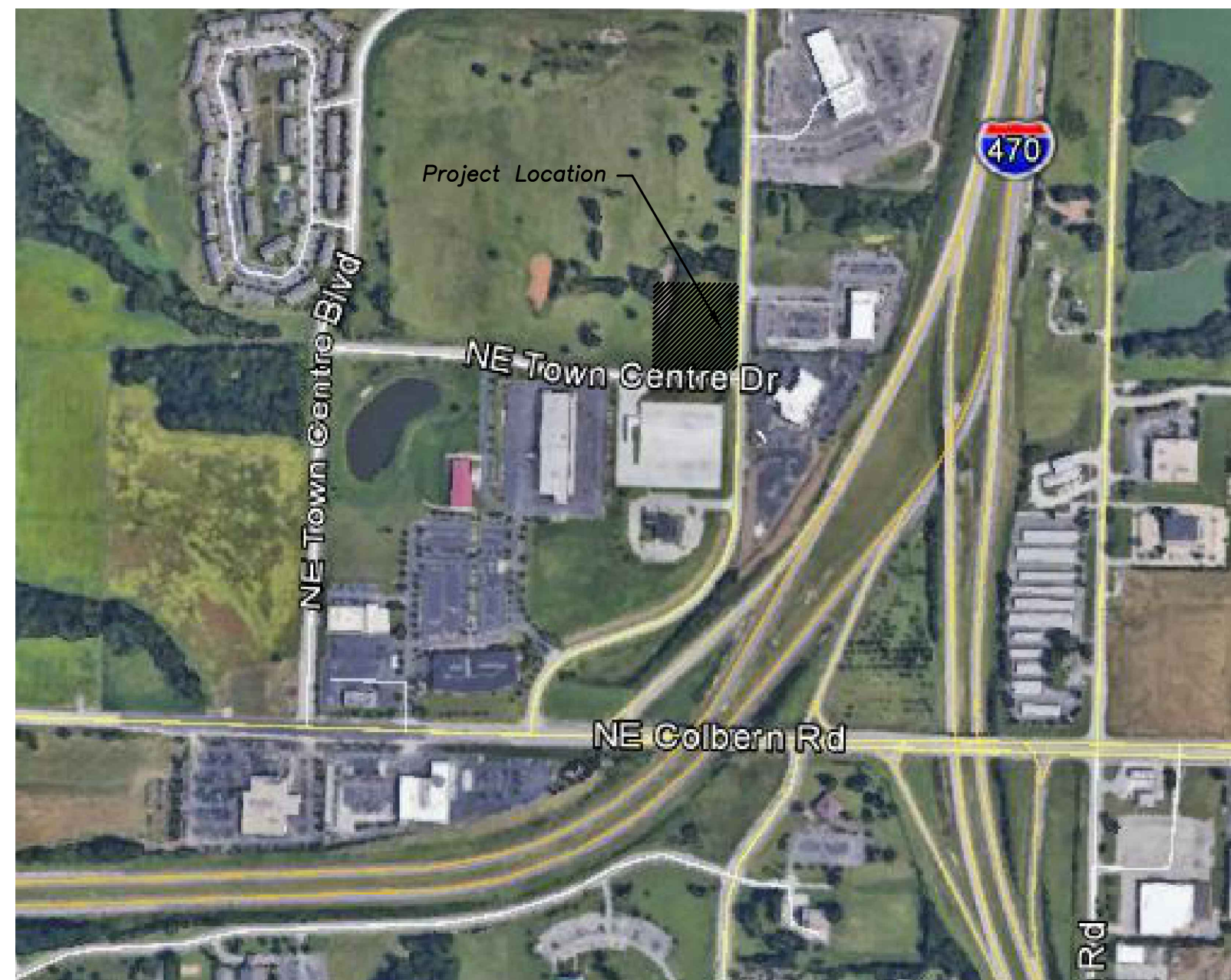




# Mass Grading Plan for Detail Facility – Balderston

Section 29, Township 48 North, Range 31 West  
City of Lee's Summit, Jackson County, Missouri



- Local Benchmarks:**
- BM-1: Storm Structure, Manhole Cover  
Elevation: 982.05'  
N: 1013823.1378  
E: 2827361.8656
  - BM-2: Storm Structure, Manhole Cover  
Elevation: 982.06'  
N: 101382.1725  
E: 2827403.8100

- Utility Contacts**
- Sanitary – City of Lee's Summit – phone (816) 969-1900
  - Water – City of Lee's Summit – phone (816) 969-1900
  - Storm Sewer – City of Lee's Summit – phone (816) 969-1900
  - Electric – Evergy – phone (888) 471-5275
  - Gas – Spire – phone (816) 756-5252
  - Telephone – AT&T – phone (800) 464-7928
  - Cable – Spectrum – phone (816) 358-8833

**Floodplain Note:**  
The site lies entirely within 'Zone X', areas determined to be outside the 0.2% annual chance floodplain as depicted on the FEMA Flood Insurance Rate Map (FIRM) no. 29095C04306, Revision Date: January 20, 2017.

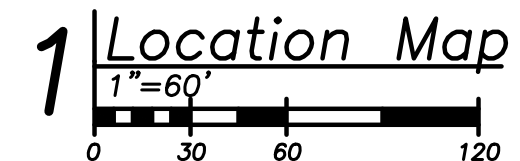
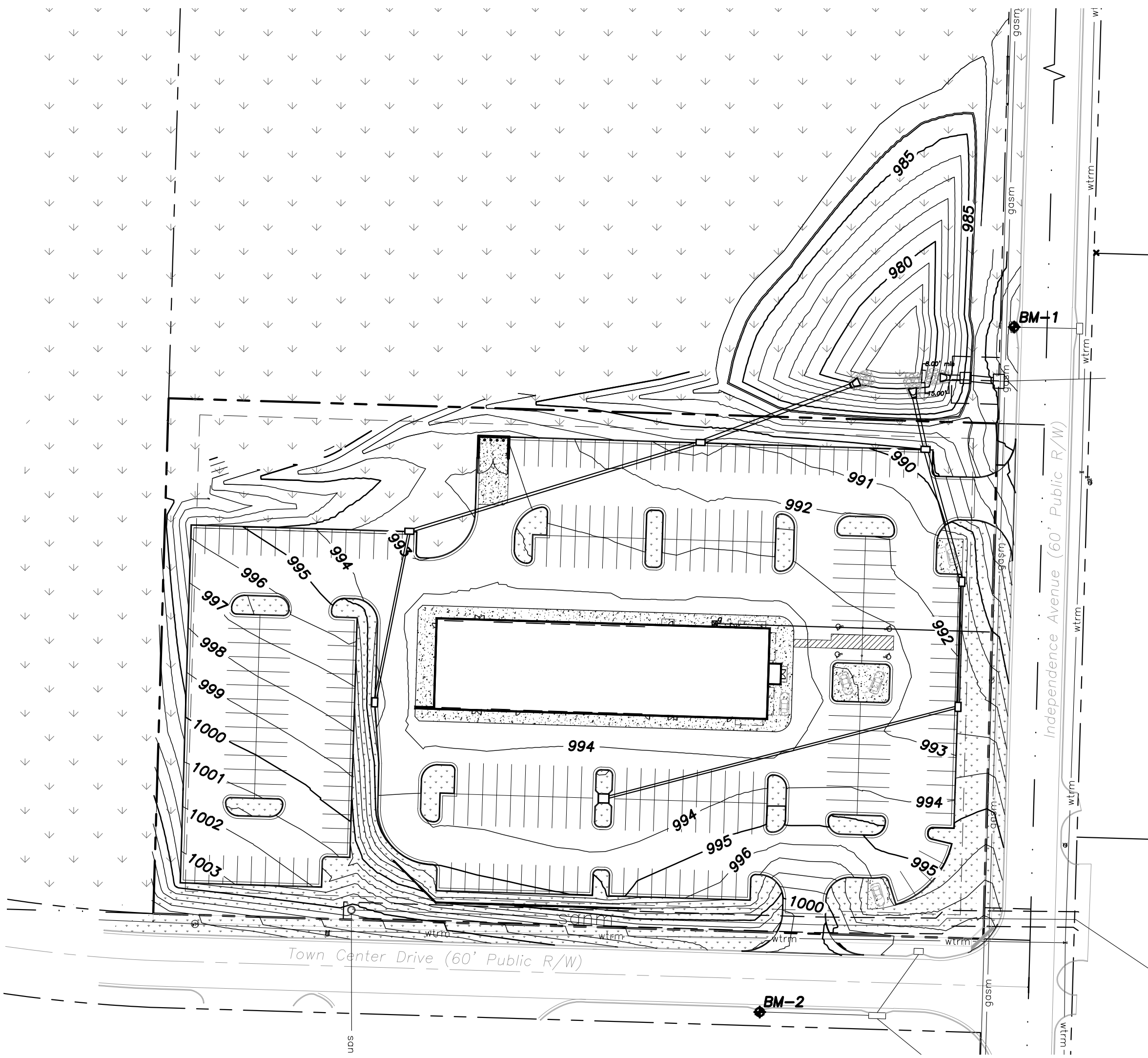
- Property Legend**
- right of way
  - property lines
  - easements
  - setbacks

- Grading Legend**
- existing minor contour
  - existing major contour
  - proposed minor contour
  - proposed major contour

- Utility Legend**
- existing
  - proposed

- Linetypes**
- sanm: sanitary main
  - sans: sanitary service
  - ssm: storm sewer (existing)
  - ssms: storm sewer (solid wall, proposed)
  - slm: storm sewer (solid wall, proposed)
  - ssmf: storm sewer (perforated, proposed)
  - wlm: water main
  - wtrf: water service (fire)
  - wtrd: water service (domestic)
  - wtri: water service (irrigation)
  - gasm: natural gas main
  - gass: natural gas service schematic
  - alpu: underground primary electric
  - alsu: underground secondary electric
  - alpo: overhead electric
  - datu: underground cable/phone/data
  - datu: underground cable/phone/data service
  - fence-chainlink
  - fence-wood
  - fence-barbed wire
  - treeline

- Symbols**
- sanitary manhole
  - service cleanout
  - force main release valve
  - rectangular structure
  - circular structure
  - fire hydrant
  - water valve
  - water meter
  - backflow preventer
  - natural gas meter
  - service transformer (pad mount)
  - primary switch gear
  - light pole
  - cable/phone/data junction box
  - street light
  - pedestrian street light
  - electric pole
  - guy wire
  - end section



- General Notes**
- All work within the road right-of-way shall conform to the technical specifications and design criteria for public improvement projects of the city of Lee's Summit, MO.
  - Erosion Control shall be per the Erosion and Sediment Control Program Manual of the City of Lee's Summit, MO.
  - All work and materials shall be subject to inspection and approval by the owner or the owner's representative. Any change or deviation from these plans must be authorized by the owner or the owner's representative.
  - All traffic control in connection with construction in the right-of-way shall be in conformance with the Manual of Uniform Traffic Control Devices.
  - The contractor shall be required to provide a stabilized construction entrance to prevent mud from being deposited onto adjacent roads.
  - The contractor shall be responsible for obtaining all required permits, paying all fees, and otherwise complying with all applicable regulations governing the project.
  - The contractor shall protect from damage or injury all property including survey monuments, property markers, benchmarks, etc. Items damaged shall be reset by a professional land surveyor licensed in the state of Missouri, at the contractor's expense.
  - The contractor shall be responsible for the restoration of the right-of-way and for damaged improvements such as curbs, sidewalks, street light and traffic signal junction boxes, traffic signal loop lead-ins, signal poles, etc. Damaged improvements shall be repaired in conformance with the latest city standards and to the city's satisfaction.
  - The contractor shall sod all disturbed areas within the public street right-of-way.
  - Paving shall conform to the soils report, and these drawings, any identified discrepancies shall be brought to the attention of the engineer.
  - Contractor shall provide 48-hour notification to the city engineering division to schedule all required inspections.
  - All concrete for public improvements shall comply with the Standards and Specifications of the Kansas City Metropolitan Materials Board (KCMMB). Structural concrete shall be 5,000 psi and nonstructural concrete shall be 4,000 psi.
  - A right-of-way work permit and/or street excavations permit shall be obtained by the contractor to complete all utility work within the public street right-of-way.

**Sheet Index**

- C1.0 – Cover Sheet
- C1.1 – Civil Notes
- C2.1 – Grading Plan
- C2.2 – Erosion Control Plan – Phase I
- C2.3 – Erosion Control Plan – Phase II
- C4.1 – Details
- C4.2 – Details

**Civil Engineer:**

Davidson Architecture & Engineering, LLC  
Mr. Paul A. Miller, P.E.  
4301 Indian Creek Pkwy.  
Overland Park, KS 66207  
Phone: (913) 451-9390  
Email: Paul@davidsonae.com

**Owner Information**

Lee's Summit Town Center, LLC  
Bob Balderston  
3200 NW South Outer Road  
Lee's Summit, MO 64105  
Phone: 816-229-4400  
Email: bob@hifolksbob.com

**Utility Notes**

- Boundary information, existing utilities and topographic features shown are based on information supplied by owner, surveyor, and others.
- The existing utility locations shown on these plans are approximate and may not include all utility lines present. The contractor shall be responsible to make One Call and coordinate field location of all existing underground utilities prior to beginning excavation/construction activities.
- The contractor shall be responsible for any damage to any utilities or their structures during excavation/construction activities.
- The contractor shall coordinate and be responsible for connection fees, system development fees, taxes, etc. for all main connections and/or extensions with and from the city and/or respective utility unless otherwise coordinated with the Owner. All utility services for this project shall be coordinated with respective utility company by contractor.
- The contractor shall be responsible for adjusting all at-grade utilities such as manhole covers, valve box covers, etc. to finish grade, whether specifically indicated in these plans or not.
- Utilities shown on the plan with specific elevations and/or structure locations are SUE quality level "B", ie: storm sewer, sanitary sewer, water hydrants & valves, utility poles, etc. All other existing utility information shown is SUE quality level "D", primarily retracement of one-call and city records.

**Project Information**

governing municipality:	Lee's Summit, Missouri
zoning:	CP-2
site area:	~175,306 s.f. or ~4.02 acres
impervious area:	124,303 s.f. 71% < 80%
green area:	51,003 s.f. 29% > 20%
total building area:	15,993 s.f.
required parking:	service establishment 5 parking spaces per 1,000 s.f. 5 x 16,000 s.f. = 80 parking spaces
actual parking on site:	232 parking spaces

**Legal description:**

A part of the Northeast Quarter of the Northwest Quarter, Section 29, Township 48 North, Range 31 West, Lee's Summit, Jackson County, Missouri, described as follows:  
Commencing at the Northeast corner of the Northwest Quarter of said Section 29; thence S 1°35'52"W along the East line of the Northeast Quarter of the Northwest Quarter for 991.63 feet to the Point of Beginning; thence S 1°35'52"W continuing along said East line for 330.00 feet to the Southeast corner of the Northeast Quarter of the Northwest Quarter; thence N 88°15'22"W along the South line of the Northeast Quarter of the Northwest Quarter for 561.55 feet to the Southeast corner of LEE'S SUMMIT TOWN CENTRE, LOT 1 & LOT 2, a subdivision of record; thence N 1°42'31"E along the East line of said subdivision for 330.00 feet; thence S 88°15'22"E for 560.91 feet to the Point of Beginning. Subject to the road right-of-way of Independence Avenue. Containing 4.25 acres more or less.

Per Missouri Department of Natural Resources, there are no open permits for Section 29, Township 48 North, Range 31 West, City of Lee's Summit, Jackson County, Missouri for any oil and gas wells under construction, active, inactive, plugged and/or abandoned.

A New Facility for  
**Automotive Sales & Detail Center**  
2100 NE Independence Ave  
Lee's Summit, Missouri 64064

**date** 02.21.2020  
**drawn by** SLM  
**checked by** PAM  
**revisions**

03.24.2020	1
09.10.2020	2
11.13.2020	FDP
12.14.2020	4
12.21.2020	5

**General Notes:**

- The Contractor shall be responsible for obtaining all required permits, paying all fees, and otherwise complying with all applicable regulations governing the project.
- All materials, workmanship, and construction shall meet or exceed the city standards. Where there is conflict between these plans and standards, the higher quality standard as determined by the engineer shall apply. All work shall be inspected and approved by contractor.
- All work and materials shall be subject to inspection and approval by the owner or the owner's representative. Any change or deviation from these plans must be authorized in writing by the owner or the owner's representative prior to work being completed.
- The work associated with and based on these plans, shall be subject to the requirements of, and conform to, the Municipal Code of Lee's Summit, MO, and the standards and specifications in current use. The standards, specifications, details, and procedures sub-referenced therein are hereby incorporated by reference.
- Lineal foot measurements shown on the plans are horizontal measurements, not slope measurements. All payments shall be made on horizontal measurements.
- No geological information is shown in these plans.
- Prior to commencement of work, the contractor shall notify all utility companies which have facilities in the near vicinity of the construction to be performed.
- All waste material resulting from the project shall be disposed of off-site in an approved landfill. All excavation shall be unclassified. No separate payment will be made for rock excavation. Contractor is responsible for all haul off material.
- The Contractor shall be required to provide a stabilized construction entrance to prevent mud from being deposited onto adjacent roads.
- All mud, dirt, and debris tracked onto the parking lot or any roadway shall be removed immediately by the contractor.
- The Contractor shall be responsible for keeping the public streets in the vicinity of the job site clean and free of rocks, soil and debris. Streets and/or parking areas will be scraped and swept on a daily basis by the general contractor.
- The Contractor shall protect from damage all survey monuments, property markers, benchmarks, etc. Items damaged shall be reset by a professional land surveyor licensed in the state of Missouri, at the contractor's expense.
- Paving shall conform to the geotechnical report and these drawings, any identified discrepancies shall be brought to the attention of the engineer immediately. If no geotech. report is provided for the project, the contractor shall use the minimum design standards as required by the city.
- The Contractor shall contact the City's Development Services Engineering Inspectors 48 hours prior to any land disturbance work at (816)-969-1200.
- All concrete for public improvements shall comply with the city standards and specifications. If no city standards and specifications are provided, then the contractor shall comply with the standards and specifications of the Kansas City Metropolitan Materials Board (KCMMB) unless otherwise noted. Structural concrete shall be 5,000 psi and nonstructural concrete shall be 4,000 psi.
- The contractor shall be responsible for the restoration of the right-of-way and for damaged improvements such as curbs, sidewalks, street light and traffic signal junction boxes, traffic signal loop lead-ins, signal poles, etc (offsite and onsite). Damaged improvements shall be repaired in conformance with the latest city standards and to the city's satisfaction.
- All work within the road right-of-way shall conform to the technical specifications and design criteria for public improvement projects of the city of Lee's Summit, MO or the transportation department of Missouri. A right-of-way work permit and/or street excavations permit shall be obtained by the contractor if required to complete all work within the public right-of-way.
- All traffic control in connection with construction in the right-of-way shall be in conformance with the Manual of Uniform Traffic Control Devices and/or the jurisdictional authority. It is the contractor's responsibility to obtain a traffic control permit if required.
- All waste materials, trash and construction debris shall be collected and stored in dumpsters. No construction waste shall be buried on site. All hazardous waste materials will be disposed of in the manner specified by local, state and federal regulations. Site personnel shall be instructed in these practices, and the construction manager shall be responsible for seeing that these practices are followed.
- Recommendations made by the geotechnical engineer, to be retained by the owner, and contained in the geotechnical report shall govern project conditions unless noted otherwise. Paving shall conform to the geotechnical report, which itself meets or exceeds City's requirements. Any discrepancies shall be brought to the attention of the engineer.
- The Contractor shall grade areas to provide positive drainage.
- The contractor shall be responsible for the coordination of work between suppliers and subcontractors involved in the project, including staging of construction details.
- All disturbed areas shall be maintained for dust control. Sprinkling tank trucks shall be available at all times & used on on-site disturbed areas, and other areas where dust becomes a problem as a result of construction activities.
- Nothing indicated on these drawings shall relieve the contractor from complying with appropriate safety regulations.

**Utility Notes:**

- Boundary information, existing utilities and topographic features shown are based on information supplied by owner, surveyor, and others.
- The existing utility locations shown on these plans are approximate and may not include all utility lines present. The contractor shall be responsible to contract "One Call" and coordinate field location of all existing underground utilities prior to beginning excavation/construction activities.
- The contractor shall be responsible for any damage to any utilities or their structures during excavation/construction activities. Utilities include but are not limited to a service such as electricity, communication, water, public transportation (including traffic signals), storm systems, and items provided by a public utility.
- The contractor shall coordinate and be responsible for connection fees, system development fees, taxes, etc. for all main connections and/or extensions with and from the city and/or respective utility unless otherwise coordinated with the Owner. All utility services for this project shall be coordinated with respective utility company by contractor.
- The contractor shall be responsible for adjusting all at-grade utilities such as manhole covers, valve box covers, etc. to finish grade, whether specifically indicated in these plans or not.
- Utilities shown on the plan with specific elevations and/or structure locations are SUE quality level "B", ie: storm sewer, sanitary sewer, water hydrants & valves, utility poles, etc. All other existing utility information shown is SUE quality level "D", primarily retracement of one-call and city records.
- Refer to mechanical, electrical, and plumbing (MEP) plans for utility service sizes and exact locations. Refer to site electric plans for electric construction details.
- Provide temporary support for existing utility lines that are encountered during construction until backfilling is complete.
- Backfill all utility trenches according to the most recent edition of the jurisdictional standards.
- All utilities shall be brought within 5' of the building to connect to plumbing contractors work unless otherwise specified.
- The Contractor shall adjust all utility fixtures, manholes and inlets to finished grade as required.
- The Contractor shall maintain 18" minimum vertical clearance between storm sewer and sanitary sewer pipes and 18" minimum vertical clearance between sanitary sewer and water main unless otherwise specified.
- Contractor shall prevent entry of mud, dirt, debris, and other material into new and existing storm sewer systems. Should any contamination occur during construction, the contractor shall clean at contractor's expense. Upon completion of all storm sewer improvements, all new and existing pipe and structures shall be cleaned out.
- Electrical, lighting, and data conduit layout shown is for graphical purposes only. See MEP plans for more detail.
- The Contractor shall provide all temporary power, process, and utility service bypasses and connections as required.

**Erosion Control Notes:**

- The installation of the silt fencing, the maintenance of the drainage swales, and the construction of the stabilized entrance shall be completed prior to any clearing and grading of any portions of the site. Disturbed portions of the site where construction activities have permanently ceased shall be stabilized with permanent seeding no later than 14 days after the last construction activity, refer to SWPPP. Roadway swales shall be stabilized with Erosion Control Devices. Once construction activity ceases permanently in an area, that area shall be stabilized with permanent seed and mulch. Only after the entire site has been stabilized, the silt fencing shall be removed.
- The general contractor, or designated Erosion Control Contractor, shall be responsible for construction and maintenance of erosion control devices and practices. The contractor shall be responsible for implementation of, and ensuring compliance of, the project Storm Water Pollution Prevention Plan (SWPPP), a copy of which shall be obtained from the Design Engineer. The SWPPP shall be maintained on site per NPDES requirements and shall be available for review at any time, by any authorized Federal, State, or local review official, as well as the Design Engineer. The general contractor, or designated Erosion Control Contractor, shall also be responsible for ensuring compliance with, and paying any fees associated with, the State of Missouri General Permit for Stormwater Runoff associated with construction activities, a copy of which shall be maintained in the aforementioned SWPPP.
- This project shall be constructed in compliance with the soil erosion and sedimentation control permit, and conform to the standards and specifications of the city of Lee's Summit, MO, prior to any land disturbance changes.
- Erosion and any sedimentation from work on this site shall be contained on the site and not allowed to collect on any offsite areas or in waterways. Waterways include both natural and man-made open ditches, streams, storm drains, lakes and ponds. Refer to erosion control plans for more information.
- The contractor shall be responsible to control downstream erosion and siltation during all phases of construction. Erosion Control work and procedures shall be in place prior to beginning excavation/construction activities. To ensure progressive stabilization of disturbed earth, Erosion control devices shall be staged, installed and maintained throughout land disturbance activities as directed in the drawings, project manual and in accordance with all federal, state and local standards until the site is stabilized.
- The contractor shall implement and maintain Erosion Control Devices as shown in the drawings and project manual before, and at all times during the construction of this project. Any modifications to the devices due to construction or changed conditions shall be complied with as required or as directed by the city of Lee's Summit, MO.
- The contractor shall be responsible for installation and maintenance of all Erosion Control Devices. This includes providing berms, silt fence, or other means to prevent erosion from reaching the right of way and offsite boundaries. In the event the prevention measures are not effective, the contractor shall remove any debris and erosion, restoring the right of way to original or better condition.
- Contractor is to provide erosion protection for all storm sewer inlets.
- If any of the Erosion Control Devices on the site are deemed inadequate or ineffective, the city of Lee's Summit, MO has the right to require additional Erosion Control measures at the expense of the general contractor.
- If any pump-driven dewatering is needed, it shall be discharged through a filter bag over a well-vegetated area. The pump must discharge at a non-erosive velocity. If necessary, an approved energy dissipater may be used.
- Permanent BMP's for any disturbed land area shall be completed by the general contractor within 5 calendar days after final grading or the final earth change has been completed. When it is not possible to permanently stabilize a disturbed area after land disturbance activity ceases, temporary Erosion control devices shall be implemented immediately. All temporary Erosion Control Devices shall be maintained until permanent BMP devices are implemented. All permanent BMP's will be implemented and established before a certificate of compliance is issued.
- Strip topsoil only from those areas that will be disturbed by excavation, filling, road building, or compaction by equipment. Refer to the geotechnical report for depths of stripping. Put sediment basins, diversions, and other controls into place before stripping.
- When topsoiling, maintain needed erosion control practices such as diversions, grade stabilization structures, berm, dikes, level spreaders, waterways and sediment basins.
- Grades on the areas to be topsoiled which have been previously established shall be maintained.
- Bonding - Immediately prior to dumping and spreading of topsoil, loosen the subgrade by discing or scarifying to a depth of at least 4", to permit bonding of the topsoil and subsoil.
- The general contractor shall inspect the Erosion Control Devices once every 14 days under any circumstances, within 24 hours of rainfall, and daily during a prolonged rain event unless otherwise noted in the SWPPP or by the jurisdictional authority. A log of inspection report shall be maintained and accessible in accordance with National Pollution Discharge Elimination System (NPDES) requirements. Any required maintenance shall be provided within 72 hours.
- Install silt fence, inlet filters, and other Erosion Control Devices as indicated in the drawings, per APWA and authority regulations, and at additional affected areas as necessary. Build-up of sediment shall be removed promptly per authorities regulations. If silt fence decomposes or becomes ineffective prior to the end of expected usable life and the barrier is still required, the silt fence shall be replaced promptly. Sediment shall be removed from sediment traps or basins when design capacity has been reduced to 50%. Contractor shall flare the ends of the silt fence uphill in order to temporarily impound runoff.
- Earthen berms shall be regularly inspected, and inspected after each rainfall event. Repairs to earthen berms shall be made immediately. If the earthen berm shows signs of erosion, and it is determined that material must be added to fix the berm, the material shall be properly placed, compacted and reseeded. The berm shall be reseeded and stabilized, as needed, to maintain its soundness whether or not there has been any rainfall.
- Drainage swales shall be inspected regularly and after every rainfall event. Repairs to drainage swales shall be made immediately. If the flow channel and/or outlets show signs of deficiency, the damaged area(s) shall be restabilized and reseeded, as needed, to prevent further damage. If additional measures are needed to eliminate issues, contractor shall notify the engineer for possible modifications.
- Refer to the jurisdictional authority for temporary gravel construction entrance details. If not specified, refer to APWA standards. The entrance and exit areas of the project shall be cleared of all vegetation, roots, and other objectionable material. The gravel shall be placed to the proper dimensions and graded to a smooth and even slope. Construction entrance drainage shall be provided to carry water to a sediment trap or other suitable outlet.

**Stockpiling Notes:**

- Select stockpile location to avoid slopes and natural drainageways, avoiding traffic routes. On large sites, re-spreading is easier and more economical where topsoil is stockpiled in small piles located near areas where they will be used.
- Sediment Barriers - Use sediment fences or other barriers where necessary to retain sediment.
- Temporary Seeding - Protect topsoil stockpiles by temporarily seeding as soon as possible, not to exceed 14 days, weather permitting, after the formation of the stockpile.
- Permanent Vegetation - If stockpiles will not be used within 12 months, they must be stabilized with permanent vegetation to control erosion and weed growth.
- All stockpiled soils shall be maintained in such a way as to prevent erosion from leaving the site. Silt fence must be installed around the perimeter of the stockpile.

**Seeding Notes:**

- Seeding shall be as follows unless otherwise stated in the landscape plans.
- Annual rye grass, wheat, or oats should be used for temporary seeding. Apply rye grass at 120lbs. per acre, wheat or oats at 100lbs. per acre.
- A mixture of 65% kentucky bluegrass and 35% chewing fescue or creeping red fescue should be used for permanent seeding. Apply the mixture at 2lbs. per 1000ft<sup>2</sup>.
- Seedbed preparation-Install necessary mechanical erosion and sedimentation control practices before seeding, and complete grading according to the approved plan. Lime and fertilizer needs should be determined by soil test. Apply the lime and fertilizer evenly and incorporate into the top 4"-6" of soil by discing or other suitable means.
- All seeding shall be performed during favorable weather conditions and only during normal and accepted planting seasons when satisfactory growing conditions exist. The planting operations shall not be performed during times of extreme drought, when ground is frozen or during times of other unfavorable climatic conditions unless otherwise approved by owner's representative. The contractor assumes full and complete responsibility for all such plantings and operations.
- Seed should be labeled in accordance with U.S. Department of Agriculture rules and regulations under the federal seed act and comply with the requirements of the Missouri seed law. Labels contain important information on seed purity, germination, and presence of weeds. Weed seed should not exceed 1.0% by weight of the mixture.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydroseeder. Small grains should be planted no more than 1" deep, and grasses and legumes no more than 1/2".
- Generally, a permanent stand of vegetation cannot be determined to be fully established until soil cover has been maintained for one full year from planting. Inspect seeded areas for failure and make necessary repairs and re-seedings within the same season, if possible.
- The Contractor shall seed all disturbed areas unless otherwise noted by landscape plans. Immediately after seeding, mulch all seeded areas with unweathered small grain straw, spread uniformly at the rate of 1-2 tons per acre or 100lbs (2-3 bales) per 1000ft<sup>2</sup>. The mulch should be anchored with disc type mulch anchoring tool or other means as approved by the jurisdictional authority. Mulch matting may be used in lieu of loose mulch.
- The Contractor shall sod all disturbed areas within the public street right-of-way. Refer to city and state standards for proper installation.

**Demolition Notes:**

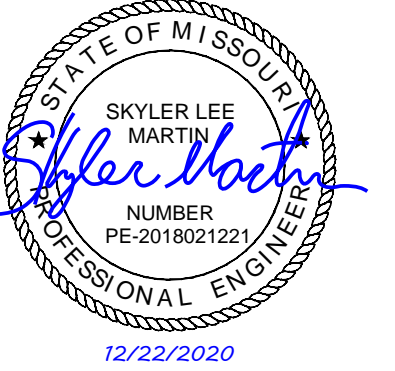
- At the site, the Contractor shall maintain the required documents for immediate review, included but not limited to: Site Safety Plan, Demolition Permits, Street Closure Permits, Contract Documents, Demolition Plans, Salvage Verification Forms, SWPPP Etc.
- The Contractor shall notify all utility companies for field verification and disconnection of utilities prior to any work. Coordination is required for both temporary and permanent utility services that serve the site including, but not limited to: water lines, power, telephone, cable, storm sewer, sanitary sewer with the city and/or respective utility.
- The Contractor is specifically cautioned that the locations and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. Contractor shall contact One Call utility information service for utility locates. The Contractor must call the appropriate utility companies at least 72 hours before any excavation to request exact field location of utilities. The Contractor shall also coordinate and allow access for utility companies to perform any disconnection or relocation activities. It shall be the responsibility of the Contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.
- Remaining building structures and remaining utility services shall be protected from damage. Damage to any existing features to remain will be replaced at the Contractor's expense.
- Areas disturbed during demolition shall be thoroughly evaluated by the geotechnical engineer responsible for site preparation prior to placement of structural fill. All disturbed soils shall be undercut prior to placement of structural fill, per the geotechnical recommendations. Contractor shall notify the geotechnical engineer at least 72 hours prior to placement of structural fill.
- Excavations created by the removal of any existing utility lines that extend below design grades shall be cut wide enough to allow use of heavy construction equipment to compact the fill. Base of the excavations shall be thoroughly evaluated by the geotechnical engineer prior to placement of fill. If existing utilities are to be left in-place, existing trench backfill shall be evaluated in accordance with the recommendations of evaluation of existing fill.
- The Contractor shall be responsible for obtaining all Federal, State, and local permits, obtaining all inspections, and shall conform to all governing codes and regulations required to perform necessary abatement during demolition, should hazardous materials be encountered.
- Contractor is responsible for legally disposing of all materials and associated cost of interim storage facilities.
- For tree & stump removal, the Contractor shall remove all root systems from the site not designated to be saved. Materials disturbed during removal of stumps shall be undercut and replaced with structural fill. A zone of desiccated soils may exist in the vicinity of the trees. The desiccated soils have a higher swell potential and shall be undercut and replaced with structural fill.
- No construction waste shall be buried on site. All hazardous waste materials will be disposed of in the manner specified by local, state and federal regulations.

**Retaining Wall Notes:**

- Site retaining wall improvements shall be designed by a licensed professional engineer retained by the contractor. The wall engineer and contractor shall satisfy themselves of the conditions of the surrounding site features and any interactions with the proposed improvements.
- Retaining wall design drawings and specifications shall be provided to the owner and owner's representative for review and approval. All retaining wall designs shall be signed and sealed by a registered Professional Engineer licensed in the state of Missouri. Design services shall be included in retaining wall pricing.
- Refer to Retaining Wall drawings for wall information. Civil plan set shall only be used for general location and spot elevations.
- The Contractor is responsible for coordinating all inspections, certifications, permits, fees and close out of the wall unless otherwise determined. Contractor shall notify wall design engineer for final inspection. Contractor shall include in construction cost for all of the above items related to the installation of the retaining wall.
- Any wall shown is a schematic representation of the proposed walls. The spot elevations denoting retaining walls are provided on the site grading plan.
- If the wall is greater than 30" and is in an accessible area, guard rails are required per code.

**Americans with Disabilities Act (ADA) Notes:**

- The running and cross slopes for all sidewalks, accessible paths, ramps, designated parking stalls, etc., shall be in compliance with latest Federal ADA guidelines, in addition to any accessibility standards adopted by the governing municipality. Prior to installation/construction, if any discrepancies are found within the plans, the Engineer shall be notified.



A New Facility for  
**Automotive Sales & Detail Center**  
 2100 NE Independence Ave  
 Lee's Summit, Missouri 64064

date	revisions
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12.14.2020	4
12.21.2020	5



**Local Benchmarks:** BM-#

**BM-1:** Storm Structure, Manhole Cover  
Elevation: 982.05'  
N: 1013823.1378  
E: 2827361.8656

**BM-2:** Storm Structure, Manhole Cover  
Elevation: 1001.21'  
N: 1013384.7454  
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**Grading Legend**

- - - - - existing minor contour
- - - - - existing major contour
- — — — — proposed minor contour
- — — — — proposed major contour

**Utility Legend**

- — — — — existing
- — — — — proposed

**Property Legend**

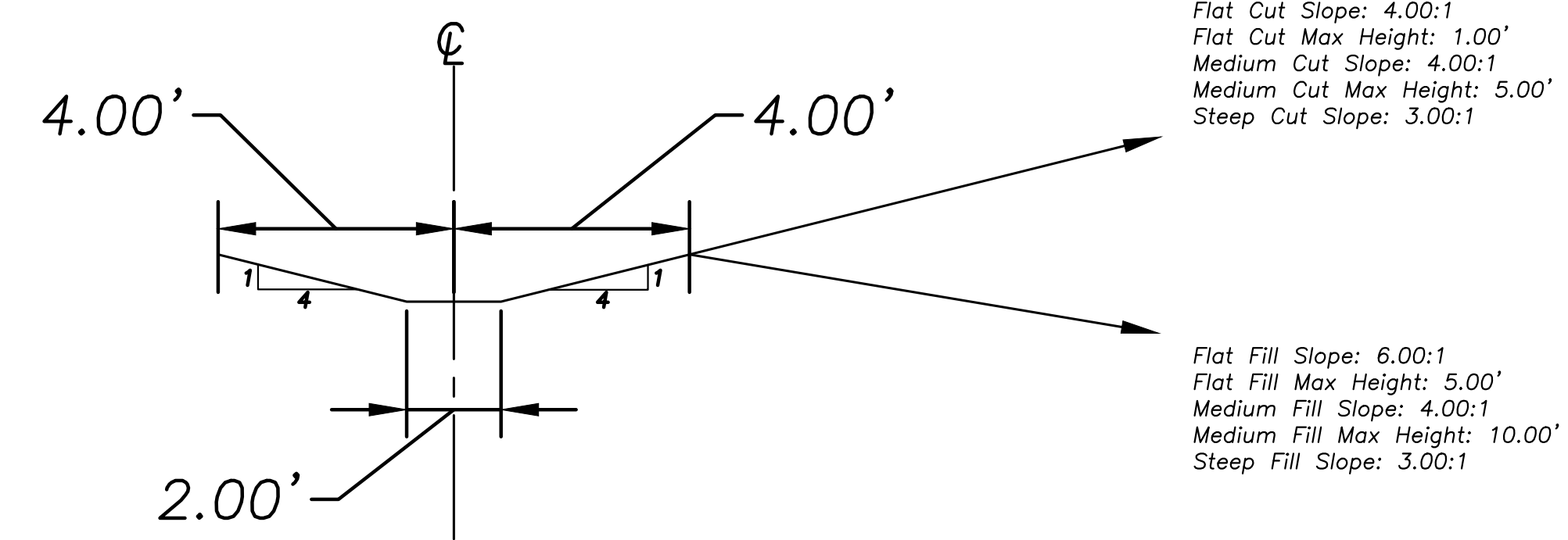
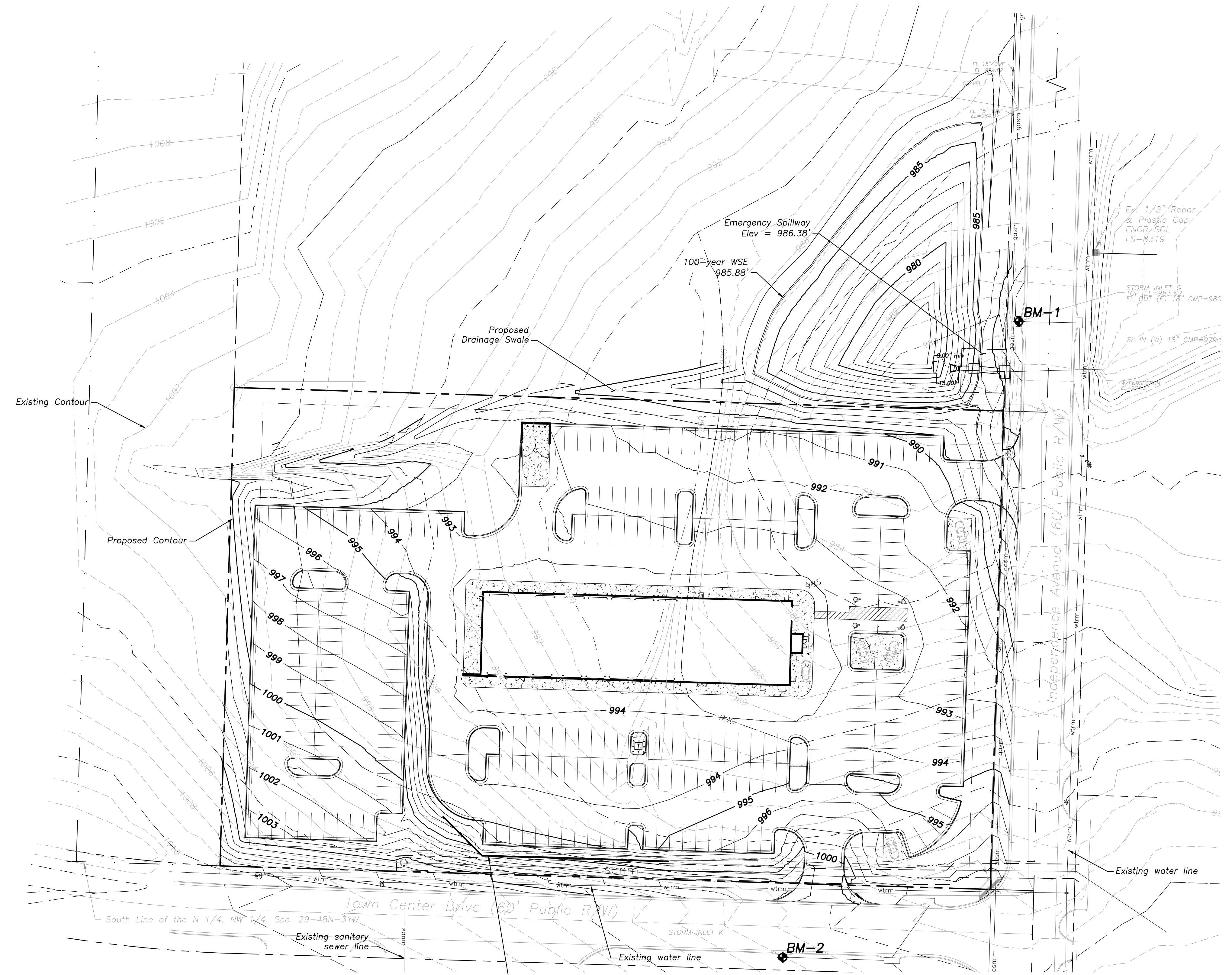
- - - - - right of way
- - - - - property lines
- - - - - easements
- - - - - setbacks

**Linetypes**

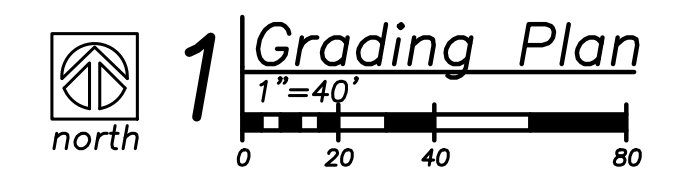
- sanm sanitary main
- sans sanitary service
- ssm storm sewer (existing)
- ssms storm sewer (solid wall, proposed)
- stms storm sewer (solid wall, proposed)
- stms storm sewer (perforated, proposed)
- wtrm water main
- wtrf water service (fire)
- wtrd water service (domestic)
- wtri water service (irrigation)
- gasm natural gas main
- gass natural gas service schematic
- alpu underground primary electric
- alsu underground secondary electric
- elpe overhead electric
- datu underground cable/phone/data
- datu underground cable/phone/data service
- fence-chainlink
- fence-wood
- fence-barbed wire
- treeline

**Symbols**

- ⊙ sanitary manhole
- ⊙ service cleanout
- ⊙ force main release valve
- rectangular structure
- circular structure
- ⊕ fire hydrant
- ⊕ water valve
- ⊕ water meter
- ⊕ backflow preventer
- ⊕ natural gas meter
- ⊕ service transformer (pad mount)
- ⊕ primary switch gear
- ⊕ light pole
- ⊕ cable/phone/data junction box
- ⊕ street light
- ⊕ pedestrian street light
- ⊕ electric pole
- guy wire
- ⊕ end section



**2 Drainage Swale Cross-Section**  
not to scale



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revisions	
03.24.2020	1
09.10.2020	2
11.13.2020	FDP
12.14.2020	4
12.21.2020	5

sheet number  
**C2.1**  
drawing type FDP  
project number 19076





**Local Benchmarks:** BM-#

**BM-1:** Storm Structure, Manhole Cover  
Elevation: 982.05'  
N: 1013823.1378  
E: 2827361.8656

**BM-2:** Storm Structure, Manhole Cover  
Elevation: 1001.21'  
N: 1013384.7454  
E: 2827199.0101

**Grading Legend**

--- existing minor contour  
--- existing major contour  
--- proposed minor contour  
--- proposed major contour

**Utility Legend**

--- existing  
--- proposed

**Linetypes**

sanm sanitary main  
sans sanitary service  
soms storm sewer (existing)  
stms storm sewer (solid wall, proposed)  
stms storm sewer (solid wall, proposed)  
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gasm natural gas main  
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elpu underground primary electric  
elau underground secondary electric  
elpo overhead electric

datu underground cable/phone/data  
datsu underground cable/phone/data service

fence-chainlink  
fence-wood  
fence-barbed wire  
treeline

**Erosion Control Legend**

--- Phase I Silt fence  
--- Phase I Inlet protection  
--- limits of disturbance  
--- construction entrance  
--- topsoil stockpile area  
--- concrete washout area

**Property Legend**

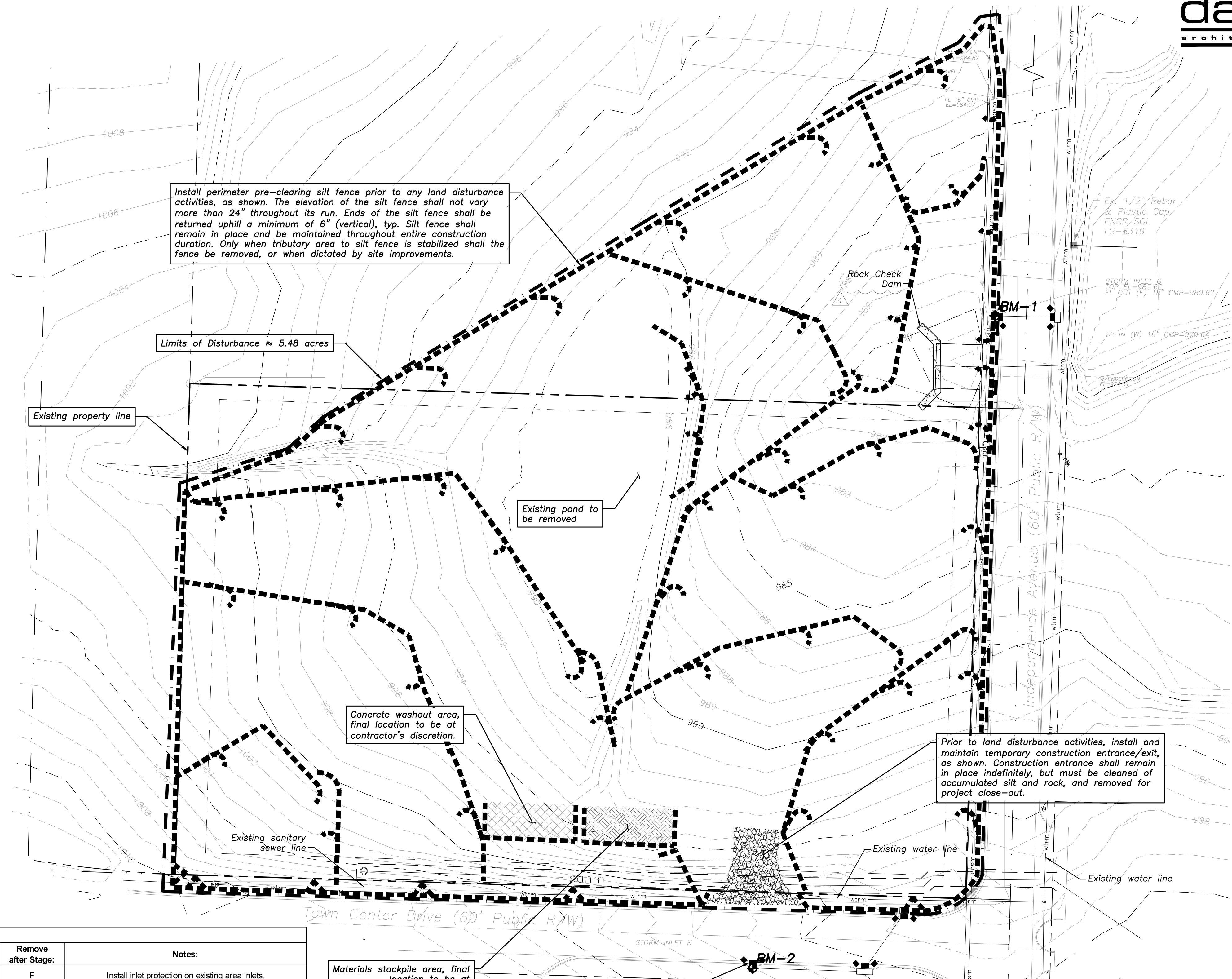
--- right of way  
--- property lines  
--- easements  
--- setbacks

**Symbols**

⊙ sanitary manhole  
⊙ service cleanout  
⊙ fmv force main release valve  
□ rectangular structure  
○ circular structure  
⊙ fire hydrant  
⊙ wv water valve  
⊙ M water meter  
⊙ BFP backflow preventer  
⊙ natural gas meter  
⊙ T service transformer (pad mount)  
⊙ S primary switch gear  
⊙ light pole  
⊙ C cable/phone/data junction box  
⊙ street light  
⊙ pedestrian street light  
⊙ electric pole  
⊙ guy wire  
⊙ end section

**Erosion and Sediment Control Staging Chart**

Project Stage	Description	Remove after Stage:	Notes:
Phase I	Inlet Protection	F	Install inlet protection on existing area inlets.
	Temporary Construction Entrance and Staging Area	E	Install per ESC-01 detail on Sheet C4.1
	Phase I Sediment Fence	D	Install Sediment fence as shown per manufacturer instructions
	Perimeter Sediment Fence	F	Install per city of Lee's Summit standard detail
Phase II	Concrete Washout	E	Remove only when graded areas have permanent stabilization established.
	Stockpile Topsoil	E	Install sediment fence a minimum of 5' beyond toe of slope for all stockpile areas.
	Phase II Sediment Fence	F	Install as needed for intermediate sediment control.
	Phase II Area and Curb Inlets Protection	F	Install excavated area and sediment fence around all area inlets and open junction boxes. Install excavated area and throat protection on all curb inlets.
D - Construct Sediment Basin	Phase II Area and Curb Inlets Protection	F	At time of final grading, concurrent with stabilization of site, install stabilized buffer and utilize skimmer at sediment basin outlet structure
	Sediment Log/Wattle	F	Following installation of curb and gutter, install inlet filter bag
Building Phase	Phase II Area and Curb Inlets Protection	F	Following installation of curb and gutter, install inlet filter bag
	Sediment Log/Wattle	F	To be placed at back of curb and installed per manufacturer instructions.
E - Construction of Detention Pond, Building, and Pavements	Phase II Area and Curb Inlets Protection	F	Following installation of curb and gutter, install inlet filter bag
F - Final Grading & Stabilization	Establish Perennial Vegetation and landscaping per landscape plan. Install Native Vegetation in designated areas using approved seed mix.	N/A	Redistribute topsoil and seed and mulch all disturbed areas. Sod right-of-way. Stabilization complete when 100% of disturbed area is established with perennial vegetation with a density of 70%. All plantings shall be during approved planting season. Planting shall be per approved landscape plan.



**Soil Stabilization:**

In the event moisture sensitive soils are observed, PSI recommends the following procedures be considered to further stabilize wet/soft areas if typical moisture conditioning/disking/recompacting methods are not affective

1. Scarify, dry, and recompact the soils to a moisture content that will facilitate compaction in accordance with the structural fill requirements of the geotechnical report "03382128 - Proposed Detail Center".
2. If scarifying, drying and recompactation of the soils does not stabilize the soils, removing and replacement with new structural fill or treating the soils with class "C" fly ash, portland cement or lime-treatment of the clay soils may need to be performed. The amount of these materials will likely range between 10 to 15 percent by weight for fly ash, 5 to 8 percent by weight for portland cement and 4 to 8 percent for lime.
3. Track 3 to 5-inch minimum well-graded crushed limestone or similar material into the failing areas to attempt to bridge the soft zones. These materials should be placed in loose lifts of no more than 10 inches and tacked in with a loaded rubber tire truck or beat in with a backhoe bucket. Once the areas are stabilized, onsite soils can then be placed to the recommended low volume change material subgrade elevations for pavements. If for some reason areas do not stabilize with 1 to 2 lifts of stone, a later of grid or fabric may need to be incorporated into those areas at that time, followed by additional lifts of stone consisting of 3/4" minus material (AB-3).
4. A fourth option would be to place a geo-grid similar to Tensor BX1100 and then place new granular fill similar to 3/4" minus material in compacted lifts. The grid should extend at least 10 feet past the perimeter of the failing areas and should be overlapped according to the manufacturers requirements. If the area does not stabilize by the second lift of 3/4" minus material an additional later of grid should then be placed and the process should be repeated until it is stabilized.

PSI recommends a test section be performed to verify the selected remediation method.



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03.24.2020	1
09.10.2020	2
11.13.2020	FDP
12.14.2020	4
12.21.2020	5

sheet number  
**C2.2**  
drawing type  
fdp  
project number  
19076



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revisions	
03.24.2020	1
09.10.2020	2
11.13.2020	FDP
12.14.2020	4
12.21.2020	5

sheet number  
**C2.3**  
drawing type  
fdp  
project number  
19076

**Local Benchmarks:** BM-#

**BM-1:** Storm Structure, Manhole Cover  
Elevation: 982.05'  
N: 1013823.1378  
E: 2827361.8656

**BM-2:** Storm Structure, Manhole Cover  
Elevation: 1001.21'  
N: 1013384.7454  
E: 2827199.0101

**Grading Legend**

- existing minor contour
- existing major contour
- proposed minor contour
- proposed major contour

**Utility Legend**

- existing
- proposed

**Linetypes**

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- sanu sanitary service
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- ssms storm sewer (solid wall, proposed)
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- datasu underground cable/phone/data service
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- fence-wood
- fence-barbed wire
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**Symbols**

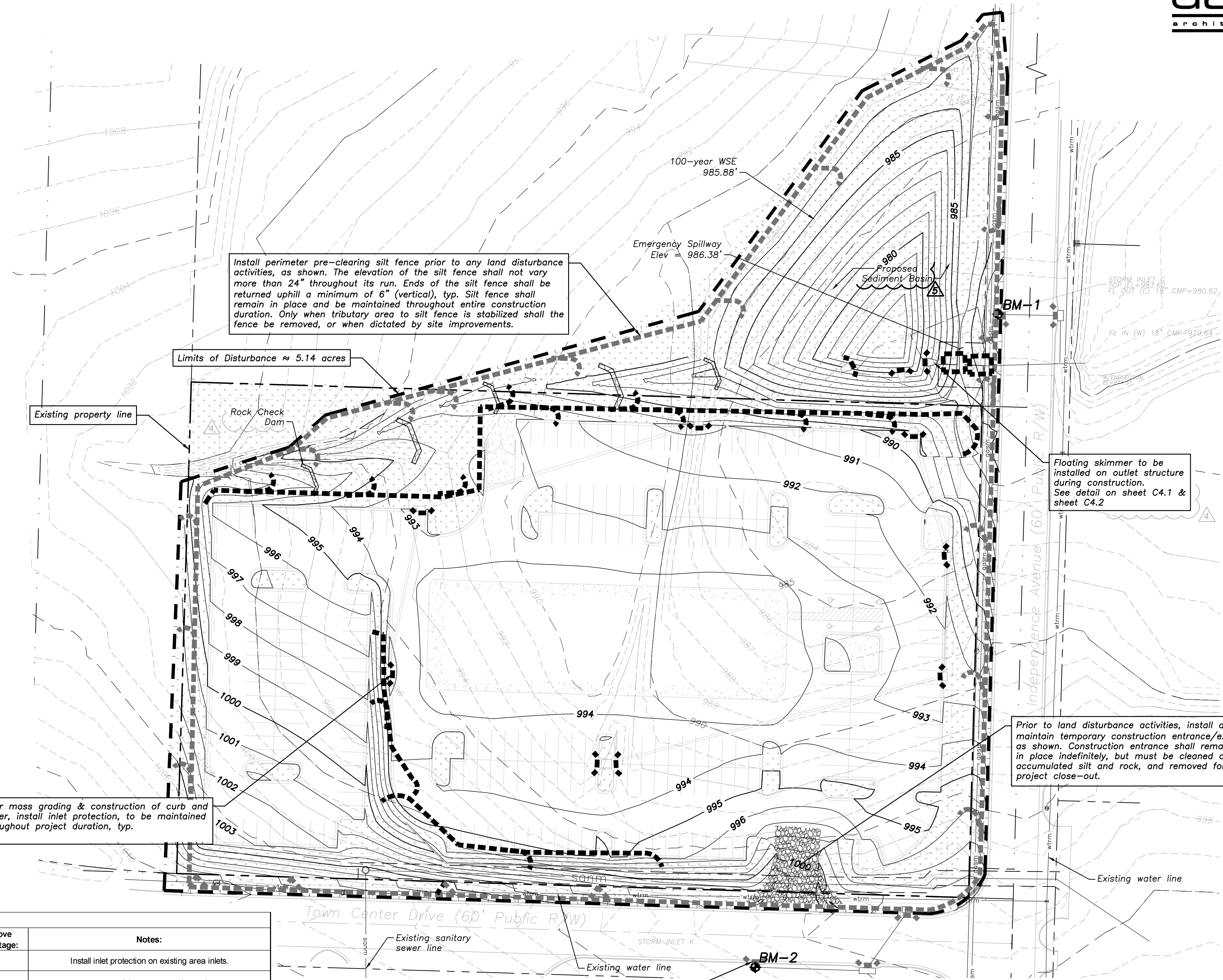
- sanitary manhole
- service cleanout
- force main release valve
- rectangular structure
- circular structure
- fire hydrant
- water valve
- water meter
- backflow preventer
- natural gas meter
- service transformer (pad mount)
- primary switch gear
- light pole
- cable/phone/data junction box
- street light
- pedestrian street light
- electric pole
- guy wire
- end section

**Erosion Control Legend**

- Phase I Silt fence
- Phase I Inlet protection
- Phase II Silt fence
- Phase II Inlet protection
- limits of disturbance
- rock check dam
- seeding & stabilization

**Property Legend**

- right of way
- property lines
- easements
- setbacks



Install perimeter pre-clearing silt fence prior to any land disturbance activities, as shown. The elevation of the silt fence shall not vary more than 24" throughout its run. Ends of the silt fence shall be returned uphill a minimum of 6" (vertical), typ. Silt fence shall remain in place and be maintained throughout entire construction duration. Only when tributary area to silt fence is stabilized shall the fence be removed, or when dictated by site improvements.

After mass grading & construction of curb and gutter, install inlet protection, to be maintained throughout project duration, typ.

Floating skimmer to be installed on outlet structure during construction. See detail on sheet C4.1 & sheet C4.2

Prior to land disturbance activities, install and maintain temporary construction entrance/exit, as shown. Construction entrance shall remain in place indefinitely, but must be cleaned of accumulated silt and rock, and removed for project close-out.

Prior to land disturbance, contractor shall install inlet protection around all existing inlets per City standards, Typ.

**Erosion and Sediment Control Staging Chart**

Project Stage	Description	Remove after Stage:	Notes:
Phase I	Inlet Protection	F	Install inlet protection on existing area inlets.
	Temporary Construction Entrance and Staging Area	E	Install per ESC-01 detail on Sheet C4.1
	Phase I Sediment Fence	D	Install Sediment fence as shown per manufacturer instructions
	Perimeter Sediment Fence	F	Install per city of Lee's Summit standard detail
Phase II	Concrete Washout	E	Remove only when graded areas have permanent stabilization established.
	Stockpile Topsoil	E	Install sediment fence a minimum of 5' beyond toe of slope for all stockpile areas.
	Phase II Sediment Fence	F	Install as needed for intermediate sediment control.
	C - Storm Sewer Installation	Phase II Area and Curb Inlets Protection	F
		N/A	Seed and mulch future development area. Temporarily stabilize with hydromulch if out of seeding season.
D - Construct Sediment Basin	Phase II area Storm Pipe Inlet & Outlet Protection within Proposed Sediment Basin	F	At time of final grading, concurrent with stabilization of site, install stabilized buffer and utilize skimmer at sediment basin outlet structure
		F	Following installation of curb and gutter, install inlet filter bag
E - Construction of Detention Pond, Building, and Pavements	Phase II Area and Curb Inlets Protection	F	Following installation of curb and gutter, install inlet filter bag
	Sediment Log/Wattle	F	To be placed at back of curb and installed per manufacturer instructions.
F - Final Grading & Stabilization	Establish Perennial Vegetation and landscaping per landscape plan. Install Native Vegetation in designated areas using approved seed mix.	N/A	Redistribute topsoil and seed and mulch all disturbed areas. Sod right-of-way. Stabilization complete when 100% of disturbed area is established with perennial vegetation with a density of 70%. All plantings shall be during approved planting season. Planting shall be per approved landscape plan.



**Notes for Concrete Washout:**

- Concrete washout areas shall be installed prior to any concrete placement on site.
- Concrete washout areas shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slope leading out of the subsurface pit shall be 2:1. The vehicle tracking area shall be placed towards the concrete washout area.
- Vehicle tracking control is required at the access point to all concrete washout areas.
- Slope shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) by operation of concrete truck and pump rigs.
- A one-way tarpaulin cover may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

**Maintenance for Concrete Washout:**

- Concrete washout materials shall be removed once the materials have dried to approximately 75% dry.
- Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
- Concrete washout water, washed pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
- Concrete washout areas shall remain in place until all concrete for the project is placed.
- When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and leveled. Any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

**Notes for Construction Entrance:**

- Avoid locating on steep slopes, or curves on public roads, or adjacent to adjacent areas.
- Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
- If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 30:1 side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
- Install pipe under the entrance if needed to maintain drainage ditches along public roads.
- Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
- Divert all surface runoff and drainage from the entrance to a sediment control device.
- If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

**Maintenance for Construction Entrance:**

- Restore entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

**CONCRETE WASHOUT**

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT  
STANDARD DRAWING NUMBER ESC-01 ADOPTED: 10/24/2016

**Notes:**

- Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" x 12" (min.) board wrapped in all fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
- When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Stone weirs are not approved for curb inlet use.
- Contractor to field verify ponding water shall not create a traffic hazard.

**Maintenance:**

- Remove displaced sediment from excavated storage area when available storage has been reduced by 20%.
- Remove displaced sediment from filter socks or similar when any accumulation of sediment is visible.
- Repair or replace as necessary to maintain function and integrity of installation.

**EARLY STAGE CURB INLET**  
(Open Box and Prior to Pouring Curb and Inlet Throat)

**Sump Inlet Sediment Filter**

**LATE STAGE CURB INLET**  
(After Pouring Curb and Inlet Throat)

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
CURB INLET PROTECTION  
STANDARD DRAWING NUMBER ESC-06 ADOPTED: 10/24/2016

**Notes:**

- In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
- Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
- Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
- Attach fabric to upstream side of post.
- Install posts a minimum of 2' into the ground.
- Fencing will only be allowed for small or difficult installation, where staking machine cannot be reasonably used.

**Maintenance:**

- Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of silt fence.
- Repair as necessary to maintain function and structure.

**SILT FENCE**

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
SILT FENCE  
STANDARD DRAWING NUMBER ESC-03 ADOPTED: 10/24/2016

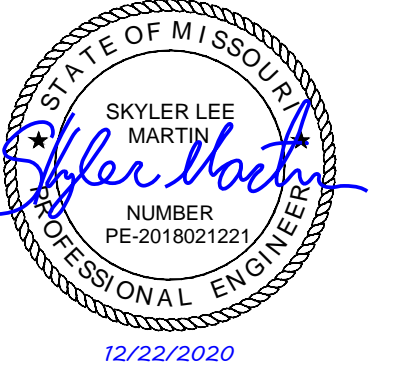
Sediment Basin Design Summary (**)				
Design Item	Basin #1	Basin #2	Units	Notes
<b>Site Data:</b>				
Tributary Drainage Area to Pond	29.35	-	Acres	
50% (2 yr) Design Flow	1.66	-	cfs	
4% (22 yr) Design Flow	14.77	-	cfs	
<b>Pond Data:</b>				
Minimum Sediment Storage Volume	3,933	-	cu yd	134 cu/acre required minimum
Provided Sediment Storage Volume	4,400	-	cu yd	
Bottom Elevation	977	-	ft	
Sediment Cleanout Elevation	980.5	-	ft	Elevation equal to 20% of original design volume
Top of Riser Elevation	982.8	-	ft	Top of dry storage volume
Emergency Spillway Elevation	983.4	-	ft	at or above 0-2 elevation, 1.0 ft min above principal spillway
Top of Dam Elevation	985.5	-	ft	1.0 ft min above Q-25 elevation
<b>Basin Shape Data:</b>				
A = Area of Normal Pool	1,645	-	SF	
L = Length of Flow Path	150	-	ft	
We = Effective Width = A/L	11	-	ft	
Length to Width Ratio = L/We	14	-		
<b>Principal Spillway Data:</b>				
Riser Pipe dia	15	-	in	15" min. Size for 2 year flow minimum
Barrel Pipe dia	36	-	in	15" min. Size for 2 year flow minimum
Concrete Base size for Riser Pipe	0.40	-	CY	Size to prevent flotation, 1.25 safety factor required
Skimmer Size	6"	-		Designer to provide specific details and calculations per application to dewater in 48 to 72 hours
<b>Emergency Spillway Data:</b>				
Design Depth in Spillway	2.51	-	ft	
Design Velocity in Spillway	1.00	-	ft/sec	Designer to provide specific details and calculations per application
Lining Material				Designer to provide specific details and calculations per application

**Plan View (\*)**

**Cross Section (\*)**

**SEDIMENT BASIN**

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
SEDIMENT BASIN  
STANDARD DRAWING NUMBER ESC-11 ADOPTED: 10/24/2016



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sheet number  
**C4.2**  
drawing type  
fdp  
project number  
19076

Ditch Centerline Slope (%)	Spacing Interval (feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

**ROCK DITCH CHECK**

**Notes:**

- Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City Engineer.
- Use rock checks only in situations where the ditch slope exceeds 4%.

**Maintenance:**

- Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of the ditch check.
- Repair and reshape as necessary to maintain function and integrity of installation.

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-10  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

**PRINCIPAL SPILLWAY DETAIL**

**SKIMMER DETAIL (Typ.) \***

**Option A - Rock with Weir**

**Option B - Coir Fiber Material**

**BAFFLE DETAILS**

**ANTI-SEEPAGE COLLAR LOCATIONS**

**CORRUGATED METAL ANTI-SEEPAGE COLLAR DETAIL**

**SEDIMENT BASIN - DETAILS**

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-12  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

**OUTLET PROTECTION WITH END SECTION**

**OUTLET PROTECTION W/O END SECTION**

**Notes:**

- Rock all sides steeper than 3:1.
- Stabilize all disturbed areas downstream of outlet to the limits of disturbance.
- Alternative outlet protection and slope stabilization measures may be used with approval by the Engineer.
- Install riprap apron so that it is no higher than flowline of pipe.
- Reference APWA Specification 2850 for rock type, size, and placement.

**AMERICAN PUBLIC WORKS ASSOCIATION**  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-14  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.