
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

PARAGON STAR DEVELOPMENT VIEW HIGH DRIVE AND I-470 LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Prepared For:

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STORMWATER POLLUTION PREVENTION PLAN
For building & grading projects disturbing 1 or more acres

I. GENERAL PROJECT INFORMATION

Project Name & Description: Paragon Star Development
Lee's Summit, Jackson County, Missouri
Sections 33 and 34, Township 48N, Range 32W
(Figures 1 and 2)

Owner's Representative's Name and Address: Flip Short
Happy Valley LLC
801 Northwest Commerce Center
Lee's Summit, Missouri 64086
(816) 802-6801 Phone

Consultant's Name and Address: George Butler Associates, Inc.
9801 Renner Blvd.
Lenexa, Kansas 66219
(913) 492-0400 - Main
(913) 577-8346 - Fax

II. PROJECT PLANNING & DESIGN

A. SITE CHARACTERISTICS

1. **Site Area:** The total acreage of the site is approximately 142 acres, all of which are to be disturbed. The purpose of the project is to construct tree clearing and mass grading activities for the construction of a commercial development. According to the SSURGO II data (**Figure 3**), the soil types listed as occurring on the project site are Oska silty clay loam, 5-9% Slopes (10113), Sharpsburg silt loam, 2-5% Slopes (10120), Snead-Rock outcrop complex, 14-30% Slopes (10141), Bremer silt loam, 0-2% Slopes (36007), Kennebec silt loam, 0-2% Slopes (36020), and Udarents-Urban land complex, 2-9% Slopes (99033).

2. **Soil Erodibility:** According to the United States Department of Agriculture, Natural Resource Conservation Service, Soil Survey of Jackson, the erosion properties of the soils located on the project site are unavailable. The soils shall be assumed to have erodibility properties as follows:

Oska silty clay loam – **Moderate**
Sharpsburg silt loam – **Moderate**
Snead-Rock outcrop complex – **Moderate**
Bremer silt loam – **Moderate**
Kennebec silt loam – **Moderate**
Udarents-Urban land complex – **Moderate**

Slight – Little or no erosion is likely.

Moderate – Some erosion is likely and erosion control measures are needed.

Severe – Significant erosion is expected and erosion control measures are needed.

3. **Name of Receiving Waters:** The project site has one outfall location which drains to Little Blue River.

Outfall Number 01 – Little Blue River

4. **Section 404/401 Permitting:** According to the certified ePermit application, part of the area being disturbed results in discharges to a jurisdictional water of the U.S.; therefore, a Corps of Engineers Section 404/401 permit shall be necessary for the project.

B. TYPE OF SOIL DISTURBING ACTIVITIES PROPOSED

☒ clearing and grubbing of existing vegetation

☒ stripping of topsoil within the limits of construction

☒ stockpiling and re-spreading topsoil

-
- _____ utility trench excavation and backfill
 - _____ preparing subgrade for streets and sidewalks
 - _____ backfilling curbs and sidewalks
 - _____ disposal areas for excess excavated material
 - _____ borrow areas for fill material
 - _____ grading of areas for commercial building construction
 - _____ other (specify)

The limits of land disturbance are shown on the sediment and erosion control plan.



C. EROSION AND SEDIMENT CONTROLS

The layout of erosion control best management practices (BMPs) shown on the engineering plans is intended to control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the BMP locations to best control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. **NOTE: The project construction documents shall supersede any BMP design requirements shown in this SWPPP.** The following are the minimum measures required to control erosion and sediment runoff for the project:

1. **Stabilization Practices** – Stabilization practices are very effective at preventing erosion by shielding the soil surface from the impact of rain, slowing the velocity of runoff, holding soils in place, and increasing infiltration of runoff and allowing the soil to absorb more rainfall.
 - a. **Temporary Seeding Stabilization** – During acceptable growing periods (see Table 1 below), temporary seeding of annual vegetation with a straw mulch cover shall be used as a temporary cover until permanent vegetation is established. If there is a possibility that a vegetative cover will be required to control erosion for more than 1 year, then consider the addition of a perennial/permanent grass species as part of a seeding mixture.

Table 1 – Temporary Seeding Dates

Species	Seeding Date Optimum and Acceptable											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Oats												
Cereals: Rye / Wheat												
Annual Ryegrass												

 Optimum Seeding Times
 Acceptable Seeding Times

Species	Minimum Application Rates (pure live seed lbs. per acre)	Straw Mulch (tons per acre)
Oats	80	1.5 (w/ seed) - 2.25 (stand alone)
Cereals: Rye / Wheat	90/120	1.5 (w/ seed) - 2.25 (stand alone)
Annual Ryegrass	75	1.5 (w/ seed) - 2.25 (stand alone)

Source: Protecting Water Quality – A field guide to erosion, sediment and stormwater best management practices for developing sites in Missouri and Kansas. Revised January 2011.

Seedbed Preparation – For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

Installation – For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than ½ inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described in **Section C.1.b**.

- b. Temporary Mulch Stabilization** – During non-growing periods, a straw mulch cover shall be applied in unseeded areas to protect against erosion until temporary or permanent vegetation is established.

Site Preparation – Divert runoff water from areas above the site that will be mulched. Remove stumps, roots and other debris from the construction area. Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

Application – Spread straw mulch uniformly over the area with a power blower, hydroseeder, or by hand. No more than 25% of the ground surface should be visible after spreading. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover (See Table 1) or 2.25 tons per acre as a stand-alone cover. The straw should be dry, unchopped, unweathered; free of weed seeds and rot. In areas of steep slopes or high winds, or in critical areas such as swales, mulching may need to be secured to the ground with a binder, netting, or tacking.

- c. Permanent Seeding Stabilization** – All disturbed areas shall be permanently seeded with a grass mixture as specified by the Contract Documents and Specifications. The follow shall be used as a guide for appropriate seeding dates:

Table 2 – Permanent Seeding Dates

Species	Seeding Date Optimum and Acceptable											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turf Fescue												
Tall Fescue												
Kentucky Bluegrass												
Perennial Ryegrass												
Buffalograss ¹												
Wheat/Rye ²												
Oats ^{2,3}												

Optimum Seeding Times
Acceptable Seeding Times

¹ Can also be sprigged.

² Check with your local Noxious Weed Department before planting.

³ Nurse crop only.

Source: Protecting Water Quality – A field guide to erosion, sediment and stormwater best management practices for developing sites in Missouri and Kansas. Revised January 2011.

Seedbed Preparation – For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests taken of topsoil after the borrowed topsoil has been graded on the project site.

Installation – For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than ½ inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described in **Section C.1.b**.

- d. **Permanent Sodding Stabilization** – Any areas designated for sodding shall be sodded with a cool season grass mixture as specified by the Contract Documents and Specifications.

Site Preparation – Apply amendments according to soil test recommendations or as specified in plans and specifications. Incorporate amendments to a depth of 4 to 6 inches with a disk or chisel plow. Rake or harrow to achieve a smooth, final grade on which to lay the sod. The surface should be loose, and free of plants, trash, and other debris.

Laying Sod – Sod should not be laid on soil surfaces that are frozen. During high temperatures, moisten the soil immediately prior to laying sod. This cools the soil and reduces root burning and dieback. The first row of sod should be in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger joints to create a brick-like pattern. Staggered joints promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight to prevent spaces which would cause drying of the roots. On slopes 3:1 or steeper, or wherever erosion may be a problem, lay sod with staggered joints and secure by stapling or pegging. Immediately after laying the sod, roll or tamp it to provide firm contact between roots and soil, then irrigate the sod deeply so that the underside of the sod pad and the soil 4 inches below the sod is thoroughly wet.

- e. **Permanent BMPs** – The project construction documents may contain permanent post-construction BMPs to control various pollutants for the life of the post-constructed site. The BMPs contained in this SWPPP are for temporary erosion control only and do not govern the construction or maintenance of any permanent BMPs. The Contractor shall be responsible for proper installation and maintenance of post-construction BMPs.
- f. **Vegetation Buffers** – The Contractor shall preserve existing vegetation wherever possible on all parts of the site. Also, in areas where surface waters are located on or adjacent to the site, the Contractor and Permittee must provide a minimum 25-foot buffer of undisturbed natural vegetation between the disturbed portions of the site and the surface water unless infeasible or where there is a more stringent local requirements. See **Section C.3.e** of the Missouri State Operation Permit (MSOP) in **Appendix A**.
- g. **Wetland Preservation Area** – The Contractor shall preserve all wetland areas shown on the plans. Do not disturb wetland areas as indicated on the plans.

2. Structural Practices (See **Appendix B** for Engineering Plans and Details)

- a. **Silt Fence Barrier** – A temporary sediment barrier consisting of a geotextile fabric shall be installed as shown on the attached engineering plans and details. Silt fencing shall be installed to maintain sediment onsite.

Minimum Requirements:

Location - Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to trees.

Spacing of Support Posts - 5 feet typical with wire fence support. Support posts should be driven into the ground a minimum of 12 inches deep.

Trench - Bottom of fence fabric must be buried within a 6-inch by 6-inch trench.

- b. **Rock Check Dam** – Rock check dams shall be installed at the locations shown on the attached engineering plans and details to protect swales and ditches from excessive erosion and to allow for temporary ponding of sediment laden stormwater.

Minimum Requirements:

Location – The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.

The maximum height of the dam shall be 3 feet.

Removal – Unless permanent, check dams must be removed when their useful life has been completed. In the case of grass-lined ditches, check dams should be removed when the grass has matured sufficiently to protect the ditch or swale.

- c. **Gravel Construction Entrance** – Gravel Construction Entrances have been designed on the plans. Only designated entrances shall be used for construction access to and from the site. The Contractor is responsible for keeping mud cleaned from adjoining streets as necessary.

Minimum Requirements:

- Aggregate Size: 2- to 3-inch course aggregate
- Pad Design: Thickness of 6" minimum, Width of 12' minimum or full width of roadway, and a total length of 50 feet minimum.
- Geotextile Fabric: An underliner of woven geotextile (fabric) may be used under wet conditions to provide stability.

- d. **Erosion Control Blankets** - Erosion control blankets shall be installed per the engineering plans and details. The erosion control blanket shall be installed to provide erosion control and promote vegetation establishment in areas designated by the engineering plans.

Minimum Requirements:

- Slope surface shall be free of rocks, clods, sticks and grass.
- Mats should be installed vertically down slope. Mats shall extend at least 5' beyond the top of the slope.
- Lay mats loosely and stake or staple for good contact with the soil. Mats shall overlap by a minimum of 6 inches. Do not stretch blankets.
- Staking and stapling layout per manufacturer's specifications.
- Seeding and fertilizing shall precede the installation of any erosion control blanket.

- e. **Straw Wattles** – A temporary sediment barrier consisting of a straw and coconut fiber matrix reinforced with a biodegradable netting shall be installed as shown on the attached engineering plans and details. Straw wattles shall be installed to maintain sediment onsite.

Minimum Requirements:

Location – Wattle should be installed along contours where the wattle can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to existing trees.

Spacing of Stakes - 4 feet maximum spacing between stakes along entire length and at each end of wattle. Stakes should be driven into the ground a minimum of 8 inches deep.

Trenching – Wattle shall be installed within a trench per the attached engineering plans and details.

- f. **Good Construction Practices** – The Contractor and Permittee shall responsibly and prudently evaluate the existing surface drainage patterns and make adjustments to the BMP locations to best control erosion and minimize the transport of sediment from the disturbed areas.

3. Non-Storm Water Management

Non-Storm water discharges at construction sites include the following:

- Waterline flushing – from the pressure testing of waterlines
- Irrigation water
- Building and pavement washdown
- Foundation and footing drain – from subsurface drainage systems
- Dewatering – removal of groundwater when excavating
- Dust control
- Vehicle rinse water

If these non-storm water discharges are allowed by the permit, then the discharge should be directed to a sediment filtering/trapping device. If the non-stormwater discharges are not allowed by the permit, then the discharges should be eliminated, apply for a separate permit, or connect the discharge to the sanitary sewer following approval of the local municipality.

4. Project Signage

Per the Missouri State Operating Permit MORA00000 in **Appendix A** (Section C.13, Page 9), the Permittee shall post a copy of the public notification sign as described by the Missouri Department of Natural Resources (MDNR) and be visible at the main entrance to the project site. The sign must remain in place until the project has been stabilized and the permit terminated.

III. CONSTRUCTION PHASE

A. GENERAL CONTRACTOR'S NAME

Mr. or Ms. _____

Company Name _____

Street Address _____

City, State, Zip _____

Phone # () ____-____ Fax # () ____-____

Mobile # () ____-____ Pager # () ____-____

NAME OF EROSION AND POLLUTION CONTROL OFFICER:

Mr. or Ms. _____

Company Name _____

Street Address _____

City, State, Zip _____

Phone # () ____-____ Fax # () ____-____

Mobile # () ____-____ Pager # () ____-____

B. SUBCONTRACTORS

(Check all that apply)

- | | | |
|------------------------------------|--------------------------|---------------------|
| _____ Grading | _____ Storm Sewers | _____ Paving |
| _____ Concrete flatwork | _____ Seeding & Mulching | _____ Gas |
| _____ Blasting | _____ Sanitary Sewers | _____ Curb & Gutter |
| _____ Sediment Controls | _____ Water | _____ Electric |
| _____ Concrete Drainage Structures | | |
| _____ Other: _____ | | |

List all additional subcontractors whose scope of work includes land disturbance activities.

C. UTILITY CONTRACTORS

Add to the list below any utility companies which will be doing work on the site with their own contractors and any other contractors who may have land disturbance activities on the site. The Permittee shall be responsible for notifying each contractor or entity (including utilities) of the existence of this SWPPP and their responsibilities while performing work on site.

Telephone	
Gas	
Electric	
Cable TV	
Water	
Other	

D. DEWATERING

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. See **Section C.3.m**, page 7 of the General Permit in **Appendix A** for further information.

Contractor shall list the details of dewatering activities below:

- Anticipated Methods of Dewatering:

- Anticipated Volume of Water Being Discharged in Gallons per Minute (GPM):

- Maximum Volume of Water to be Discharged in GPM (can be an estimated based on type of dewatering equipment being used):

Discharges from basins and impoundments must draw water from the surface, unless infeasible.

E. MATERIALS INVENTORY

List below all materials which will be stored outside on the site during construction:

_____ Pipe, fittings and joint compounds for underground utility piping

_____ Gravel and stone bedding material

_____ Concrete forming materials

_____ Other (specify) _____

Note: Fuels, oils, and other petroleum products; forming oils and compounds; fertilizers; pesticides; or any other hazardous or toxic compounds shall not be stored outside on the site unless specifically approved in this plan.

F. SEQUENCE OF CONSTRUCTION ACTIVITIES

1. Prior to clearing, topsoil separations, and construction of improvements, install all perimeter BMPs according to the attached engineering plans and details as soon as construction phasing permits.
2. As clearing and grubbing advances, seed and stabilize all disturbances as soon as possible. Maintain all erosion and sediment control measures until the site is stabilized such that a 70 percent density or more of the permanent vegetation is well established for all areas. Remove accumulated sediment and debris from the BMPs as required. Redistribute sediment onsite within the control of the BMP's.
3. When construction of improvements ceases, redistribute the topsoil and begin final restoration of the disturbed areas as shown on the engineering plans and details or as directed by the Owner or Representative.
4. Continually update the SWPPP with project changes as necessary. Perform routine site inspections as detailed in Section III.H and maintain all inspection records and logs.
5. Remove temporary stabilization and structural BMPs when the site is stabilized such that a 70 percent density or more of permanent vegetation is well established for all areas.

Timing of Controls/Measures

Peripheral or border BMPs to control runoff from the disturbed areas shall be installed or marked for preservation before general site clearing is started except for essential clearing activities to gain site access. Once construction activities have permanently ceased, the site shall be permanently seeded, sodded, and/or mulched. After the disturbed site is stabilized such that 70 percent or more of the perennial/permanent vegetation is well established, the accumulated sediment will be removed from erosion control features and the features removed and the location of the control features seeded, sodded, and/or mulched. Excess sediment shall be disposed of on-site in relatively non-erodible areas. Appropriate control measures will be completed with each additional phase utilizing erosion and sediment control measure used in the initial site construction activities.

G. GENERAL SEDIMENT CONTROL PRACTICES

The Contractor shall implement the following general sediment and erosion control practices in addition to specific measures required in **Section II.C** - Erosion and Sediment Controls:

- Prior to initiation of land disturbance activities, the Contractor shall sign the General Contractor's Certification located in **Section X**, complete and sign the Contractor's Certification Form in **Appendix C**, and complete **Section III.A-E**. The Stormwater Pollution Prevention Plan shall be maintained on-site along with a copy of the State and City (if applicable) issued Water Pollution Control General/Operating Permit for the project.
- The Contractor shall install and maintain the erosion control measures shown on the engineering plans and details, and as described in the construction specifications and the Stormwater Pollution Prevention Plan. If the Owner and/or Engineer determine that the installation or the maintenance is inadequate, the Contractor must immediately correct at his or her expense. If it is determined that additional erosion control measures are needed, the Contractor will be directed to install and maintain those measures.
- Stabilization must be initiated immediately and completed within seven (7) calendar days where soil disturbing activities have permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding fourteen (14) calendar days. Allowances may be made due to weather or equipment and all allowances must be documented within this SWPPP.
- If slopes of any area are greater than 3:1 (three feet horizontal to one foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the Contractor shall establish interim stabilization within seven (7) calendar days of ceasing operation in that part of the project site.
- The Contractor shall provide for the control of surface erosion and sediment runoff during all phases of construction and until the Owner accepts the work as complete. The sediment control measures shown are intended to be a general guide as to the measures that will most likely be required during construction. The

Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the erosion controls measures to best control erosion and minimize, if not eliminate, the transport of sediment from disturbed areas. The Contractor shall provide erosion and sediment controls such as and not limited to temporary and permanent seeding, mulching, hydromulch, sodding, tackifiers, filter berms, sediment fence, straw wattle, rolled erosion control products, temporary sediment traps, temporary sediment basins, rock check dams, storm drain inlet protection, geotextiles, or other means to prevent sediment from reaching the public right-of-way, streams, or adjacent properties. In the event the prevention measures are not effective, the Contractor shall remove any debris sediment and restore the damaged areas to original or better condition.

- Erosion and sediment control measures shall be removed when all soil disturbing activities at the site have been completed and a uniform permanent vegetative cover with a density of 70 percent for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been employed.
- Temporary surfacing shall be utilized wherever necessary by the Contractor to permit vehicular or pedestrian traffic without the transport of any sediment onto adjacent surfaces.

H. MAINTENANCE / INSPECTION PROCEDURES

The Contractor shall inspect erosion and sediment controls at a minimum of once every seven (7) calendar days or within 48 hours of any storm event which causes stormwater runoff on the project site. Controls shall be inspected for proper installation, operation and maintenance. Controls must be in good operating condition until the area they protect has been completely stabilized and the construction activities are complete. The Contractor shall maintain a log of each inspection. See **Section V.B** for further inspection information.

The following maintenance and inspection practices are required to be performed by the Contractor to maintain sediment and erosion controls:

- Inspect all mulched areas periodically and after rainstorms for erosion and damage to the mulch. Promptly repair damaged areas and restore to original condition. Continue inspections until vegetation is well established.
- Check temporary seedlings within 2 to 4 weeks of planting to see if stands are of adequate thickness (more than 30% of the ground surface covered). Stands should be uniform and dense for best results. Fertilize, reseed, and mulch bare and sparse areas immediately to prevent erosion. Temporary grass can be mowed when height is greater than 12 inches; however, to prevent damage to temporary grasses, do not mow shorter than 4 inches. Replant temporary or permanent vegetation within 12 months as annual/temporary grasses die off and no longer provide erosion control. Note: Watering of temporary seeded areas may be necessary at the discretion of the Owner during periods of dry weather.
- Check permanent grass seedlings within 4 to 6 weeks after planting. Look for

uniform density with at least 30% of the ground surface covered. Inspect seedlings for erosion or die out for at least a year. To repair bare and sparse areas, fill gullies, re-fertilize, reseed and mulch. Consider mowing after permanent grass has reached a height of 6 to 8 inches. Mow grasses at least 3 inches in height and minimize compaction during the mowing process. Note: Watering of permanent seeded areas may be necessary at the discretion of the Owner during periods of dry weather.

- Keep sod moist until it is fully rooted. Mow sod to a height of 2 to 3 inches after sod is well-rooted, in 2 to 3 weeks. Do not remove more than 1/3 of the leaf blade in any mowing.
- Silt fencing shall be inspected during regularly scheduled inspections and after rainstorms for proper anchorage and leakage underneath. Should the fabric of the sediment fence collapse, tear, decompose, or become ineffective, replace or repair it promptly. Built-up sediment will be removed from silt barriers when it has reached one-half of the height of the barrier. Sediment removal will include removal and disposal in a location where it will not erode into construction areas or watercourses.
- Inspect rock check dams during regularly scheduled inspections and after rainstorms. Check rock check dams for adequate performance, rock placement, washouts, or excess sediment loading. If any issues are noted, the rock check dams shall be maintained as soon as possible.
- Inspect gravel construction entrance during regularly scheduled inspections and after rainstorms. Check entrance for adequate performance, adequate rock depth, or excess sediment loading. If any issues are noted, the entrance shall be maintained as soon as possible.
- Inspect erosion control blankets during regularly scheduled inspections and after rainstorms. Check adequate performance, undermining, unraveling, or any displacement of the blankets. If any issues are noted, the blankets shall be repaired or replaced as soon as possible.
- Straw wattles shall be inspected during regularly scheduled inspections and after rainstorms for proper anchorage and leakage underneath. Should the wattles tear, decompose, or become ineffective, replace or repair it promptly. Built-up sediment will be removed from silt barriers when it has reached one-half of the height of the barrier. Sediment removal will include removal and disposal in a location where it will not erode into construction areas or watercourses.

The following maintenance and inspection practices are optional and may be required to be performed by the Contractor to maintain sediment and erosion controls:

- Inspect temporary road access during regularly scheduled inspections and after rainstorms. Check temporary road access for adequate performance, adequate rock depth, or excess sediment loading. If any issues are noted, the temporary road access shall be maintained as soon as possible.
- Inspect temporary stream crossings during regularly scheduled inspections and after rainstorms. Check temporary stream crossings for adequate performance,

rock placement, washouts, or excess debris accumulation. If any issues are noted, the rock check dams shall be maintained as soon as possible.

- Straw wattle ditch checks shall be inspected during regularly scheduled inspections and after rainstorms for proper anchorage and leakage around the edges or underneath. Should the wattle become misplaced, tear, decompose, or become ineffective, replace or repair it promptly. Built-up sediment will be removed from silt barriers when it has reached three quarters of the height of the barrier. Sediment removal will include removal and disposal in a location where it will not erode into construction areas or watercourses.
- Inspect gravel filter bags during regularly scheduled inspections and after rainstorms. Check gravel filter bags for adequate performance and any other displacement of the bags. If any issues are noted, the gravel filter bags shall be repaired as soon as possible.
- Compost berms shall be inspected during regularly scheduled inspections and after rainstorms for washouts and leakage underneath. Should the berms decompose or become ineffective, replace or repair it promptly. Built-up sediment will be removed from compost berms when it has reached one-half of the height of the barrier. Sediment removal will include removal and disposal in a location where it will not erode into construction areas or watercourses.

IV. SPILL PREVENTION / MATERIAL MANAGEMENT PRACTICES

Best Management Practices (BMPs) shall be utilized as required to prevent contamination of storm water runoff. Such BMPs shall include solid and hazardous waste management for the following:

A. PETROLEUM PRODUCTS

All vehicles kept on the site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations. BMPs shall be used through the installation of containment berms and use of drip pans for petroleum product and liquid storage and containers.

B. FUELING & SERVICING

No fueling, servicing, maintenance, or repair of equipment or machinery may be done within 50 feet of a stream, water quality management area, stream, or sinkhole. Fueling storage shall be inside an appropriately sized secondary containment or shall have soil berms constructed around the tank for spill control.

C. MUD TRACKING

Stabilized temporary construction entrance may be designated on the engineering plan. Only designated entrances can be used for construction access to the site. All efforts shall be made to prevent the deposition of sediment on to roadways through the use of BMPs. The Contractor is responsible for keeping mud cleaned from adjoining

streets on a daily basis if needed. Roadways and curb inlets shall be cleaned weekly or following a rainfall that generates a run-off.

D. DEWATERING

Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods including the anticipated volume of water to be discharged and the anticipated maximum flow discharged from these dewatering activities in gallons per minute. See **Section III.D** of this SWPPP to document dewatering activities on the site.

E. CONCRETE TRUCKS

Concrete washout should be done at the concrete contractor's own plant facilities whenever possible. If on-site concrete washout is necessary, an area shall be designated at a minimum of 50 yards, or as far away as possible, from storm drains or existing watercourses.

F. DISPOSAL OF OIL

No fuels, oils, lubricants, solvent, or other hazardous materials can be disposed of on the site. All hazardous material must be properly disposed of in accordance with State law. For guidance, contact 1-800-361-4827 in Missouri.

G. TRASH/SOLID WASTE

The General Contractor is responsible for disposal of all solid waste from the site in accordance with State law. Dumpsters or other collection facilities must be provided as needed. Solid waste may not be buried on the site. The dumpsters or trash containers shall be used for proper disposal of solid waste such as scrap building material, product/material shipping waste, food containers, and cups.

H. SANITARY WASTE

The General Contractor is responsible for providing sanitary facilities on the site. Sanitary waste may be disposed only in locations having a State permit.

I. OTHER DISCHARGES

Water for pressure testing sanitary sewers, flushing water lines, etc. may be discharged only in approved areas.

In the event that soil contamination or hazardous substances are discovered, the Contractor shall immediately notify the Permittee such that the Permittee can notify the MDNR Kansas City Regional Office by telephone (816-251-0700) no later than 24 hours after discovery. Notification must also be made in writing to the MNDNR Kansas City Regional Office, 500 NE Colbern Rd, Lee's Summit, Mo. 64086 no later than 14 calendar days after discovery.

See **Appendix D** for further information on common construction site pollutants.

J. AIR EMISSIONS

1. Burning: Any burning on the site requires a permit from the Missouri Department of Natural Resources. For guidance call MDNR at (573) 751-4817.

2. Dust Control: The Contractor is required by State law to control fugitive dust blown from the site. Dust can be minimized by stabilizing areas with mulch and watering. Fugitive dust emissions are regulated by the Department of Natural Resources.

K. OTHER GOOD HOUSEKEEPING PRACTICES

In addition to the foregoing, the following good housekeeping practices will be followed during the construction of the project:

- An effort will be made to store only enough products to do the job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The site superintendent shall inspect daily to ensure proper use, storage, and disposal of materials.
- Fertilizers will be applied only in the minimum amounts recommended by the manufacturer.
- All paint containers will be tightly sealed and stored when not required for use. Excess paint will not be dumped into the storm sewer system but will be properly disposed of according to manufacturer's instructions and State regulations.

L. HAZARDOUS PRODUCTS

- Products will be kept in original containers unless they are not resealable. If product is transferred to a new container, it must be properly marked and labeled.
- Original labels and material safety data will be retained.
- If surplus product must be disposed of, disposal must be done in accordance with State law. For local disposal information, contact your solid waste district, your local emergency planning committee (LEPC) or in Missouri call 1-800-361-4827.
- Containers shall be provided for proper disposal of waste paints, solvents, and cleaning compounds.

M. SPILL CONTROLS

The Erosion and Pollution Control Officer will be the spill prevention and cleanup coordinator. In addition to the good housekeeping practices and material management

practices listed in the previous sections of this plan, the following practices will be followed for spill prevention and clean-up:

- Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Material and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported immediately to the *Local Emergency Planning Committee (LEPC)*, regardless of the size of the spill. The permittee or his authorized representative is required to notify the MDNR Environmental Emergency Response in accordance with 40CFR117 and 40CFR302 as soon as they have knowledge of the discharge of any hazardous substance or petroleum product in excess of the reportable quantity. The MDNR emergency spills hot line should be contacted at 1-573-634-2436.

N. SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

There are no sampling requirements required as a part of this plan; however the local, state, or federal agencies may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of on-site or off-site contamination from activities at the site. If such an action is needed, MDNR will specify in writing any sampling requirements, including any such information as location, extent, and parameters. MDNR may take samples as part of routine inspections or complaint investigation for storm events up to the local 2-year, 24-hour storm.

Per the MSOP (See **Appendix A**), the effluent limitation for settleable solids shall not exceed 2.5 ml/L as measured using the Standard Method 2540 F. The Contractor shall select and maintain appropriate BMPs to comply with this effluent limitation.

V. IMPLEMENTATION / UPDATING THE SWPPP

A. AMENDING THE SWPPP

The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP, at a minimum, whenever the:

- a. Design, operation, or maintenance of BMPs is changed.
- b. Design of the construction project is changed that could significantly affect the quality of the storm water discharges.

-
- c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP.
 - d. MDNR notifies the permittee of deficiencies in the SWPPP.
 - e. SWPPP is determined to be ineffective in significantly minimizing or controlling erosion and sedimentation (e.g., there is visual evidence, such as excessive site erosion or excessive sediment deposits in streams or lakes).
 - f. MDNR determines violations of Water Quality Standards may occur or have occurred.

For further information on SWPPP amendments, see **Section C.8** of the General Permit in **Appendix A**.

B. SITE INSPECTIONS

The Contractor shall ensure the land disturbance site is inspected at least once every seven (7) calendar days and within 48 hours of any storm event which causes stormwater runoff on the project site. If the rain event ceases during a non-work day such as a weekend or holiday, the site must be inspected within 72 hours. The Erosion and Pollution Control Officer for the project shall be responsible for keeping track of rain events on the project site. Locations where storm water leaves the site shall be inspected for evidence of erosion or sediment deposition to a distance of 50 feet downstream, where possible. Any deficiencies shall be noted in a report of the inspection and corrected within seven (7) calendar days of the inspection. The permittee shall promptly notify the site contractor(s) responsible for operation and maintenance of BMPs of deficiencies. If deficiencies cannot be corrected within 7 days, the delay must be documented (including pictures) and a narrative included in the SWPPP explaining the delay. Areas on site which have achieved final stabilization must be inspected once per month.

See **Appendix E** for the Site Inspection Form to be used when conducting site inspections. A log of each inspection shall be kept. See **Appendix F**. The Site Inspection Form is to include the following minimum information: inspector's name, date of inspection, observation relative to the effectiveness of the BMPs, actions taken or necessary to correct deficiencies, and listing of areas where land disturbance operations have permanently or temporarily stopped. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so.

Completed Site Inspection Forms shall be kept with this SWPPP. See **Appendix G** for a pocket to hold completed Site Inspection Forms.

C. PROPER OPERATION AND MAINTENANCE

The Contractor shall, at all times, maintain all pollution control measures and systems in good order to achieve compliance with the terms of this general permit. The need to halt or reduce the permitted activity in order to maintain compliance with general permit conditions shall not be a defense to the permittee in an enforcement action.

D. NOTIFICATION TO ALL CONTRACTORS

The permittee shall notify each contractor or entity (including utility crews and city employees or their agents) who will perform work at the site of the existence of the SWPPP and what action or precautions shall be taken while on site to minimize the potential for erosion or pollution and the potential for damaging any BMP. If additional land is disturbed or any BMP damaged, then the permittee shall cause to have the Contractor repair the disturbed or damage areas at the Contractor's expense.

VI. RECORDS OF INSPECTION

- A.** If construction ceases prior to final stabilization occurring, the permittee shall retain copies of the general permit, the SWPPP and all amendments for the site names in the MSOP, results of any monitoring and analysis, and all site inspection records required by the general permit. The permittee shall retain these permit records at a site which is readily available from the permitted site until final stabilization of a site is achieved. The local office of the permittee, their contractor or consultant, is considered to be readily available from the project site if it is located in the same county as the project site. The permit records shall be accessible during normal business hours. After final stabilization, the permit records may be maintained at the location of the permittee's main office. The permit records shall be retained for a period of at least three years from the termination of General Permit coverage.

- B.** The permittee shall provide a copy of the SWPPP to MDNR, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.

The permittee shall provide those who are responsible for installation, operation, or maintenance of any BMP a copy of the SWPPP.

The permittee, their representative, and/or the contractor(s) responsible for installation, operation, and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

VII. TRANSFER OF OWNERSHIP

- A. Individual Lot or Lots:** Federal and State storm water regulations require a storm water permit and erosion control for one acre or more disturbed as part of a common plan or sale. That language means the individual lots (commercial, industrial, or residential) when sold to an entity for construction (unless sold to an individual for purposes of building their own private residence) are also subject to storm water regulations because they are part of the common sale.

VIII. TERMINATION

The permit shall be terminated when the project is stabilized. The project is considered to be stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, permanent vegetative cover shall be at least 70% of fully established plant density over 100% of the disturbed area.

In order to terminate the permit, the permittee shall notify MDNR by submitting Form H (See **Appendix H**). The permittee shall complete Form H and mail it to MDNR at the address noted in the cover letter of the permit.

The general permit will expire five years from the “effective date” of the permit. The “issue date” is the date the MSOP is issued to the applicant. The “expiration date” may or may not coincide with the date when the authorized project or development is scheduled for completion.

If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to MDNR for the permit to be re-issued. The permittee will receive notification of the expiration date of the permit 180 days before the expiration date listed on page 1 of the permit. In order for the permit to be re-issued, the permittee should submit the appropriate application form(s) at least 180 days before the expiration of the permit if land disturbance activity is expected to continue past the expiration date of this general permit.

A. DUTY TO COMPLY

The permittee shall comply with all conditions of this general permit. Any noncompliance with this general permit constitutes a violation of Chapter 644, Missouri Clean Water Law, and 10 CSR 20-6.200. Noncompliance may result in enforcement action, termination of this authorization, or denial of the permittee’s request for renewal.

B. MAILING ADDRESS

The permittee shall send all written correspondence and forms which are to be submitted to MDNR to the address listed in the cover letter that accompanies the permit.

IX. ACTION ITEMS

Below is a list of action items required by the SWPPP to help the Permittee and Contractor stay in compliance:

- Permittee and Contractor - Read and understand this SWPPP and the MDNR Missouri State Operating Permit MORA00000 in **Appendix A**.
- Permittee and Contractor - Owner and General Contractor sign on **Section X**.

-
- Contractor - Fill out the General Contractor's information in **Section III:A-E**.
 - Contractor - Complete the Contractor's Certification Form in **Appendix C**.
 - Contractor – Amend the SWPPP drawings with pertinent project site specific information as construction progresses (i.e. dates of BMP installations and removals, BMP installation location, BMP removal location, changes to BMP types, project site changes, additional BMPs, stabilized areas, etc.)
 - Contractor - Per **Section V.B**, inspect the site once every seven (7) calendar days and within 48 hours of the end of a precipitation event which causes storm water runoff on the project site. Use the Site Inspection Form in **Appendix E** to record the findings.
 - Contractor - A record log of all Site Inspections shall be kept on the Site Inspection Log in **Appendix F**.
 - Permittee - When all project areas achieve final stabilization to the satisfaction of the Operating Permit and this SWPPP, fill out and submit Form H – Request for Termination of a General Permit – MO780-1409 in **Appendix H**.

X. SIGNATURES

OWNER'S CERTIFICATION

I hereby certify that I am the owner of the property described in this plan, or his legally authorized agent, and that I assume full responsibility for the performance of the operation stated in this plan.

OWNER_____

By:_____ Title:_____

Date:_____

GENERAL CONTRACTOR'S CERTIFICATION

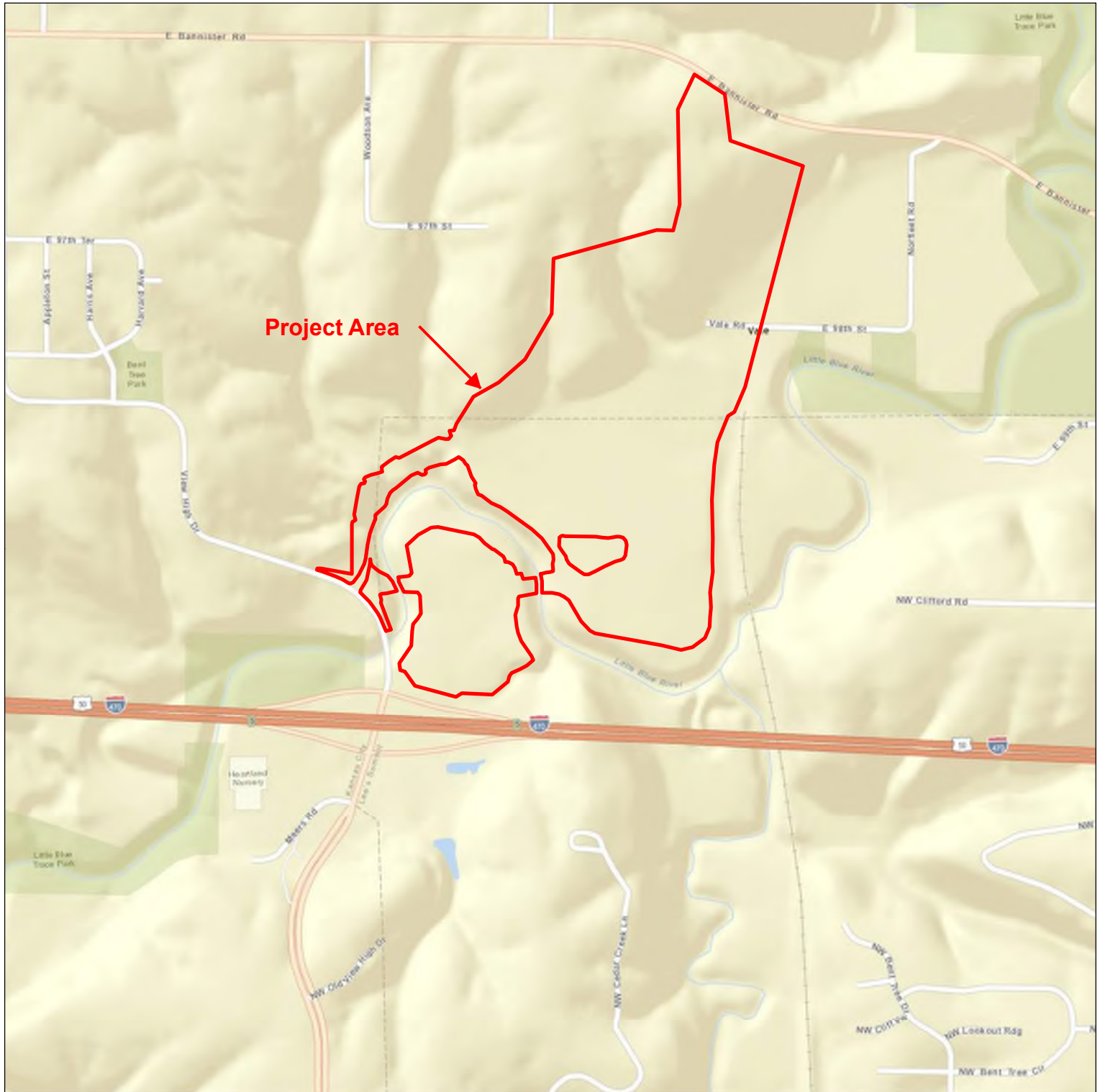
I hereby certify that I understand the requirements stated in this plan, that I am responsible for completing the requirements set forth in this SWPPP and shown on the Sediment & Erosion Control Plan, and that I am responsible for the performance of the subcontractors listed in the plan.

GENERAL CONTRACTOR_____

By:_____ Title:_____

Date:_____

FIGURES



Source: ESRI World Street Map - <http://services.arcgisonline.com>

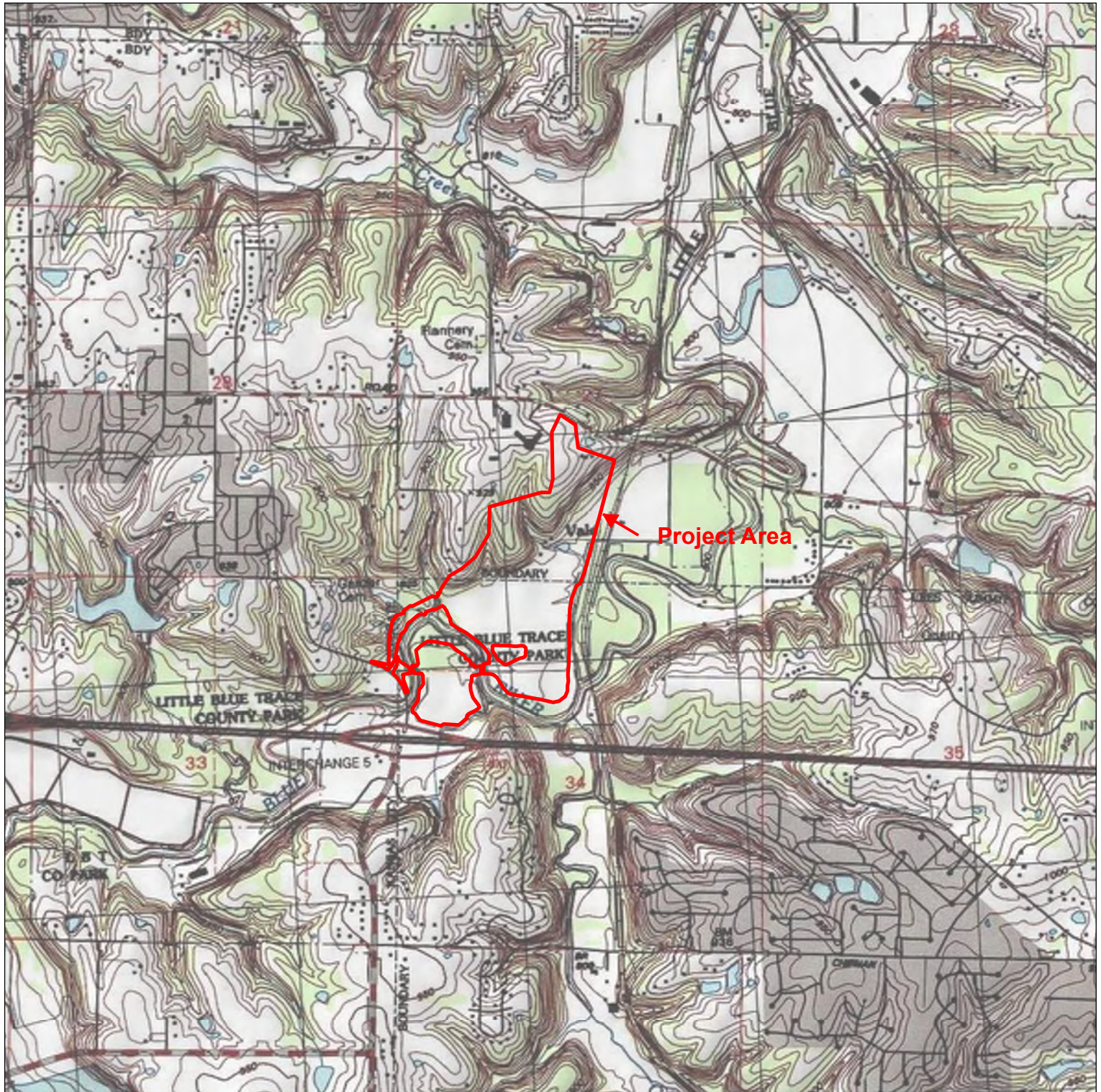
Project Location: Sections 33 & 34, Township 48N, Range 32W

Legend

 Project Area



1 inch = 1,000 feet

**Legend**

Project Area



1 inch = 2,000 feet

Source: ESRI USA Topo Maps - <http://services.arcgisonline.com>
USGS 7.5 Minute Quadrangle - Lee's Summit, MO 1990

Project Location: Sections 33 & 34, Township 48N, Range 32W

**Legend**

- Project Area
- Soil Boundaries

10113 - Oska silty clay loam, 5-9% Slopes
 10120 - Sharpsburg silt loam, 2-5% Slopes
 10141 - Sneed-Rock outcrop complex, 14-30% Slopes

36007 - Bremer silt loam, 0-2% Slopes
 36020 - Kennebec silt loam, 0-2% Slopes
 99033 - Udarents-Urban land complex, 2-9%

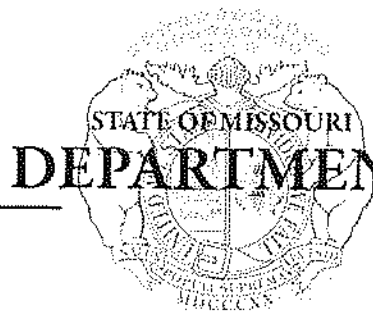
Source: ESRI World Imagery - <http://services.arcgisonline.com>
 SSURGO Soil Outlines - <http://websoilsurvey.sc.egov.usda.gov/>

Project Location: Sections 33 & 34, Township 48N, Range 32W



1 inch = 1,000 feet

APPENDIX A
Missouri State Operating Permit



Eric R. Greitens, Governor • Carol S. Comer, Acting Director

DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

Paragon Star
MORA09666, Jackson County
Paragon Star
801 NW Commerce Dr
Lee's Summit, MO 64086

Enclosed please find your Missouri State Operating Permit which authorizes land disturbance activities for MORA09666. This permit has been issued as requested and is based upon application information entered in the Missouri Department of Natural Resources' (department) ePermitting program. This permit contains several requirements and should be thoroughly read and understood. Please reference General Operating Permit number MORA09666 for future correspondences with the department with regards to this land disturbance activity.

Acquisition of the permit does not imply that the requirements or ordinances of other local, state or federal permits are replaced or superseded. This permit does not authorize land disturbance activity in jurisdictional waters of the United States as defined by the Army Corps of Engineers (Corps), unless the permittee has obtained the required Clean Water Act Section 404 Permit. Not all land disturbance projects will require a 404 permit; however, if a 404 permit is required, land disturbance activities are not to be conducted in the jurisdictional area of the project until the 404 permit has been obtained.

Please contact the applicable Regional Office if you would like to Schedule a Compliance Assistance Visit (CAV). Regional Office contact information is contained with the documents issued with the operating permit. During the visit, department staff will review the requirements of the permit and answer questions pertaining to Land Disturbance activities.

Sincerely,

Water Protection Program

David J Lamb
Acting Director

DJL

Paragon Star
MORA09666

ePermitting Certification and Signature Document

Missouri State Operating General Permit number MORA09666 was issued on 02/22/2017 based on information entered into the Missouri Department of Natural Resources' electronic Permitting (ePermitting) system. Missouri Regulation 10 CSR 20-6.010(2)(B) requires that all applications for construction and operating permits be signed. Please print, review, sign, and mail this document to the Missouri Department of Natural Resources (Department) within 30 days of the Issue Date (02/22/2017).

If the Department does not receive this document with signature within 30 days, this general operating permit may be considered not valid and subsequently revoked.

Paragon Star, Jackson County
View High Drive and Interstate 470
LEE'S SUMMIT, MO 64081
Total Permitted Area: 316.96 Acres
Total Number of Permitted Features: 2

The below Certifications were electronically certified in the ePermitting system by:

Name: Andy Keidel

Title:

Date: 02/22/2017

Based upon the selection you made on the 'New Permit' screen; it was indicated that a single polygon was drawn indicating the entire disturbance area.

Is any part of the area that is being disturbed in a jurisdictional water of the United States? If yes, you must also receive a Clean Water Act, Section 404 Permit for this site from the United States Army Corp of Engineers.

Yes

I understand there may be an established Local Authority Erosion Control Plan in the city or the unincorporated area of the county where land disturbance activities covered under this general permit will occur. (Note - you may want to contact your local authority to determine if there are any requirements).

Agreed

A Storm Water Pollution Prevention Plan (SWPPP) must be developed for this site. This plan must be developed in accordance with requirements and guidelines specified within the general permit for storm water discharges from land disturbance activities. The application, as completed in ePermitting is considered incomplete if the SWPPP has not been developed.

Agreed

I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and being granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, and terms of this permit, subject to any legitimate appeal available to an applicant under the Missouri Clean Water Commission.

Agreed

Signature

Date

The above must be signed by the Owner, Continuing Authority, or Main Facility Contact. Please send this document with original signature to the Water Protection Program, PO Box 176, Jefferson City, MO 65102. If you do not agree with the above Certifications, please contact the Department by phone at (573) 751-1300.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (chapter 644 R.S. Mo as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MORA09666
Owner: Paragon Star
Address: 801 NW Commerce Dr
Lee's Summit, MO 64086
Continuing Authority: Paragon Star
801 NW Commerce Dr
Lee's Summit, MO 64086
Facility Name: Paragon Star
Facility Address: View High Drive and Interstate 470
LEE'S SUMMIT, MO 64081
Legal Description: See Next Page
UTM Coordinates: See Next Page
Receiving Stream: See Next Page
First Classified Stream - ID#: See Next Page
USGS# and Sub Watershed#: See Next Page

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION All Outfalls SIC # 1629

All Outfalls - Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling and other activities that result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state).

This permit authorizes only wastewater, including storm water, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with RSMo Section 644.051.6 and 621.250, 10 CSR 20-6.020, and 10 CSR 20-1.020.

02/22/2017

Issue date

Steven Feeler, Acting Director, Division of Environmental Quality

02/07/2022

Expiration date

David J Lamb, Acting Director, Water Protection Program

Outfall Number: 002
Legal Description: Sec. 27, T 48N, R 32W, Jackson County
UTM Coordinates: 375267.031 / 4312119.103
Receiving Stream: Tributary to L. Blue R. (U)
First Classified Stream - ID#: L. Blue R. (P) 303(d) 422.00
USGS# and Sub Watershed#: 10300101 - 0204

Outfall Number: 001
Legal Description: Sec. 34, T 48N, R 32W, Jackson County
UTM Coordinates: 374889.422 / 4311104.720
Receiving Stream: Tributary to L. Blue R. (U)
First Classified Stream - ID#: L. Blue R. (P) 303(d) 422.00
USGS# and Sub Watershed#: 10300101 - 0203

APPLICABILITY

1. This general permit authorizes the discharge of stormwater and certain non-stormwater discharges from land disturbance sites that disturb one or more acres or disturb less than one acre when part of a larger common plan of development or sale that will disturb a cumulative total of one or more acres over the life of the project. This general permit also authorizes the discharge of stormwater and certain non-stormwater discharges from smaller projects where the Missouri Department of Natural Resources (Department) has exercised its discretion to require a permit [10 CSR 20-6.200 (1)(B)].

A Missouri State Operating Permit that specifically identifies the project must be issued before any site vegetation is removed or the site disturbed.

Any site owner/operator subject to these requirements for stormwater discharges and who disturbs land prior to permit issuance from the Department is in violation of both State and Federal Laws.

The legal owner of the property or the holder of an easement on the property, and operator on which the site is located are responsible for compliance with this permit.

2. This permit authorizes non-stormwater discharges from the following activities provided that these discharges are addressed in the permittee's specific Stormwater Pollution Prevention Plan (SWPPP) required by this general permit:
 - a. De-watering activities if there are no contaminants other than sediment present in the discharge, and the discharge is treated as specified in Requirements, Section C.8.m. of this permit;
 - b. Flushing water hydrants and potable water lines;
 - c. Water only (i.e., without detergents or additives) rinsing of streets and buildings; and
 - d. Site watering to establish vegetation.
3. This general permit does not authorize the placement of fill materials in flood plains, the obstruction of stream flow, directing stormwater across private property not owned or operated by the permittee, or changing the channel of a defined drainage course. This general permit addresses only the quality of the stormwater runoff and the minimization of off-site migration of sediments and other water contaminants.
4. This permit does not authorize land disturbance activity in jurisdictional waters of the United States as defined by the U.S. Army Corps of Engineers, unless the permittee has obtained the required Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and its associated Section 401 Water Quality Certification from the department. Land disturbance activities may not begin in the affected waters of the United States until the required 404 permit and 401 certification have been obtained.
5. This general permit prohibits any discharge of wastewater generated from air pollution control equipment or the containment of scrubber water in lined ponds to waters of the state.
6. This general permit prohibits any discharge of sewage or pollutants to waters of the state including but not limited to:
 - a. Any hazardous material, oil, lubricant, solid waste or other non-naturally occurring substance from the site, including fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
 - b. Soaps or solvents used in vehicle and equipment washing;
 - c. Hazardous substances or petroleum products from an on-site spill or handling and disposal practices;

APPLICABILITY (continued)

- d. Wash and/or rinse waters from concrete mixing equipment including ready mix concrete trucks, unless managed by an appropriate control. Any such pollutants must be adequately treated and addressed in the SWPPP, and cannot be discharged to waters of the state;
 - e. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
 - f. Domestic wastewaters, including gray waters; or
 - g. Industrial stormwater runoff.
6. The Department reserves the right to revoke or deny coverage under this general permit to applicants for stormwater discharges from land disturbance activities at sites that have contaminated soils that will be disturbed by the land disturbance activity or where such materials are brought to the site to use as fill or borrow. A site-specific permit may be required to cover such activities.
7. Discharges to waters of the state shall not cause violations of the Water Quality Standards 10 CSR 20-7.031, including both specific and general criteria. If at any time the Department determines that the quality of waters of the state may be better protected by requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may require any person to obtain a site-specific operating permit [10 CSR 20-6.010(13)(C)].

The Department may require the permittee to apply for and obtain a site-specific or different general permit if:

- a. The permittee is not in compliance with the conditions of this general permit;
- b. The discharge no longer qualifies for this general permit due to changed site conditions and/or regulations; or
- c. Information becomes available that indicates water quality standards have been or may be violated.

The permittee will be notified in writing of the requirement to apply for a site-specific permit or a different general permit. When a site-specific permit or different general permit is issued to the authorized permittee, the applicability of this general permit to the permittee is automatically terminated upon the effective date of the site specific or different general permit.

8. Any owner/operator authorized by a general permit may request to be excluded from the coverage of the general permit and apply for a site-specific permit [10 CSR 20-6.010(13) (D)].
9. This operating permit does not affect, remove, or replace any requirement of the National Environmental Policy Act, the Endangered Species Act; the National Historic Preservation Act; the Comprehensive Environmental Response, Compensation and Liability Act; or the Resource Conservation and Recovery Act. Determination of applicability to the above mentioned acts is the responsibility of the permittee.
10. This permit does not supersede any requirement for obtaining project approval under an established local authority.
11. This permit is not transferable to other owners or operators.

EXEMPTIONS FROM PERMIT REQUIREMENTS

1. Facilities that discharge all stormwater runoff directly to a combined sewer system are exempt from stormwater permit requirements.
2. Land disturbance activity as described in 10 CSR 20-6.200(1) (B) and 10 CSR 20-6.010(1) (B) where water quality standards are not exceeded.
3. Oil and gas related activities as listed in 40 C.F.R § 122.26(a) (2) (ii) where water quality standards are not exceeded.

REQUIREMENTS

1. This permit is to ensure the design, installation and maintenance of effective erosion and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:
 - a. Control stormwater volume and velocity within the site to minimize soil erosion;
 - b. Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion;
 - c. Minimize the amount of soil exposed during construction activity;
 - d. Minimize the disturbance of steep slopes;
 - e. Minimize sediment discharges from the site. Design, install and maintain erosion and sediment controls that address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle size expected to be present on the site;
 - f. Provide and maintain natural buffers around surface waters as detailed in 8.f, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration and filtering, unless infeasible; and
 - g. Minimize soil compaction and, unless infeasible, preserve topsoil.
 - h. Capture or treat a 2-year, 24-hour storm event. A 2-year, 24-hour storm event shall be determined for the project location using the National Oceanic and Atmospheric Administration's National Weather Service Atlas 14 which can be located at <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
2. Installation of Best Management Practices (BMP) necessary to prevent soil erosion at the project boundary must be complete prior to the start of all phases of construction.
3. Install sediment controls along any perimeter areas of the site that will receive pollutant discharges.
 - a. Remove any sediment per the manufacturer's instructions or before it has accumulated to one-half of the above-ground height of any perimeter control.
 - b. For sites where perimeter controls are infeasible, other practices shall be implemented to minimize discharges to perimeter areas of the site.
4. BMPs shall be maintained and remain in effective operating condition during the entire duration of the project, with repairs made within the timeframe specified elsewhere in this permit, until final stabilization has been achieved.
5. Minimize sediment trackout from the site.
 - a. Restrict vehicle traffic to properly designed exit points.
 - b. Use appropriate stabilization techniques at all points that exit onto paved roads.
 - c. Remove any sediment that has been tracked out within the same business day or by the end of the next business day if trackout occurs on a non-business day.

REQUIREMENTS (continued)

6. The primary requirement of this permit is the development and implementation of a SWPPP which incorporates site specific practices to best minimize the soil exposure, soil erosion, and the discharge of pollutants. The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this general permit throughout the term of the land disturbance project. **The SWPPP must be developed prior to issuance of the permit and must be specific to the land disturbance activities at the site.** A permit must be issued before any disturbance of root zone of the existing vegetation or other land disturbance activities may begin. Either an electronic copy or a paper copy of the SWPPP must be accessible to anyone on-site at all times when land disturbance operations are in progress, or other operational activities that may affect the maintenance or integrity of the BMP structures and made available as specified under the Records Section of this permit.
7. The SWPPP must:
 - a. List and describe all outfalls;
 - b. Incorporate required practices identified below;
 - c. Incorporate erosion control practices specific to site conditions;
 - d. Provide for maintenance and adherence to the plan;
 - e. Discuss whether or not a 404/401 Permit is required for the project; and
 - f. Name the person responsible for inspection, operation and maintenance of BMPs.

The purpose of the SWPPP is to ensure the design, implementation, management and maintenance of BMPs in order to prevent sediment and other pollutants in stormwater discharges associated with the land disturbance activities; compliance with the Missouri Water Quality Standards; and compliance with the terms and conditions of this general permit.

The permittee shall select, install, use, operate and maintain appropriate BMPs for the permitted site. The following manuals are acceptable resources for the selection of appropriate BMPs. *Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*, (Document number EPA 833-R-06-004) published by the United States Environmental Protection Agency (USEPA) in May 2007. This manual as well as other information, including examples of construction SWPPPs, is available at the USEPA internet site at https://www3.epa.gov/npdes/pubs/industrial_swppp_guide.pdf; and

The latest version of *Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri*, published by the Missouri Department of Natural Resources. This manual is available on the Department's internet site at: <http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm>.

The permittee is not limited to the use of these guidance manuals. Other guidance publications may be used to select appropriate BMPs. However, all BMPs should be described and justified in the SWPPP.

8. SWPPP Requirements: The following information and practices shall be provided for in the SWPPP:
 - a. Nature of the Construction Activity: The SWPPP briefly must describe the nature of the construction activity, including:
 - 1) The function of the project (e.g., low density residential, shopping mall, highway, etc.);
 - 2) The intended sequence and timing of activities that disturb the soils at the site;
 - 3) Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities including off-site borrow and fill areas; and
 - 4) A general map (e.g., United States Geological Survey quadrangle map, a portion of a city or county map, or other map) with enough detail to identify the location of the construction site and waters of the State within one mile of the site.

REQUIREMENTS (continued)

- b. Site Map: The SWPPP must contain a legible site map showing the site boundaries and outfalls and identifying:
 - 1) Direction(s) of stormwater flow and approximate slopes anticipated after grading activities;
 - 2) Areas of soil disturbance and areas that will not be disturbed (or a statement that all areas of the site will be disturbed unless otherwise noted);
 - 3) Location of major structural and non-structural BMPs identified in the SWPPP;
 - 4) Locations where stabilization practices are expected to occur;
 - 5) Locations of off-site material, waste, borrow or equipment storage areas;
 - 6) Locations of all waters of the state (including wetlands);
 - 7) Locations where stormwater discharges to a surface water; and
 - 8) Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.
- c. Site Description: In order to identify the site, the SWPPP shall include facility and outfall information. The SWPPP shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs.
- d. Selection of Temporary and Permanent BMPs: The permittee shall select appropriate BMPs for use at the site and list them in the SWPPP.
- e. The SWPPP shall require existing vegetation and trees to be preserved where practical.
- f. For surface waters of the state, defined as "all waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common, located on or adjacent to the site, the permittee must:
 - 1) Provide and maintain a 50-foot undisturbed natural buffer;
 - 2) Provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer; or
 - 3) If infeasible to provide and maintain an undisturbed natural buffer of any size, implement erosion and sediment controls to achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
 - 4) Where you are retaining a buffer of any size, the buffer should be measured perpendicularly from any of the following points, whichever is further landward from the water:
 - i. The ordinary high water mark of the water body, defined as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris; or
 - ii. The edge of the stream or river bank, bluff, or cliff, whichever is applicable.
- g. Description of BMPs: The SWPPP shall include a description of both structural and non-structural BMPs that will be used at the site.

The SWPPP shall provide the following general information for each BMP which will be used one or more times at the site:

- 1) Physical description of the BMP;
- 2) Site conditions that must be met for effective use of the BMP;
- 3) BMP installation/construction procedures, including typical drawings; and
- 4) Operation and maintenance procedures for the BMP.

REQUIREMENTS (continued)

The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:

- 1) Whether the BMP is temporary or permanent;
- 2) Where, in relation to other site features, the BMP is to be located;
- 3) When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project; and
- 4) Site conditions that must be met before removal of the BMP if the BMP is not a permanent BMP.

- h. Disturbed Areas: Slopes for disturbed areas must be defined in the SWPPP. A site map or maps defining the sloped areas for all phases of the project must be included in the SWPPP.

For soil disturbing activities that have been temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days:

- 1) The permittee shall construct BMPs to establish interim stabilization; and
- 2) Stabilization must be initiated immediately and completed within 14 calendar days.

For soil disturbing activities that have been permanently ceased on any portion of the site, final stabilization of disturbed areas must be initiated immediately and completed within 14 calendar days.

Allowances to the 14 day completion period for temporary and final stabilization may be made due to weather and equipment malfunctions. The use of allowances shall be documented in the SWPPP.

Interim stabilization shall consist of well-established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution over an extended period of time. This may require adding more BMPs to an area than is normally used during daily operations. These BMPs may include a combination of sediment basins, check dams, sediment fences and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (three feet horizontal to one foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee shall establish interim stabilization within seven days of ceasing operations on that part of the site.

If vegetative stabilization measures are being implemented, stabilization is considered "installed" when all activities necessary to seed or plant the area are completed.

- i. Installation: The permittee shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP. Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Note that this requirement does not apply to earth disturbances related to initial site clearing and establishing entry, exit and access of the site, which may require that stormwater controls be installed immediately after the earth disturbance. For phased projects, BMPs shall be properly installed as necessary prior to construction activities. Stormwater discharges from disturbed areas which leave the site shall pass through an appropriate impediment to sediment movement such as a sedimentation basin, sediment traps and silt fences prior to leaving the land disturbance site. A drainage course change shall be clearly marked on a site map and described in the SWPPP.
- j. Sedimentation Basins: The SWPPP shall include a sedimentation basin for each drainage area with ten or more acres disturbed at one time. The sedimentation basin shall be sized to treat a local 2-year, 24-hour storm. Accumulated sediment shall be removed from the basin when basin is 50% full. Utilize outlet structures that withdraw water from the surface when

REQUIREMENTS (continued)

discharging from basins and impoundments unless infeasible. Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream. The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin is infeasible, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. These similarly effective BMPs shall be selected from appropriate BMP guidance documents authorized by this permit. The BMPs must provide equivalent water quality protection to achieve compliance with this permit. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

- k. Pollution Prevention Measures: The SWPPP shall include BMPs for pollution prevention measures. At minimum such measures must be designed, installed, implemented and maintained to:
 - 1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
 - 2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater;
 - 3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. Included but not limited to the installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers; and
 - 4) Prevent discharges from causing or contributing to an exceedance of water quality standards including general criteria.
- l. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs. Stormwater inlets susceptible to receiving sediment from the permitted land disturbance site shall have curb inlet protection. Where stormwater will flow off the end of where a roadway terminates, a sediment catching BMP such as gravel berm or silt fence shall be provided. Curb inlets shall be cleaned weekly or following a rainfall that generates a run-off.
- m. Dewatering: Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls. The SWPPP shall include a description of any anticipated dewatering methods. An estimation of the volume of water discharged from these dewatering activities shall be kept with the SWPPP after each discharge has ended along with the type and maximum capacity (e.g., flow rate) of equipment used. The SWPPP shall call for specific BMPs designed to treat water pumped from trenches and excavations and in no case shall this water be pumped off-site without being treated by the specified BMPs.
9. Good housekeeping practices shall be maintained at all times to keep waste from entering waters of the state. Solid and hazardous waste management include providing trash containers and regular site cleanup for proper disposal of solid waste such as scrap building material, product/material shipping waste, food containers and cups, and providing containers and proper disposal of waste paints, solvents and cleaning compounds. The provision of portable toilets for proper disposal of sanitary sewage and the storage of construction materials should be kept away from drainage courses and low areas.

REQUIREMENTS (continued)

10. All fueling facilities present shall at all times adhere to applicable federal and state regulations concerning underground storage, above ground storage and dispensers.
11. Hazardous wastes that are transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations.
12. All paint, solvents, petroleum products, petroleum waste products and storage containers such as drums, cans, or cartons shall be stored according to BMPs. The materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the inspection of BMPs.
13. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP at a minimum whenever the:
 - a. Design, operation, or maintenance of BMPs is changed;
 - b. Design of the construction project is changed that could significantly affect the quality of the stormwater discharges;
 - c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
 - d. Department notifies the permittee in writing of deficiencies in the SWPPP;
 - e. SWPPP is determined to be ineffective in minimizing or controlling erosion and sedimentation (e.g., there is visual evidence of excessive site erosion or excessive sediment deposits in streams or lakes); and/or
 - f. Department determines violations of water quality standards may occur or have occurred.
14. An individual shall be designated by the permittee as the lead for environmental matters. The lead individual for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The lead individual for environmental matters or a designated inspector knowledgeable in erosion, sediment and stormwater control principles shall inspect all structures that function to prevent pollution of waters of the state.
15. Site Inspections Reports: The permittee (or a representative of the permittee) shall conduct regularly scheduled inspections. These inspections shall be conducted by a qualified person, one who is responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance. All stormwater outfalls shall be inspected for evidence of erosion or sediment deposition. When practicable the receiving stream shall also be inspected for 50 feet downstream of the outfall. Any structural or maintenance problems shall be noted in an inspection report and corrected as soon as possible but no more than seven calendar days after the inspection. All BMPs must be inspected in accordance to one of the two schedules listed below, and any changes to the frequency of inspections, including switching between the options listed below, must be documented in the SWPPP:
 - a. At least once every seven calendar days and within 48 hours after any storm event equal to or greater than a 2-year, 24-hour storm has ceased during a normal work day and within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday; or
 - b. Once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches of precipitation or greater, or the occurrence of runoff from snowmelt. To determine if a storm event of 0.25 inches or greater has occurred on your site, you must either keep a properly maintained rain gauge on site, or obtain the storm event information from a weather station for your location.
 - 1) Inspections are only required during the project's normal working hours.

REQUIREMENTS (continued)

- 2) You must conduct an inspection within 24 hours once a storm event has produced 0.25 inches within a 24 hour period, even if the storm event is still continuing.
- 3) If you have elected to inspect every 14 calendar days and there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.25 inches or more of rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.

The SWPPP must explain how the person responsible for erosion control will be notified when stormwater runoff occurs. If weather conditions prevent correction of BMPs within seven calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within the seven day time period. The documentation must be filed with the regular inspection reports. The permittee shall correct the problem as soon as weather conditions allow. Areas on-site that have been finally stabilized must be inspected at least once per month.

A log of each inspection and copy of the inspection report shall be kept readily accessible and must be available upon request by the Department. Electronic logs are acceptable as long as reports can be provided in a timely manner. If inspection reports are kept off-site, your SWPPP must indicate where they are stored. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so. The inspection report is to include the following minimum information:

- a. Inspector's name;
 - b. Date of inspection;
 - c. Observations relative to the effectiveness of the BMPs;
 - d. Actions taken or necessary to correct the observed problem; and
 - e. Listing of areas where land disturbance operations have permanently or temporarily stopped.
16. Notification to All Contractors: The permittee shall be responsible for notifying each contractor or entity (including utility crews and city employees or their agents) who will perform work at the site of the existence of the SWPPP and what action or precautions shall be taken while on-site to minimize the potential for erosion and the potential for damaging any BMP. The permittee is responsible for any damage a subcontractor may do to established BMPs and any subsequent water quality violation resulting from the damage.
17. Public Notification: The permittee shall post a copy of the public notification sign described by the Department at the main entrance to the site. The public notification sign must be visible from the public road that provides access to the site's main entrance. An alternate location is acceptable provided the public can see it and it is noted in the SWPPP. The public notification sign must remain posted at the site until the permit has been terminated.

OTHER DISCHARGES

1. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the Stormwater Pollution Prevention Plan (SWPPP) and made available to the department upon request. The department may also require the submittal of a written or electronic report detailing measures taken to clean up the spill within five (5) days of the spill. Such a report must include the type of material spilled, volume, date of spill, date clean-up was completed, clean-up method, and final disposal method. If the spill occurs outside of normal business hours, or if the permit holder cannot reach regional office staff for any reason, the permit holder is instructed to report the spill to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. Leaving a message on a department staff member voice-mail does not satisfy this reporting requirement.

REQUIREMENTS (continued)

2. Removed substances: Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

The Department may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of contamination from activities at the site. If such an action is needed, the Department will specify in writing any sampling requirements, including such information as location, extent and parameters.

RECORDS

1. The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis and all site inspection records required by this general permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.
2. The permittee shall provide a copy of the SWPPP to the Department, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.
3. The permittee shall provide a copy of the SWPPP to those who are responsible for installation, operation, or maintenance of any BMP. The permittee, their representative, and/or the contractor(s) responsible for installation, operation and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

LAND PURCHASE AND CHANGE OF OWNERSHIP

1. Federal and Missouri stormwater regulations [10 CSR 20-6.200(1) (B)] require a stormwater permit and erosion control measures for all land disturbances of one or more acres. These regulations also require a permit for less than one acre lots if the lot is part of a larger common plan of development or sale where that plan is at least one acre in size.
2. If the permittee sells any portion of the permitted site to a developer for commercial, industrial, or residential use, this land remains a part of the common sale and the new owner must obtain a permit prior to conducting any land disturbance activity. Therefore, the original permittee must amend the SWPPP to show that the property has been sold and therefore no longer under the original permit coverage.
3. Property of any size which is part of a larger common plan of development where the property has been stabilized and the original permit terminated will require application of a new land disturbance permit for any future land disturbance activity.
4. If the entire tract is sold to a single entity, then this permit shall be terminated when the new owner obtains a new land disturbance permit for the site.
5. If a portion of a larger common plan of development is sold to an individual for the purpose of building his or her own private residence, a permit is required if the portion of land sold is equal to or greater than one acre while no permit is required for less than one acre of land sold.

TERMINATION

1. This permit may be terminated when the project is stabilized. The project is considered to be stabilized when perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetation cover shall be at least 70% over 100% of the site. In order to terminate the permit, the permittee shall notify the Department by submitting Form H Request for Termination of a General Permit.
2. The Cover Page (Certificate Page) of the Master General Permit for Land Disturbance specifies the "effective date" and the "expiration date" of the Master General Permit. The "issued date" along with the "expiration date" will appear on the State Operating Permit issued to the applicant. This permit does not continue administratively beyond the expiration date.
3. Due to the nature of the electronic permitting system, a period of 60 days will be granted at the discretion of the department in order to apply for a new permit after the new version is effective. Applicants must maintain appropriate best management practices during the discretionary period.

DUTY TO REAPPLY

If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to the Department for a new permit. This permit may be applied for and issued electronically once made available by the director in accordance with Section 644.051.10, RSMo.

MODIFICATION, REVOCATION, AND REOPENING

1. If at any time the Department determines that the quality of waters of the state may be better protected by reopening this permit, or revoking this permit and requiring the owner/operator of the permitted site to apply for a site-specific permit, the Department may revoke a general permit and require any person to obtain such an operating permit as authorized by 10 CSR 20-6.010(13) and 10 CSR 20-6.200(1) (B).
2. If this permit is reopened, modified or revoked pursuant to this Section, the permittee retains all rights under Chapter 536 and 644 Revised Statutes of Missouri upon the Department's reissuance of the permit as well as all other forms of administrative, judicial, and equitable relief available under law.

STANDARD CONDITIONS

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

1. Other Information
 - a. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
2. Duty to Comply
 - a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

STANDARD CONDITIONS (continued)

3. Duty to Provide Information
 - a. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
4. Inspection and Entry
 - a. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - i. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - iii. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - iv. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
5. Signatory Requirement
 - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
 - c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

Missouri Department of Natural Resources
Fact Sheet
MO-RA00000

The Federal Water Pollution Control Act [Clean Water Act (CWA)] Section 402 of Public Law 92-500 (as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (permit) are issued by the Missouri Department of Natural Resources (department) under an approved program, operated in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law Section 644 as amended). Permits are issued for a period of five (5) years unless otherwise specified.

Per 40 CFR 124.56, 40 CFR 124.8, and 10 CSR 20-6.020(1)(A)2., a Fact Sheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the permit. A Fact Sheet is not an enforceable part of an MSOP.

This Fact Sheet is for a:

- ☐ Major
- ☐ Minor
- ☐ Industrial Facility
- ☐ Variance
- ☒ Master General Permit
- ☐ Permit with widespread public interest

Definitions

Common Promotional Plan: A plan undertaken by one (1) or more persons, to offer lots for sale or lease; where land is offered for sale by a person or group of persons acting in concert, and the land is contiguous or is known, designated or advertised as a common unit or by a common name or similar names, the land is presumed, without regard to the number of lots covered by each individual offering, as being offered for sale or lease as part of a common promotional plan.

Immediately: For the purposes of this permit, immediately should be defined as within 24 hours.

Infeasible: Infeasible means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or sale: A contiguous area where multiple separate and distinct construction activities are occurring under one plan.

Ordinary High Water Mark: The line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation and/or the presence of litter and debris.

Peripheral: For the purposes of this permit, peripheral should be defined as the outermost boundary of the area that will be disturbed.

Permanently: For the purposes of this permit, permanently should be defined as any activity that has been ceased without any intentions of future disturbance.

Waters of the state: Section 644.016.1(27) RSMo. defines waters of the state as, "All waters within the jurisdiction of this state, including all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two or more persons jointly or as tenants in common."

Part I – Facility Information

Facility Type: Industrial Stormwater
Facility Description: Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, filling, and other activities that result in the destruction of the root zone and/or land disturbance activity that is reasonably certain to cause pollution to waters of the state).

This permit establishes a SWPPP requirement to minimize pollutants of concern from this type of facility or for all facilities covered under this permit. 10 CSR 20-6.200(6)(A)7. specifies that "general permits shall contain BMP requirements and/or monitoring and reporting requirements to keep the stormwater from becoming contaminated." Local conditions are not considered when developing conditions for a general permit. A facility may apply for a site-specific permit if they desire a review of site-specific conditions.

While drafting this permit for renewal, the department hosted four public meetings held on January 27, February 24, April 18, and May 19, 2016, which allowed stakeholders to voice concerns about conditions within the permit and submit comments during the period of initial stakeholder involvement. These concerns were taken into consideration when drafting the permit. In addition to these meetings, the department also held an informal review period for stakeholders to review the draft prior to the 30 day public comment period.

Part II – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

Per Missouri Effluent Regulations (10 CSR 20-7.015), the waters of the state are divided into seven (7) categories. This permit applies to facilities discharging to the following water body categories:

Please mark all appropriate designated waters of the state categories of the receiving stream.

- ☒ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ☒ Lakes or Reservoirs [10 CSR 20-7.015(3)]
- ☒ Losing Streams [10 CSR 20-7.015(4)]
- ☒ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
- ☒ Special Streams [10 CSR 20-7.015(6)]
- ☐ Subsurface Waters [10 CSR 20-7.015(7)]
- ☒ All Other Waters [10 CSR 20-7.015(8)]

Missouri Water Quality Standards (10 CSR 20-7.031) defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses shall be maintained in accordance with 10 CSR 20-7.031(4). The BMP requirement established by this permit are intended to be protective of all streams that fall within the categories of receiving water bodies indicated above. A general permit does not take into consideration site-specific conditions.

Part III – Applicability

Condition number 8 was expanded to include a more comprehensive list of state and federal requirements that must be taken into consideration.

If the proposed project encounters and will potentially affect a species of concern, please report it to the Missouri Department of Conservation and the United States Fish and Wildlife Service. For more information about requirements of the Endangered Species Act, please visit the following links:

1. To determine the potential for species of concern within or near a project, please visit the United States Fish and Wildlife Services' "Information, Planning and Conservation" website at <http://ecos.fws.gov/ipac/>.
2. If there are listed species in the county or township, check to see if critical habitat has been designated and if that area overlaps or is near the project area. Critical habitat designations and associated requirements may also be found at 50 CFR Parts 17 and 226. For additional information, use the map view tool at <http://criticalhabitat.fws.gov/crithab/> to find data specific to your state and county.

The Missouri Department of Conservation's internet site for the Natural Heritage Review may be very helpful and can be found at the following link,
<http://mdcgis.mdc.mo.gov/heritage/newheritage/heritage.htm>.

Part IV – Exemptions

Condition Number 2 was added to cite all state exemptions from permitting requirements, combining several previous cited exemptions into one condition and reference. This includes an exemption for linear construction where the entire disturbance, including clearing of land to access the linear disturbance, is less than two feet in width.

Condition Number 3 was added to cite federal regulations that exclude land disturbance projects as related to the installation or maintenance work for oil and gas related activities.

Part V – Rationale of Technology Based Limitations & Permit Conditions

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the Federal CWA requires that each state identify waters that are not meeting Water Quality Standards and for which adequate water pollution controls have not been required. Water Quality Standards protect such beneficial uses of water as whole body contact, maintaining fish and other aquatic life, and providing drinking water for people, livestock, and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA Section 303(d) (4); CWA Section 402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- ☒ Applicable: Backsliding proposed in this permit conforms to the anti-backsliding provisions of Section 402(o) of the CWA and 40 CFR 122.44. The department has determined that technical mistakes were made in the previous permit [CWA 402(o)(2)(B)(ii)]. The Settleable Solids limitation was removed since has been determined to not be adequate in protecting water quality in all areas of the state. Increased technology based best management practices will protect water quality at a similar if not more protective level.

ANTIDegradation:

Antidegradation policies ensure protection of water quality for a particular water body on a pollutant by pollutant basis to ensure Water Quality Standards are maintained to support beneficial uses such as fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as an Outstanding National Resource Water or Outstanding State Resource Water [10 CSR 20-7.031(3) (C)]. Antidegradation policies are adopted to minimize adverse effects on water. The department has determined that the best avenue forward for implementing the Antidegradation requirements into general permits is by requiring the appropriate development and maintenance of a SWPPP. The SWPPP must identify all Best Management Practices (BMPs) that are reasonable and effective, taking into account environmental impacts and costs. This analysis must document why no discharge or no exposure options are not feasible at the facility. This selection and documentation of appropriate control measures will then serve as the analysis of alternatives and fulfill the requirements of the Antidegradation Rule and Implementation Procedure 10 CSR 20-7.031(3) and 10 CSR 20-7.015(9)(A)5.

Any facility seeking coverage under this permit, which undergoes expansion or discharges a new pollutant of concern, must update their SWPPP and select new BMPs that are reasonable and cost effective. New facilities seeking coverage under this permit are required to develop a SWPPP that includes this analysis and documentation of appropriate BMPs. Renewal of coverage for a facility requires a review of the SWPPP to assure that the selected BMPs continue to be appropriate.

- ☒ Applicable: The main pollutant of concern in this permit is sediment. Compliance with the technology based limitations established in this permit for the protection of General Criteria, along with the evaluation and implementation of BMPs as documented in the SWPPP, meets the requirements of Missouri's Antidegradation Review [10 CSR 20-7.031(3), 10 CSR 20-7.031 Table A, and 10 CSR 20-7.015(9)(A)5].

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(3)(k) Best Management Practices (BMPs), BMPs are implemented to control or abate the discharge of pollutants when: (1) Authorized under Section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under Section 402(p) of the CWA for the control of stormwater discharges; (3) Numeric effluent limitations are infeasible; or (4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with Developing Your Stormwater Pollution Prevention Plan, a Guide for Construction Sites (EPA 833-R-06-004; https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf) published by the United States Environmental Protection Agency (EPA) in May 2007, BMPs are measures or practices used to reduce the amount of pollution entering waters of the state. BMPs may take the form of a process, activity, or physical structure. EPA developed resources and tools related to construction stormwater along with the BMPs to control and minimize stormwater (<https://www.epa.gov/npdes/stormwater-discharges-construction-activities#resources>). Along with EPA's resources and tools, the International Stormwater BMP database (www.bmpdatabase.org/index.htm) may provide guidance on BMPs appropriate for specific industries.

Additionally in accordance with Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges.

- ☒ Applicable: A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

The new permit has been revised to allow permittees to store SWPPP documents electronically as long as they can be provided in an expedient manner.

WATER QUALITY STANDARDS:

Per 10 CSR 20-7.031(4), General Criteria shall be applicable to all waters of the state at all times, including mixing zones. Additionally, 40 CFR 122.44(d)(1) directs the department to include in each NPDES permit conditions to achieve water quality established under Section 303 of the CWA, including state narrative criteria for water quality.

General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

- (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits, or prevent full maintenance of beneficial uses;
- (2) Waters shall be free from oil, scum, and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
- (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses;
- (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal, or aquatic life;
- (5) There shall be no significant human health hazard from incidental contact with the water;
- (6) There shall be no acute toxicity to livestock or wildlife watering;
- (7) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community;
- (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment, and solid waste as defined in Missouri Solid Waste Law, Section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to Section 260.200-260.247, RSMo.

The settleable solids requirement was removed from this permit and was replaced with additional, more specific, BMP requirements. The settleable solids limit was determined not to be protective of all waters across the state, therefore, it was removed.

Additional BMPs added to the permit will provide for more consistency across the state. Examples of these BMPs include requirements to:

- Install and maintain perimeter controls along areas of the site that will receive pollutant discharges;
- Minimize sediment trackout from the site;
- Capture or treat runoff up to and including a 2-year, 24-hour storm event; and
- Direct stormwater to vegetated areas.

The minimum buffer width was increased from 25 feet to 50 feet. Studies have shown that a 50 foot vegetative buffer more adequately treats sediment from stormwater discharges. This appears to be standard in EPA's permit as well as in many other states.

In order to design controls that match the sediment removal efficiency of a 50-foot buffer, first you must know what this efficiency is for your site. The sediment removal efficiencies of natural buffers vary according to a number of site-specific factors, including precipitation, soil type, land cover, slope length, width, steepness, and the types of sediment controls used to reduce the discharge of sediment prior to the buffer.

Sediment removal efficiencies are based on the U.S. Department of Agriculture's RUSLE2 (Revised Universal Soil Loss Equation 2) model for slope profiles using a 100-foot long exposed slopes.

Sediment removal is defined as the annual sediment delivered at the downstream end of the 50-foot natural buffer (tons/yr/acre) divided by the annual yield from cleared area (tons/yr/acre).

Sediment removal is in part a function of (1) a perimeter control (i.e., silt fence) located between the disturbed portion of the site and the upland edge of the natural buffer and (2) stormwater flows traveling through a 50-foot buffer of undisturbed natural vegetation.

Additional guidance may be found at https://www.epa.gov/sites/production/files/2015-10/documents/cgp2012_appendixg.pdf.

Inspection frequencies: Site inspection frequencies have been changed from the previous permit based upon guidance from the US EPA and from stakeholder discussions. These frequencies will allow flexibility but will still allow for frequent enough inspections to ensure that all BMPs are adequately functioning.

Part VI – Effluent Limitations Determination

In this general permit, Technology-Based Effluent Limitations are established through the SWPPP and BMP requirements. Effective BMPs may have to be designed on a site-specific basis. The concurrent implementation of monitoring and benchmarks provides a tool for each facility to evaluate the effectiveness of BMPs to ensure protection of water quality.

Part VII – Land Purchase and Change of Ownership

A “larger common plan of development or sale” is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. This term is used in conjunction with common promotional plan, as defined in §644, RSMo.

Any portion of a project that is sold to a developer is still considered part of a larger common plan of development or sale and will require a permit.

If a portion of a site is sold to an individual for the purpose of building his or her private residence:

- A permit is required if the portion of land sold is equal to or greater than one acre.
- A permit is not required if the portion of land sold is less than one acre.

Part VIII – Termination

The word ‘plant density’ was removed from the first paragraph since the department determined that percent of vegetative cover more accurately describes the vegetative requirements of this permit. This decision was made after discussion within the department and with stakeholders.

It is preferable that temporary BMPs such as sediment fence be removed prior to permit termination to eliminate potential solid waste issues that may occur as a result of unnecessary and unmaintained BMPs.

Part IX – Duty to Reapply

This section has been revised to reflect the current applicable statutes which require applicants to submit an application for coverage electronically as soon as they are made available by the director. The determination was made that facilities do not need to submit an application 30 days prior to expiration because this permit does not administratively continue. Additionally, due to limitations within the electronic system currently used to issue permits, the department will use its discretion to allow existing permit holders a period of 60 days to reapply after the new version of the permit is effective. The department will announce the availability status of the new permit and the process to reapply at least 30 days prior to the expiration of the existing permit.

Part X – Standard Conditions

This section was revised to only include the specific standard conditions that apply to this permit. All other conditions have been removed.

Part XI – Administrative Requirements

On the basis of preliminary staff review and applicable standards and regulations, the department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:

The department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest or because of water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and facility must be notified of the denial in writing.

The department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than thirty (30) days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed permit, please refer to the Public Notice page located at the front of this draft permit. The Public Notice page gives direction on how and where to submit appropriate comments.

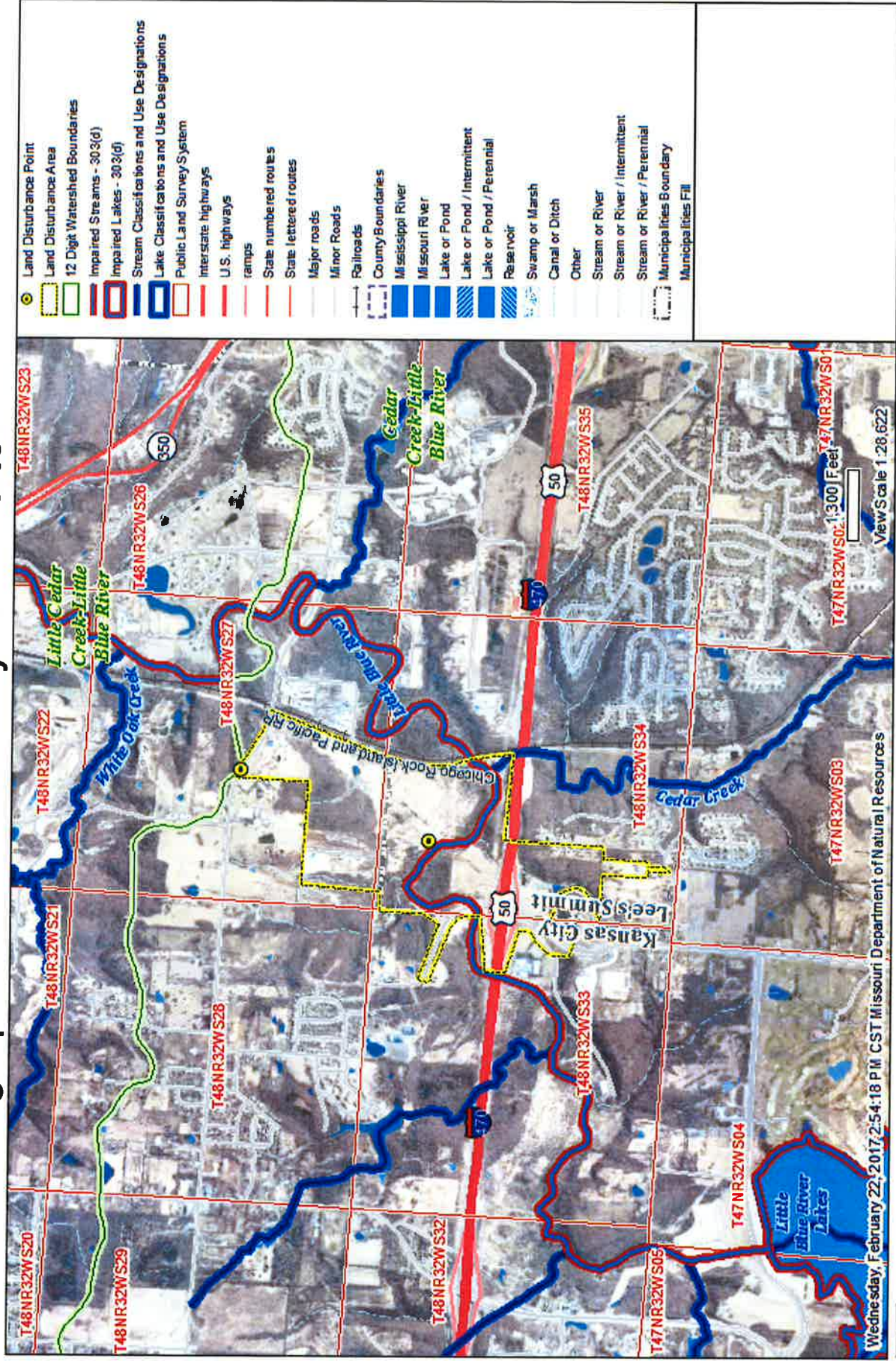
- ☒ The Public Notice period seeking comments on this permit occurred from September 2, 2016 to October 3, 2016.

DATE OF FACT SHEET: 8/23/2016; REVISED 11/30/2016

COMPLETED BY:

CHRISTOPHER MILLER
ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION
(573) 526-3337
christopher.miller@dnr.mo.gov

MoDNR Geographic Information System Editor





Missouri
Department of
Natural Resources

STORMWATER DISCHARGES
FROM THIS LAND DISTURBANCE
SITE ARE AUTHORIZED BY THE
MISSOURI STATE OPERATING
PERMIT NUMBER:

ANYONE WITH QUESTIONS OR
CONCERNS ABOUT
STORMWATER DISCHARGES
FROM THIS SITE, PLEASE
CONTACT THE MISSOURI
DEPARTMENT OF NATURAL
RESOURCES AT

1-800-361-4827



MISSOURI DEPARTMENT OF NATURAL RESOURCES

REGIONAL AND SATELLITE OFFICES

Kansas City Area

- **Kansas City Regional Office**
500 NE Colbern Rd.
Lee's Summit, MO 64086-4710
816-251-0700
FAX: 816-622-7044
- **Northwest Missouri Satellite Office**
Northwest Missouri State University
Environmental Services Building,
800 University Dr.
Maryville, MO 64468-6015
660-562-1876 or 660-562-1877
FAX: 660-562-1878
- **Truman Lake Satellite Office**
Harry S Truman State Park
28761 State Park Road West
Warsaw, MO 65355
660-438-3039
FAX: 660-438-5271

Southwest Area

- **Southwest Regional Office**
2040 W. Woodland
Springfield, MO 65807-5912
417-891-4300
FAX: 417-891-4399
- **Lake of the Ozarks Satellite Office**
Lake of the Ozarks Satellite Office
5570 Osage Beach Parkway
Osage Beach, MO 65065
573-348-2442
FAX: 573-348-2568
- **Newton County Satellite Office**
Crowder College
601 Laclede, Smith Hall, Room 201
Neosho, MO 64850
417-455-5180 or 417-455-5158
FAX: 417-455-5157

Northeast Area

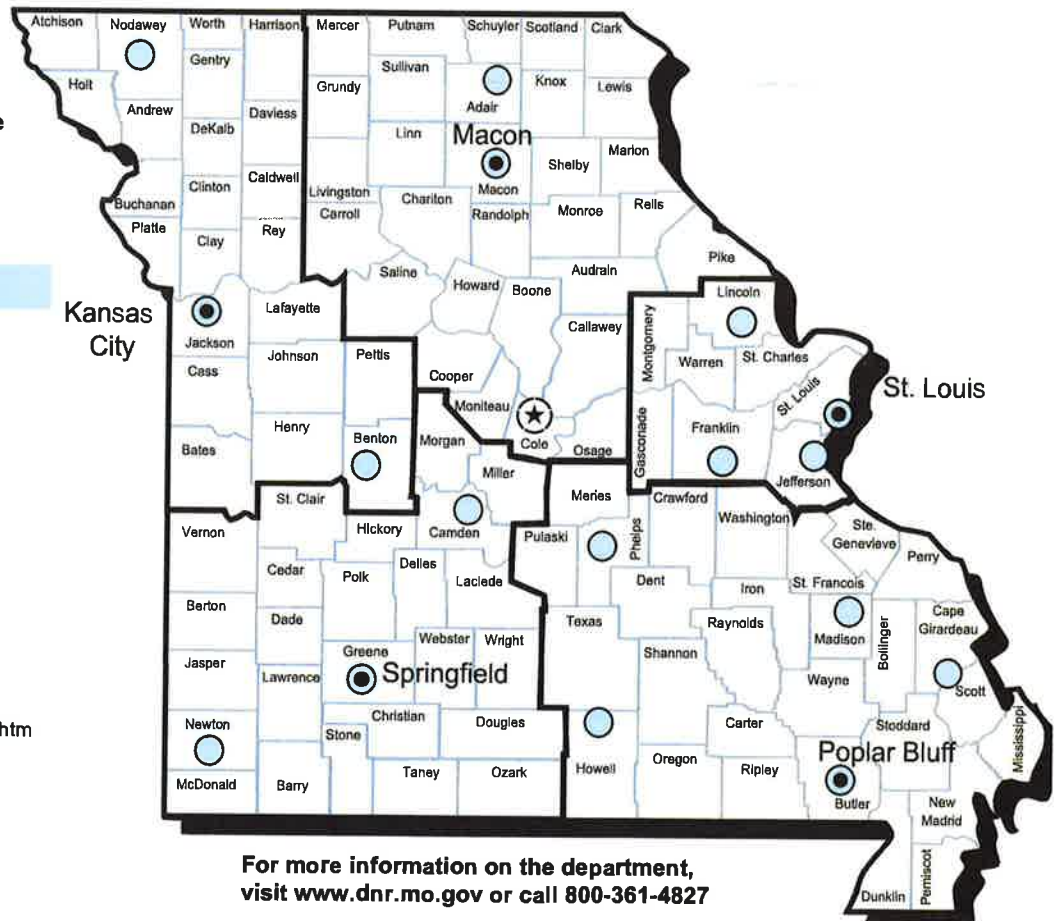
- **Northeast Regional Office**
1709 Prospect Drive
Macon, MO 63552-2602
660-385-8000
FAX: 660-385-8090
- **Kirkville Satellite Office**
Truman State University
Magruder Hall, Room 3068
100 E. Normal St.
Kirkville, MO 63501
660-785-4610
- ★ **Department Central Offices**
P.O. Box 176
Jefferson City, MO 65102-0176
573-751-3443
www.dnr.mo.gov/shared/map-jeffcity.htm

St. Louis Area

- **St. Louis Regional Office**
7545 S. Lindbergh, Ste 210
St. Louis, MO 63125
314-416-2960
FAX: 314-416-2970
- **Franklin County Satellite Office**
Meramec State Park
Hwy. 185 S./115 Meramec Park Drive
Sullivan, MO 63080
573-860-4308
FAX: 573-468-5051
- **Jefferson County Satellite Office**
Eastern District Parks Office
2901 Hwy. 61
Festus, MO 63028
636-931-5200
FAX: 636-931-5204
- **Lincoln County Satellite Office**
Cuivre River State Park
678 State Rt. 147
Troy, MO 63379
636-528-4779
FAX: 636-528-8362

Southeast Area

- **Southeast Regional Office**
2155 North Westwood Blvd.
Poplar Bluff, MO 63901
573-840-9750
FAX: 573-840-9754
- **Cape Girardeau County Satellite Office**
2007 Southern Expressway
Cape Girardeau, MO 63701
573-651-3008 (phone and FAX)
- **Howell County Satellite Office**
700 W. Main St.
Willow Springs, MO 65793
417-469-0025 (phone and FAX)
- **Madison County Satellite Office**
120 W. Main St.
Fredericktown, MO 63645
573-783-2385
FAX: 573-783-6294
- **Rolla Satellite Office**
111 Fairgrounds Rd.
Rolla, MO 65402
573-368-3625
FAX: 573-368-3912



For more information on the department,
visit www.dnr.mo.gov or call 800-361-4827

APPENDIX B
ENGINEERING PLANS AND DETAILS

MASS GRADING PLANS
FOR
PARAGON STAR DEVELOPMENT
Sections 27-Township 48-Range 32
City of Kansas City
Jackson County, Missouri

SUMMARY OF QUANTITIES

No.	DESCRIPTION	UNIT	QUANTITY
1	Fill (15% shrinkage)	C.Y.	129,844
2	Cut (Unadjusted)	C.Y.	525,741

Total Disturbed Area: 24.43 Acres

NOT FOR CONSTRUCTION



REVIEWED FOR CONSTRUCTION

INDEX OF SHEETS

Sht. No.	Description
1	Title Sheet
2	General Notes
3-4	Grading Plan

APPLICANT:
PARAGON STAR LLC
801 NORTHWEST COMMERCE CENTER
LEE'S SUMMIT, MISSOURI 64086
PHONE: (816) 802-6801
CONTACT: Mr. Flip Short
EMAIL: fshort@legacytouch.com

I have reviewed these plans and understand what is proposed. The work will be accomplished in one contract.

Any incidental work not specifically permitted (i.e. final cleanup) will be completed by the grading contractor.

This Erosion Control Plan has been placed in the City's file for this project. The plan appears to fulfill the Missouri Department of Natural Resources technical criteria and the criteria for Erosion Control. Measures may be needed if unforeseen erosion problems arise or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the land owner until such time as the plan is properly completed, modified or voided.

APPLICANT

5/1/18
DATE

PREPARED & SUBMITTED BY:
GEORGE BUTLER ASSOCIATES, INC.
9801 RENNER BOULEVARD
LENEXA, KANSAS 66219
PHONE: 913-492-0400
FAX: 913-577-8312
CONTACT: BRAD BURTON P.E.
EMAIL: BBURTON@GBATEAM.COM

This project has been designed, and these plans prepared, to meet or exceed the design criteria of Kansas City, Missouri in current usage.



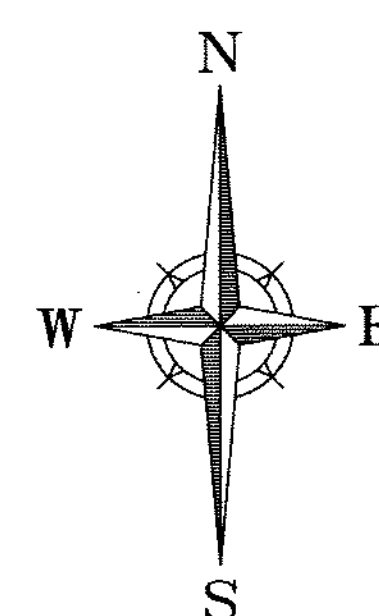
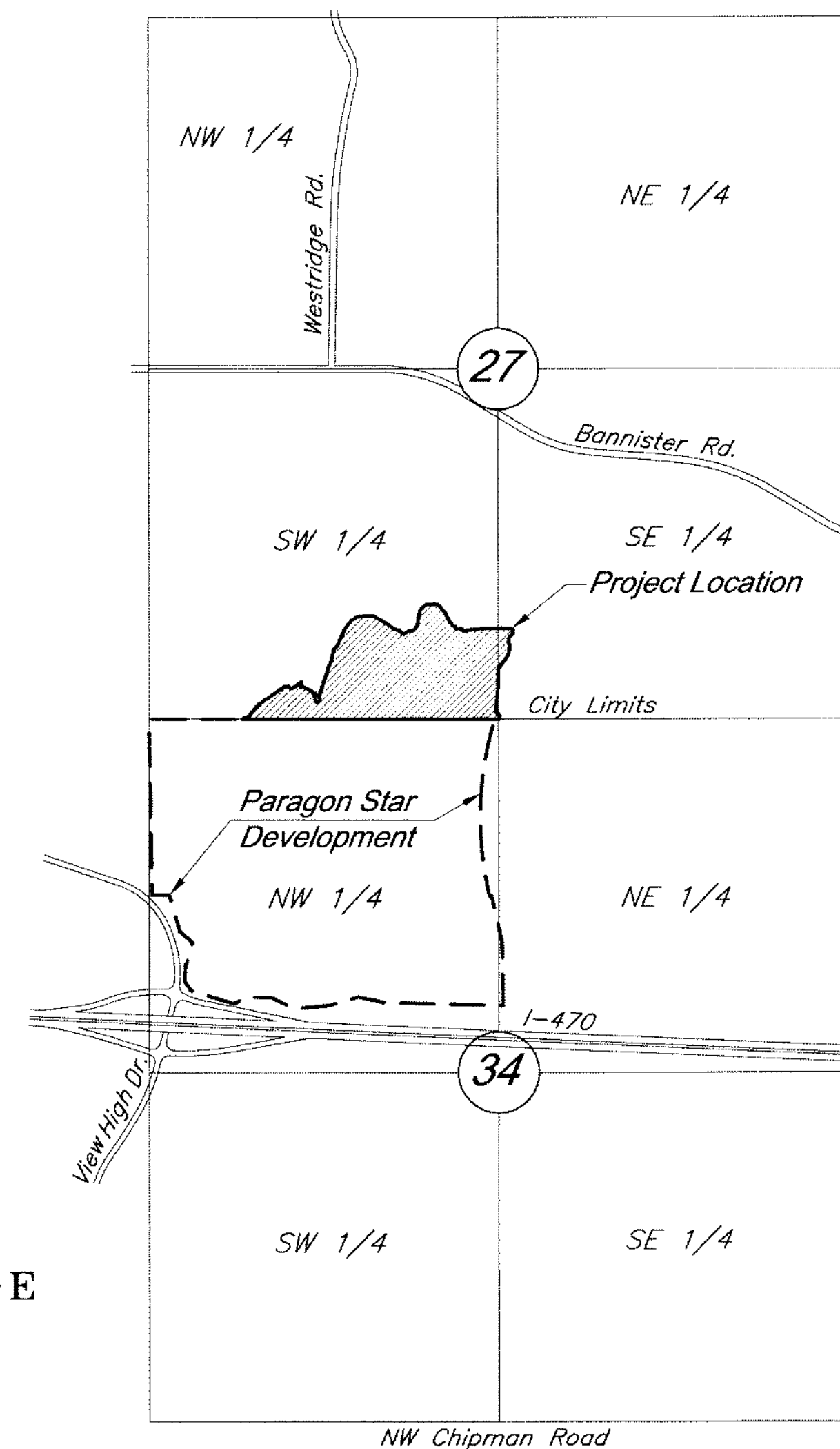
PROJECT ENGINEER

DATE

APPROVED:

CITY ENGINEER

DATE



Scale: 1"=1000'

VICINITY MAP

Section 27-T48N-R32W

For Construction Site Disturbance

REVIEW ENGINEER

DEPARTMENT OF CITY
PLANNING & DEVELOPMENT
KANSAS CITY, MISSOURI

CONSTRUCTION PERMIT
MUST BE SECURED
WITHIN ONE YEAR
OF REVIEW

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com


UTILITY COMPANIES

Kansas City, MO Pollution Control Department	(816) 513-2178
Kansas City, MO Public Works Department	(816) 513-2600
Kansas City, MO Water Services Department	(816) 513-2215
Kansas City Power and Light Company	(816) 556-2200
The Gas Service Company	(816) 756-5261
Southwestern Bell Telephone Company	(816) 275-8337
Missouri State Highway Department	(816) 622-6500
Missouri One Call System	1-800-DIG-RITE
George Butler Associates(GBA)	(913) 492-0400

PROJECT BENCHMARK:

BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

C:\12720\Civil 3D\Production Drawings\Mass Grading\KCMQ\12720CQ200.dwg Layout: 2 General Notes --- Wednesday, May 02, 2018, 9:28am --- Copyright 2018, George Buller Associates, Inc.Architect 00212, Professional Engineer 000113, Landscape Architect 000025, Professional Land Surveyor 000059



GBA

architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE: 3-9-18

DESIGN BY: CEL

DRAWN BY: DRV

PROJECT NO.: 12720

SHEET NO. 2

TOTAL SHEETS 4

Bradley D. Burton
Professional Engineer
License No. 25862

Site Disturbance Plans
Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

General Notes:

1. All Construction shall conform to the City of Kansas City Technical Specifications in effect at the time of the City's approval date shown on the approved plans and incorporated herein by reference.
2. All traffic control shall be the responsibility of the Contractor and shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
3. Property Corners and/or Section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the state of Missouri, at the Contractor's expense.
4. The Contractor shall be responsible for the restoration of the Right-of-Way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal equipment, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest City standards and to the City's satisfaction.
5. All work shall be confined within easements and/or construction limits as shown on the plans.
6. The Contractor shall, prior to the commencement of work, investigate surface and subsurface conditions to be encountered across the site and notify the Engineer if any discrepancies or changed conditions are noted.
7. All trash and debris identified on site shall be properly handled and disposed of in accordance with state of Missouri regulations.
8. All measurements on these plans are horizontal distances, not slope distances.
8. This project will include numerous activities occurring on site including storm sewer, sanitary sewer, grading, erosion control, etc. Contractor shall coordinate his work with other contractors on site.

Permitting:

9. Contractor is responsible for obtaining all required permits, paying all fees, and for otherwise complying with all applicable regulations governing the work.
10. No work shall be completed within the existing floodplain until the CLOMR has been issued.
11. All work within KCMQ city limits shall adhere to KCMQ Site disturbance permit requirements, see Site Disturbance plans.

Erosion Control:

12. The Contractor is responsible for providing erosion and sediment control BMP's to prevent sediment from reaching paved areas, storm sewer systems, drainage courses, and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore the Right-Of-Way, or adjacent properties to original or better condition.
13. Contractor shall ensure that all construction shall conform to the requirements of the Stormwater Pollution Prevention Plan (SWPPP) a copy of which shall be maintained and updated on site by the Contractor.
14. The Contractor shall sod all disturbed areas within the Public Street Right-of-Way unless otherwise noted in the plans.
15. No trees shall be damaged or removed without prior authorization from owner unless otherwise shown on this plan.

Earthwork:

16. Slopes shall be constructed to a maximum slope of 3:1 (Horiz:Vert).
17. Refer to "Geotechnical Engineering Report – Paragon Star Roadways and Borrow Site" Dated December 8, 2016, and "Geotechnical Engineering Report – Soccer Fields" Dated July 27, 2016 prepared by Terracon Consultants, Inc. for grading recommendations and boring logs. All earthwork shall conform to the recommendations of the Report.
18. Unless otherwise noted, all spot elevations and contours are shown to "Finish" grade surface.
19. All temporary slopes and excavations should conform to Occupational Safety and Health Administration (OSHA) standards for the Construction Industry (29 CFR part 1026, subpart P).
20. Existing grades depicted on plans do not reflect topsoil root zone stripping completed under tree clearing scope. Existing grade will be 4.5" average depth lower than shown. Refer to "Tree Clearing Plans for Paragon Star Development" for details.

Utility:


21. All Manholes, Catch Basins, Utility Valves, Meter Pits, and other utility equipment shall be adjusted or rebuilt to grade as required.
22. Prior to beginning work, the Contractor shall notify all utility companies who have facilities in the vicinity of the project area of the work to be performed.

Storm Sewer:

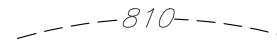
23. All RCP shall be Class III.
24. Pipe Lengths are called out from center of structure to center of structure.
25. Drainage across the project site during construction shall be the Contractor's responsibility. Surface drainage shall be controlled to reduce or prevent the flow of surface water onto adjacent grounds. Contractor shall control downstream erosion and silting during construction. Flexibility is given to the Contractor to make minor grading revisions along roads or between building pads to improve drainage during construction, with prior approval of the engineer.
26. Prior to ordering precast storm sewer structures, Contractor shall provide shop drawings to the Engineer for review and approval.

C:\12720\Civil 3D\Production Drawings\Mass Grading\KCMO\12720C4000.dwg Layout: 3 Grading Plan -- Wednesday May 02, 2018, 9:30am -- Copyright 2018, George Butler Associates, Inc. Architect 00212, Professional Engineer 000133, Landscape Architect 000025, Professional Land Surveyor 000059

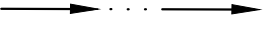
CAUTION!
Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.




Proposed Contour




Existing Contour




Drainage Swale



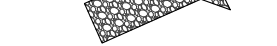
Geotechnical Boring Location




Grading Limits



Exist. Sediment Fence
(to be maintained)



Temporary Construction Entrance



Drainage Flow Arrow



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE: 3-9-18
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720

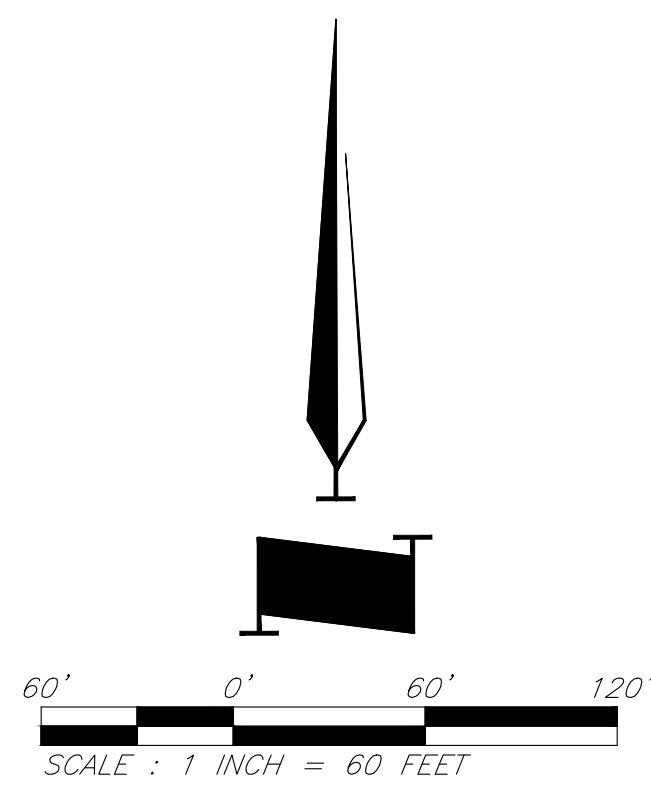
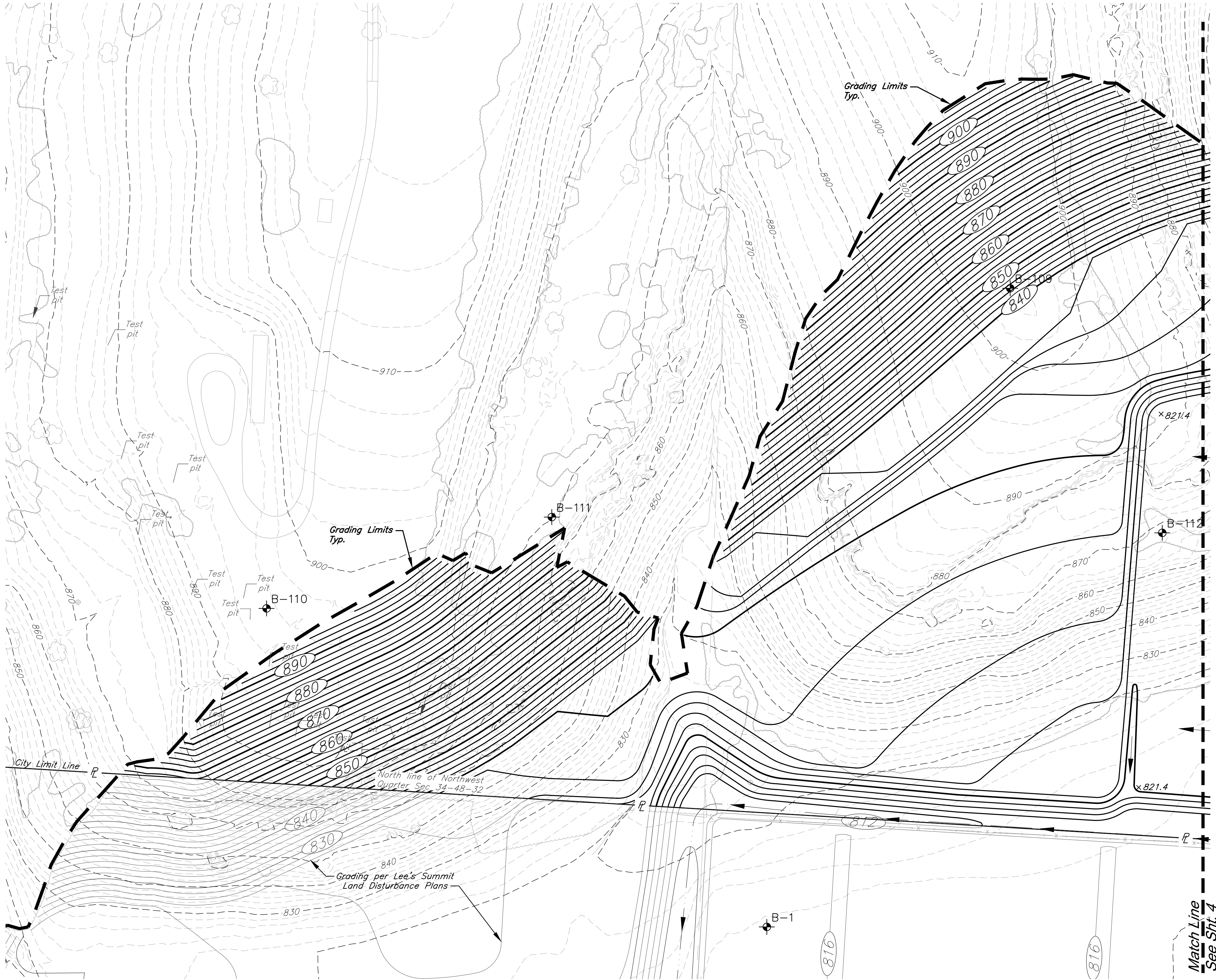
SHEET NO.	TOTAL SHEETS
3	4

Bradley D. Burton
Professional Engineer
License No. 25862

Site Disturbance Plans
Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

PROJECT BENCHMARK:
BM #11 – Chiseled “L” on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80




Grading Plan

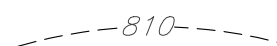
C:\12720\Civil 3D\Production Drawings\Mass Grading\KCMO\12720C4000.dwg Layout: 4 Grading Plan -- Wednesday May 02, 2018, 9:30am -- Copyright 2018, George Butler Associates, Inc. Architect 002122, Professional Engineer 002025, Landscape Architect 002025, Professional Land Surveyor 002059

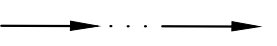
CAUTION!


Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.


Legend


 Proposed Contour

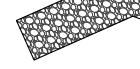
 Existing Contour


 Drainage Swale

 B-1
Geotechnical Boring Location

 Grading Limits

 Exist. Sediment Fence
(to be maintained)

 Temporary Construction Entrance

 Drainage Flow Arrow



BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
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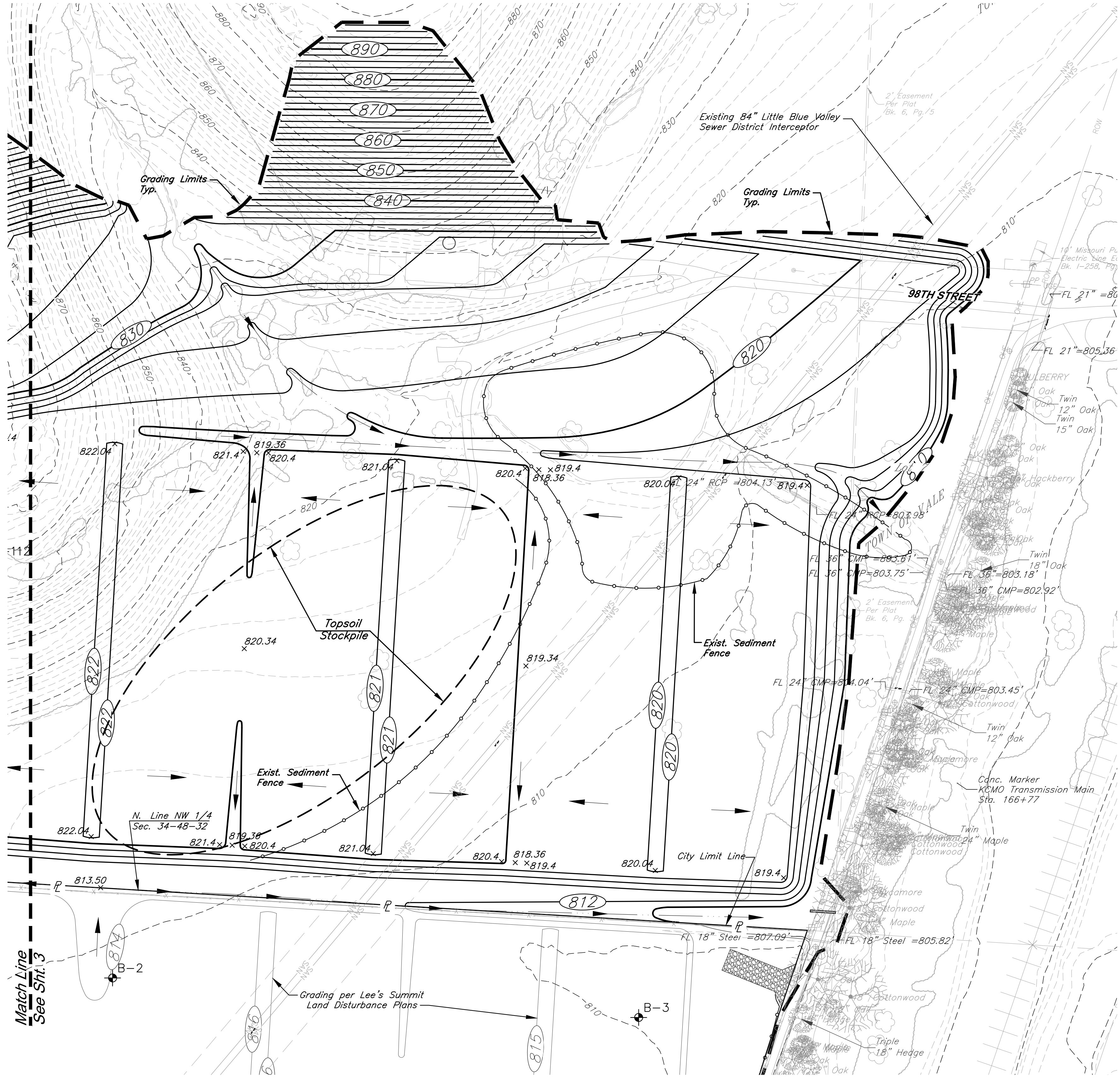
DATE: 3-9-18
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720

SHEET NO.	TOTAL SHEETS
4	4

Bradley D. Burton
Professional Engineer
License No. 25862

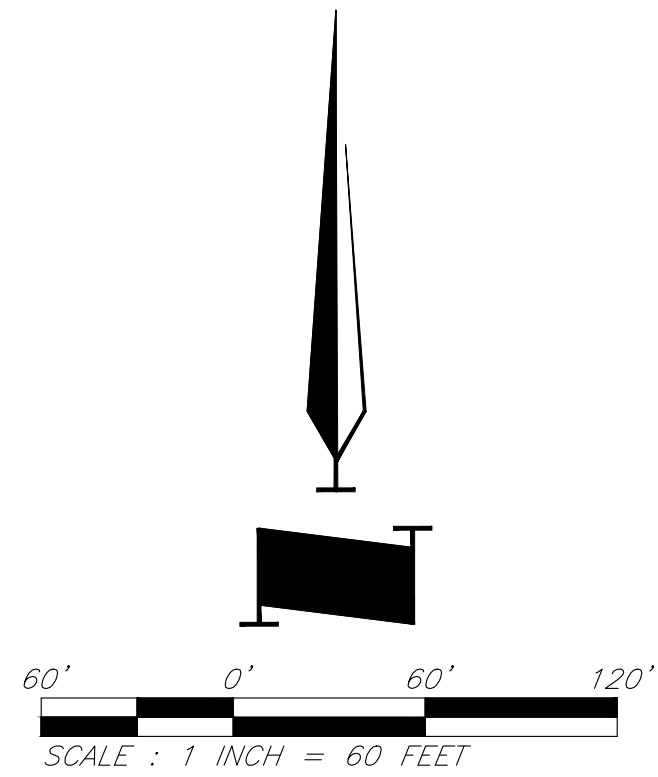
Site Disturbance Plans
Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED



PROJECT BENCHMARK:

BM #11 – Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
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EL=833.80



Grading Plan

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SITE DISTURBANCE PLANS
FOR
PARAGON STAR DEVELOPMENT
Sections 27–Township 48–Range 32
City of Kansas City
Jackson County, Missouri

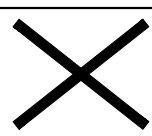
County APN: JA51400030800000000

SUMMARY OF QUANTITIES

No.	DESCRIPTION	UNIT	QUANTITY
1	Fill (15% shrinkage)	C.Y.	129,844
2	Cut (Unadjusted)	C.Y.	525,741
3	Sediment Fence	L.F.	10,419
4	Rock Check Dam	Ea.	5
5	Seeding	Ac.	24.5

Total Disturbed Area: 24.43 Acres

NOT FOR CONSTRUCTION



REVIEWED FOR CONSTRUCTION

KCMO CASE NUMBER

CR201811735

Disturbed Area = 25 Acres

LEGAL DESCRIPTION

The Southwest Quarter of the Southwest Quarter of Section 27, Township 48, Range 32 in Kansas City, Jackson County, Missouri except the West 10 acres and except the North 40 feet thereof in road.

And Also:

TRACT 1:

Lots 6 and 7, TOWN OF VALE, a subdivision in Kansas City, Jackson County, Missouri, according to the recorded plat thereof.

TRACT 2:

The Southeast 1/4 of the Southwest 1/4 of Section 27, Township 48, Range 32, except 6.97 acres heretofore sold and except beginning 25 feet West of the Southeast corner of the Southeast 1/4 of the Southwest 1/4 of said Section; thence East 25 feet; thence North 88.8 feet; thence Southwest to beginning, in Kansas City, Jackson County, Missouri.

PROJECT WATERSHED

This project is located in the Little Blue River Watershed.

FLOOD ZONE DESIGNATION

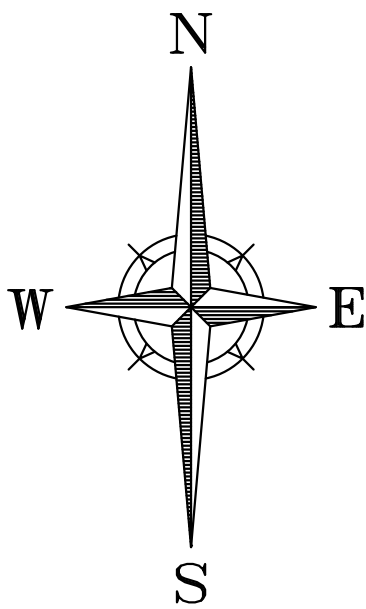
This project is in Zone X–Areas outside the 0.2% chance floodplain, according to the FEMA Flood Insurance Rate Map 29095C0404G, dated January 20, 2017.

UTILITY COMPANIES

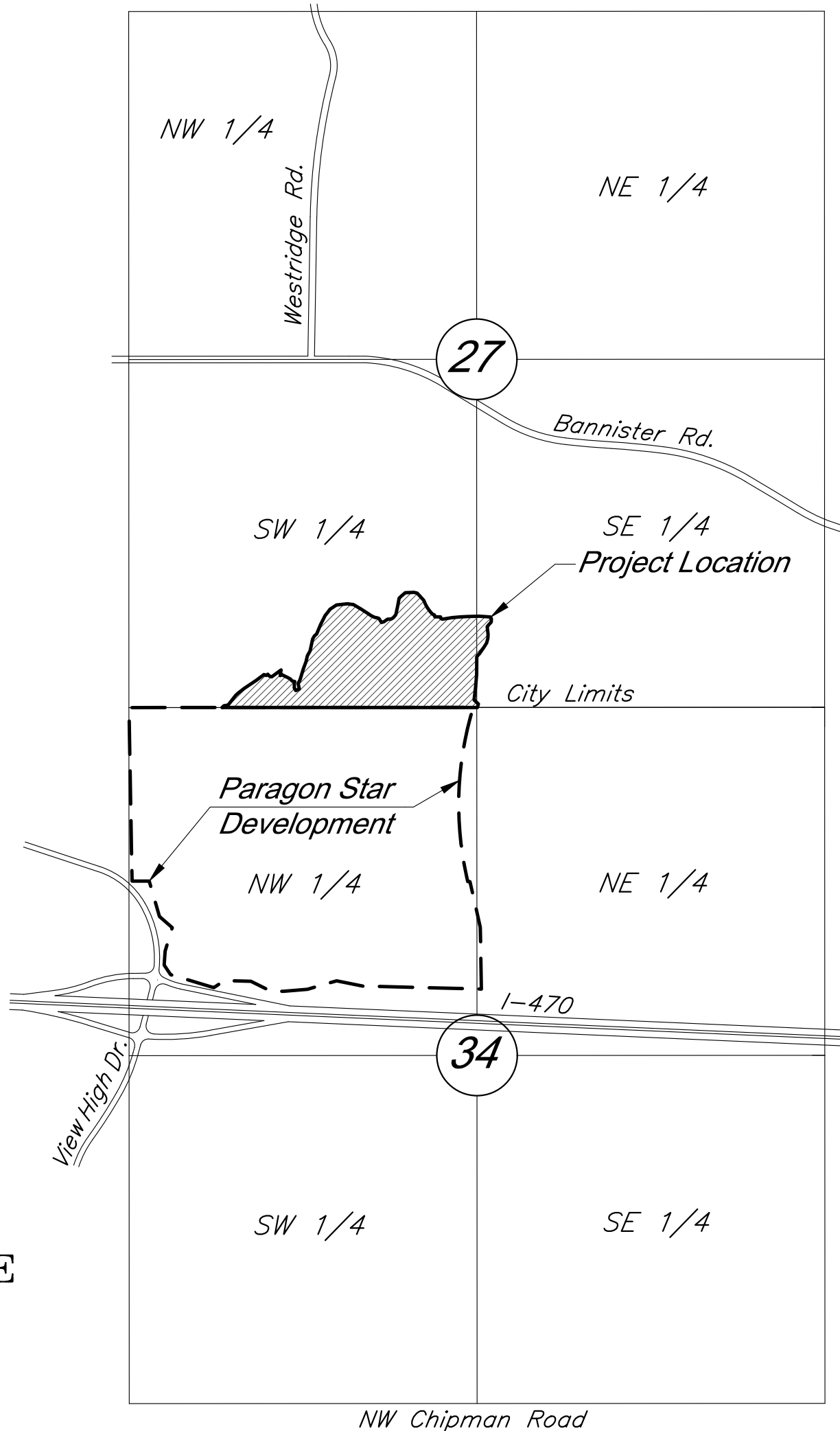
Kansas City, MO Pollution Control Department (816) 513–2178
Kansas City, MO Public Works Department (816) 513–2600
Kansas City, MO Water Services Department (816) 513–2215
Kansas City Power and Light Company (816) 556–2200
The Gas Service Company (816) 756–5261
Southwestern Bell Telephone Company (816) 275–8337
Missouri State Highway Department (816) 622–6500
Missouri One Call System 1–800–DIG–RITE
George Butler Associates(GBA) (913) 492–0400

PROJECT BENCHMARK:

BM #11 – Chiseled “L” on top
Northeast corner of concrete guardrail
at the Northeast corner of I-470 bridge
spanning View High Drive.
EL=833.80



Scale: 1"=1000'



VICINITY MAP

Section 27-T48N-R32W

For Construction Site Disturbance

REVIEW ENGINEER

DEPARTMENT OF CITY
PLANNING & DEVELOPMENT
KANSAS CITY, MISSOURI

CONSTRUCTION PERMIT
MUST BE SECURED
WITHIN ONE YEAR
OF REVIEW

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

INDEX OF SHEETS

Sht. No.	Description
1	Title Sheet
2	General Notes
3-4	Preconstruction Erosion Control Plan-Phase 1
5-6	Erosion Control Plan-Phase 2
7-8	Erosion Control Plan-Phase 3

APPLICANT:
PARAGON STAR LLC
801 NORTHWEST COMMERCE CENTER
LEE'S SUMMIT, MISSOURI 64086
PHONE: (816) 802–6801
CONTACT: Mr. Flip Short
EMAIL: fshort@legacytouch.com

I have reviewed these plans and understand what is proposed. The work will be accomplished in one contract.

Any incidental work not specifically permitted (i.e. final cleanup) will be completed by the grading contractor.

This Erosion Control Plan has been placed in the City's file for this project. The plan appears to fulfill the Missouri Department of Natural Resources technical criteria and the criteria for Erosion Control and requirements of the City. I understand that additional erosion control measures may be needed if unforeseen erosion problems arise or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the land owner until such time as the plan is properly completed, modified or voided.

APPLICANT

5/1/18
DATE

PREPARED & SUBMITTED BY:
GEORGE BUTLER ASSOCIATES, INC.
9801 RENNER BOULEVARD
LENEXA, KANSAS 66219
PHONE: 913–492–0400
FAX: 913–577–8312
CONTACT: BRAD BURTON P.E.
EMAIL: BBURTON@GBATEAM.COM

This project has been designed, and these plans prepared, to meet or exceed the design criteria of Kansas City, Missouri in current usage.



PROJECT ENGINEER

DATE

APPROVED:

CITY ENGINEER

DATE

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EROSION AND SEDIMENT CONTROL NOTES

The layout of erosion control best management practices (BMPs) shown on the engineering plans is intended to control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the BMP locations to best control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The following are measures to achieve the control of erosion and sediment.

1. Stabilization Practices – Stabilization practices are very effective at preventing erosion by shielding the soil surface from the impact of rain, slowing the velocity of runoff, holding soils in place, and increasing infiltration of runoff and allowing the soil to absorb more rainfall.
- a. Temporary Seeding Stabilization – During acceptable growing periods (see Table 1 below); temporary seeding of annual vegetation with a straw mulch cover shall be used as a temporary cover until permanent vegetation is established. If there is a possibility that a vegetative cover will be required to control erosion for more than 1 year, then consider the addition of a perennial/permanent grass species as part of a seeding mixture.

Table 1. Temporary Seeding Dates and Minimum Application Rates			
Seeding Dates	Temporary Seed Species	Minimum Application Rates (pure live seed lbs. per acre)	Straw Mulch (tons per acre)
Jan. 1 – Jan. 31	None	Not Applicable	2.5
Feb. 1 – May 31	Annual Ryegrass	120	1.5
June 1 – Aug.4	None	Not Applicable	2.5
Aug. 15 – Nov. 15	Cereal/Winter Rye	120	1.5
Nov. 16 – Dec. 31	None	Not Applicable	2.5

Seedbed Preparation – For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

Installation – For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than ½ inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described herein.

- b. Temporary Mulch Stabilization – During non-growing periods, a straw mulch cover shall be applied in unseeded areas to protect against erosion until temporary or permanent vegetation is established.

Site Preparation – Divert runoff water from areas above the site that will be mulched. Remove stumps, roots and other debris from the construction area. Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

Application – Spread straw mulch uniformly over the area with a power blower, hydroseeder, or by hand. No more than 25% of the ground surface should be visible after spreading. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. The straw should be dry, unchopped, unweathered, free of weed seeds and rot. In areas of steep slopes or high winds, or in critical areas such as swales, mulching may need to be secured to the ground with a binder, netting, or tacking.

- c. Permanent Seeding Stabilization – All disturbed areas shall be permanently seeded with a cool season grass mixture as specified in the Standards and Specifications of the City of Kansas City, Missouri..

Seedbed Preparation – loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

Installation – For the best results use certified seed. Apply seed uniformly using a hydroseeder. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described in the Standards and Specifications of the City of Kansas City, Missouri.

2. Structural Practices

- a. Silt Fence – A temporary sediment barrier consisting of a geotextile fabric shall be installed as shown on the attached engineering plans and details. Silt fencing shall be installed to maintain sediment onsite.

Minimum Requirements:

Location – Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to existing trees.

Spacing of Support Posts – 10 feet maximum for fence supported by wire; 6 feet maximum for high strength fabric without supportive wire backing. Support posts should be driven into the ground a minimum of 10 inches deep.

Trench – Bottom 1 foot of fence must be buried minimum of 4 inches deep.

- b. Inlet Protection – When installation of the storm drainage system is complete, gravel curb inlet sediment traps will be placed at the drainage system inlets. Construction shall be in accordance with attached engineering plans and details.
- c. Stockpiles – The toe of stockpiles shall be placed a minimum of 10 feet from erosion control measures. If stockpiles are to remain for more than 14 days, they shall be temporarily stabilized with vegetative mulch and temporary seeding.

3. Maintenance – The contractor shall repair all erosion control measures or re-seed areas that are disturbed or damaged as a result of weather or other situations, within 2 days after the occurrence. This will include all areas bare of vegetation.

EROSION CONTROL GENERAL NOTES

1. The Contractor is responsible for erosion control during construction and until the Owner and City accepts the work as complete. The erosion control measures shown on this plan are a typical minimum installation. The Contractor shall be responsible for adjusting or adding to these measures as necessary during the phasing of the construction to assure adequate control.
2. Clearing and grubbing within 50’ of a defined drainage course should be avoided when possible. Where changes to a defined drainage course occur, work should be delayed until all materials and equipment necessary to protect and complete the drainage change are on site. Changes shall be completed as quickly as possible once the work has been initiated. The area impacted by the construction activities shall be revegetated or protected from erosion as soon as possible, areas within 50’ of a defined drainage ways should be recontoured as needed or otherwise protected within five (5) working days after grading has ceased.
3. Where soil disturbing activities cease in an area for more than 14 days, the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures. If the slope of the area is greater than 3:1 or if the slope is greater than 3% and greater than 150 feet in length, then the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures if activities cease for more than seven (7) days.
4. Existing vegetation shall be preserved to the extent and where practical. In no case shall disturbed areas remain without vegetative ground cover for a period in excess of 60 days.
5. Additional site management practices which shall be adhered to during the construction process shall include:

–Solid and hazardous waste management including providing trash containers and regular site clean up for proper disposal of solid waste such as building and construction material, product/material shipping waste, food containers and cups, and providing containers for the proper disposal of waste paints solvents, and cleaning compounds.

–Provisions of portable toilets for proper disposal of sanitary sewage.

–Storage of construction materials away from drainage courses and low areas.

–Installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers.
6. All disturbed areas shall be seeded, fertilized and mulched, or sodded, in accordance with the Standards and Specifications adopted by the City of Kansas City, Missouri and good engineering practices. This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall be provided until such time that the areas can be seeded.
7. All erosion control measures, temporary or permanent, require maintenance to preserve their effectiveness. All erosion control devices shall be inspected immediately after each heavy rainstorm and at least daily during prolonged rainfall. Any required repairs should be made immediately. All costs associated with the repair work including related incidentals will be the contractor’s responsibility and shall be included in the Contractor’s bid for the proposed work. Only after the project is complete and accepted can the erosion control be removed.
8. Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with requirements of the Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seed shall not exceed one percent by weight of mix.
9. During the dates Dec. 15 through May 30 ALL lime, fertilizer, seed, and mulch shall be applied to finished slopes of disturbed areas. During the months of June, July, October, and November 1st through December 15th, lime, fertilizer, seed, and mulch shall be applied at the following rates:

Lime – 100% of the specified quantity

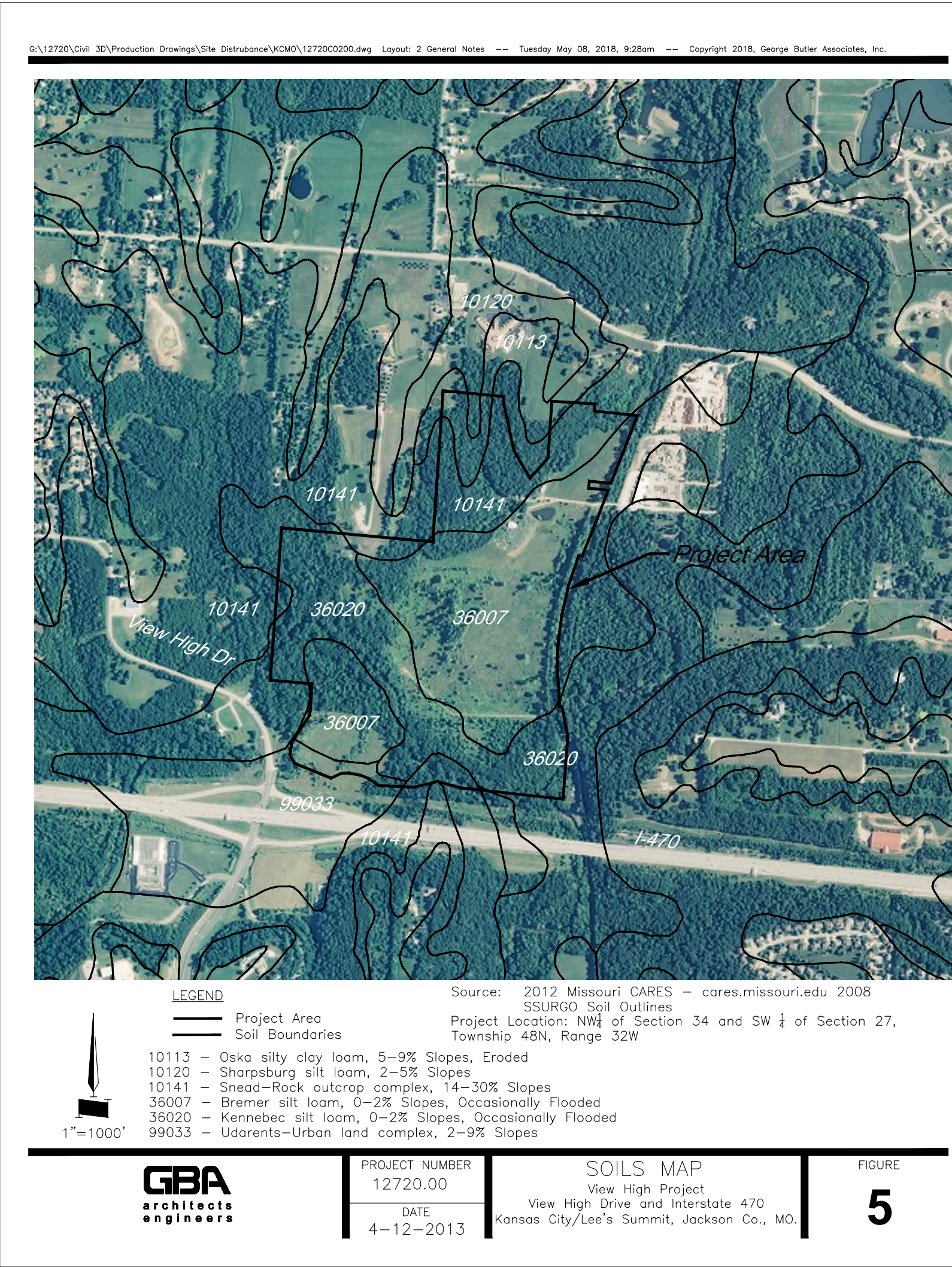
Fertilizer – 75% of the specified quantity

Seed – 50% of the specified quantity

Mulch – 100% of the specified quantity
10. Mulch shall be Vegetative type, cereal straw form stalks of oats, rye, or barley, or approved equal. The straw shall be free of prohibited weed seed and relatively free of all other noxious and undesirable seed. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. Mulch shall be embedded by a mulch anchoring tool or disk type roller having flat serrated disks spaced not more than 10 inches apart and cleaning scrapers shall be provided.

GENERAL NOTES

1. The construction covered by these plans shall conform all applicable standards and specifications of the Public Works Department, Kansas City, Missouri, current usage. It shall be the Contractors responsibility to have one copy of these approved plans and the most current City Standards and specifications on the job site at all times.
2. The location and size of existing utilities is approximate. The location and elevation of all utilities must be verified in the field by the contractor prior to the start of construction and notify the Engineer of any discrepancies.
3. The contractor shall field verify existing ground conditions prior to the start of construction.
4. Contractor shall control downstream erosion and silting during construction.
5. Any debris/material that is to be hauled off site requires a haul permit from the KCMO Public Works Department at City Hall (5th Floor). Contractor to Contact Jerry Tapscott for permitting and/or details at (816)513–2678.
6. Contractor is responsible for keeping all public roadways adjacent to the construction site free of dirt and debris resulting from activities related to the construction of this project.
7. Contractor shall keep the entire project site free of debris and trash at all times. Contractor shall execute work using methods that minimize excessive noise or dust emissions. Contractor shall provide methods, means and facilities to prevent contamination of soil or water from discharge of potential construction site pollutants (i.e., diesel fuel, port-a-potty waste, paints, etc.)
8. Areas are noted on the plan sheets for stockpiling of materials. The slopes in these areas shall be graded such that they do not exceed 3:1, silt fence shall be installed completely around the perimeter of the areas and the areas shall be seeded within 14 days once construction activities on them cease.
9. No construction equipment, construction materials or personal vehicles may be parked or stored outside the construction limits. Also the Contractor shall install sediment control to prevent sediment from accumulating inside the undisturbed areas.
10. Following stripping operations, the Contractor shall remove existing topsoil and stockpile the material in an approved area. Stockpiles shall be stabilized by temporary seeding and encircled with silt fence.
11. Contractor must install and maintain the erosion and sediment control measures shown on these plans. If the engineer determines that the installation or the maintenance is inadequate, the contractor must immediately correct at his expense. If it is determined that additional erosion and sediment control measures are needed the Contractor will be directed to install and maintain those measures.
12. Following the final removal of all erosion control measures the Contractor shall re-grade and re-seed all areas that were disturbed by the removal.
13. The Contractor shall inspect the land disturbance site at least once every seven (7) days and within twenty-four (24) hours following each rainfall event of 1/2" or more within any twenty-four (24) hour period. The Contractor shall also inspect and assure that all sediment control devices are in working condition prior to any forecasted rainfall.
14. The Contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of 14 calendar days.




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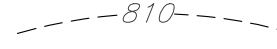
CAUTION!

Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
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construction.


Legend




Proposed Contour




Existing Contour




Drainage Swale




Geotechnical Boring Location




Grading Limits




Sediment Fence



Exist. Sediment Fence
(to be maintained)



Temporary Construction Entrance




Rock Check Dam

The map displays a topographic site plan with the following features:

- Contours:** Existing contours are shown as dashed lines with elevations ranging from 830 to 910. Proposed contours are shown as solid lines.
- Grading Limits:** Indicated by thick dashed lines, with a note "Grading Limits Typ." pointing to them.
- Grading Area:** A large area on the right side of the map is shaded with diagonal lines and labeled "Grading area per these plans".
- Test Pits:** Numerous locations are marked with small squares and labeled "Test pit".
- Boring Locations:** Marked with a cross-in-a-circle symbol and labeled B-1, B-109, B-110, B-111, and B-112.
- City Limit Line:** A solid line with a break symbol (two parallel lines) running horizontally across the lower portion of the map.
- Match Line:** A dashed line on the right edge labeled "Match Line See Sht. 4".
- North Line:** A line in the lower-left corner labeled "N. Line NW 1/4 Sec. 34-48-32".

A north arrow pointing upwards and a graphic scale bar are located in the bottom right corner. The scale bar is marked with 0', 60', and 120' feet. Below the scale bar, the text "SCALE : 1 INCH = 60 FEET" is printed.

Preconstruction Erosion Control Plan-Phase 1



STATE OF MISSOURI
BRADLEY D. BURTON
NUMBER E-25862
REGISTERED PROFESSIONAL ENGINEER

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE: 5-1-18
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720

SHEET NO.	TOTAL SHEETS
3	8

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Professional Engineer
License No. 25862

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Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED


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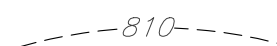
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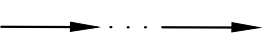
Legend




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Existing Contour



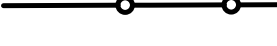
Drainage Swale




Geotechnical Boring Location




Grading Limits




Sediment Fence



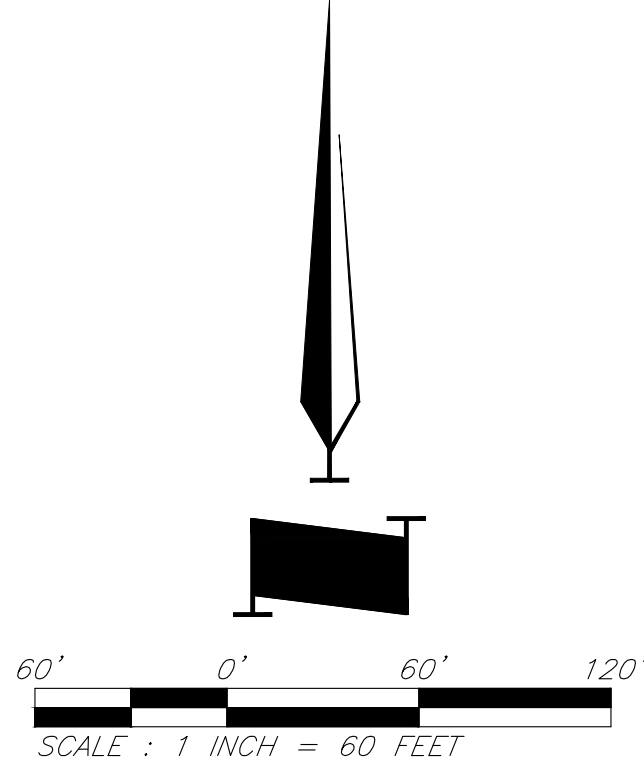
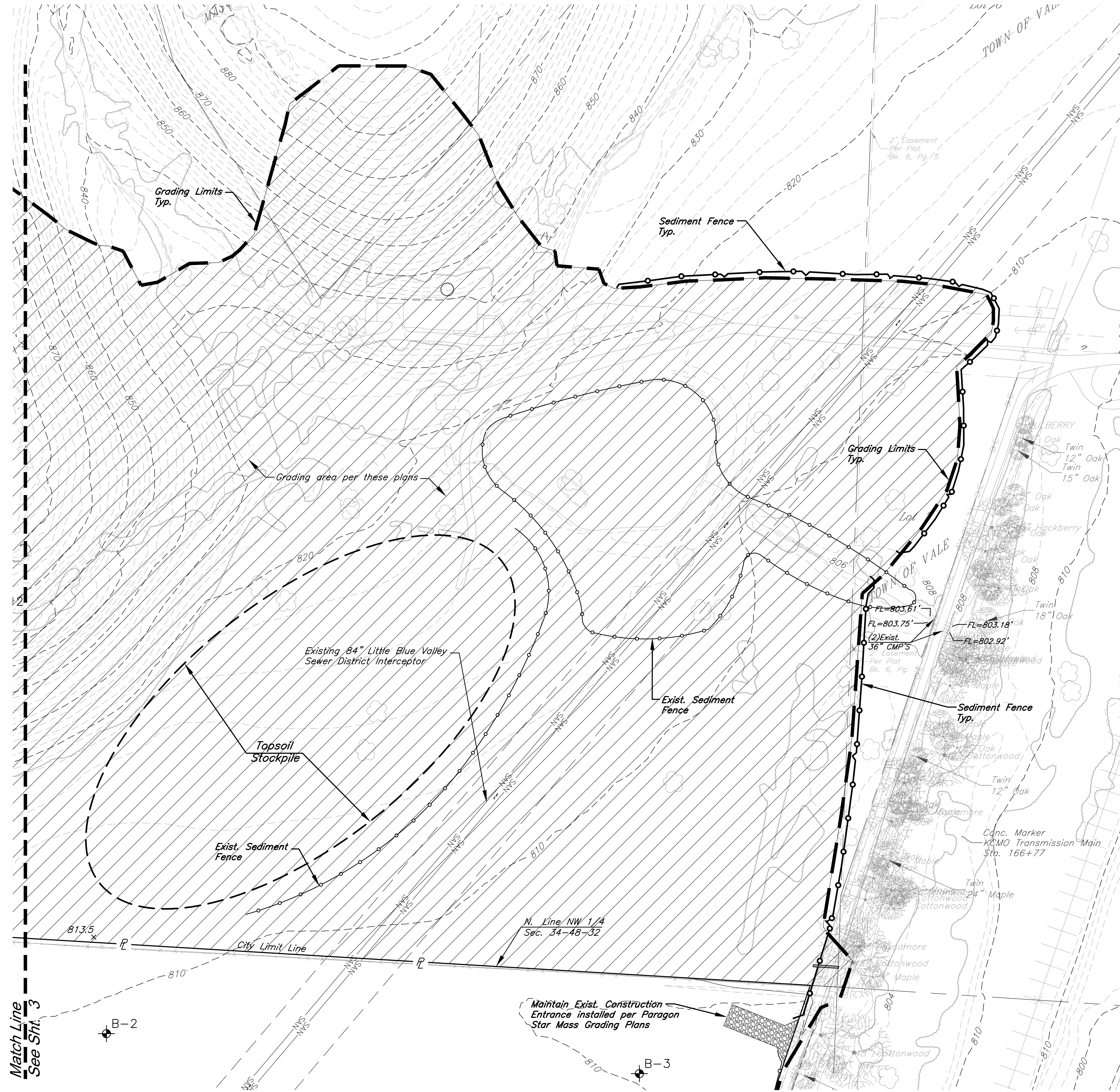
Exist. Sediment Fence (to be maintained)



Temporary Construction Entrance



Rock Check Dam



Preconstruction Erosion Control Plan-Phase 1



6/1/18

GBA
architects
engineers

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE: 5-1-18
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DRAWN BY: DRV
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Site Disturbance Plans
Paragon Star Development
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NO.	DATE	REVISIONS	BY	APPROVED

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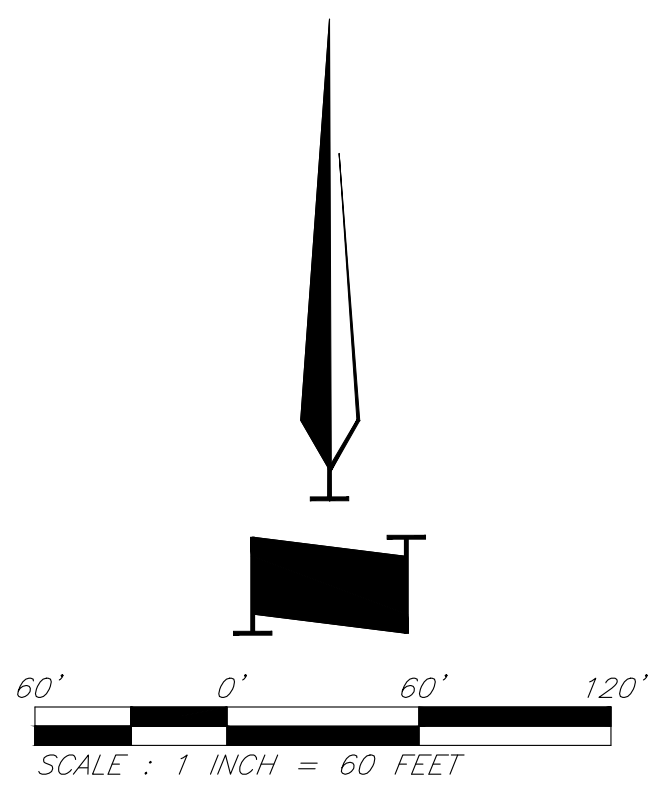
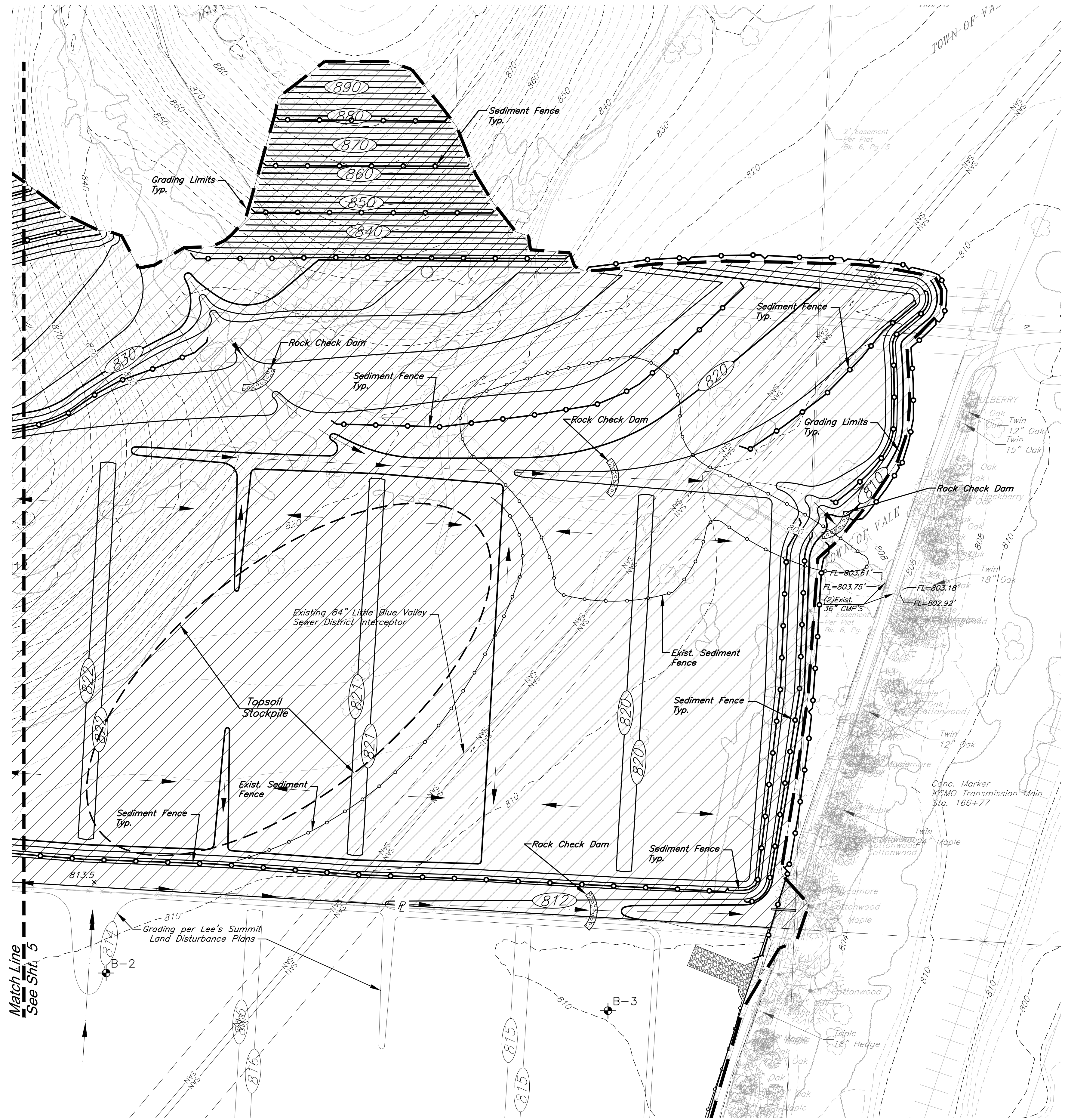
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Rock Check Dam



Erosion Control Plan-Phase 2

STATE OF MISSOURI
BRADLEY D. BURTON
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REGISTERED PROFESSIONAL ENGINEER

9801 Renner Boulevard
Lenexa, Kansas 66219
913.492.0400
www.gbateam.com

DATE: 5-1-18
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720

SHEET NO.	TOTAL SHEETS
6	8

Bradley D. Burton
Professional Engineer
License No. 25862

Site Disturbance Plans
Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED


PROJECT BENCHMARK:

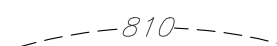
BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

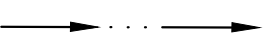
C:\12720\Civil 3D\Production Drawings\Site Disturbance\KCMO\12720C4000.dwg Layout: 7 Erosion Control Plan-Phase 3 -- Tuesday, May 28, 2018, 9:29am -- Copyright 2018, George Burton\dwg\168246c Professional Engineer 000133, Landscape Architect 000025, Professional Land Surveyor 000059


CAUTION!
Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.


Legend



Proposed Contour

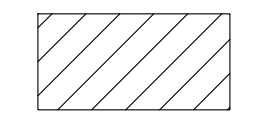

Existing Contour


Drainage Swale


Geotechnical Boring Location


Drainage Flow Arrow


Grading Limits


Seed Area per SWPPP

Note: All exterior erosion control measures may be removed upon 80% vegetation establishment.



PROJECT BENCHMARK:

BM #11 – Chiseled “L” on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

NOTE:

All disturbed areas shall be prepped for seeding/sodding per KCMO/APWA 2406, application of seed/sod shall be done in accordance with KCMO/APWA 2406.4. The Site Disturbance permit shall be maintained in an “OPEN” status until final acceptance per KCMO/APWA 2407.



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Site Disturbance Plans
Paragon Star Development
Kansas City, Missouri

NO.	DATE	REVISIONS	BY	APPROVED

DATE: 5-1-18
DESIGN BY: CEL
DRAWN BY: DRV
PROJECT NO.: 12720
SHEET NO. 7
TOTAL SHEETS 8

C:\12720\Civil 3D Production Drawings\Mass Grading\Lee's Summit\12720-4050.dwg Thursday May 17, 2018, 3:36pm -- Copyright 2018, George Butler Associates, Inc. Architect 00212, Professional Engineer 000133, Landscape Architect 000025, Professional Land Surveyor 000059

PROJECT BENCHMARK:

BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
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construction.

Legend

	Proposed Contour		Grading Limits
	Existing Contour		Exist. Construction Fence for Tree Protection (to be maintained)
	Drainage Swale		Tree to be saved
	Geotechnical Boring Location		Sediment Fence
	Erosion Control Blanket		Exist. Sediment Fence (to be maintained)
	BMP Plan Reference Number		Temporary Construction Entrance
	Straw Wattles		Rock Check Dam

NOT FOR
CONSTRUCTION

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DATE: 1/10/17

DESIGN BY: CEL

DRAWN BY: DRV

PROJECT NO.: 12720

SHEET NO. TOTAL SHEETS

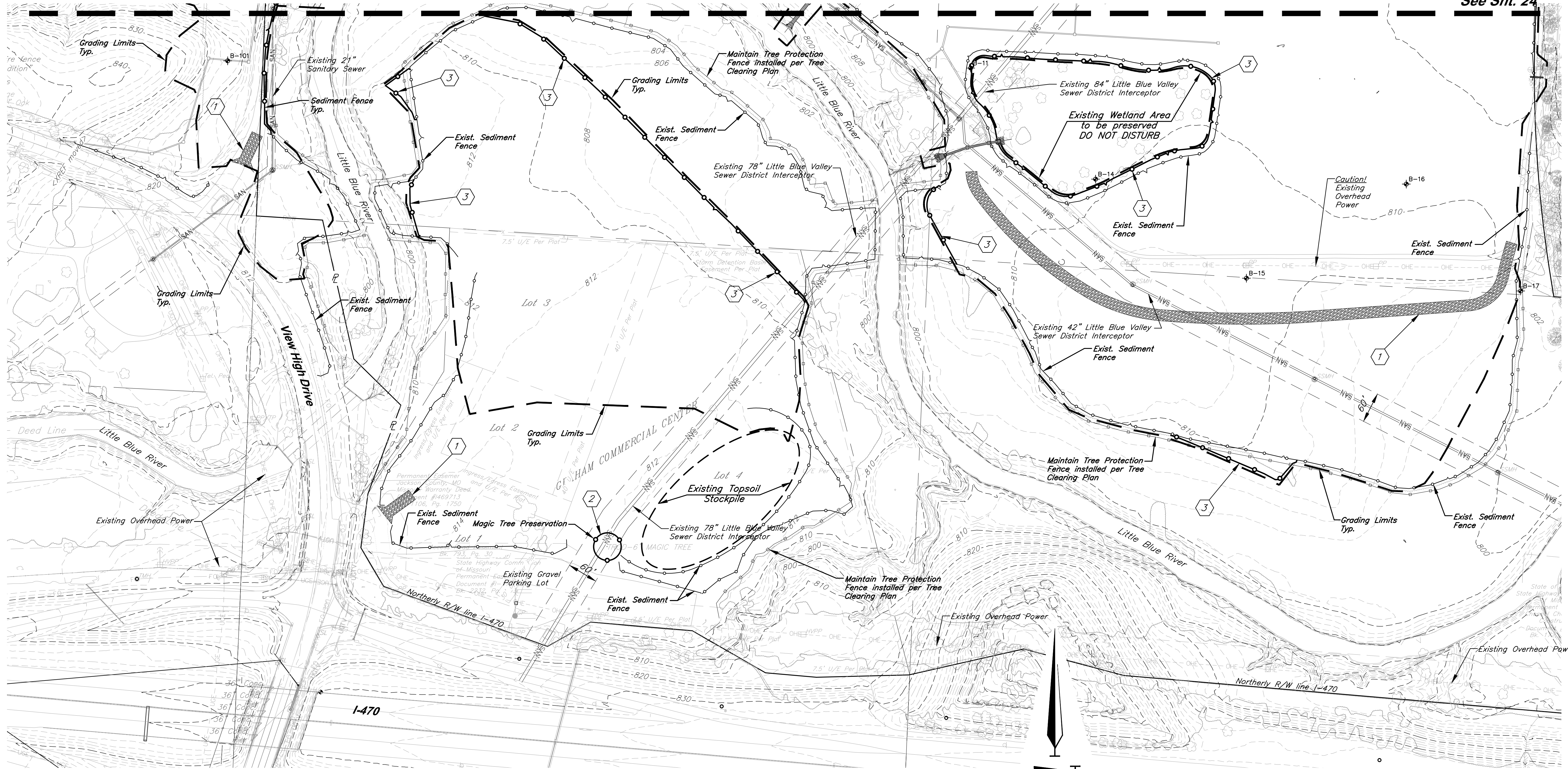
25 33

Bradley D. Burton
Professional Engineer
License No. 25862

Mass Grading Plans
Paragon Star Development
Lee's Summit, Missouri

NO. DATE

REVISIONS BY APPROVED
Revised Field Elevations



Match Line
See Sht. 24

100' 0' 100' 200'
SCALE: 1 INCH = 100 FEET

Pre-Construction Erosion Control-Phase 1

Architect: 00212, Professional Engineer: 000133, Landscape Architect: 000025, Professional Land Surveyor: 000059
G:\12720\Civil 3D Production Drawings\Mass Grading\Lee's Summit\12720C4050.dwg Layout: 26 Erosion Control -- Thursday, May 17, 2018, 3:36pm -- Copyright 2018, George Buller Associates, Inc.

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Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

Legend

- | | | | |
|--|------------------------------|--|---|
| | Proposed Contour | | Grading Limits |
| | Existing Contour | | Exist. Construction Fence for Tree Protection
(to be maintained) |
| | Drainage Swale | | Tree to be saved |
| | Geotechnical Boring Location | | Sediment Fence |
| | Erosion Control Blanket | | Exist. Sediment Fence
(to be maintained) |
| | BMP Plan Reference Number | | Temporary Construction Entrance |
| | Straw Wattles | | Rock Check Dam |

CAUTION!

Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.



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License No. 25862

NO.	DATE
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DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS

26	33
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Mass Grading Plans
Paragon Star Development
Lee's Summit, Missouri

REVISIONS	BY	APPROVED
Revised Field Elevations		

Erosion Control-Phase 2















PROJECT BENCHMARK:

BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of 1470 bridge
spanning View High Drive.
EL=833.80

CAUTION!

*Numerous Utilities on Site.
Contractor to verify location
and elevation of all utilities
prior to commencing
construction.*

Legend

- | | | | |
|---|---------------------------------|---|---|
|  | Proposed Contour |  | Grading Limits |
|  | Existing Contour |  | Exist. Construction Fence for Tree Protection
(to be maintained) |
|  | Drainage Swale |  | Tree to be saved |
|  | Geotechnical
Boring Location |  | Sediment Fence |
|  | Erosion Control Blanket |  | Exist. Sediment Fence
(to be maintained) |
|  | BMP Plan Reference Number |  | Temporary Construction Entrance |
|  | Straw Wattles |  | Rock Check Dam |

**NOT FOR
CONSTRUCTION**

Bradley D. Burton
Professional Engineer
License No. 25862

NO.	DATE
	5/15/18

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Lenexa, Kansas 66219
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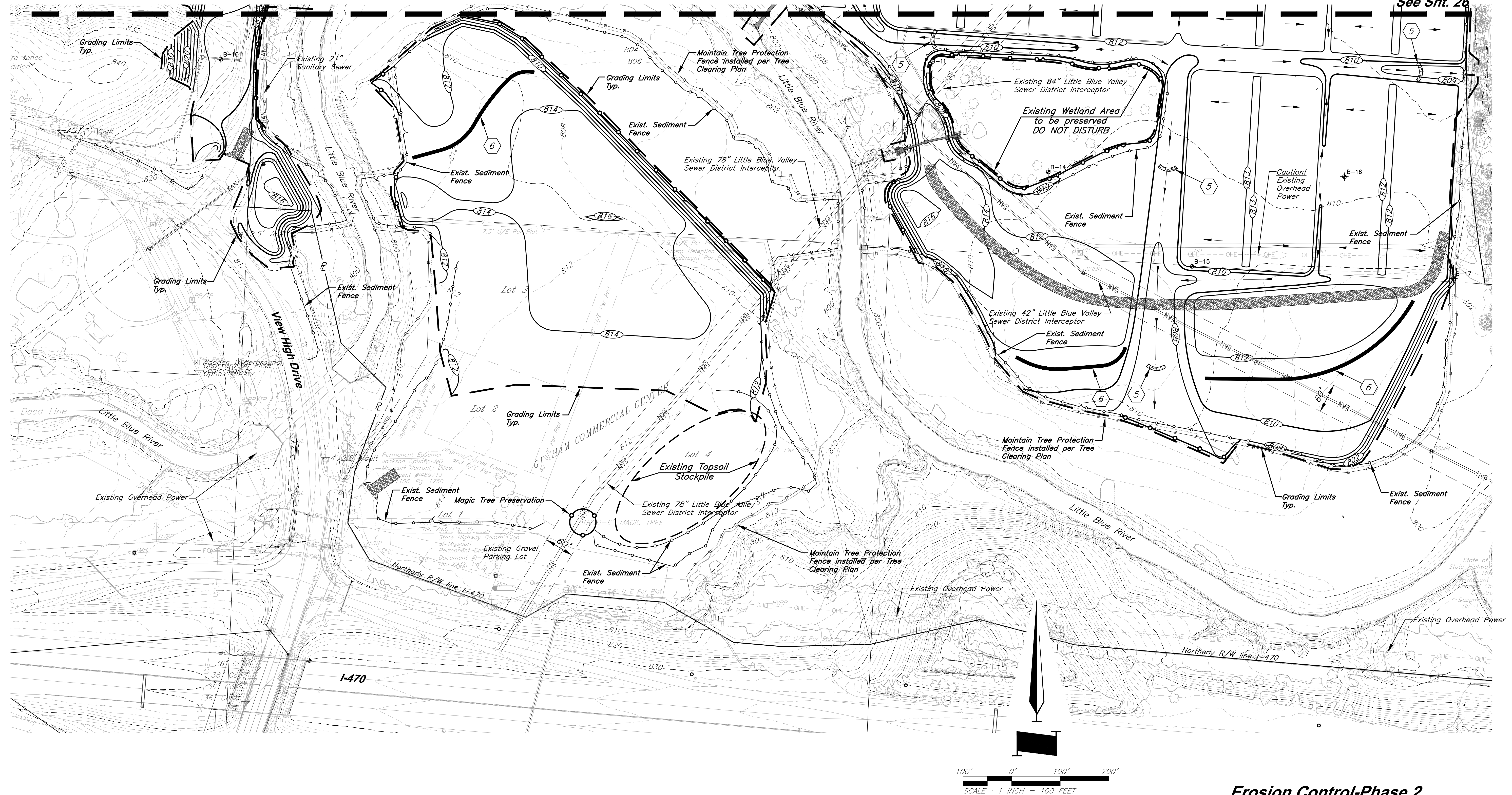
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DESIGN BY:	CEL	
DRAWN BY:	DRV	
PROJECT NO.:	12720	
SHEET NO.	TOTAL SHEETS	

27 | 33

Mass Grading Plans
Paragon Star Development
Lee's Summit, Missouri

REVISIONS	BY	APPROVED
Revised Field Elevations		

Match Line
See Sht. 26



Erosion Control-Phase 2

Architect: 00212, Professional Engineer: 000133, Landscape Architect: 000025, Professional Land Surveyor: 000059
G:\12720\Civil 3D Production Drawings\Mass Grading\Lee's Summit\12720-4050.dwg Thursday, May 17, 2018, 3:57pm -- Copyright 2018, George Buller Associates, Inc.

PROJECT BENCHMARK:

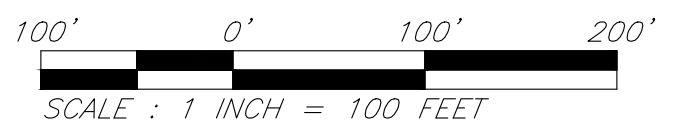
BM #11 - Chiseled "L" on top
Northeast corner of concrete guardrail
at the Northeast corner of I470 bridge
spanning View High Drive.
EL=833.80

Legend

- | | | | |
|--|------------------------------|--|---|
| | Proposed Contour | | Grading Limits |
| | Existing Contour | | Exist. Construction Fence for Tree Protection
(to be maintained) |
| | Drainage Swale | | Tree to be saved |
| | Geotechnical Boring Location | | Sediment Fence |
| | Erosion Control Blanket | | Exist. Sediment Fence
(to be maintained) |
| | BMP Plan Reference Number | | Temporary Construction Entrance |
| | Straw Wattles | | Rock Check Dam |

CAUTION!

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and elevation of all utilities
prior to commencing
construction.



**NOT FOR
CONSTRUCTION**

Bradley D. Burton
Professional Engineer
License No. 25862

NO. DATE
5/15/18

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DRAWN BY: DRV
PROJECT NO.: 12720
SHEET NO. TOTAL SHEETS
28 33

Mass Grading Plans
Paragon Star Development
Lee's Summit, Missouri

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Revised Field Elevations

Erosion Control-Phase 3

Architect: 00212, Professional Engineer: 000133, Landscape Architect: 000025, Professional Land Surveyor: 000059
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PROJECT BENCHMARK:

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Northeast corner of concrete guardrail
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Legend

	Proposed Contour		Grading Limits
	Existing Contour		Exist. Construction Fence for Tree Protection (to be maintained)
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	Straw Wattles		Rock Check Dam

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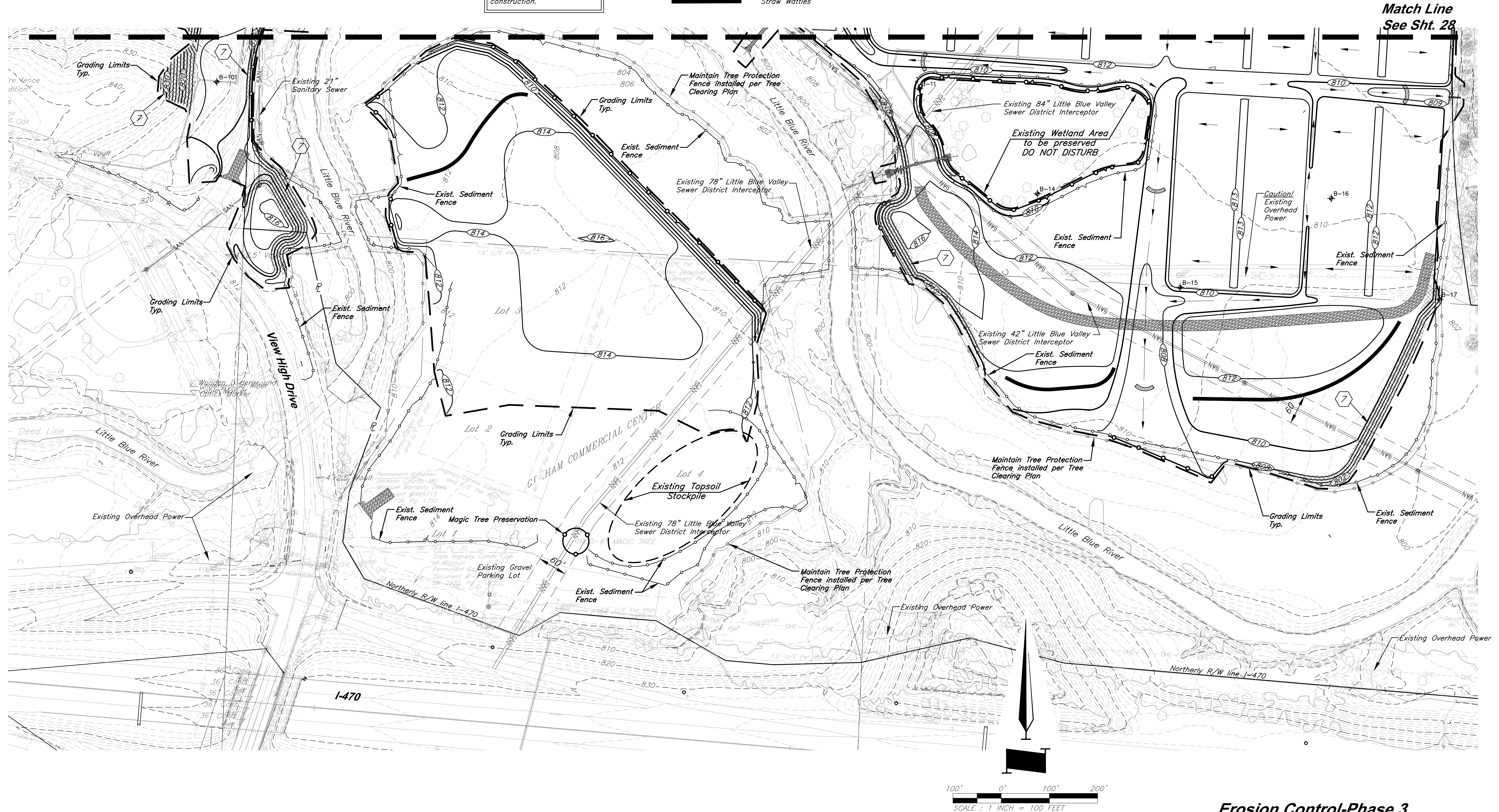
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DATE:	1/10/17
DESIGN BY:	CEL
DRAWN BY:	DRV
PROJECT NO.:	12720
SHEET NO.	TOTAL SHEETS
29	33

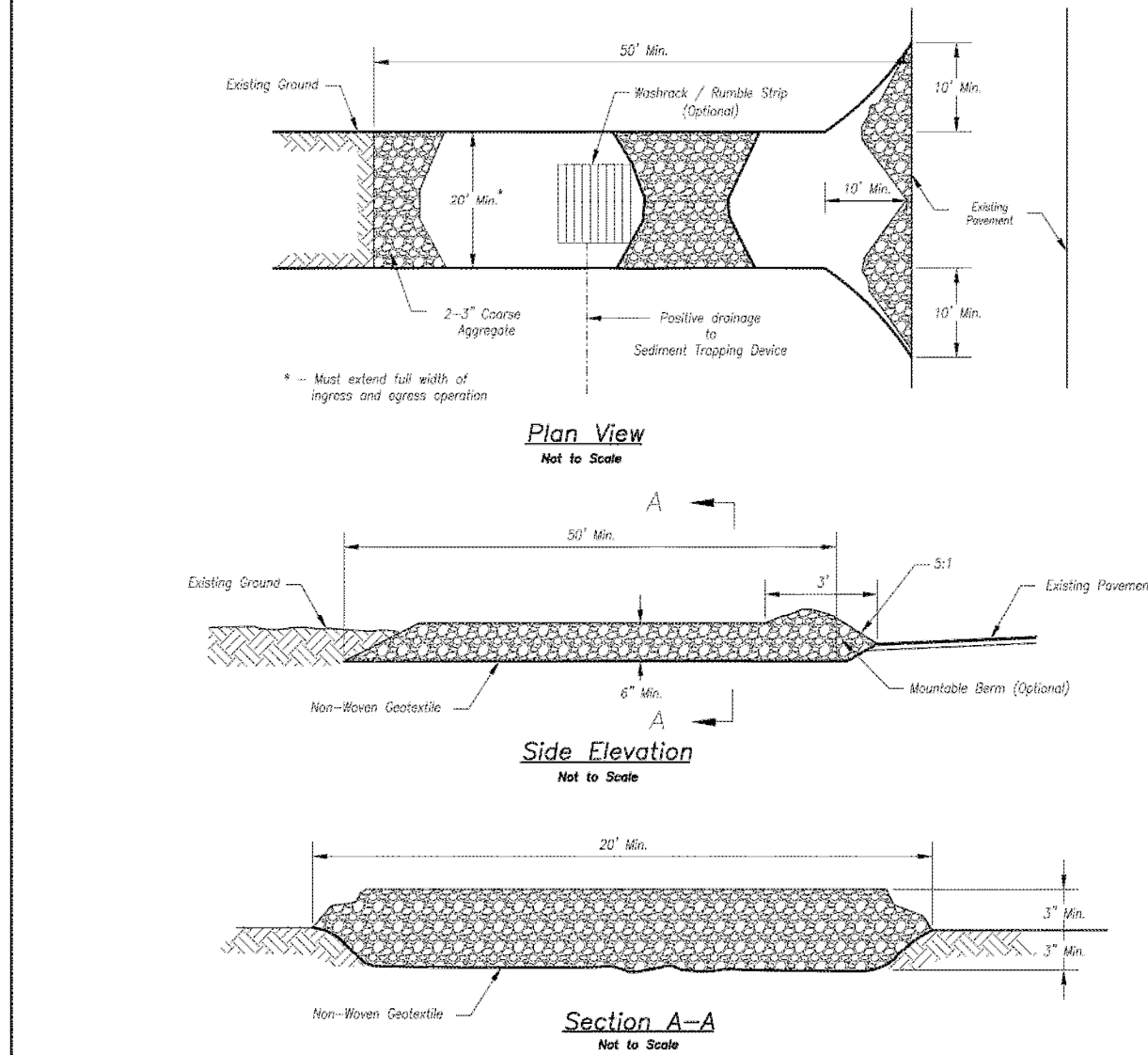
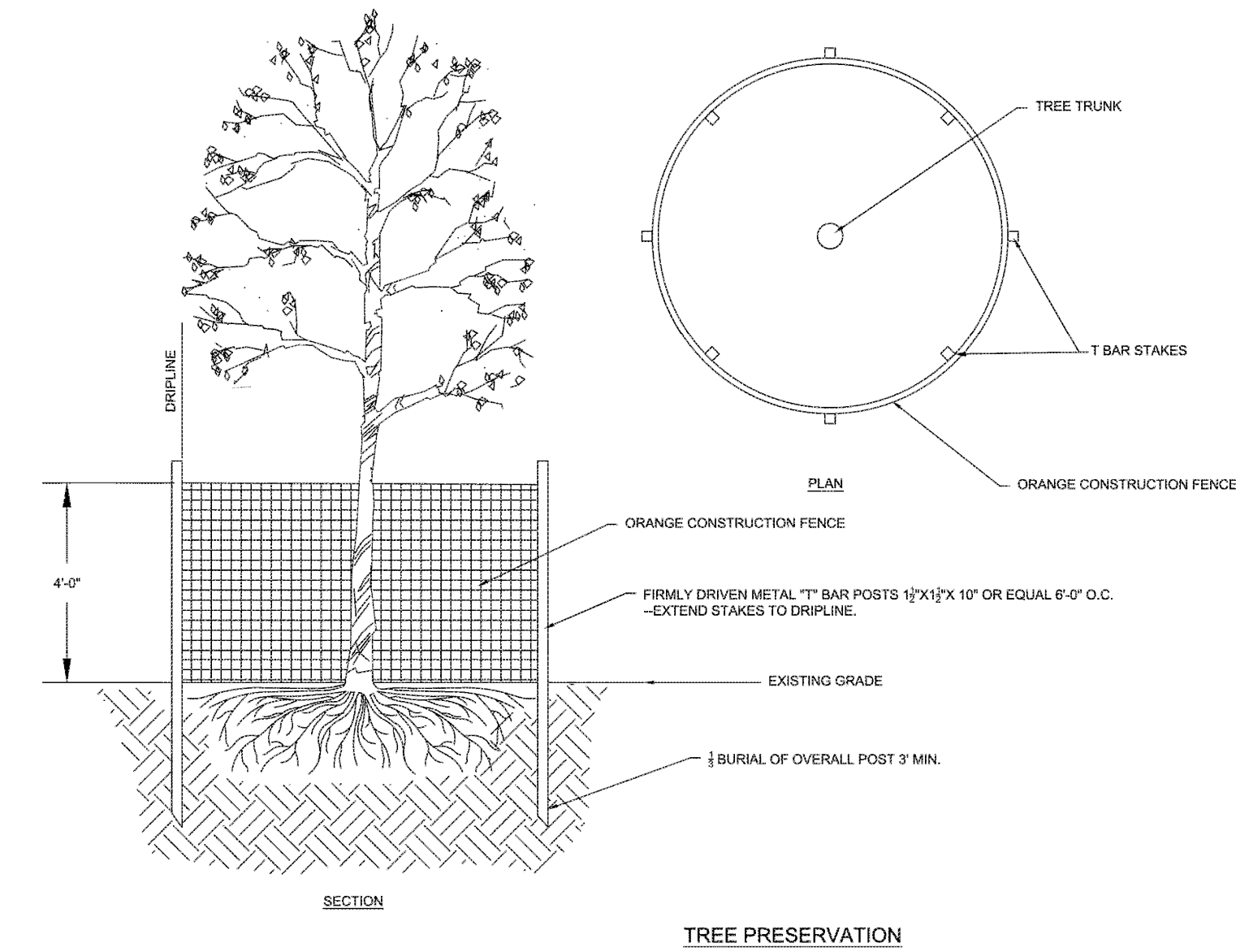
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Professional Engineer
License No. 25862

Mass Grading Plans
Paragon Star Development
Lee's Summit, Missouri

NO.	DATE	REVISIONS	BY	APPROVED
1	5/15/18	Revised Field Elevations		



Erosion Control-Phase 3



Notes for Construction Entrance:

1. Avoid landing on steep slopes, at curves on public roads, or downhill of disturbed areas.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

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

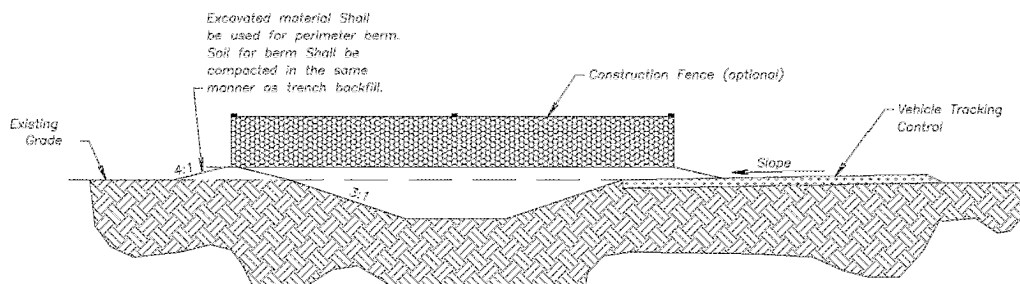
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout areas shall include a flat subsurface pit sloped readily to the impact of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs 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) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

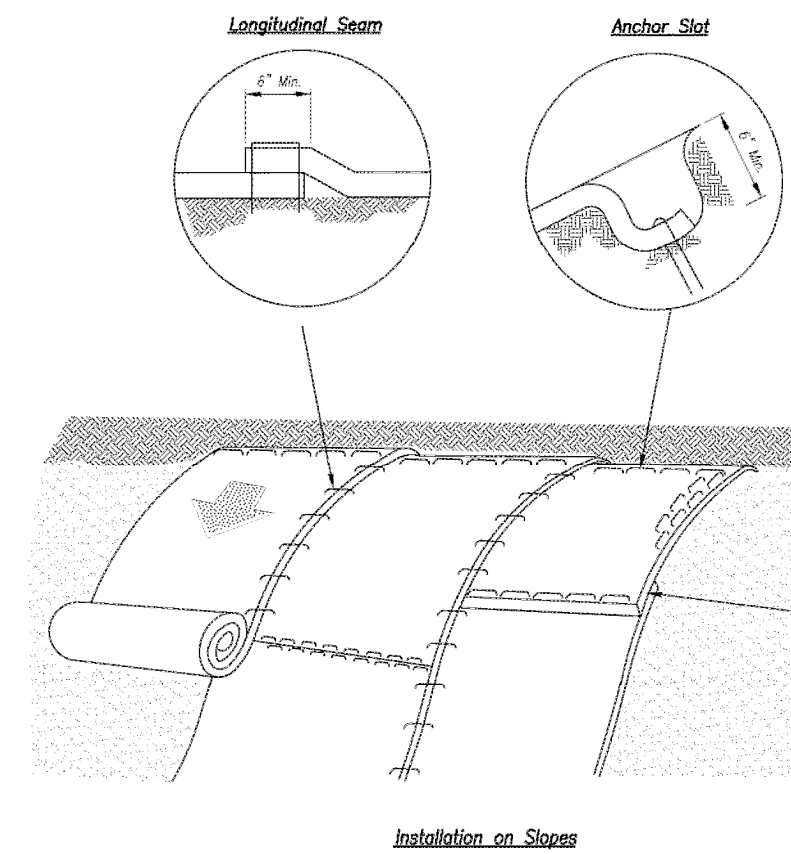
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
3. Concrete washout water, washed pieces of concrete and all other debris in the subsurface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



CONCRETE WASHOUT

AMERICAN PUBLIC WORKS ASSOCIATION	
KANSAS CITY METRO CHAPTER	
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT	STANDARD DRAWING NUMBER ESC-G1 ADOPTED: 10/24/2016

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

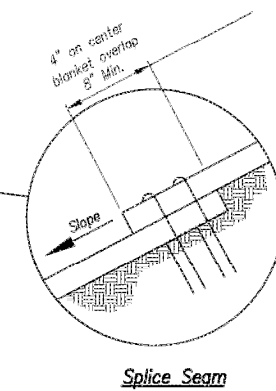


General Notes:

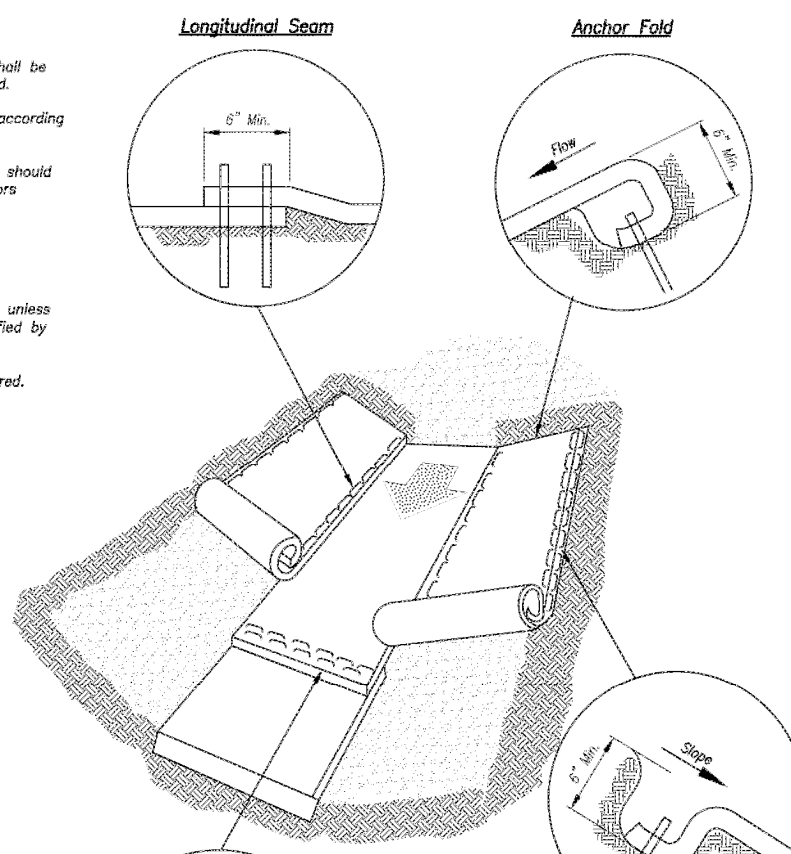
1. APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.
2. Typical anchors and pattern/spacing shall be installed according to the manufacturer's instructions.
3. LONGITUDINAL SEAMS: The edges of the blanket or mat should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.

Maintenance:

1. Torn or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by the manufacturer.
2. Edges or seams that are loose or frayed shall be secured.



Splice Seam

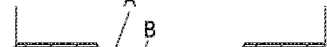


Notes for Installation in Channels:

1. Erosion Control Blankets and TMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.
2. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slit 6 inches wide x 6 inches deep, anchored in the bottom of the slit, backfilled, and the mat folded over the top as shown in detail.
3. SPLICE SEAM: When splices are necessary, overlap and a minimum of 12 inches in direction of water flow. Stagger splice seams.
4. CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be set into, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
5. EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.
6. TERMINUS: The bottom edge of the mat shall be anchored.



Edge Anchor



Trapezoidal Channel



V Channel

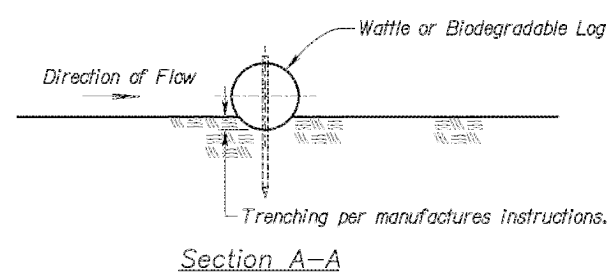
Critical Points:

- A - Overlap and seams;
- B - Projected water line;
- C - Channel bottom / side slope vertical;

Installation in Channels

AMERICAN PUBLIC WORKS ASSOCIATION	
KANSAS CITY METRO CHAPTER	
EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS	STANDARD DRAWING NUMBER ESC-02 ADOPTED: 10/24/2016

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



WATTLES AND BIODEGRADABLE LOG

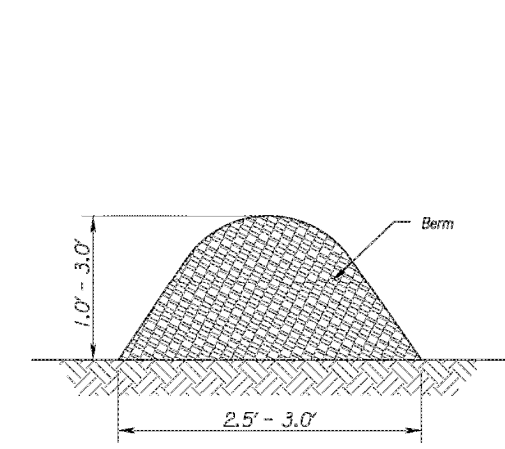
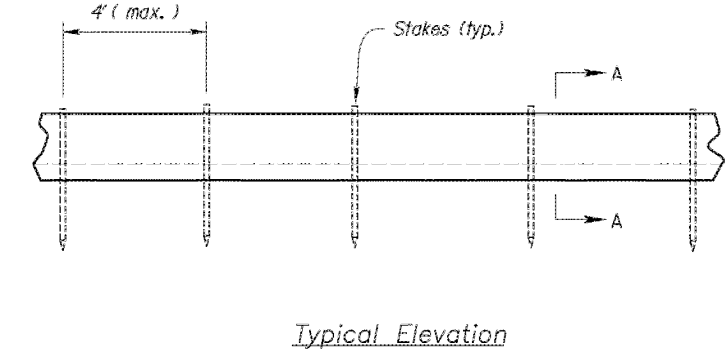


Figure 1 (Perimeter Control)



Typical Elevation

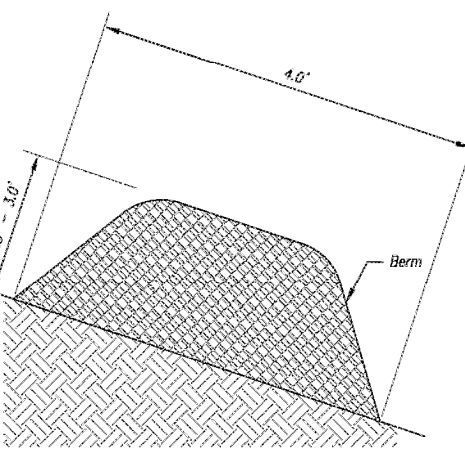


Figure 2 (Steep Slopes)

Notes for Wattles and Biodegradable Log Slope Protection:

1. The Slope barriers shall be placed along contour lines, with a short section turned up at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends must be stepped.
2. Install wattles and biodegradable logs per manufacturer's instructions.
3. Spacing of stakes per manufacturer's instructions with 4' max. spacing. Length of stakes shall be a minimum of 2 times the diameter of the log with minimum of 24".

Notes for Mulch and Compost Filter Berm:

1. The sediment control berm shall be placed uncompacted in a window at locations shown on the plans or as directed by the engineer.
2. Parallel to the base of the slope, or around the perimeter of other affected areas, construct a 1 to 3 foot high by 2.5 to 3 foot wide berm (see Figure 1). For maximum water treatment ability or for steep slopes, construct a 1.5 to 3 foot high trapezoidal berm that is a minimum of 4 feet wide at the base (see Figure 2). In extreme conditions, or where specified by the engineer, a second berm shall be constructed at the top of the slope. Engineer will specify berm requirements.
3. If berm is to be left as permanent or part of the natural landscape, the compost berm may be seeded during application for permanent vegetation.
4. Do not use compost or wood mulch berms in any runoff channels or concentrated flow areas.
5. Wood mulch shall consist of tree and shrub debris resulting from clearing and grubbing and shall be ground by the mechanical means such as a chipper, hammermill, tub grinder or other approved method. Mulch using wattle with a maximum width of 3" and a maximum length of 10".

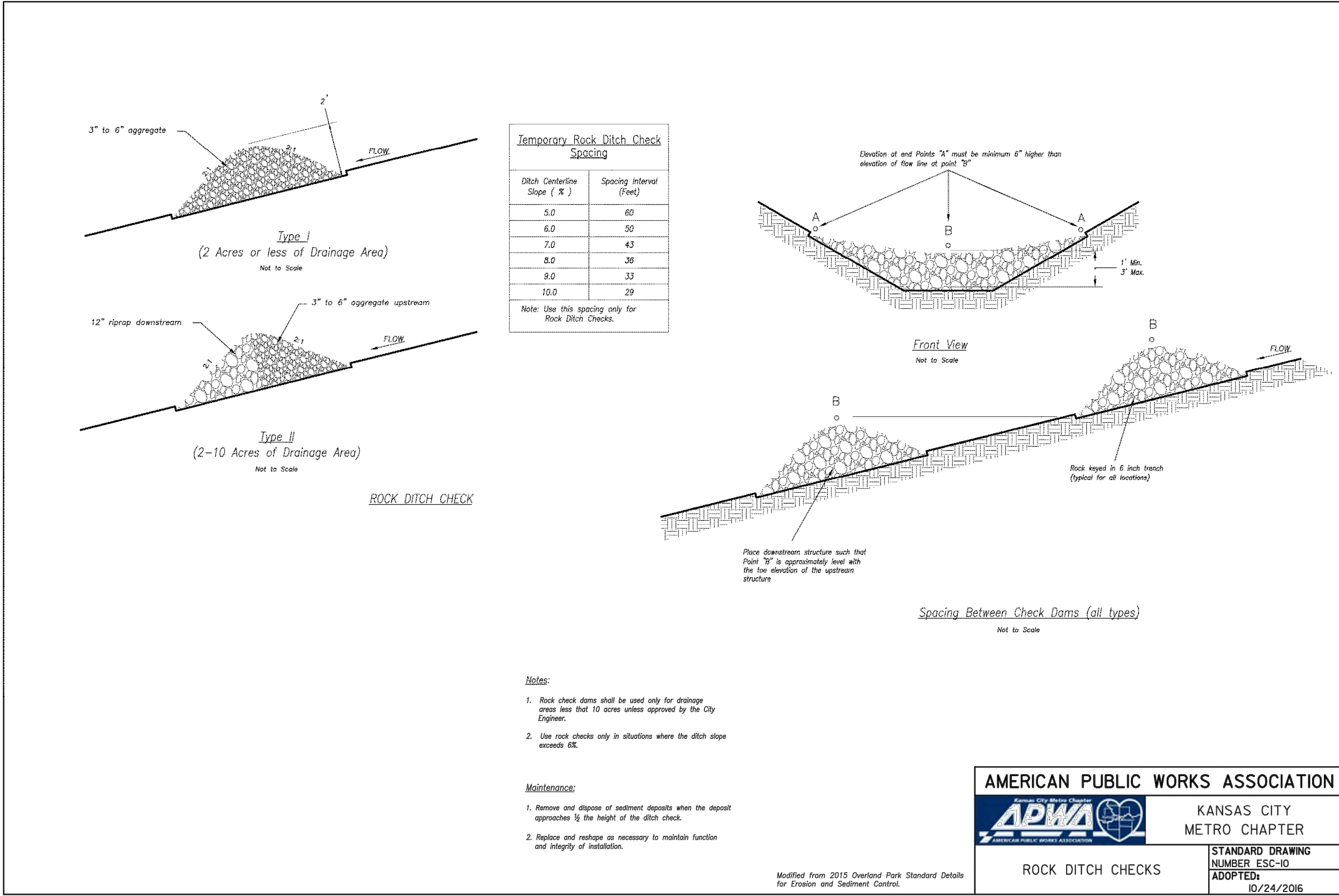
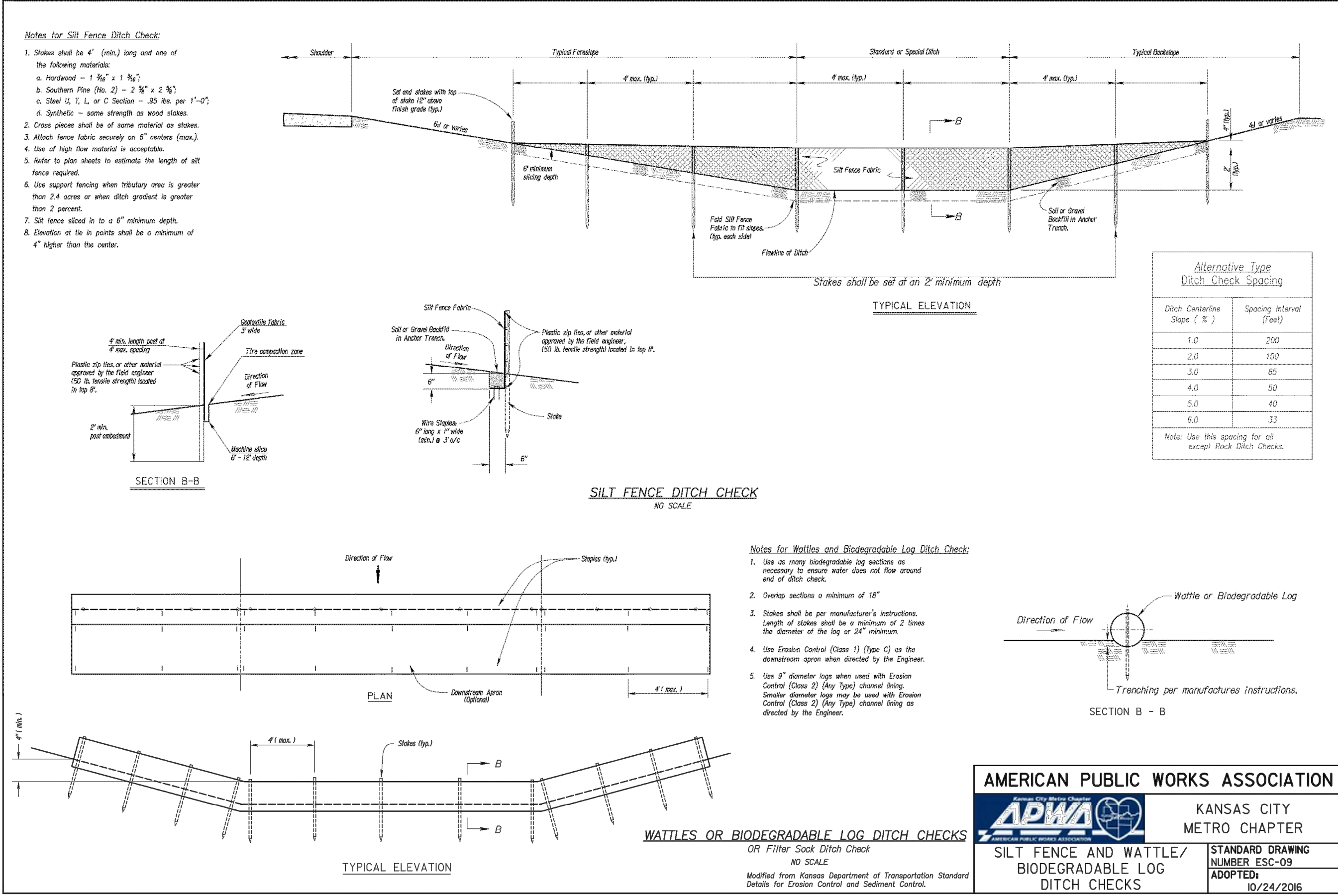
Maintenance for Mulch and Compost Filter Berms:

1. Berm shall be reshaped and material added as necessary to maintain function and dimension.
2. Breaches in the berm shall be repaired promptly.

AMERICAN PUBLIC WORKS ASSOCIATION	
KANSAS CITY METRO CHAPTER	
WATTLES/Biodegradable LOG AND MULCH/COMPOST FILTER BERM	STANDARD DRAWING NUMBER ESC-04 ADOPTED: 10/24/2016

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

Erosion Control Details



APPENDIX C
CONTRACTOR'S CERTIFICATION FORM

CONTRACTOR'S CERTIFICATION FORM

For Stormwater Discharges Associated with Construction Activity
Authorized by a Missouri Water Pollution Control-General Permit Under the
National Pollutant Discharge Elimination System

This form is to be completed by the Contractor responsible for implementation of the day-to-day activities necessary to complete the requirements of the Stormwater Pollution Prevention Plan. This completed form must be included in, or kept with the Stormwater Pollution Prevention Plan for the site identified below.

I certify under penalty of law that I understand the terms and conditions of the Missouri Water Pollution Control general permit that authorizes the stormwater discharges associated with construction activity from the construction site identified below, and the Stormwater Pollution Prevention Plan prepared for the project.

Name of Project: _____

Project Address: _____

City: _____

County: _____

Zip Code: _____

Company Name: _____

Company Address: _____

Company Phone #: _____

Project
Responsibilities: _____

Contractor's Signature: _____

Name (typed or printed): _____

APPENDIX D
CONSTRUCTION SITE POLLUTION CONTROL REFERENCE FORM

CONSTRUCTION SITE POLLUTION CONTROL REFERENCE TOOL (See attached fact sheet for more water quality protection practices).

Water Quality Standard Criteria	Substances/actions Likely to Result in Violations of the Water Quality Standards	Water Quality Protection Practices
pH below 6.5 PH above 8.5	Acids, caustics,	Prevent or respond to equipment leaks or spills. Report spill. Keep spill equipment (absorbents, socks etc.) on site. Push up berm etc. Locate and store substances an adequate distance from water resource. Implement vandalism prevention/ reduction practices.
Visible oil and grease	Fuel, mechanical maintenance fluids, solvents, oil based paints.	Prevent or respond to equipment leaks or spills. Report spill. Keep spill equipment (absorbents, socks etc.) on site. Push up berm etc. Locate and store substances an adequate distance from water resource. Implement vandalism prevention/ reduction practices.
Floating debris, solid materials	Artificial items, such as food containers, plastic paper or anything else which may trigger a complaint.	Good housekeeping, a portable waste container. Proper disposal of construction waste, rubbish, equipment parts, tires etc.
Dissolved oxygen below 5.0 Biochemical Oxygen Demand 3.0 mg/l (BOD)	Oxygen depletion from removal of natural aeration sources or overloading organic matter.	Minimize stream geometry changes, removal of riffle and rocky areas. Design stream channel geometry for artificial sources of oxygenation.
Pesticides	Substances which are used to control or eradicate living organisms (plants animals fungus).	Follow Missouri Regulations, follow label instructions, investigate mechanical / biological alternatives.
Suspended solids (sources)	Accelerated sedimentation, siltation and erosion form land disturbance, stream and bank alteration. If using heavy equipment see practices for hazardous, visible oil etc. and pH criteria.	Sediment/siltation: silt barriers/fences, sediment ponds, retention and detention dams, protect or restore wetlands/riparian areas, establish buffer strip, stabilize streambank. Erosion: compaction, surface roughening, erosion control mats, mulch systems, vegetative plantings. Use mulch or hydro- seeding.
Nutrients	Natural or commercial sources of nitrogen, phosphorus.	Follow label instructions, apply according to vegetation needs rate. Use mulching techniques.
Toxics / hazardous	Any contaminant which affects the health of a living, non-microbial organism. May include infectious pathogens, radioactive isotopes etc..	Prevent or respond to equipment leaks or spills. Report spill. Keep spill equipment (absorbents, socks etc.) on site. Push up berm etc. Locate and store substances an adequate distance from water resource. Implement vandalism prevention /reduction practices
Chlorides		
Sulfates		

APPENDIX E
SITE INSPECTION FORM

Company Name:

Company Address; Telephone Number; and Fax:

Site Inspection Form

Project No.:	Inspection Date:
Project Name:	Owner (Permittee):
Project Location:	Civil Engineer:
Superintendent:	NPDES Permit No.:

A Site Inspection was conducted on the project identified above. The following observations were noted during this inspection

☐ Weekly Inspection
 ☐ Storm Event Inspection (>0.5 inches of rain) Rainfall (inches): _____

Storm Water Pollution Prevention Plan: ☐ Part of Grading Plans ☐ Separate Document

SWPPP in Project Office: ☐ Yes ☐ No Operator Inspection Form and Log ☐ Yes ☐ No

Copy of Permit & Conditions in Office: ☐ Yes ☐ No Site Area (In Acres): _____

Name of receiving Waters or Streams: _____

Grading Contractor: _____ ☐ Subcontractor ☐ Contracted Direct to Owner

No.	I. List of Erosion & Sediment Control BMP's	Acceptable Condition			Action Taken
1.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
2.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
3.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
4.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
5.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
6.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
7.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
8.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
9.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
10.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
11.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
12.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
13.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
14.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
15.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	

No.	II. General Condition Questions/Checklist	Acceptable Condition			Comments
1.	Are BMP's Completed per the SWPPP?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
2.	Are BMP's routinely maintained?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
3.	Are good site housekeeping practices observed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
4.	Is sediment from erosion being retained on site?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
5.	Solid waste prohibited from being buried on site?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
6.	Hazardous waste and paint removed from site?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
7.	Has any disturbed site area been inactive >14 days?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	

Report Prepared by: _____

☐ Carbon Copy to: _____

See continuation Page: ☐ Yes ☐ No, END OF REPORT

Company Address; Telephone Number; and Fax:

The items described below are part of the Storm Water Pollution Prevention Plan (SWPPP) Site Inspection for Project Number _____, Project titled _____ as follows:

[illegible]

APPENDIX F
SITE INSPECTION LOG

Company Name:

Company Address; Telephone Number; and Fax:

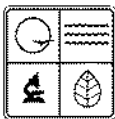
SITE INSPECTION LOG

Project No.:		Page ____ of ____	
Project Name:		Owner (Permittee):	
Project Location:		Civil Engineer:	
Superintendent:		NPDES Permit No.:	
Storm Water Pollution Plan:		<input type="checkbox"/> Part of Grading Plans	<input type="checkbox"/> Separate Document
Site Area (In Acres):	Name of Receiving Waters or Streams:		
Grading Contractor:		<input type="checkbox"/> Subcontractor	<input type="checkbox"/> Contracted Direct to Owner

Item No.	Inspection Date	Inspection Conducted By	Inspection Type Weekly (W) or Storm Event (S)		BMP Condition Good (G), Fair (F) or Poor (P)			BMP Maintenance Required? Y/N		Date Maintenance Performed
1.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
2.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
3.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
4.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
5.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
6.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
7.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
8.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
9.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
10.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
11.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
12.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
13.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
14.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
15.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
16.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
17.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
18.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
18.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
19.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
20.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
21.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
22.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
23.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
24.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
25.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
26.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
27.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
28.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
29.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	
30.			<input type="checkbox"/> W	<input type="checkbox"/> S	<input type="checkbox"/> G	<input type="checkbox"/> F	<input type="checkbox"/> P	<input type="checkbox"/> Y	<input type="checkbox"/> N	

APPENDIX G
COMPLETED SITE INSPECTON FORMS

APPENDIX H
FORM H – REQUEST FOR TERMINATION



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)

FORM H – REQUEST FOR TERMINATION OF A GENERAL PERMIT

UNDER MISSOURI CLEAN WATER LAW

1.00 TYPE OF GENERAL PERMIT REQUESTED TO BE TERMINATED

1.10 PERMIT NUMBER

MO -

2.00 FACILITY

NAME		COUNTY	
ADDRESS	CITY	STATE	ZIP CODE

3.00 OWNER

NAME	E- MAIL	PHONE	
		FAX	
ADDRESS	CITY	STATE	ZIP CODE

4.00 CONTINUING AUTHORITY

NAME	PHONE		
	FAX		
ADDRESS	CITY	STATE	ZIP CODE

5.00 REASON FOR TERMINATION REQUEST: (CHECK ONE)

- ☐ For land disturbance sites, area is stabilized by seeding, mulching, sodding, paving, or other means, no further land disturbance activities are planned, all building construction (commercial or residential) is completed, and construction equipment removed.
- ☐ For industrial facilities, site activities have ceased and site closed and no significant materials remain exposed to storm water.
- ☐ For any type of site, a site specific permit was obtained.
- ☐ Other reason (specify) _____

6.00 I CERTIFY THAT I AM FAMILIAR WITH THE INFORMATION CONTAINED IN THE TERMINATION REQUEST, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF SUCH INFORMATION IS TRUE, COMPLETE AND ACCURATE.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE NO. (AREA CODE)
SIGNATURE	DATE SIGNED