

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Project:

**Orchard Woods
N.E. Woods Chapel Road and N.E. Lakewood Way
Lee's, Jackson County, Missouri**

Date: November 22, 2022

Prepared for the Owner & Developer:

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I. NARRATIVE

a. Regulatory Background

The Missouri Department of Natural Resources (MoDNR) has established a program to protect waters of the State of Missouri from construction site storm water runoff. The storm water program requires owners (the permittee) of projects, who engage in construction activities disturbing one (1) or more acres to have authorization (permitted) to discharge storm water runoff under the State construction storm water general permit. Owners must submit a Notice of Intent (NOI) to comply with the general permit at least sixty (60) days before starting construction. Owners must receive a permit from MoDNR prior to commencing any land disturbance activity.

Owners may elect to authorize (in writing) an officer of their contractor to obtain and maintain the permit.

The primary requirement of MoDNR's general construction storm water permit is for the permittee to develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The purpose of this "Storm Water Pollution Prevention Plan" (SWPPP) is to provide design, implementation, and maintenance of "Best Management Practices" (BMPs) for the project site. The SWPPP includes, but is not limited to this document, the Erosion and Sedimentation Control Plan included in the Construction Drawings with the Detail Sheets, Site landscaping plans, the Notice of Intent, Co-Permittee or Transfer forms, Permit Authorization, General Permit, Notice of Termination, all records of inspections and activities which are created during the course of the project, and other documents as may be included by reference to this SWPPP. Changes, modifications, revisions, additions, or deletions shall become part of this SWPPP as they occur.

Public Posting (Including SWPPP Information Sign)

Install the SWPPP Information Sign per specification and post Site Maps and Details Sheets on the jobsite trailer wall (or other Owner agreed upon location) before beginning BMP installation. The following information must be posted near the construction exit in a prominent place for public viewing until termination of permit coverage has been obtained by filing the Notice of Termination (NOT): 1) Notice of Intent; 2) Permit Authorization; and 3) The location of the SWPPP on site. Reference the Entrance Sign (SWPPP Information Sign) detail for proper posting of documents.

Retention of Records

A complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., shall be kept at the project site (or at the location as specified on the NOI if not at the project site) during the duration of the project (until NOT is filed) and kept in the permanent project records of the General Contractor for at least three years following submission of the Notice of Termination (NOT). The SWPPP shall be made available during inspections.

Contractor/Sub-Contractor List

The General Contractor must provide names and addresses of all subcontractors working on this project who will be involved with the major construction activities that disturb site soil or otherwise affect BMP implementation. This information shall be kept in the SWPPP Binder.

Contractor/Sub-Contractor Certification Form

The General Contractor and all contractors and/or subcontractors that will implement, maintain and/or impact the pollution control measures in the SWPPP and/or are involved in ground-disturbing activities on the site must sign a copy of the Contractor certification included in the Appendix. An authorized representative from each company on the construction project must sign this form certifying that company representatives understand the General Permit authorizing storm water discharges during construction. This information shall be kept in the SWPPP Binder.

Additional Requirements:

This SWPPP was developed to fulfill construction storm water permit requirements for the project. Ultimately, it is the responsibility of the permittee or his general contractor (if so designated) to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

b. Site Location and Existing Conditions

The site is a 13.14 acres parcel located at N.W. Lakewood Drive. in Lee's Summit, Jackson County, Missouri. The site is located in the SW 1/4 of Section 9, Township 48 North, Range 31 West. The legal description for the parcel is:

All that part of the Southwest Quarter of Section 9, Township 48 North, Range 31 West, in the City of Lee's Summit, Jackson County, Missouri, being more particularly described as follows:

Commencing at the Southwest corner of the Southwest Quarter of said Section 9, said point also being the Southwest plat corner of CHURCH AT LAKEWOOD WAY AND WOODS CHAPEL, a platted subdivision of land in the City of Lee's Summit, Jackson County, Missouri; thence S 88°11'38" E, along the South line of the Southwest Quarter of said Section 9 and the South plat line of said CHURCH AT LAKEWOOD WAY AND WOODS CHAPEL, a distance of 713.71 feet to the Southeast plat corner of said CHURCH AT LAKEWOOD WAY AND WOODS CHAPEL; thence N 2°22'48" E, along the East plat line of said CHURCH AT LAKEWOOD WAY AND WOODS CHAPEL, a distance of 769.93 feet to the Point of Beginning; thence continuing N 2°22'48" E, along the East line of said CHURCH AT LAKEWOOD WAY AND WOODS CHAPEL and the East plat line of NORTH 2.5 MILLION GALLON TANK and the East plat line of LAKEWOOD BUSINESS PARK, Lots 33A, AND 34-36, and the East plat line of LAKEWOOD BUSINESS PARK- LOTS 25 THROUGH 33, all platted subdivisions of land in the City of Lee's Summit, Jackson County, Missouri, a distance of 1233.33 feet to a point on the South line of LAKEWOOD BUSINESS PARK ANNEX, LOTS 1, 2 AND 3, a platted subdivision of land in the City of Lee's Summit, Jackson County, Missouri; thence S 88°20'38" E, along the South line of said LAKEWOOD BUSINESS PARK ANNEX, LOTS 1, 2 AND 3, and the South line of LAKEWOOD BUSINESS ANNEX, a platted subdivision of land in the City of Lee's Summit, Jackson County, Missouri, a distance of 617.34 feet to a point on the West line of SAVANNAH RIDGE-THIRD PLAT, a platted subdivision of land in the City of Lee's Summit, Jackson County, Missouri; thence S 2°21'19" W, along the West plat line of said SAVANNAH RIDGE-THIRD PLAT, the West plat line of SAVANNAH RIDGE-FIRST PLAT and the West plat line of SAVANNAH RIDGE- SECOND PLAT, all platted subdivisions of land in the City of Lee's Summit, Jackson County, Missouri, a distance of 675.29 feet to the Southeast corner of the Northwest Quarter of the Southwest Quarter of said Section 9, said point also being the Southwest plat corner of said SAVANNAH RIDGE- SECOND PLAT; thence N 88°16'35" W, a distance of 333.23 feet; thence S 1°48'40" W, a distance of 149.62 feet; thence S 87°38'41" E, a distance of 23.74 feet; thence S 2°21'19" W, a distance of 357.67 feet; thence Westerly along a curve to the left, said curve having an initial tangent bearing of N 78°30'53" W and a radius of 480.00 feet, an arc distance of 320.47 feet to the Point of Beginning, containing 13.1445 acres, more or less, of unplatted land.

Drainage on the site flows primarily northerly to an existing storm sewer system at northwestern extent of the site. The existing site consists of undeveloped land. Existing vegetation consists of woods and grasses.

c. Proposed Construction and Land Disturbance Activities

Proposed construction activities include the construction of utilities, streets, and homes for a single family residential subdivision. Storm water drainage will be

conveyed through curb and gutter, enclosed pipes, and drainage swales. Where storm sewers discharge to a receiving waterway, riprap shall be placed at the outlet to dissipate flow and reduce velocity. The site will be re-seeded upon completion of the finish grading. All seeded and planted areas will be inspected for bare spots, washouts, and healthy growth. The remainder of site shall have paving and buildings stabilizing exposed ground.

d. Work Schedule/Project Phasing

Construction activities will commence winter of 2022 with an estimated completion date of Fall 2023 for the horizontal improvements. Onsite working hours will be from 7am to 7 pm Monday through Saturday. The entire project will be constructed in one phase.

e. Potential Storm Water Contaminants

Pollutants that result from clearing, grading, excavation, and building materials and have the potential to be present in storm water runoff are listed in Table 1. This table includes information regarding the material type, chemical and physical description, and the specific storm water pollutants associated with each material.

Table 1
Potential Construction Site Storm Water Pollutants

| Trade Name Material | Chemical/Physical Description⁽¹⁾ | Storm Water Pollutants⁽¹⁾ |
|---|---|---|
| Pesticides (insecticides, fungicides, herbicides, rodenticides) | Various colored to colorless liquid, powder, pellets, or grains | Chlorinated hydrocarbons, organophosphates, carbamates, arsenic |
| Fertilizer | Liquid or solid grains | Nitrogen, phosphorous |
| Plaster | White granules or powder | Calcium sulphate, calcium carbonate, sulfuric acid |
| Cleaning solvents | Colorless, blue, or yellow-green liquid | Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates |
| Asphalt | Black solid | Oil, petroleum distillates |
| Concrete | White solid | Limestone, sand |
| Glue, adhesives | White or yellow liquid | Polymers, epoxies |
| Paints | Various colored liquid | Metal oxides, Stoddard solvent, talc, calcium carbonate, arsenic |
| Curing compounds | Creamy white liquid | Naphtha |

| | | |
|--|---|--|
| Wastewater from construction equipment washing | Water | Soil, oil & grease, solids |
| Sanitary wastes/sewage | Water, fecal matter | Bacteria, ammonia, nutrients |
| Wood preservatives | Clear amber or dark brown liquid | Stoddard solvent, petroleum distillates, arsenic, copper, chromium |
| Hydraulic oil/fluids | Brown oily petroleum hydrocarbon | Mineral oil |
| Gasoline | Colorless, pale brown or pink petroleum hydrocarbon | Benzene, ethyl benzene, toluene, xylene, MTBE |
| Diesel fuel | Clear, blue-green to yellow liquid | Petroleum distillate, oil & grease, naphthalene, xylenes |
| Kerosene | Pale yellow liquid petroleum hydrocarbon | Coal oil, petroleum distillates |
| Antifreeze/coolant | Clear green/yellow liquid | Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc) |
| Erosion | Solid Particles | Soil, sediment |

⁽¹⁾Data obtained from MSDSs when available

Non-storm water discharges that are expected from the site during the construction period:

- Water from waterline flushing
- Uncontaminated groundwater (from excavation)
- Irrigation water

f. Storm Water Controls/Best Management Practices (BMPs)

The primary potential sources of storm water contamination for this project include erosion and construction material spillage.

Erosion and Sediment Control

Soil stabilization and structural controls will be the primary methods of erosion control used on-site to control run-off velocity and protect soil particles from precipitation. Soil stabilization is defined as using in place existing vegetation, or by providing temporary/permanent seeding, parking lots or buildings to stabilize the ground. Structural controls shall consist of temporary and permanent site improvements such as storm sewer piping and inlets and silt fence, rock check dams, diversion berms, gravel entrances, and siltation basins. The following BMPs will be implemented:

- Silt fence or mulch berms will be placed along the perimeter of the area to be cleared and graded before any clearing or grading occurs.
- All ruts caused by equipment will be graded.
- Within 14 days of clearing and grading, areas not immediately affected by construction activities will be seeded and mulched with straw. The straw mulch is to be tacked into place by a cultipacker or disk.
- Soil stockpiles will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in that area.
- Geotextiles, hydro seed/slurry tech, mulch berms, rock checks, etc.) will be applied to steep slopes and drainage ways to control gully and rill erosion.
- Silt dikes, berms, or other appropriate products best suited for the phase of construction will be placed to protect all storm sewer inlets on or near the site.
- Construction entrances shall be provided for off-site vehicles leaving graded areas and entering paved streets. Sufficiently long graveled surfaces shall be provided to reduce the amount of sediment being transported onto pavement. Graveled areas shall also be provided for contractor staging and material storage areas. Paved areas will be cleaned daily to remove any excess mud, dirt or rock.
- Dump trucks hauling material from the construction site will be covered with a tarpaulin.
- Paved streets outside the construction area will be swept to remove excess mud, dirt, or rock tracked from the site.
- Gravel bags, gutter buddies, or other approved inlet protection methods as shown on the plans shall be used to prevent sediment from entering storm water inlets.

Erosion control BMPs, locations and design specifications are included in the Drawings (see Erosion and Sediment Control Plan).

Construction Materials

To prevent construction materials from washing into receiving water bodies, or the undisturbed areas of the site, the following BMPs will be implemented

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- Paved streets outside the construction area will be swept to remove excess mud, dirt, or rock tracked from the site.
- Gravel bags, gutter buddies, or other approved inlet protection methods as shown on the plans shall be used to prevent sediment from entering storm water inlets.
- Building sites will be regularly policed and solid waste will be removed at regular intervals. All waste materials will be collected and stored in a securely lidded metal dumpster. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied when full or weekly, whichever comes first.

- On site burning will only be allowed if specifically permitted by local jurisdictional authority. Any on site burning must comply with state and county requirements also.
- All sanitary wastes will be contained and collected from portable units throughout the entire construction phase. They must be utilized by all construction personnel. They will be serviced (emptied) a minimum of weekly, or when full by a licensed sanitary waste management contractor.
- Fertilizers and other soil amendments will be applied only in the minimum amounts recommended by the manufacturer.
- Fertilizers will be covered or stored in sealable containers to avoid spills.
- All vehicles on site will be monitored for leaks and receive regular maintenance to reduce the chance of leakage.
- Petroleum Products
 - Petroleum products will be stored in tightly sealed containers or storage tanks which are clearly labeled. Storage tanks shall be in sound condition free of rust or other damage, which might compromise containment. Hoses, valves, fittings, caps, filler nozzles, and associated hardware shall be maintained in proper working condition at all times. Fueling, servicing, and repair of equipment within 50 feet of a stream is prohibited. Any fuel storage facility over 1000 gallons will require a specific spill prevention plan that meets state and federal requirements.
 - Above ground storage tanks will have secondary containment structures or berms. Secondary containment will be constructed of sufficiently impervious material with enough storage to contain the volume of the tank plus at least 6 inches freeboard.
- All liquid materials stored on-site will be in their original containers, tightly sealed, and kept in a neat, orderly manner.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm system, but will be properly disposed according to the manufacturer's instructions.
- Concrete washout from ready mix trucks will be allowed on the construction site, but only in specifically designated containment areas that have been prepared to prevent contact between the concrete and/or wash water and storm water that will be discharged from the site or in locations where waste concrete can be placed into forms to make riprap or other useful concrete products. The cured residue from the concrete

washout containment areas shall be disposed in accordance with applicable state and federal regulations. The jobsite superintendent is responsible for assuring that these procedures are followed. Washout on individual lots will not be permitted. Recycling of concrete wash water and disposal off site is encouraged.

- Form release oil used for decorative stonework will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly, when saturated.
- Building materials, when stored, will be kept away from drainage courses.
- Spill procedures:
 - Spill kits will be included with all fueling sources and maintenance activities.
 - All personnel will be aware of proper spill clean up procedures.
 - Spill containment equipment may include brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, saw dust, containment booms, and metal trash containers. All spills will be cleaned up immediately upon discovery.
 - Large spills of flammable or hazardous materials should be reported immediately to the local fire department by calling 911. Large spills must also be reported to the City &/or County Environmental Departments.
- Contaminated Soils or Groundwater
 - If encountered, contaminated soils shall be removed from the site and taken to an authorized facility for treatment or disposal. Contaminated soils shall be excavated and placed directly into trucks that will haul the soil to a landfill. As the trucks are loaded with soil, precaution shall be taken by the trucks to not track over the area of contamination to avoid spreading the contamination further as they leave the site.
 - If encountered, contaminated groundwater shall be containerized, tested, and hauled to a wastewater treatment plant that is able/permitted/willing to receive and treat the recovered water.

g. Sequence of Major Construction Activities

Described below are the major construction activities that are the subject of this SWPPP. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Also, these activities could occur in a different order if necessary to maintain

adequate erosion and sedimentation control. The Contractor shall update all activities and the timeframe (beginning and ending dates) and shall be noted on the Site Map and Record of Stabilization and Construction Activity Dates:

- Construct rock pads for construction entrance/exit. This will be the first construction work on the project.
- Temporary perimeter sediment controls will be installed before any clearing and grading begins.
- Clear and grub the improvement areas. (Sediment barriers already installed down slope per “B” above); Clearing and grading will not occur in an area until it is necessary for construction to proceed (see Project Phasing). Stripping of vegetation on the site will be limited to those areas where construction will start within 14 days or sooner where feasible. All clearing and stripping will follow the construction schedule for the development.
- Excavation and embankment to form the building pad and pavement areas;
- Underground Utilities - Sediment barriers shall be utilized as required to bound the down slope side of utility construction and soil stockpiles;
- Final Grading - Sediment barriers shall be maintained down slope from disturbed soil during this operation; and
- Paving and Building Construction.
- Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch (or sod) and landscaping.
- Vegetated swales, bio-retention cells, and other post construction infiltration BMPs will not be constructed until the entire site is stabilized.

h. BMP Inspection and Maintenance Procedures

Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum of once every 14 days or within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. The inspections will be conducted by the SWPPP Coordinator or a designated team member. The inspection will verify that the structural BMPs are in good condition and are minimizing erosion. The inspection will also verify that BMPs used to contain construction materials and petroleum products are effective. The following

inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from perimeter controls when it has reached one-half the height of the control.
- Silt fences will be inspected for depth of sediment, undermining, tears, and attachment to fence posts. Posts will also be inspected to make sure they are firmly in the ground.
- Straw wattles and mulch berms will be inspected for depth of sediment, undermining, and sound placement. Mulch berms will also be inspected for blow out.
- If failure is recurrent, some other sediment control must be substituted and noted in the SWPPP (note the location and type of substitute BMP on the Erosion and Sediment Control Plan).
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- Stabilized construction entrances will be inspected to determine if soil is leaving the site. A layer of clean gravel should be placed whenever excess soil has accumulated on the surface of the construction entrance.

Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum of once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. Visual inspection activities can be documented as needed using other appropriate forms/logs, and attached to the SWPPP. If construction activities or BMPs change during this project, the SWPPP will be amended appropriately.

i. Project Contacts and Coordination

The construction site SWPPP Coordinator is to be determined. SWPPP Coordination duties include:

- Implement the SWPPP with the aid of the SWPPP team;
- Oversee maintenance practices identified as BMPs in the SWPPP;

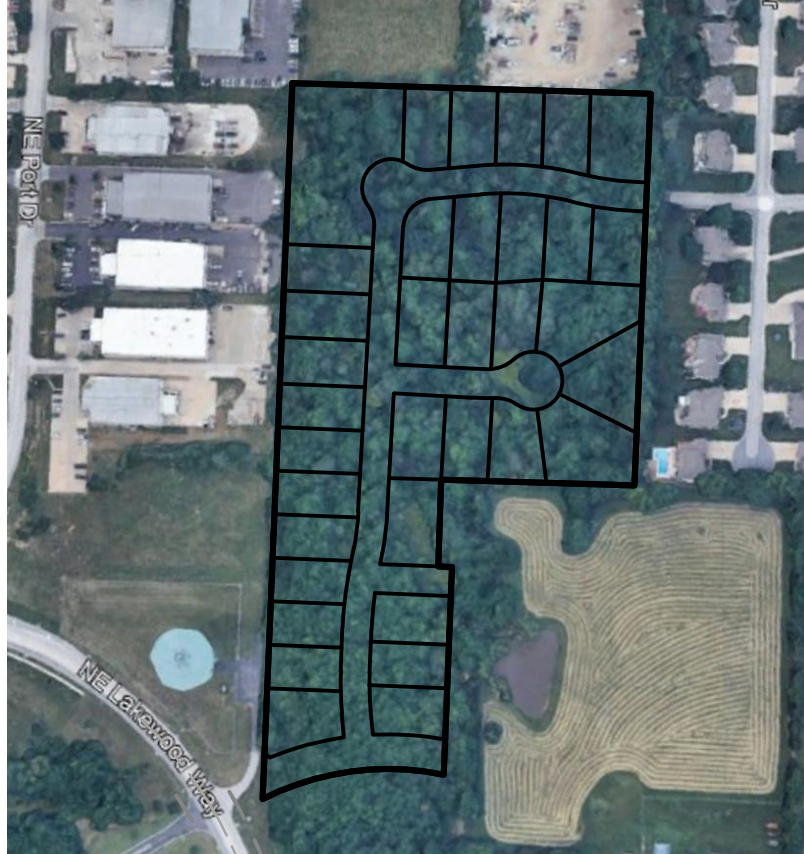
- Notify the City Inspector after installation of perimeter sediment controls and prior to any significant deviations from the SWPPP;
- Conduct or provide for inspection and BMP maintenance activities;
- Identify other potential pollutant sources and make sure they are added to the SWPPP;
- Identify any deficiencies in the SWPPP and make sure they are corrected; and
- Ensure that any changes in construction plans or BMPs are addressed in the SWPPP.

II. DRAWINGS

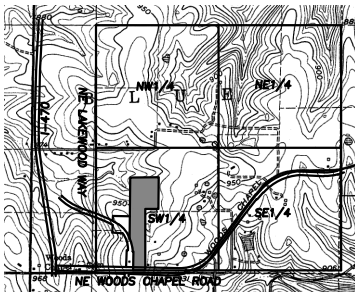
- a. Aerial Map
- b. Vicinity Map with Contours
- c. Erosion and Sediment Control Plan

ORCHARD WOODS

PART OF THE SW. 1/4 SECTION 9, T. 48 S., R. 31E.,
IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



ORCHARD WOODS



LOCATION MAP
SECTION 9-48-34



N.T.S.



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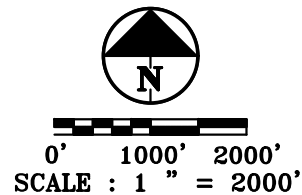
PROJECT NO. 211142
DATE: 11/16/22
BY: KSJ

ORCHARD WOODS

PART OF THE SW. 1/4 SECTION 9, T. 48 S., R. 31E.,
IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



LOCATION MAP
SECTION 9-48-34



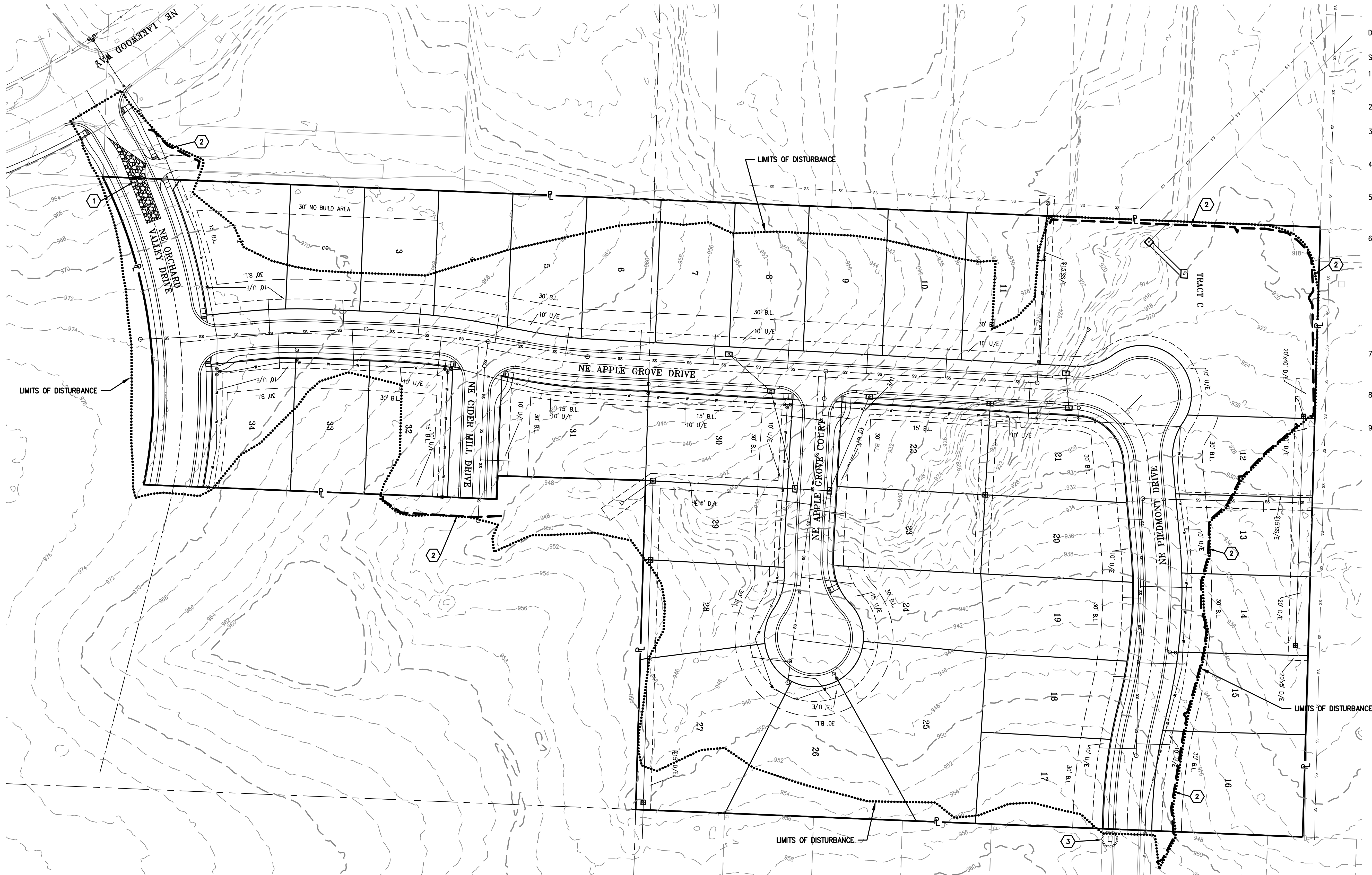
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Fax (913) 393-1166
www.phelpsengineering.com

PROJECT NO. 211142
DATE: 11/16/22
BY: KSJ

\\PHILIPS-SERVER\Projects\1\211142\Drawings\STORM\VERSION.dwg Layout1 Nov 16, 2022 4:15pm Matthew Hassler



DISTURBED AREA = 11.0 ACRES

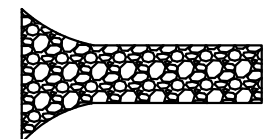
SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER ----- DATED -----
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
6. STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER DISTURBING ACTIVITIES CEASE.
7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

STAGING CHART

| | Project Stage | BMP Plan Ref No. | BMP Description | Remove after Stage: | Notes: |
|---------------------------|---|------------------|--------------------------------------|---------------------|--|
| Pre Clearing Phase | A. Prior to Land Disturbance | ① | Construction Entrance & Staging Area | D | Maintain, repair, or replace as necessary. |
| | | ② | Silt Fence with Woven Wire Fencing | D | Place downstream project site perimeter. |
| | | ③ | Existing Inlet Protection | D | Install gravel filter bags prior to land disturbance. |
| Construction Phase | B. Mass Grading | ④ | Sediment Basin | C | Remove only after storm sewer installation. |
| | | ⑤ | Diversion Berm | C | |
| | C. Utility Construction | ⑥ | Inlet Protection | E | Install silt fence inlet protection with wire support. |
| Final Stabilization Phase | D. After Paving | ⑦ | End-Section Protection | N/A | Install rip-rap at end-section immediately after installation. |
| | | ⑧ | Inlet Protection | E | Install gravel filter bags. |
| | E. Until closure of Land Disturbance Permit | ⑨ | Silt Fence | E | Place sediment fence back of curb. |
| | | | Seed | N/A | Seed & Landscape Disturbed Area upon completion of construction. |

LEGEND



Stabilized Rock Entrance



Silt Fence with Woven Wire (Prior to Disturbance)



Silt Fence (During Construction)



Limits of Disturbed Area



Existing Inlet Protection



Proposed Curb Inlet Protection



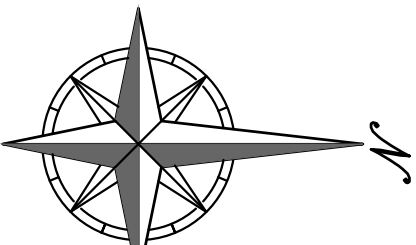
Proposed Area Inlet Protection



Rock Ditch Check



Existing Inlet Protection



SCALE: 1"=50'
0' 50' 100'

NOT FOR
CONSTRUCTION
USE

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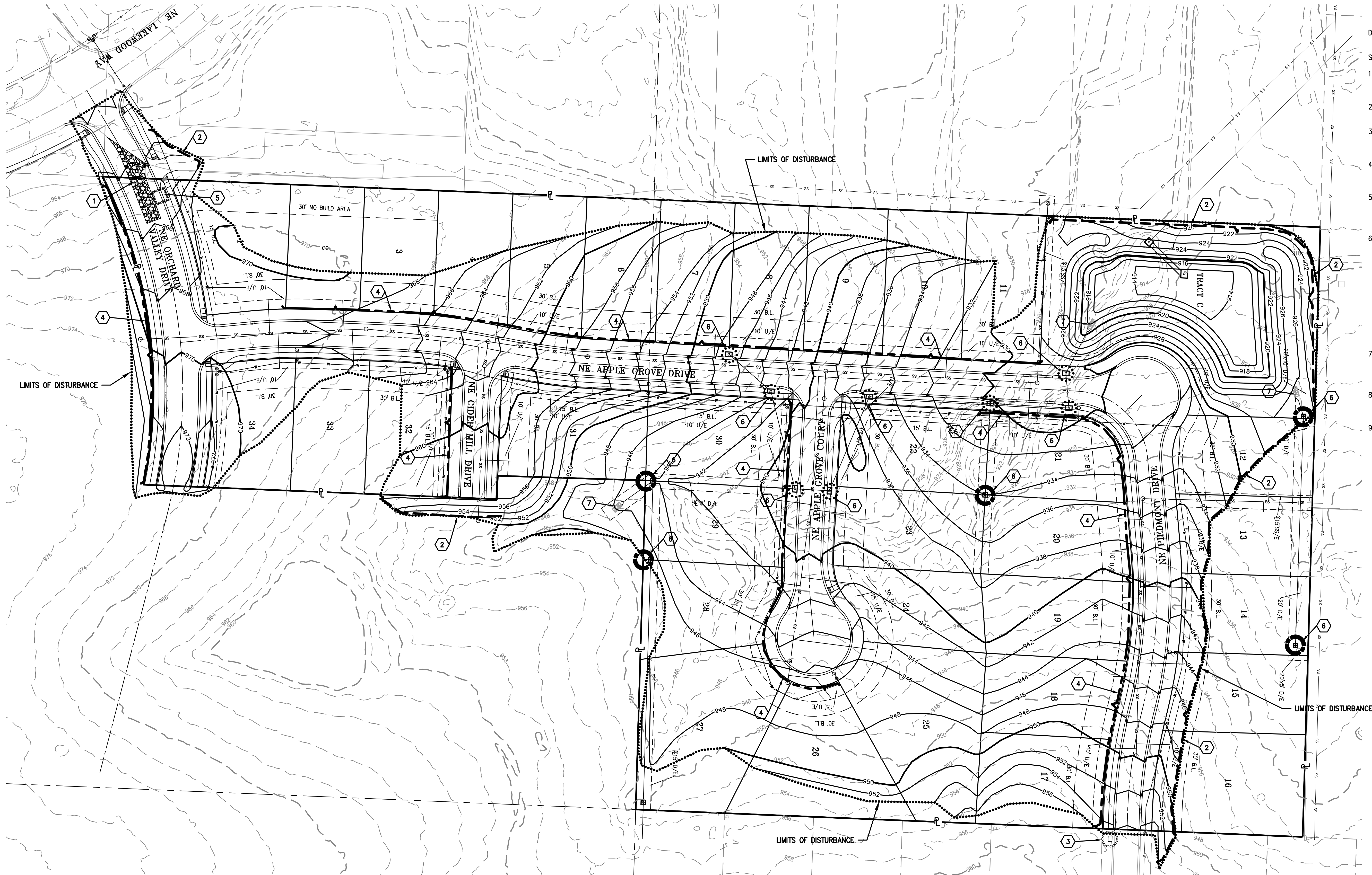
PRE CONSTRUCTION EROSION CONTROL PLAN
ORCHARD WOODS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

| PROJECT NO. | 211142 | No. | Date | Revisions: | By | App. |
|------------------------------|---------------|-----|------|------------|----|------|
| DATE: 10-21-2022 | DRAWN: BAG | | | | | |
| CHECKED: DEU | APPROVED: DEU | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING - LS-82 | | | | | | |
| ENGINEERING - E-361 | | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING-2007001028 | | | | | | |
| ENGINEERING-2007000209 | | | | | | |

SHEET

21

\\PHILIPS-SERVER\Projects\11\11142\Drawings\STORM\VERSION.dwg Layout:2 Nov 16, 2022 - 4:15pm Matthew Hassler



DISTURBED AREA = 11.0 ACRES

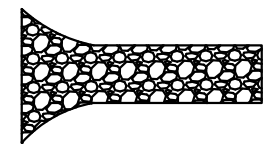
SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER ----- DATED -----
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
6. STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER DISTURBING ACTIVITIES CEASE.
7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

STAGING CHART

| | Project Stage | BMP Plan Ref No. | BMP Description | Remove after Stage: | Notes: |
|---------------------------|---|------------------|--------------------------------------|---------------------|--|
| Pre Clearing Phase | A. Prior to Land Disturbance | ① | Construction Entrance & Staging Area | D | Maintain, repair, or replace as necessary. |
| | | ② | Silt Fence with Woven Wire Fencing | D | Place downstream project site perimeter. Repair, or replace as necessary. |
| | | ③ | Existing Inlet Protection | D | Install gravel filter bags prior to land disturbance. Repair, or replace as necessary. |
| Construction Phase | B. Mass Grading | ④ | Silt Fence (During Construction) | D | Place where indicated. Repair, or replace as necessary. |
| | C. Utility Construction | ⑤ | Concrete Washout | D | Maintain, repair, or replace as necessary. |
| | | ⑥ | Inlet Protection | D | Install silt fence inlet protection with wire support. |
| | | ⑦ | End-Section Protection | N/A | Install rip-rap at end-section immediately after installation. |
| Final Stabilization Phase | D. After Paving | ⑧ | Inlet Protection | E | Install gravel filter bags. |
| | E. Until closure of Land Disturbance Permit | ⑨ | Seeding and Mulching | E | All disturbed areas after 14 days of construction inactivity. |

LEGEND



Stabilized Rock Entrance



Silt Fence with Woven Wire (Prior to Disturbance)



Silt Fence (During Construction)



Limits of Disturbed Area



Existing Inlet Protection



Proposed Curb Inlet Protection



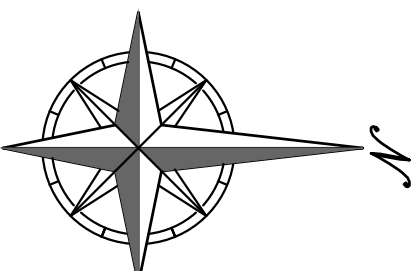
Proposed Area Inlet Protection



Rock Ditch Check



Existing Inlet Protection



SCALE: 1"=50'
0' 50' 100'

NOT FOR
CONSTRUCTION
USE

PHILIPS ENGINEERING, INC.
1370 N. Winchester
Olathe, Kansas 66061
(913) 993-1155
Fax: (913) 993-1165
www.philipsengineering.com



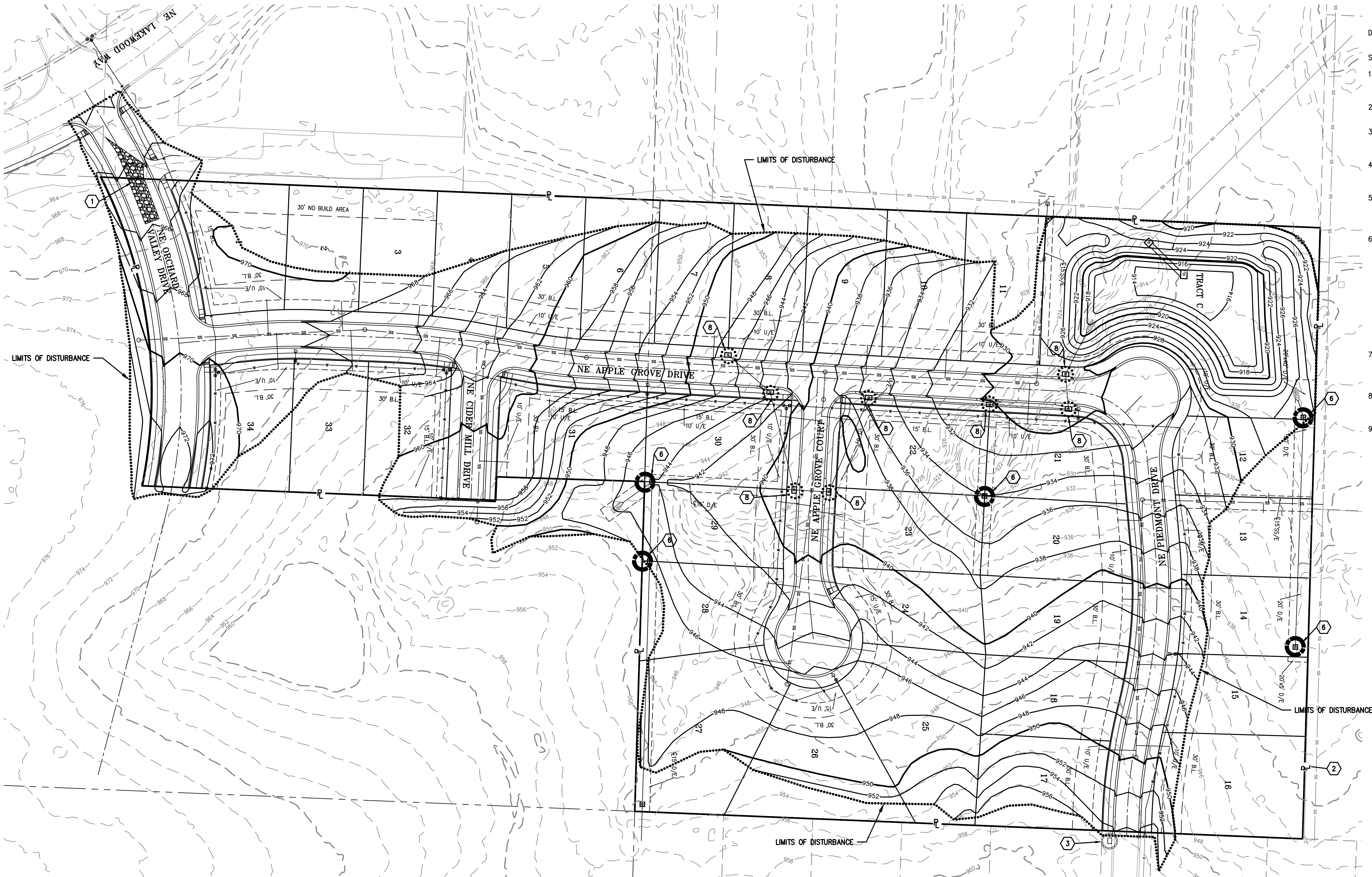
EROSION CONTROL PLAN
ORCHARD WOODS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

| PROJECT NO. | 211142 | No. | Date | Revisions: | By | App. |
|------------------------------|---------------|-----|------|------------|----|------|
| DATE: 10-21-2022 | DRAWN: BAG | | | | | |
| CHECKER: DEU | APPROVED: DEU | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING - LS-82 | | | | | | |
| ENGINEERING - E-361 | | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING-200700128 | | | | | | |
| ENGINEERING-200700028 | | | | | | |

SHEET

22

\\PHILIPS-SERVER\Projects\1\211142\Drawings\STORM\VERSION.dwg Layout:3 Nov 16, 2022 - 4:15pm Matthew Hassler



DISTURBED AREA = 11.0 ACRES

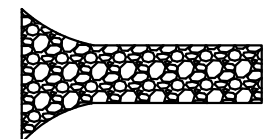
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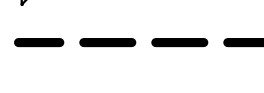
STAGING CHART

| | Project Stage | BMP Plan Ref No. | BMP Description | Remove after Stage: | Notes: |
|---------------------------|---|------------------|--------------------------------------|---------------------|--|
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| | | ⑦ | End-Section Protection | N/A | Install rip-rap at end-section immediately after installation. |
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| | E. Until closure of Land Disturbance Permit | ⑨ | Seeding and Mulching | E | All disturbed areas after 14 days of construction inactivity. |

LEGEND



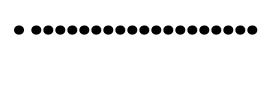
Stabilized Rock Entrance



Silt Fence with Woven Wire (Prior to Disturbance)



Silt Fence (During Construction)



Limits of Disturbed Area



Existing Inlet Protection



Proposed Curb Inlet Protection



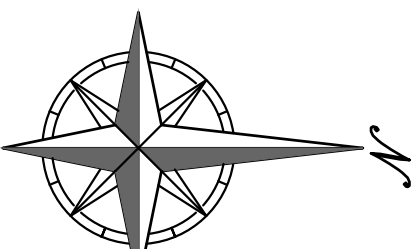
Proposed Area Inlet Protection



Rock Ditch Check



Existing Inlet Protection



SCALE: 1"=50'
0' 50' 100'

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PLANNING
ENGINEERING
IMPLEMENTATION



POST CONSTRUCTION EROSION CONTROL PLAN

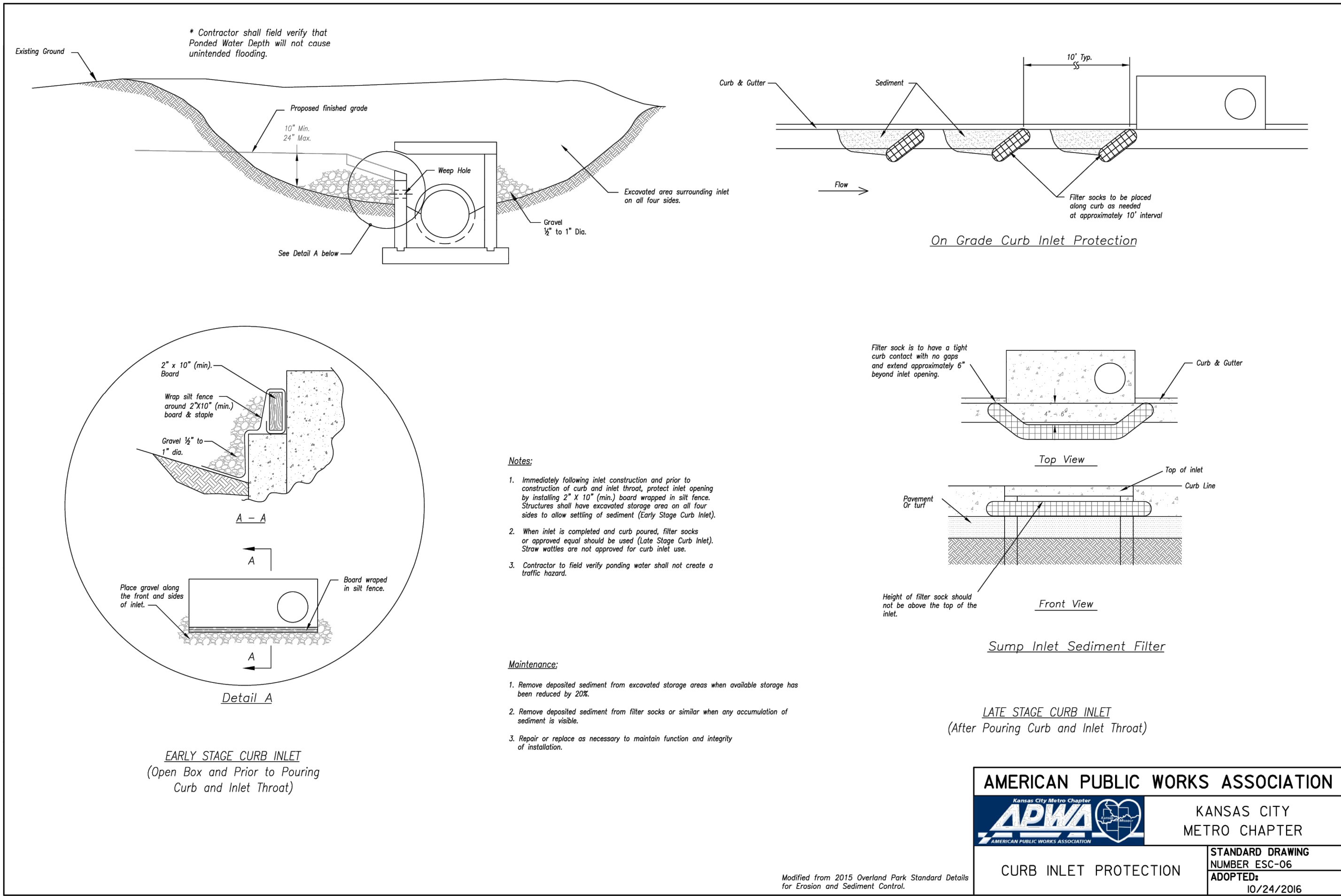
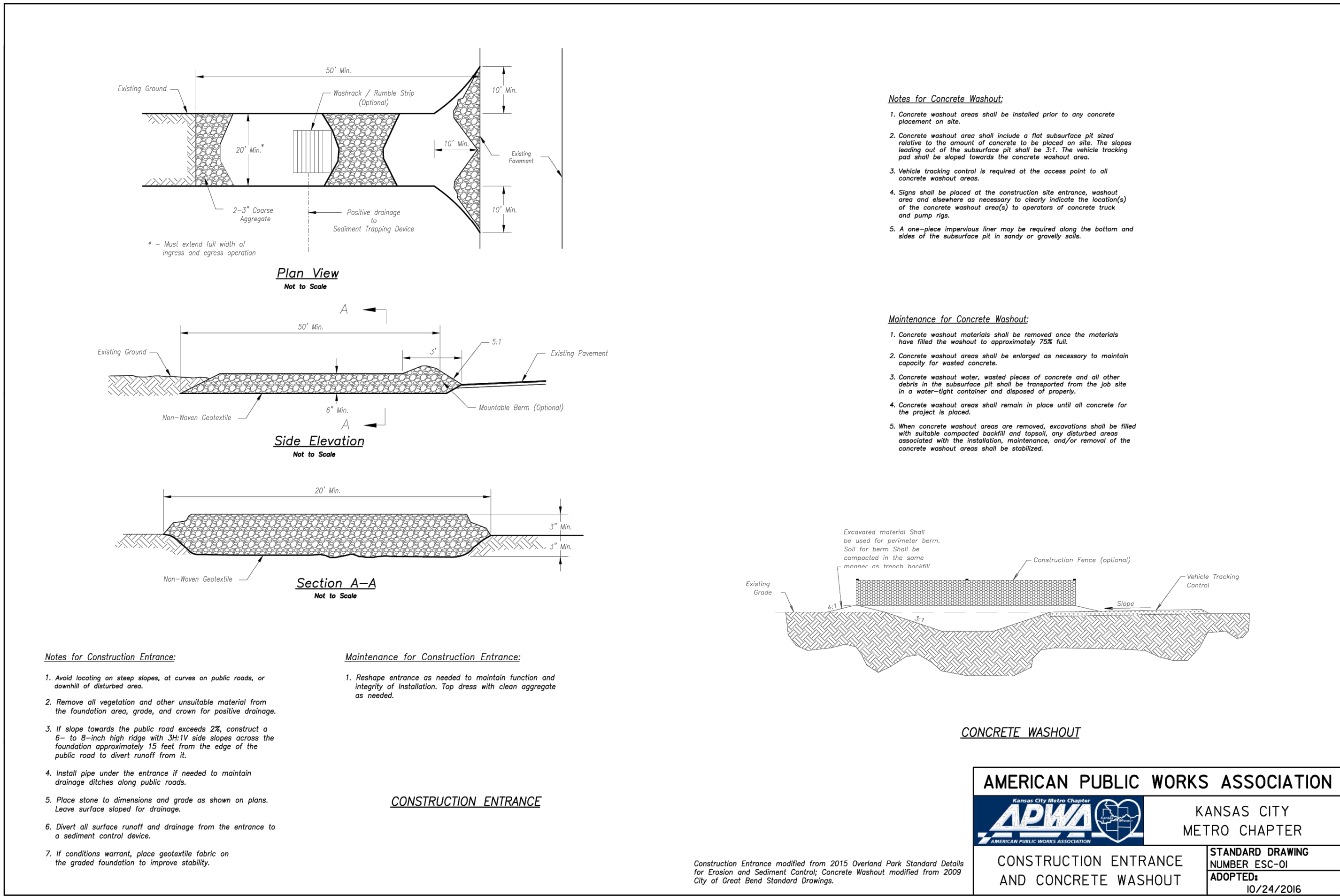
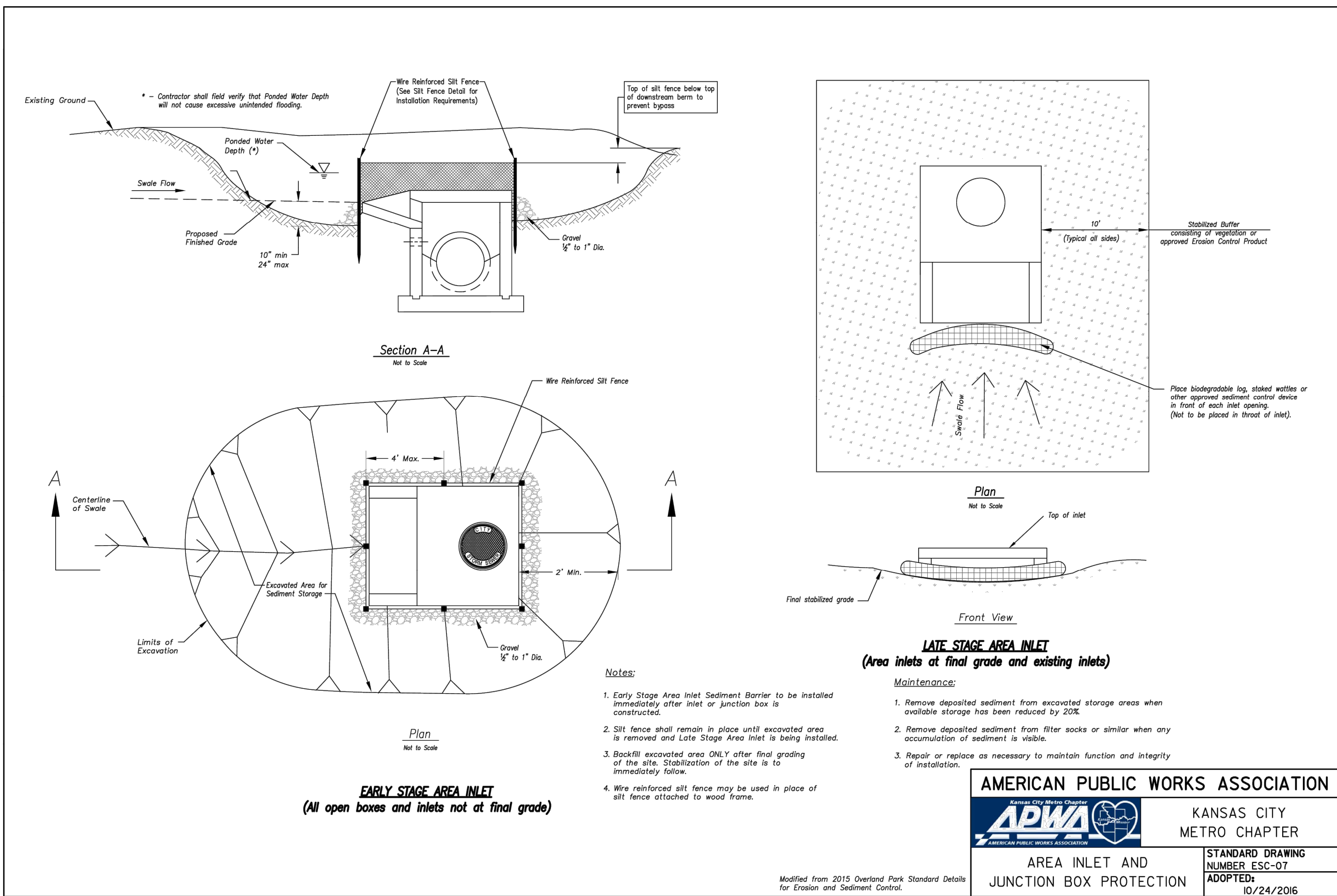
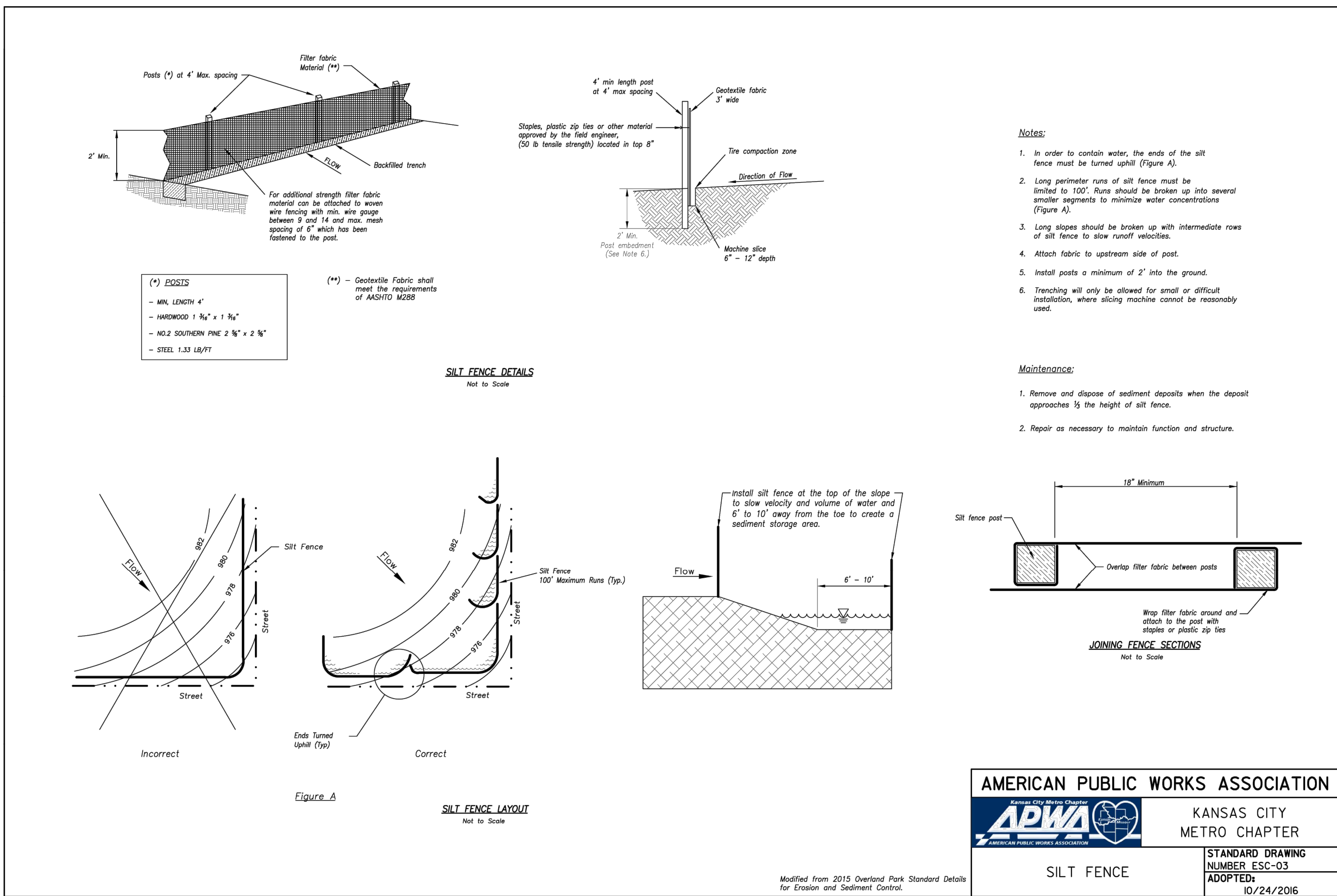
ORCHARD WOODS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

| PROJECT NO. | 211142 | No. | Date | Revisions: | By | App. |
|------------------------------|---------------|-----|------|------------|----|------|
| DATE: 10-21-2022 | DRAWN: BAG | | | | | |
| CHECKER: DEU | APPROVED: DEU | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING - LS-82 | | | | | | |
| ENGINEERING - E-361 | | | | | | |
| CERTIFICATE OF AUTHORIZATION | | | | | | |
| LAND SURVEYING-200701028 | | | | | | |
| ENGINEERING-200700209 | | | | | | |

SHEET

23

\\PHILIPS-SERVER\Projects\1\211142\Drawings\STREET AND STORM\EROSION DETAILS.dwg Layout:1 Nov 16, 2022 -- 4:19pm Matthew Hoader



NOT FOR
CONSTRUCTION
USE

PHILIPS ENGINEERING, INC.
1370 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax: (913) 393-1165
www.philipsengineering.com

PLANNING
ENGINEERING
IMPLEMENTATION
PEI

EROSION CONTROL DETAILS
ORCHARD WOODS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

| PROJECT NO. | DATE | BY | APP. |
|------------------------------|------------|-----|------|
| 211142 | 10-21-2022 | | |
| Revisions: | Date | No. | |
| CHECKER: DEU | | | |
| APPROVED: DEU | | | |
| CERTIFICATE OF AUTHORIZATION | | | |
| LAND SURVEYING - LS-82 | | | |
| ENGINEERING - E-361 | | | |
| CERTIFICATE OF AUTHORIZATION | | | |
| LAND SURVEYING-200701028 | | | |
| ENGINEERING-200700039 | | | |

SHEET

24

III. PERMITS

- a. Notice of Intent (NOI) – **MoDNR Permit**

Permit to be
inserted once
obtained.

IV. SITE INSPECTION FORMS/LOGS

(Permittee or Contractor shall attach all site inspection forms, daily activity logs, etc.)

- a. Maintenance Inspection Report**
- b. Record of Site Stabilization and Construction Activity Dates**

Maintenance Inspection Report # _____

Date of Inspection: _____ Reason for inspection* _____

Project Name/Location: _____

Owner: _____

Weather Conditions: _____

Rain in last 24 hours (inches): _____

Inspector Name (print) and Signature: _____

Stage of Construction:

| | |
|--|-------------------------------|
| _____ Pre-construction Meeting | _____ Temporary Stabilization |
| _____ Installation of Perimeter ESC Measures | _____ Finish Grading |
| _____ Clearing and Grubbing | _____ Public Improvements |
| _____ Rough Grading | _____ Building Construction |
| _____ Other (Describe: _____) | |

Inspection Checklist:

| BMP Condition | Yes | No | N/A | If “no”, list locations needing BMPs and/or maintenance. |
|--|-----|----|-----|--|
| Storm Sewer Inlet Barriers (sand bags, gutter buddies, straw wattles) | | | | |
| Are storm sewer inlet barriers properly placed? | | | | |
| Are storm sewer inlet barriers in good condition? | | | | |
| Are barriers controlling flows into the inlet? | | | | |
| Is sediment height less than ½ the barrier height? | | | | |
| Are all storm water inlets protected? | | | | |
| Are storm sewer boxes and/or pipes free of sediment? | | | | |
| Perimeter Controls (diversions, silt fence, straw wattles, mulch berms, etc.) | | | | |
| Is offsite storm water drainage diverted? | | | | |
| Are perimeter controls up and in good condition? | | | | |

| BMP Condition | Yes | No | N/A | If “no”, list locations needing BMPs and/or maintenance. |
|---|------------|-----------|------------|---|
| Perimeter Controls (continued) | | | | |
| Have all offsite properties and drainages been protected by perimeter controls? | | | | |
| Stabilized Construction Entrances | | | | |
| Is there adequate clean gravel present? | | | | |
| Is soil and gravel staying onsite? | | | | |
| Are contractors using the stabilized construction entrance? | | | | |
| Stream Crossings | | | | |
| Are temporary crossings controlling erosion? | | | | |
| Are culverts adequately sized? | | | | |
| Temporary Stabilization | | | | |
| Are seeded areas properly established? | | | | |
| Is mulch crimped in and holding seed in place? | | | | |
| Are erosion control blankets and mats in good condition? | | | | |
| Are soil piles seeded, mulched and bordered down slope by sediment barriers? | | | | |
| Sediment Basin | | | | |
| Is the basin less than ½ full of sediment from original design? | | | | |
| Are side slopes in good condition? | | | | |
| Is the basin containing storm water flows? | | | | |
| Is the outfall in good condition? | | | | |

| BMP Condition | Yes | No | N/A | If “no”, list locations needing BMPs and/or maintenance. |
|---|-----|----|-----|--|
| Swales and Drainage Ways | | | | |
| Are ditch bottoms protected from undercutting and erosion? | | | | |
| Are ditch checks properly maintained? | | | | |
| Are outfalls properly stabilized? | | | | |
| Slope Protection | | | | |
| Are all slopes protected with vegetative cover, terraces or erosion control blankets? | | | | |
| General Site Conditions | | | | |
| Is trash and construction debris properly contained onsite? | | | | |
| Are porta-potties properly located and maintained? | | | | |
| Are all vehicles properly maintained to avoid leakage? | | | | |
| Are all chemicals properly containerized and stored? | | | | |
| Are concrete washout areas established and maintained? | | | | |

Corrective Measures: For all areas needing BMPs or maintenance, describe corrective measures and implementation timeframe?

* Reason for Inspection note: Visual inspections of all cleared and graded areas of the construction site will be performed at a minimum once every 14 days and within 24 hours of the end of a storm with rainfall amounts greater than 0.5 inches. Based on the results of the inspection, necessary control modifications shall be implemented within 7 days. This report shall be kept on file by the General Contractor as part of the Storm Water Pollution Prevention Plan for at least **3 years** from the date of completion and submission of the Notice of Termination.

Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: _____

Address: _____

Phone: _____

(Authorized Signature ^{**})

Date: _____

****It is the Owners (Permittee) responsibility to insure that the inspector has been properly authorized under the applicable General Permit Regulations to sign these inspection forms.**

RECORD OF SITE STABILIZATION and CONSTRUCTION **ACTIVITY DATES**

A record of dates when stabilization measures are initiated, when major grading activities occur, and when construction activities temporarily or permanently cease on a portion of the site shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. Make additional copies of this form and keep with SWPPP as needed.

MAJOR STABILIZATION AND GRADING ACTIVITIES

Description of
Activity: _____
Site Contractor: _____
Begin (date): _____ End(date): _____
Location: _____

Description of
Activity: _____
Site Contractor: _____
Begin (date): _____ End(date): _____
Location: _____

Description of
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