

STORMWATER MANAGEMENT PLAN

FOR HILLSIDE AT LORSON RANCH

PUDSP 22-00X

Stormwater Permit # _

Certification # _____

Owner/Developer:

Love In Action / Lorson, LLC
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SWMP Preparer:

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SWMP Location

On-site (copy) and Lorson, LLC (original)

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- EXHIBIT 1: HILLSIDE AT LORSON RANCH EARLY GRADING AND EROSION CONTROL PLANS, DATED FEB, 2022 BY CORE ENGINEERING GROUP

**APPENDIX C: STORMWATER INSPECTION REPORTS (BY REFERENCE ONLY
NOT ATTACHED)****APPENDIX D: SPILL REPORT FORM****APPENDIX E: RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITY DATES****APPENDIX F: FEDERAL, STATE, OR LOCAL STORM WATER OR OTHER
ENVIRONMENTAL INSPECTOR SITE VISIT LOG****APPENDIX G: GENERAL PERMIT AND APPLICATION**

SWMP REPORT REVISION LOG

REV. #	DATE:	BY:	COMMENTS	Initials
1.				
2.				
3.				
4.				
5.				

1.0 INTRODUCTION

The Ridge at Lorson Ranch consists of 489 residential lots and several tracts of land for a total site area of 128.328 acres. The site is currently farm and ranching land within Lorson Ranch.

Love In Action is the Owner and Lorson, LLC is the overall developer and will construct major infrastructure (grading, roads, utilities, etc.) to serve the entire site. This Stormwater Management Plan (SWMP) will only cover construction activities that are provided as the overall developer. As the Lorson Ranch development progresses, this SWMP plan may need to be updated to reflect the revised scope of infrastructure.

Site Description:

The site is located east of the East Tributary of Jimmy Camp Creek and south of Lorson Boulevard. The nearest major intersection is Lorson Boulevard and Walleye Drive. The major infrastructure for **Hillside at Lorson Ranch** includes but is not limited to construction of residential streets, offsite/onsite utilities, and grading the site for residential lots. Detention/Water quality for this development is located in three ponds (Pond E1, Pond G, and Pond H) constructed as part of this project. These ponds will treat and detain stormwater runoff prior to discharging into west into existing storm sewer systems draining to the East Tributary of Jimmy Camp Creek. The west half of Pond E1 was graded as part of Lorson Ranch East Filing No. 4 (SF 19-008) including a 24" RCP outlet pipe.

The legal description for **Hillside at Lorson Ranch** is:

A PARCEL OF LAND IN THE NORTH HALF (N 1/2) SECTION 24 AND THE NORTHEAST QUARTER (NE 1/4) SECTION 23, T15S, R65W OF THE 6TH P.M., EL PASO COUNTY, COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS;

BEGINNING AT THE SOUTHEAST CORNER OF LOT 102, "CREEKSIDE SOUTH AT LORSON RANCH FILING NO. 1" AS RECORDED UNDER RECEPTION NO. 2221714746 IN THE EL PASO COUNTY, COLORADO RECORDS;

THENCE ALONG THE EASTERLY LINES THEROF THE FOLLOWING TWO (2) COURSE:

1. THENCE N00°19'53"W A DISTANCE OF 168.15 FEET;
2. THENCE N38°22'41"E A DISTANCE OF 250.28 FEET TO THE SOUTHEAST CORNER OF "LORSON RANCH EAST FILING NO. 4" AS RECORDED UNDER RECEPTION NO. 220714583 IN THE EL PASO COUNTY, COLORADO RECORDS;

THENCE N38°22'41"E ALONG THE EASTERLY LINE THEREOF, 1,642.90 FEET TO THE SOUTHERLY RIGHT-OF-WAY OF LORSON BOULEVARD AS SHOWN ON THE PLAT OF "THE HILLS AT LORSON RANCH FILING NO. 1" AS RECORDED UNDER RECEPTION NO. 221_____ IN THE EL PASO COUNTY, COLORADO RECORDS;

THENCE ALONG THE SOUTHERLY LINE THEREOF THE FOLLOWING NINE (9) COURSES:

1. THENCE N89°35'58"E A DISTANCE OF 490.91 FEET TO A POINT OF CURVE;
2. THENCE 226.85 FEET ALONG A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 568.00 FEET, A CENTRAL ANGLE OF 22°53'00", THE CHORD OF 225.35 FEET BEARS S78°57'32"E TO A POINT OF TANGENT;
3. THENCE S67°31'03"E A DISTANCE OF 263.79 FEET;
4. THENCE S28°50'34"E A DISTANCE OF 32.01 FEET;
5. THENCE S67°31'03"E A DISTANCE OF 50.00 FEET;
6. THENCE N73°54'03"E A DISTANCE OF 32.07 FEET;
7. THENCE S67°31'03"E A DISTANCE OF 789.35 FEET TO A POINT OF CURVE;
8. THENCE 178.22 FEET ALONG A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 968.00 FEET, A CENTRAL ANGLE OF 10°32'56", THE CHORD OF 177.97 FEET BEARS S62°14'35"E TO A POINT OF TANGENT;

9. THENCE S56°58'07"E A DISTANCE OF 9.29 FEET TO THE SOUTHWEST CORNER OF THE SOUTHERLY RIGHT-OF-WAY OF **FUTURE** LORSON BOULEVARD AS SHOWN ON THE PLAT OF "THE RIDGE AT LORSON RANCH FILING NO. 1" AS RECORDED UNDER RECEPTION NO. 22_____ IN THE EL PASO COUNTY, COLORADO RECORDS;

THENCE ALONG THE SOUTHERLY LINE THEREOF THE FOLLOWING TEN (10) COURSES:

1. THENCE S58°24'55"E A DISTANCE OF 79.22 FEET;
2. THENCE 189.64 FEET ALONG A NON TANGENT CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 1,030.00 FEET, A CENTRAL ANGLE OF 10°32'56", THE CHORD OF 189.37 FEET BEARS S62°14'35"E TO A POINT OF TANGENT;
3. THENCE S67°31'03"E A DISTANCE OF 663.92 FEET TO A POINT OF CURVE;
4. THENCE 319.29 FEET ALONG A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 1,030.00 FEET, A CENTRAL ANGLE OF 17°45'40", THE CHORD OF 318.01 FEET BEARS S76°23'53"E;
5. THENCE S58°30'10"E, NON-TANGENT TO THE PREVIOUS COURSE, 41.38 FEET;
6. THENCE S88°30'10"E A DISTANCE OF 44.27 FEET;
7. THENCE N61°29'50"E A DISTANCE OF 40.94 FEET;
8. THENCE N89°25'43"E A DISTANCE OF 787.32 FEET;
9. THENCE S60°34'17"E A DISTANCE OF 40.00 FEET;
10. THENCE N89°25'43"E A DISTANCE OF 46.97 FEET;

THENCE N00°34'17"W A DISTANCE OF 76.83 FEET;

THENCE N89°25'43"E A DISTANCE OF 380.07 FEET TO THE WESTERLY LINE OF THAT PROPERTY DESCRIBED BY SPECIAL WARRANTY DEED AS RECORDED UNDER RECEPTION NO. 209144818 IN THE EL PASO COUNTY, COLORADO RECORDS;

THENCE S00°11'19"E ALONG SAID WESTERLY LINE, 637.47 FEET TO THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 24, T15S, R65W OF THE 6TH P.M.;

THENCE S89°25'52"W ALONG SAID NORTH LINE, 2,651.15 FEET;

THENCE ALONG THE NORTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 24 THE FOLLOWING THREE (3) COURSES:

1. THENCE S89°27'59"W A DISTANCE OF 852.91 FEET;
2. THENCE S89°26'11"W A DISTANCE OF 1,604.80 FEET;
3. THENCE S89°09'33"W A DISTANCE OF 178.42 FEET TO THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 23, T15S, R65W OF THE 6TH P.M. ;

THENCE S89°52'02"W A DISTANCE OF 266.06 FEET;

THENCE S89°38'10"W A DISTANCE OF 87.85 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS AN AREA OF 5,589,948 S.F. (128.328 ACRES, MORE OR LESS).

BASIS OF BEARING: A PORTION OF THE EASTERLY BOUNDARY LINE OF "CREEKSIDE SOUTH AT LORSON RANCH FILING NO. 1" AS RECORDED UNDER RECEPTION NO 221714746 IN THE RECORDS OF EL PASO COUNTY, COLORADO, BEING MONUMENTED AT EACH END BY A NO. 5 REBAR AND 1.25 INCH ORANGE PLASTIC CAP STAMPED "M&S CIVIL PLS 29566". SAID LINE IS ASSUMED TO BEAR N00°19'53"W A DISTANCE OF 168.15 FEET. THE UNIT OF MEASUREMENTS IS THE U.S. SURVEY FOOT.

2.0 SEQUENCE OF MAJOR ACTIVITIES – Exhibit 1 Construction

The anticipated date for beginning construction activities is August, 2022 and will be complete in August, 2023. Implementation of the storm water management plan should be in place prior to initiating construction activities. Infrastructure for all residential lots will be installed in one phase. The anticipated sequence of construction is as follows:

Initial: (July, 2022):

1. Installation of perimeter erosion control measures as shown on Exhibit 1.
2. Vehicle Tracking Control Pads

3. Inlet Protection on existing inlets
4. Use existing storage below the existing 24" storm sewer in Pond E1 as a sediment basin.

Interim Stage (August 2022- May, 2023)

5. Site Clearing/Grubbing and topsoil stockpiling.
6. Rough Grade Site
7. Construct temporary sediment traps as construction progresses
8. Construct Pond E1 full spectrum outlet structure and grade pond
9. Construct Sediment Basin H as grading progresses
10. Construct underground water/sewer/storm.
11. Construct curb/gutter and pavement.

Final: (May, 2023 to August, 2023)

12. Final stabilize areas outside of ROW.
13. Construct gas/electric/cable/phone in the ROW areas.
14. Final stabilize ROW.
15. Construct final pond outlet structures in Pond G and Pond H
16. Final erosion control measures as areas are completed
17. Remove construction BMP's

3.0 PRE-DEVELOPMENT CONDITIONS

According to the current FEMA Flood Insurance Rate Map (FIRM) number 08041CO976 G, this site is not located within the 100-year floodplain. See Appendix A.

Existing Vegetation:

The site is currently undeveloped and has been used as a pasture for many years. Ground cover is estimated at 65% density and will be visually verified in the field prior to groundbreaking activities.

Existing Slopes:

Existing slopes are around 2-10% that direct runoff westerly to existing storm sewer and detention ponds. A portion of the site does flow south into Peaceful Valley Estates.

Existing Drainage Patterns:

Pre-development drainage patterns generally flow west to existing storm sewer infrastructure/Detention Ponds constructed by Lorson Ranch and a portion south into Peaceful Valley Estates. Drainage that flows west enters the East tributary of Jimmy Camp Creek and the southern drainage flows into the Upper Williams Creek.

Existing Soil Types:

The following table summarizes the characteristics of the soil type.

Table 3.1: SCS Soils Survey

Soil	Hydro. Group	Shrink/Swell Potential	Permeability	Surface Runoff Potential	Erosion Hazard
56-Nelson – Tassel Fine Sandy Loam	B	Moderate	Moderately Rapid	Slow	Moderate
108-Wiley Silt Loam	B	Moderate	Moderate	Medium	Moderate

The existing soil types have a moderate potential for erosion which can be mitigated by employing appropriate downstream construction BMP's before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing offsite public storm sewer system and the proposed storm sewer system. Sediment should not be allowed to enter these existing and proposed facilities and can be mitigated by constructing small temporary sediment traps at low points and sediment ponds prior to discharge into the downstream systems. In order to utilize Sediment Ponds E1 and H sediment may be allowed to enter the storm sewer system during the overlot grading process which are not public facilities at this time. No sediment will be allowed to discharge downstream of the two sediment ponds. Based upon the location of the different soil types and type of construction, the contractor shall employ the most appropriate method of erosion control measures based on the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the SWMP administrator or his representative.

More detailed soils information can be found in the SCS soils survey for El Paso County.

4.0 DEVELOPED CONDITIONS

The overall drainage concept for ***Hillside at Lorson Ranch*** is to direct the project area runoff west and south to existing WQ ponds constructed as part of this project. Stormwater Quality and detention will be provided in three ponds prior to discharge into the existing storm sewer system that drains west to the East Tributary of Jimmy Camp Creek and south into Peaceful Valley Estates. The contractor will be responsible for any re-excavation of sediment and debris that collects in the basin depression required to ensure that the basin meets the design grades following construction. The storm lines shall also be cleaned and free of sediment once the site becomes stabilized.

There are no control measures owned/operated by another entity within this project site and disturbed area.

Proper erosion protection will be installed so no sediment enters the public storm sewer system or is discharged offsite.

Construction Site Estimates:

- Project Site: 206.473 acres
- Disturbed Area: 185.00 acres
- Percent Impervious before Construction: 0%
- Runoff Coefficient before Construction: 0.35 for undeveloped
- Ground Cover density prior to construction 70%
- Percent Impervious after Construction: 52%
- Runoff Coefficient after Construction: 0.55 for developed areas
- Final stabilization must be 70% of pre-construction density.

Receiving Waters:

- East Tributary of Jimmy Camp Creek, Upper Williams Creek
- This SWMP does not include any grading within the floodway of the East Tributary of Jimmy Camp Creek.
- Description: The creek channels are dry creek beds that flows water intermittently after significant rainfall events in the drainage basin.
- Description of Storm Sewer System: There is an existing storm sewer system in Trappe Drive, Lorson Boulevard, Pond E1, and Walleye Drive
- Description of impaired waters or waters subject to TMDLs: The site contains no impaired waters or waters subject to TMDLs.
- Description of unique features that are to be preserved: There are no known protected plant species within the project limits.
- Describe measures to protect these features: there are no known features to be protected.

Site Features and Sensitive Areas to be Protected:

This site is not located within (100-year floodplain) and contains no other sensitive areas including wetlands or endangered species and no grading will occur in the floodway of the creek.

Stream Crossings:

This site is located outside of (100-year floodplain) and there will be no stream crossings with this development.

5.0 POTENTIAL SOURCES OF POLLUTION AND CONTROL STRATEGIES

Potential sources of sediment to stormwater runoff include earth moving and concrete activities associated with grading and landscaping.

Potential pollutants and sources, other than sediment, to stormwater runoff include Trash, debris, line transfer, Dewatering, fueling and equipment failure.

A dewatering permit is not anticipated with this project.

There are no asphalt or concrete batch plants proposed with this project.

Construction activities produce many different kinds of pollutants which may cause storm water contamination problems. Grading activities remove rocks, vegetation and other erosion controlling surfaces, resulting in the exposure of underlying soil to the elements. Because the soil surface is unprotected, soil and sand particles are easily picked up by wind and/or washed away by rain or other water sources.

The following sections highlight the potential sources of pollution at the Project Site and list the “Best Management” strategies that will be used to prevent migration of pollution offsite. Chemical materials stored indoors or that have no reasonable chance of impacting storm water quality will not be discussed in this plan.

Materials of significance stored on the project site include:

- Sediment
- Concrete Washout
- Cement
- Trash & Debris
- Sanitary Wastes
- Fuels & Oils

5.1 Wind Erosion & Dust Control

Pollutant: Sediment

Best Management Strategies:

- Daily inspections will occur for areas experiencing excessive winds, vehicle traffic, or precipitation events.
- Water trucks will spray down dust on the project Site as needed to not impact adjacent properties.
- Attention will be given to prevent the over use of water in dust control operations to minimize any muddying of the surface and possible sediment transportation.

5.2 Vehicular Transport

Pollutant: Sediment Tracking

Best Management Strategies:

- Construct a stabilized construction entrance to provide ingress and egress of the site.
- Restrict access to the stabilized construction entrance.
- Fencing will be erected if problems with access control are evident.
- Maintain track out pads by fluffing up the rock material or by adding additional rock as needed.
- Inspect, sweep and clean adjacent streets where track out is evident.

5.3 Stockpiles

Pollutant: Sediment

Best Management Strategies:

- Locate stockpiles clear of any water flow paths.
- Locate stockpiles within the property boundary.
- Stockpiles will have erosion control devices as needed installed around the base to prevent the migration of soil.
- Topsoil stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.

5.4 Grading, Trenching, Export/Import

Pollutant: Sediment

Best management Strategies:

- Earth moving will be minimized by the engineering balancing of the site.
- Disturbed portions of the site where construction activity temporarily ceases for at least 14 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in the area.
- Seed bed preparation is not required if soil is in loose condition.
- Prior to seeding, fertilizer shall be applied to each acre to be stabilized in accordance with the manufacturer's specifications.
- If required seeding areas shall be mulched with straw to a uniformed cover. The straw mulch is to be tacked into place by a disk with blades set nearly straight.
- A site specific erosion control drawing has been developed showing the location of Best Management practices to be used during site construction.
- Where indicated on the erosion control plan, Best Management Practices will be installed.
- Material shall be in accordance with the plans and specifications and all construction shall be provided in accordance with the manufacturer's specifications.
- All BMP's will be inspected bi-weekly and cleaned/maintained as required.

5.5 Waste, Residual Concrete

Pollutant: Concrete, paint, and Phosphoric Acid

Best Management Strategies:

- A cleanup and washout area will be designated and posted.
- Subcontractors will be instructed on the locations and importance of the washout and cleanup areas. No on-site disposal is allowed.
- Instruct subcontractors to remove waste for which proper onsite disposal facilities are not provided back to their own facilities for ultimate transport, storage & disposal.
- Subcontractors and subcontractor employees are held responsible for improper washout.

5.6 Sanitary Facilities, Trash Containers & Littering

Pollutant: Bacteria, Ammonia, Trash

Best Management Strategies:

- Portable facilities will be regularly serviced to prevent excessive waste containment and overflow.
- All waste materials will be collected and stored in a container which will meet all local and any state solid waste management regulations.
- Trash dumpsters will be emptied prior to becoming 90% full or when debris control becomes an issue.
- Employees will be instructed on the importance of recycling and waste management, and will be held responsible for improper waste management.

5.7 Fueling, Hazardous Materials, Equipment Leakage, Fertilizer

Pollutant: Petroleum Hydrocarbons, Ethylene Glycol, Sediment

Best Management Strategies:

- MSDS sheets will be maintained in the project trailer for all onsite materials
- All dry materials such as cement will be covered and protected from rain.

- Secondary containment will be provided for stored fuel, oil, paint and any material classified as hazardous.
- Subcontractors are responsible for hazardous waste removal back to their own facilities for ultimate transportation, storage and disposal.
- Supplies will be kept onsite as necessary to control any potential spill.
- Employees will be held responsible for any illegal dumping.
- Seals will be checked by a qualified professional on all equipment and containers containing significant materials that could contribute potential pollutants and will be replaced as necessary.
- Equipment will be inspected by a qualified professional.
- Drip pans will be available for minor leaks and during fueling operations.
- Fueling nozzles, gauges, hoses, seals, and emergency shutoff valves will be inspected for leaks prior to use.
- Under no circumstances during fueling will the fueling hose/nozzle be left unattended.
- Fertilizers used will be applied only in the minimum amounts recommended by soil tests.
- Once applied, fertilizers will be worked into the soil to limit exposure to storm water.
- Stored fertilizer will be protected from exposure to precipitation and storm water runoff.

5.8 Dewatering – not anticipated to be necessary. This shown for information only

Pollutant: Sediment, Oil and/or Grease and Phosphoric Acid

Best Management Strategies:

- All dewatering will be filtered through rock and/or woven geo mesh fabric.
- All dewatering will be tested for Pollutants per state guidelines weekly

5.9 Concrete and Asphalt Batch Plant This shown for information only

There are no existing batch plants located on this project site and there are no proposed batch plants in the future.

6.0 BEST MANAGEMENT PRACTICES (BMP's)

Also refer to attached Erosion and Sediment Control notes and plans included in the site plans

6.1 – Erosion and Sediment Control BMP's

6.1.1 Minimize Disturbed Area and Protect Natural Features and Soil

All work will occur inside the limits of construction per the erosion Control Site Plan. See Exhibit 1.

6.1.2 Phase Construction Activity

The sequence for the installation and removal of erosion and sediment control measures is as follows:

1. Installation of perimeter erosion control measures as shown on Exhibit 1.
2. Site Clearing/Grubbing and topsoil stockpiling.
3. Construct detention/sediment pond
4. Final grading of street ROW's and other areas
5. Construct underground water/sewer/storm.

6. Construct curb/gutter and pavement.
7. Final stabilize areas outside of ROW.
8. Construct gas/electric/cable/phone in the ROW areas.
9. Final stabilize ROW.
10. Final erosion control measures as areas are completed

6.1.3 Control Stormwater Flowing onto and through the Project

Narrative:

There is no offsite stormwater flowing onto this project. Temporary sediment traps, sediment basins, and a proposed storm sewer system will convey on-site stormwater throughout the site.

6.1.4 Stabilize Soils

No disturbed area which is not actively being worked shall remain denuded for more than 14 calendar days unless otherwise authorized by the director. Temporary cover by seeding or mulching should be provided on areas which will be exposed for a period greater than 14 days before permanent stabilization can be achieved. Permanent cover should be provided on all areas as soon as possible, by means of seeding and mulching, straw or hay mulch is required. All soil stock piles and borrow areas must be protected with silt fence within 14 days after grading. All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching.

Water is to be used for dust control. The Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

6.1.5 Protect Slopes

Temporary stabilization will include the installation of silt fences on level contours spaces at 10-20 foot intervals. Slopes will be seeded and covered with hay, straw or erosion control blankets on slopes greater than 3:1 as needed to provide for temporary stabilization until vegetation is permanently established.

All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching. Where slopes are steeper than 3:1 erosion control blankets (per specification requirements) will be utilized for final stabilization.

6.1.6 Protect Storm Drain Inlets

Inlet protection will be installed as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems.

At the Contractor's discretion, additional temporary erosion control practices to include rock bags and sand bag barriers may be installed to prevent sediment movement. Inlet protection will include rock bags erosion logs curb inlet sediment filters where an overflow capacity is necessary to prevent excessive ponding in front of the curb inlet. Concrete block and wire screen inlet protection if used a detail will be included Appendix B prior to installation, will be used where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the inlet.

Inlet protection devices will be inspected and accumulated sediment will be removed as needed.

6.1.7 Establish Perimeter Controls and Sediment Barriers

Temporary stabilization will include the installation of silt fences on the downslope perimeter of project area. The silt fence will be trenched in on the uphill side 6 inches deep and 6 inches

wide as detailed in the silt fence exhibit. Sediment will be removed when it reaches 1/3 the height of the fence. Silt fence will be inspected and replaced or repaired as needed.

6.1.8 Retain Sediment On-Site

Temporary sediment traps and sediment basins shall be installed to detain sediment laden runoff from small watersheds for a period long enough to allow sediment to settle before discharge into receiving waters. For small drainage locations smaller sediment traps should be used. At a minimum, silt fences, vegetative buffer strips or equivalent sediment controls are required for all down-slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal will be utilized. Sediment traps/basins will be checked regularly for sediment cleanout. Sediments shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage. Sediment shall be disposed in suitable areas and in such a manner that will not erode or cause sedimentation problems. The gravel outlets will be checked regularly for sediment buildup which will prevent damage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.

6.1.9 Establish Stabilized Construction Exits

The construction entrance will be established in the entry points of roads. The construction entrance will be at least 75 feet in length and approximately 12 feet wide and graded so runoff does not leave the site. The aggregate will be established at 8 inches thick on top of 4 inch minimum thick free draining material on top of geotextile and will consist of Type G dense graded material. A stabilized stone pad with a filter fabric under liner will be placed at points of vehicular ingress and egress.

6.1.10 Additional BMP's

BMP Schedule:

All Sediment and Erosion control BMP's (detailed below and only on BMP site map and details if utilized onsite) will be installed prior to any excavation or demolition and will be coordinated with the construction schedule.

As construction changes and new temporary BMP's are needed to control sediment and erosion temporary BMP's will be installed within 24 hours of inspection report.

Recommended BMP's:

ALL RECOMMENDED BMP'S WILL BE INSTALLED PRIOR TO EXCAVATION NEAR ANY SENSITIVE AREAS.

Culvert Inlet Protection will be used to protect existing and new culvert inlets. Inlet Protection Detail will be included in Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Silt Fence is to be installed in sensitive areas to protect stream channels, pond, and overland runoff. On this site it will be used to protect runoff from the slip pits. See Silt Fence Detail. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Vehicle Tracking Control is needed at the main construction entrance location. Vehicle tracking control shall be installed at the edge of the construction staging area where construction vehicles regularly exit onto existing asphalt road. If sediment tracking occurs it will be cleaned within 24 hours.

See Vehicle Tracking Control Detail in Appendix B. Removal of this BMP will occur only after project is substantially complete and is ready for seeding operations; the area will then be seeded per specification with the rest of the project.

Check Dams (rip rap) will be used to reduce storm water velocities in drainage channels during construction as a temporary measure until permanent stabilization can be created and vegetation has been established. Check Dam Detail will be included in the the Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment build-up will be removed and the area exposed shall be seeded.

Portable Toilets: Portable toilets are brought in from a service contractor and will be maintained in accordance with standard waste disposal practices using vacuum trucks and place on stable ground to minimize risk of spillage. All portable toilets will be kept a minimum of 50' from any state waters and a minimum of 10' from stormwater inlets. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

Waste Disposal: If needed Roll offs will be utilized for standard construction waste. A qualified contractor will remove waste weekly and take to an appropriate dump site off this project.

6.1.11 Permanent BMP'S:

Re-vegetation:

During construction any disturbed area not being currently worked left dormant longer than 14 days will be re-vegetated per specification with native seed and mulched and crimped with weed free straw.

Final Stabilization will be considered complete when all disturbed areas have a minimum of 70% preconstruction coverage for the specification requirements. Then all temporary BMP's will be removed and the exposed areas left behind will be seeded.

Other permanent BMP's include Permanent Full Spectrum Detention/WQ Ponds E1, G, H, to treat storm runoff prior to entering the storm sewer system that drains to the East Tributary of Jimmy Camp Creek and offsite to the south. These ponds include concrete forebays, concrete low flow channels, and full spectrum outlet structures including water quality.

6.2 Good Housekeeping BMP'S

6.2.1 Material Handling and Waste Management

The site will use a private refuse collector that will remove litter twice weekly. No less than one litter receptacle will be present at the construction site. In the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or disturbed, the Fire and Rescue services will be notified.

Litter and debris will be picked up and disposed of properly daily.

Temporary toilet facilities will be located 50 feet away from any storm drain inlets and all waters of the state.

6.2.2 Establish Proper Building Material Staging Areas

A designated staging area will be used, location to be determined based on available space in the field and plans will be redlined. The staging area will be contained per SWMP guidelines. All Equipment and Materials will be brought into the site as needed.

6.2.3 Designate Washout Areas

A concrete washout will be installed to detail as shown in Exhibit 1, and will be placed more than 500 feet away from any waters of the state.

6.2.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

During construction the site will be exposed to operation and maintenance of construction equipment. The contractor shall be responsible for all activities such as fueling, oil changing, lubrication and repair which require use of petroleum products. Such products shall be transported to and from the site in special trucks equipped for that purpose. No waste petroleum products, rags, residue, or equipment parts shall be left on site. In the event of a spill or leak, causing soil to be contaminated, that soil shall be excavated placed in sealed barrels and removed from the site for transport to an approved location for disposal.

See section 7 for the Spill Plan.

6.2.5 Control Equipment/Vehicle Washing

Washing any equipment will not be allowed on-site

6.2.6 Any Additional BMPs

There are no additional BMP's anticipated

6.2.7 Allowable Non-Stormwater Discharge Management

There are no visible natural springs or irrigation or other non-stormwater discharges anticipated to be encountered.

6.2.8: SELECTING POST-CONSTRUCTION BMPs

Post Construction BMPs. Re-vegetation including seeding, mulching and erosion control blanket, and WQ ponds for long-term stormwater quality will be final BMP's. Permanent stabilization will be achieved with 70% pre construction vegetative establishment.

7.0 SPILL PREVENTION AND CONTROL PLAN

The SITE SUPERINTENDENT will act as the point of contact for any spill that occurs at this jobsite. The project manager will be responsible for implementation of prevention practices, spill containment / cleanup, worker training, reporting and complete documentation in the event of a spill. The ECO shall immediately notify the Owner, /Construction Manager, STATE and the Local Fire Department in addition to the legally required Federal, State, and Local reporting channels (including the National Response Center, 800.424.8802) if a reportable quantity is released to the environment

7.1 SPILL PREVENTION BEST MANAGEMENT PRACTICES

This section describes spill prevention methods Best Management Practices (BMP) that will be practiced to eliminate spills before they happen.

7.1.a Equipment Staging and Maintenance

Store and maintain equipment in a designated area Reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials.
Use secondary containment (drain pan) to catch spills when removing or changing fluids.
Use proper equipment (pumps, funnels) to transfer fluids Keep spill kits readily accessible Check incoming vehicles for leaking oil and fluids.
Transfer used fluids and oil filters to waste or recycling drums immediately following generation.
Inspect equipment routinely for leaks and spills Repair equipment immediately, if necessary implement a preventative maintenance schedule for equipment and vehicles.

7.1.b Fueling Area

Perform fueling in designated fueling area minimum 50' away from federal waters
Use secondary containment (drain pan) to catch spills
Use proper equipment (pumps, funnels) to transfer fluids
Keep spill kits readily accessible
Inspect fueling areas routinely for leaks and spills

Hazardous Material Storage Areas

Reduce the amount of hazardous materials by substituting non-hazardous or Less hazardous materials.

7.1. c Hazardous Material Storage Areas

Minimize the quantity of hazardous materials brought onsite
Store hazardous materials in a designated area away from drainage points.

7.1. d Unexpected Contaminated Soil and Water

- Investigate historical site use
- Perform all excavation activities carefully and only after the Owner/Construction Manager directed any activities

7.2 SPILL CONTAINMENT METHODS

The following discussion identifies the types of secondary containment that will be used in the event of a spill. Table 1 summarizes the containment methods for each potential source.

- **Equipment Staging and Maintenance Area.** An equipment leak from a fuel tank, equipment seal, or hydraulic line will be contained within a spill containment cell placed beneath all stationary potential leak sources. An undetected leak from parked equipment will be cleaned up using hand shovels and containerized in a 55-gallon steel drum for offsite disposal.
- **Fueling Area.** A small spill during fueling operations will be contained using fuel absorbent pads at the nozzle. The transfer of fuel into portable equipment will be performed using a funnel and/or hand pump and a spill pad used to absorb any incidental spills/drips. Any leaking tanks or drums will have fluids removed and transferred to another tank, drum, or container for the fluids. A spill response kit will be located near the fueling area or on the fuel truck for easy access. The spill response kit will include plastic sheeting, tarps, over pack drums, absorbent litter, and shovels.
- **Hazardous Material Storage Area.** A spill from containers or cans in a hazardous material storage area will be contained within the storage cabinet these materials are kept in.
- **Unexpected Contaminated Soil.** If contaminated soil is encountered during the project, the Owner/Construction Manager will be notified immediately. Small quantities of suspected contaminated soil will be placed on a 6-mil plastic liner and covered with 6-mil plastic. A soil berm or silt fence will be used to contain the stockpile and prevent migration of contaminated liquids in the soil.

Table 1: Spill Prevention and Containment Methods

Potential Spill Source	Potential Spill Source
Equipment Staging and Maintenance Area	Spill containment pad, spill kit, pumps, funnels
Fueling Area (site equipment only)	Spill containment pad, spill kit, pumps, funnels
Hazardous Material Staging Area	Spill containment pad, spill kit, pumps, funnels
Unexpected Contaminated Soil	Plastic liner, plastic cover, soil berm, hay bales, lined super sacks

7.3 SPILL COUNTERMEASURES

Every preventative measure shall be taken to keep contaminated or hazardous materials contained. If a release occurs, the following actions shall be taken:

1. **Stop the Spill:** The severity of a spill at the site is anticipated to be minimal as large containers/quantities of Hazardous Materials (HM) are not anticipated. The type of spill would occur while dispensing material at the HM storage facility and would likely be contained in secondary containment. Thus, the use spill kits or other available absorbent materials should stop the spill.
2. **Warn Others:** Notify co-workers and supervisory personnel of the release. Notify emergency responders if appropriate. For site personnel, an alarm system will consist of three one second blasts on an air horn sounded by the person discovering a spill or fire. In the event of any spill, the Superintendent and Project Manager shall be notified **if the spill is 5 gallons or more the STATE will be contacted along with the Fire**

Department.

3. **Isolate the Area:** Prevent public access to the area and continue to minimize the spread of the material. Minimize personal exposure throughout emergency response actions.

4. **Containment:** A spill shall only be contained by trained personnel and if it is safe to do so. DO NOT PLACE YOURSELF IN DANGER. Attempt to extinguish a fire only if it is in the incipient stage; trash can size or smaller. For larger spills, wait for the arrival of emergency response personnel and provide directions to the location of the emergency.

5. **Complete a Spill and Incident Report:** For each spill of a Hazardous Material a spill and incident report shall be completed and submitted to the Owner/Construction Manager and if applicable to the Engineer and the State of Colorado Department of Public Health and Environment

8.0 INSPECTIONS

8.1 Inspections

Inspections will occur at least every 14 days and within 24 hours of a precipitation or snow melt event producing runoff, which from past experience this occurs with precipitation of 1/4 inch of rain or more. The primary site for tracking weather data and rainfall measurements will be taken from

Weather Underground and a rain gauge will be onsite for verification only.

1. Inspection Personnel:

The contract Qualified Stormwater Manager will conduct the site inspections as mentioned above in Section 8.1. The Qualified Stormwater Manager will be sufficiently qualified for the required duties per ECM Appendix I.5.

2. Inspection Schedule and Procedures:

The inspection schedule will be routinely accomplished every 14 days and after every storm event or snow melt for the entire site with all BMP's evaluated for performance and need. Any BMP found to be ineffective will be re-accomplished or replaced with a new BMP to provide the level of protection needed. BMP's found to be no longer needed will be removed. Inspections will also be accomplished as soon as practical, but within 24 hours of the end of a precipitation or snow melt event causing surface erosion.

The general procedures for correcting problems when they are identified will be to document the problem in the log and devise a solution utilizing all resources available to formulate BMP's that will correct the problem as soon as possible.

A copy of the inspection report to be used for the site is attached. See Appendix.

8.2 Delegation of Authority

Duly Authorized Representative(s) or Position(s):

Authorized representatives for the SWMP plan will be: Jeff Mark – Primary Contact

Qualified Stormwater Manager – Trevor Terrill

8.3 Revisions to the SWMP

The Qualified Stormwater Manager and/or the site superintendent have the authority to add/subtract/revise BMP's as necessary to accommodate stormwater flow and prevent runoff. However, the engineer should be notified when any major redirection of runoff, offsite runoff, pond modifications, or other substantial changes are made to this SWMP. Changes should be documented per Section 9.0.

9.0 RECORDKEEPING AND TRAINING

9.1 Recordkeeping

- Records will be retained for a minimum period of at least 3 years after the permit is terminated.
- Major activities will start on 08/01/2022:
- Date(s) when construction activities permanently cease on a portion of the site: 8/2023
- Date(s) when an area is either temporarily or permanently stabilized: 7/2023
- All inspection logs must be signed by a qualified stormwater manager

9.2 Changes to the SWMP

Any changes will be referenced in APPENDIX. See Section 8.3 for authority to change the SWMP. The SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed

9.3 Training

Individual(s) Responsible for Training:

All personnel on site will trained on the site specific SWMP requirements to be conducted by the Qualified Stormwater Manager and/or the site superintendent.

9.4 SWMP Location

The on-site SWMP will be located at the SE corner of Fontaine Boulevard and Marksheffel Road. All signed inspection logs will be kept on-site with the SWMP.

10.0 FINAL STABILIZATION

Final stabilization will be accomplished by contractors to re-vegetate the area of disturbance per the approved plans and specifications. Final stabilization will include permanent seeding/mulching of disturbed areas, sediment forebays, erosion control blankets, turf reinforcement mats, and permanent BMP's.

Once 70% of the pre-development vegetative cover has been established and has been accepted, temporary BMP's will be removed and the permit will be terminated and filed.

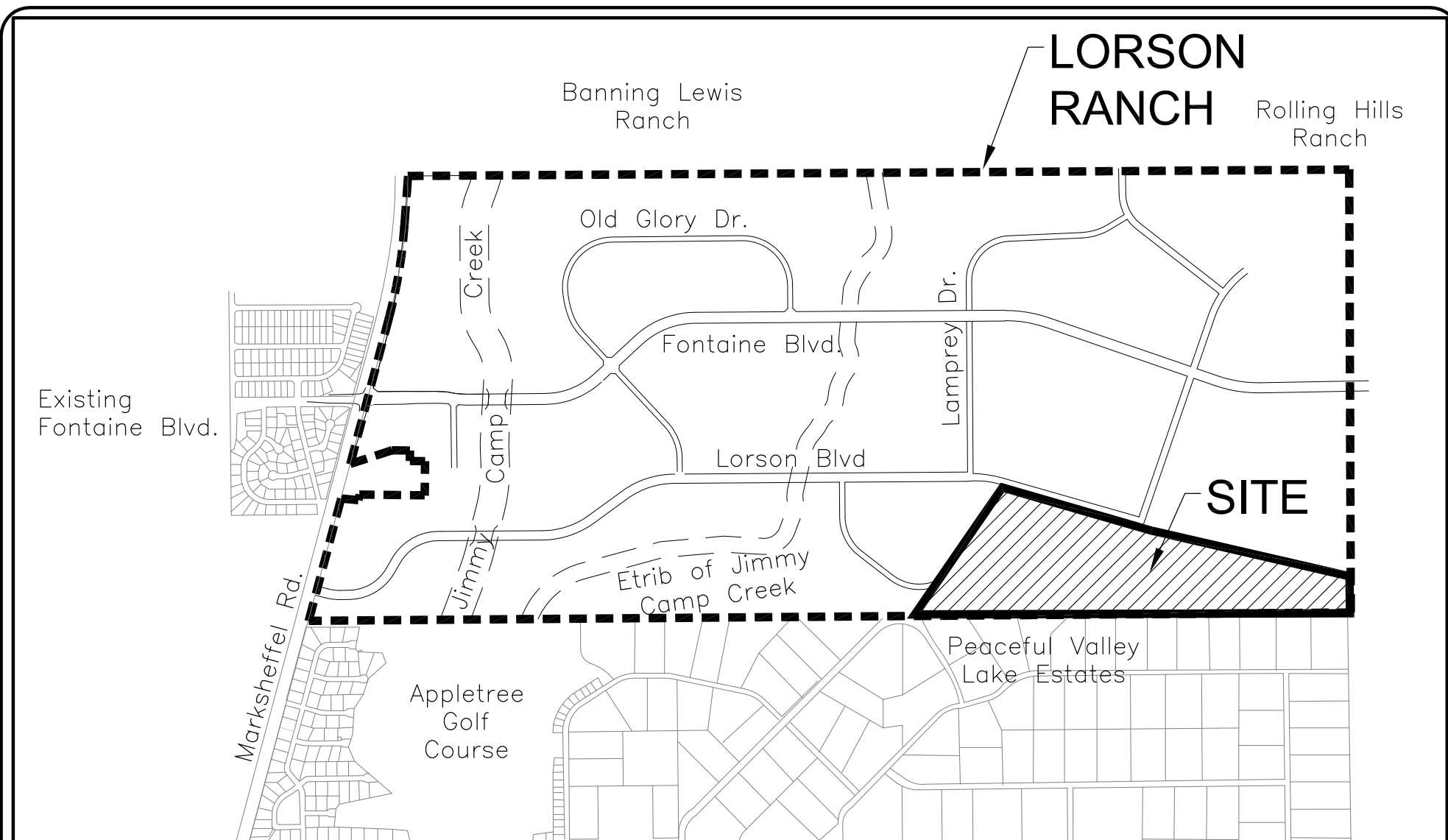
Long term stormwater quality will be achieved by on-site full spectrum detention ponds with WQ outlet structures. The contractor will be required to verify design grades are met in detention

ponds prior to final stabilization. If sediment and debris has collected, it must be excavated/removed to meet design grades. In addition, storm lines shall be clean and free from sediment once the site has been stabilized.

Final stabilization is anticipated to be completed in August, 2023

This project does not rely on control measures that are owned/maintained by another entity.

APPENDIX A



VICINITY MAP
NO SCALE



CORE
ENGINEERING GROUP

15004 1ST AVE. S.
BURNSVILLE, MN 55306
PH: 719.570.1100

CONTACT: RICHARD L. SCHINDLER, P.E.
EMAIL: Rich@ceg1.com

**HILLSIDE AT LORSON RANCH
VICINITY MAP**

SCALE:
NTS

DATE:
AUGUST 27, 2021

FIGURE NO.
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APPENDIX B

EROSION CONTROL PLANS

APPENDIX C

STORMWATER INSPECTION REPORT

Stormwater Inspection Report

Project Name and Location: _____

Inspector Name and Title: _____ Director: _____

Date/Time of Inspection: _____ Weather Conditions: _____

Schedule Completion Date: _____ Construction Stage (circle all that apply):

Clearing/Grubbing Paving Rough Grading Infrastructure Building Construction Final

Grading Final Stabilization Terminate Permit _____

Type of Control	Describe status, identify problems, maintenance needs, or non-conformance with details or temporary alteration	Problem addressed (date and description of corrective action)
Structural:		
Silt Fence <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Tears/Holes <input type="checkbox"/> Burial <input type="checkbox"/> Sed. Accum. <input type="checkbox"/> Sediment bypass	
Const. Exit <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Voids Filled <input type="checkbox"/> Trackout	
Check Dam <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sediment Accumulation	
Inlet Protection <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sed. Accum. <input type="checkbox"/> Sed. Bypass <input type="checkbox"/> Application not appropriate	
Diversion Ditch/Berm <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Erosion <input type="checkbox"/> Stabilization	
Sediment Trap <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sediment Accumulation	
Sediment Basin <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Sed. Accumulation <input type="checkbox"/> Bank erosion <input type="checkbox"/> Stabilization	
Discharge Point <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Erosion <input type="checkbox"/> Sediment Discharge	
Material Storage/Secondary Contain. <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Not shown on Site Map <input type="checkbox"/> Spills <input type="checkbox"/> Out of design. area <input type="checkbox"/> Improper storage: chemicals; solvents; paint; fuels, etc.	

Other Structural Controls <input type="checkbox"/> OK <input type="checkbox"/> N/A		
Non-Structural:		
Good Housekeeping <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Solid Waste <input type="checkbox"/> Sanitary Waste <input type="checkbox"/> Dust Control	

Project Name and Location: _____ Date: _____ Page 2

Equip. Wash/Maint. <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Spills <input type="checkbox"/> Outside designated area	
Concrete Washout <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Spills out of designated area <input type="checkbox"/> Not shown on Site Map	
Stabilization:		
Seed/Sod Mulching, Geotextile, Blankets <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Need Temp. stab. <input type="checkbox"/> Need final stab. <input type="checkbox"/> Health of veg.	
Record Keeping:		
Entrance Postings <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> NOI <input type="checkbox"/> Permits <input type="checkbox"/> Construction Site Notice	
SWPPP Notebook <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Missing Sections <input type="checkbox"/> Missing Forms	
Site Map/Details <input type="checkbox"/> OK <input type="checkbox"/> N/A	<input type="checkbox"/> Activities not up-to-date <input type="checkbox"/> Deviate from details <input type="checkbox"/> BMP Additions <input type="checkbox"/> Modifications <input type="checkbox"/> Not up-to-date	
Other <input type="checkbox"/> OK <input type="checkbox"/> N/A		

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 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.

Inspector's Signature

Date

APPENDIX D

SPILL REPORT FORM

Spill Report Form

Project Type and Location: _____

Spill Reported by: _____

Date/Time Spill: _____

Describe spill location and events leading to spill: _____

Material spilled: _____

Source of spill: _____

Amount spilled: _____ Amount spilled to waterway: _____

Containment or clean up action: _____

Approximate depth of soil excavation: _____

List Injuries or Personal Contamination: _____

Action to be taken to prevent future spills: _____

Modifications to the SWPPP necessary due to this spill: _____

Agencies notified of the spill: _____

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 gather and evaluate 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.

Contractor Superintendent

Date

APPENDIX E

**RECORD OF STABILIZATION AND
CONSTRUCTION ACTIVITY DATES**

SITE STABILIZATION and CONSTRUCTION ACTIVITY DATES

A record of dates when BMPs are installed or removed, stabilization measures are initiated, major grading activities occur, and construction activities temporarily or permanently cease on a portion of the site shall be maintained until final site stabilization is achieved.

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

Activity: _____

Site Contractor: _____ Begin (date):

_____ End(date): _____

Location: _____

APPENDIX F

**FEDERAL, STATE, OR LOCAL STORM WATER OR OTHER
ENVIRONMENTAL INSPECTOR SITE VISIT LOG**

Federal, State, or Local Storm Water or other Environmental Inspector Site Visit Log

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:

Yes No

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:

Yes No

Inspectors Name: _____ Agency: _____

Contractors Representative Present: _____

Others Present: _____

Comments: _____

Time and Date: _____ Report Prepared:

Yes No

APPENDIX G
GENERAL PERMIT