STORM WATER MANAGEMENT PLAN

FOR

LOT 2 BECKETT AT WOODMEN HILLS FILING NO. 3

SHOPS AT MCLAUGHLIN II

7368 MCLAUGHLIN ROAD
PEYTON, CO 80831

OCTOBER 2017

PREPARED FOR:

TBONE CONSTRUCTION
1310 FORD ST.
COLORADO SPRINGS, CO 80915

PREPARED BY:

TERRA NOVA ENGINEERING, INC.
721 S. 23RD STREET
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JOB NO. 1729.00

CONTACT INFORMATION

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EROSION CONTROL SUPERVISOR/ SWMP ADMINISTRATOR:
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Colorado Springs, CO 80904
(719) 570-1456

SWMP is to be maintained on site in the construction trailer whenever work is occurring. If construction trailer is not available, another alternative must be provided.

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

TO: Site Inspector Responsible For All CDPS Requirements

The following storm water pollution management plan (SWMP) is a detailed account of the requirements for the CDPS permit. The main objective of this plan is to prevent any contamination of the storm water while construction activity is taking place.

This document must be kept at the construction site at all times and be made available to the public and any representative of the Colorado Department of Health – Water Quality Control Division, if requested.

Enclosed are temporary erosion control details for the construction site and storm sewer outfall points (Detail A). The operation and maintenance inspection record should be used as a guideline for the inspection of permanent and temporary control devices. Items to be inspected are not limited to those listed. The inspections should be made at regular intervals and before and after storm events. The inspection records must be signed and kept in this binder for no less than three (3) years.

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LOT 2 BECKETT AT WOODMEN HILLS FILING NO. 3
SHOPS AT MCLAUGHLIN II
7368 MCLAUGHLIN ROAD

TABLE OF CONTENTS

Site Description & Existing Conditions	Page 1-2
Construction Activity and Storage	Page 3
Best Management Practices and other Controls	Page 4
Non-storm Water Management	Page 5
Waste Management and Disposal	Page 5
Maintenance, Inspection and Repair	Page 6

APPENDIX

GENERAL LOCATION MAP
CONSTRUCTION SCHEDULE AND SEQUENCE
GENERAL PERMIT APPLICATION
EROSION CONTROL PLAN
OPERATION AND MAINTENANCE INSPECTION RECORD

STORM WATER MANAGEMENT PLAN

FOR

LOT 2 BECKETT AT WOODMEN HILLS FILING NO. 3
SHOPS AT MCLAUGHLIN II
7368 MCLAUGHLIN ROAD

SITE DESCRIPTION & EXISTING CONDITIONS

The site is owned by Shops at McLaughlin II LLC and is approximately 0.86 acres. The area of disturbance is 0.86 acres with the construction of storm sewer, site grading for parking, utilities, and building. The site is located in the Sections 7, Township 13 South, Range 64 West of the 6th Principal Meridian currently within El Paso County, Colorado also known as LOT 2 BECKETT AT WOODMEN HILLS FILING NO. 3 or SHOPS AT MCLAUGHLIN 7368 MCLAUGHLIN, Peyton, CO. The site is bounded on the south by vacant land, to the north and west by a shopping center, and to the east by a Meineke Car Care Center and Falcon Pawn.

Identify the name and location of the regional detention pond.

The site currently consists of undeveloped land that was p . The site is covered with mostly native grasses. This site flows to the east and south into McLaughlin Road and an existing sump inlet. From here flows continue to the existing detention pond sized for this area. The site runoff coefficients are $C_5 = 0.81$, $C_{100} = 0.88$.

As determined by Flood Insurance Rate Map No. 08041C0575 F dated March 17, 1997 (see appendix), All of this site is within a designated F.E.M.A. floodplain known as Zone X or areas determined to be outside of the 500-year floodplain).

The site is contained in the Black Squirrel Creek Basin. Onsite flows will be captured in proposed area inlets and 12" storm sewer and conveyed to the existing area inlet in Mclaughlin Road at the southeast corner of the site.

Soils for this project are delineated by the map in the appendix as 100% columbine (19) having a hydrologic group of 'A' per the USDA, NRCS web soil survey. The existing slopes range from 1% to 6% across the site.

B

Construction on this site will be limited to the site itself. Traffic, pedestrian and sediment controls will be implemented along the perimeter of the site.

The developed site north of this site is sloped such that it primarily drains to the southeast. The site east of this site drains west and is developed. Mclaughlin is along the western and southern boundary and will be protected from site construction activity by BMP's kept in place until the site is stabilized. Earth moving activities are not proposed beyond the property line. There is no offsite grading proposed for this project in any direction, therefore, sites adjacent to this site should not be adversely affected during construction.

Source Control BMP details are included on the Grading & Erosion Control drawings that are a part of the appendix of this document. They include details for rock socks and inlet protection, vehicle tracking control, a concrete washout, materials staging & dirt stockpile areas. The dirt stockpile (SP) area is contained with silt fence per the included details.

Erosion Control BMP details are also a part of the Grading & Erosion Control drawings which are included in the appendix of this document. Erosion Control measures include crimping and seeding of disturbed areas as prescribed by the general notes on the grading plan document.

Materials Management BMP information is included on the Grading & Erosion Control Plan drawings located in the appendix of this document. These include details for the materials staging and dirt stockpile areas.

Sediment Control BMP included on the Grading & Erosion Control Plan drawings located in the appendix of this document. These include details for rock sock sediment barriers and inlet protection.

Site Management includes inspection of all BMP's on a regular basis and/or as prescribed in the details. Inspections includes maintenance and repairs as necessary to maintain the BMP's in an effective working condition.

CONSTRUCTION ACTIVITY AND STORAGE

No known toxic materials have been treated, stored, disposed, spilled or leaked onto the construction site. Practices to minimize contact of construction materials, equipment and vehicles within the storm water include installation of silt fence, installation of vehicle tracking control, sub-contractor cleaning and hauling of excess debris and material upon completion of work and protection of culverts and inlets with sand bags and straw logs to retain silts. Construction material loading and unloading, and access to such areas occur from staging areas shown on the map. See Erosion Control plan for Vehicle Tracking access point during construction. The concrete washout area will be removed and disposed of as required by this permit as well as the SWMP permit.

There will be no on-site mobile fueling. Contractor shall have the Hazardous Material emergency response number posted on the construction trailer on site. No concrete or asphalt batch plants are planned for the construction site. The site will be considered stabilized when all grading has been completed and site vegetation is at 70% established, grading, and building construction have been completed. There will be 0.86 acres of disturbed soil with approximately xxx cubic yards of cut and xxxx cubic yards of fill for a net import of xxxx cubic yards.

fill in values.

TIMING SCHEDULE, BEST MANAGEMENT PRACTICES AND OTHER CONTROLS

Erosion control measures shall be implemented in a manner that will protect properties and public facilities from the adverse effects of erosion and sedimentation as a result of construction and earthwork activities.

Grading will begin in Fall of 2017 or as soon as the Site Development Plan has been approved and the overall area graded and the site shall be considered stabilized in the Fall 2018.

Phase One shall begin in the Fall of 2017 or December 1, 2017 more or less. Before clearing and grubbing may begin the first level of BMPs are to be installed. These measures include rock socks (RS) protection along the base of existing fence lines, vehicle tracking control (VTC) at all construction exit points onto paved surfaces, materials staging area (SSA), materials stockpile area (SP) with a silt fence perimeter and a concrete washout area (CW). All BMPs are to be as indicated on the included Grading & Erosion Control Plan unless the contractor changes the plan per procedure noted in the inspection & repair section of this permit. The Phase One activity should be completed approximately 2 months later or February 1, 2018 more or less.

Phase Two beginning on February 1, 2018 more or less shall have BMPs installed per plan once the site is graded in. The measures installed with this phase of construction include all BMPs from Phase One as well as inlet protection (IP). During the installation of the storm sewer, the contractor shall also adhere to this Storm Water Management Plan. Additional BMPs may be included at the discretion of the site contractor where he/she deems it necessary to minimize sedimentation transference. The anticipated completion date of this phase will be April 1, 2018 more or less.

Phase Three BMPs that shall be installed once the storm drain system is completed include the continued use of inlet protection (IP) and rock sock protection (RS). Permanent curb & gutter, pavement and seeding in the balance of exposed surface areas will occur with this phase of construction. This phase begins on April 1, 2018 and continues through June 1, 2018 more or less.

Phase Four BMPs to be installed once the construction is completed will be permanent. This level includes removal of any remaining BMPs that are not a permanent installation. Treating the soil and seeding per the requirements of the landscape plan and mulching any disturbed areas as well as stockpiles that remain after final grading is completed is required. Any area that is anticipated to remain in an interim condition (bare dirt) for more than 60 days shall be seeded and maintained in a fashion that promotes growth and establishment of vegetation per the landscape plan. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented and vegetation has been established to 70% on areas not to be covered with gravel. These temporary BMPs are to be removed once the 70% vegetation has been established. At this point in the construction process, all landscaping should be in place and maintained for a period of time that allows for its establishment on the site. Once 70% of the site has been revegetated, final stabilization of the site is complete and this permit shall be closed. This phase begins on June 1, 2018 more or less and is anticipated to be stabilized by the end of October 2018.

SEEDING REQUIREMENTS

Seeding includes seeding areas along the fence lines as designated on the plans with a slope of 4:1 or steeper. Seeding must be accepted in the field by the Engineer as complying with the plans and specification. To verify installation of appropriate seed quantities, Contractor will provide delivery slips for seed as provided by the seed supplier.

Wood stakes are required. No metal stakes will be allowed.

Native Seeding with Temporary Blanket shall be in accordance with the manufacturer's requirements for North American Green SC150BN or approved equal. Blanket shall be installed per manufacturers recommendations and per the plan.

The grass seed mix recommended for this project is a Low Maintenance Seed Mixture available from Arkansas Valley Seed (4300 Monaco Street, Denver, CO 80216, (303) 320-7500 or (877) 907-3337, www.avseeds.com) which includes the following:

35% Chewings Fescue
30% Creeping Red Fescue
25% Hard Fescue
10% Blue Fescue

1. Unless otherwise indicated, the minimum thickness of topsoil in seeded areas shall be 4". Topsoil shall meet the requirements of the City of Colorado Springs Drainage Criteria Manual, Volume 1, Chapter 14.

2. Seed shall be planted by Drill seeding in all accessible areas by means of a Brillion mechanical power-drawn drill seeders, or equal, to a maximum depth of ¼ inch followed by packer wheels or drag chains to provide smooth finish. Seed at the rated given below. Provide markers or other means to assure that the successive seeded strips will overlap or be separated by a space no greater than the space between the rows planted by equipment being used. Do not seed during windy weather.

In areas inaccessible to a drill seeder, broadcast seed by hand in two opposite directions. Rake in seed after broadcasting. Do not broadcast seed during windy weather.

3. Seeding Rates: This seed should be applies at a rate of 4-6 lbs per 1,000 sq ft and over-seeded @ 2-3 lbs per 1,000 sq ft.

4. Do not seed areas in excess of that which can be mulched the same day.

5. Do not sow immediately following rain, when ground is too dry, frozen or during windy periods.

6. Roll seeded area with roller not exceeding 100 pounds.

7. Apply mulch immediately following seeding and compaction.

NON STORM WATER MANAGEMENT

Non-storm water discharges pertaining to landscape irrigation are anticipated on the site, however no spring discharges are expected.

WASTE MANAGEMENT AND DISPOSAL

All waste and debris created by construction activities at the site shall be disposed of in compliance with all laws, regulations, and ordinances of the federal, state and local agencies.

MAINTENANCE, INSPECTION AND REPAIR

The owner or his representative shall inspect and monitor all drainage facilities using the enclosed "Monitoring and Maintenance Inspection Record" checklist in the appendix. In order to ensure that all graded surfaces, structures, vegetation, erosion and sediment control measures and other protective devices identified in the erosion control plan are maintained in good and effective condition, an Operation and Maintenance Inspection Monitoring Program will be implemented by the permit holder during the construction phase. A systematic inspection of all the above mentioned protective devices will be performed by trained personnel using the operation and maintenance inspection record form in the appendix every 14 days. Additional inspections may be required prior to anticipated precipitation events and after precipitation events. All monitoring records are to be kept with the SWMP for a period of no less than three (3) years.

This site will be considered stabilized when all construction activities have been completed and vegetation has been established as previously noted. Erosion control measures including silt fence and inlet protection must be removed after final stabilization.

Any major revisions or modification to this Storm Water Management Plan will require a report addendum and erosion control map revision. Minor revisions may be signed off by the City Storm Water Field Inspector.

PROCEDURE FOR REVISIONS TO THE SWMP

The contractor shall keep a copy of the SWMP, Erosion Control Plan and Permit on the site at all times during construction. At the contractor's discretion, changes may be made to the Erosion Control Plan by noting it on the approved copy kept on site. It is recommended that the contractor consider using a legend using colors that correspond to the changes based on the date of the change or any other method that is appropriate for the purpose of maintaining an up-to-date and accurate plan set on site while construction is under way.

PREPARED BY:

Terra Nova Engineering, Inc.

L Ducett, P.E.
President

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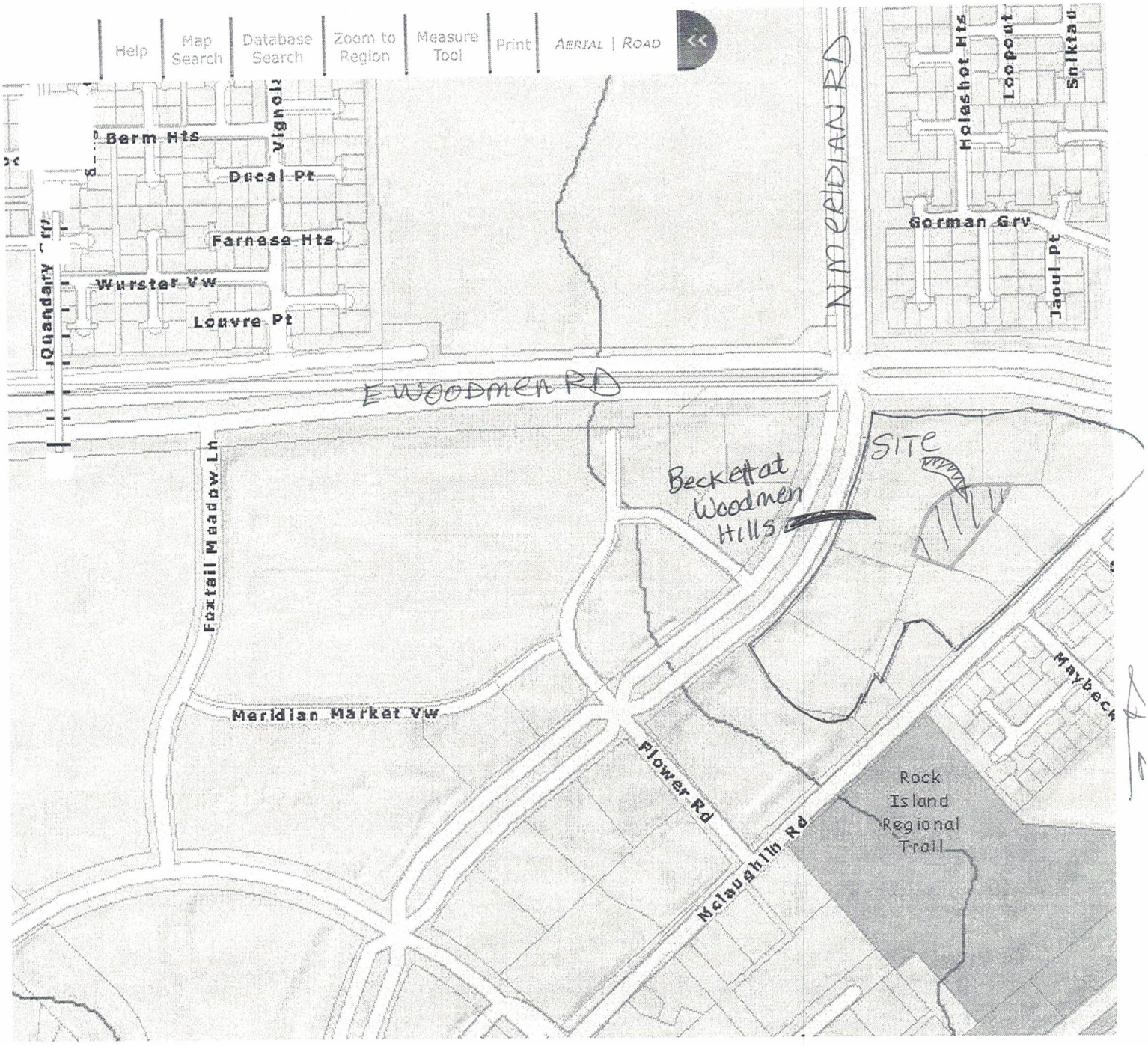
APPENDIX

GENERAL LOCATION MAP



NOT TO SCALE

0 200 400ft

CONSTRUCTION SCHEDULE AND SEQUENCE

Erosion control measures shall be implemented in a manner that will protect properties and public facilities from the adverse effects of erosion and sedimentation as a result of construction and earthwork activities.

Grading will begin in Summer of 2017 and the overall area graded and the site will be considered stabilized in the Winter 2017.

Before clearing and grubbing may begin the first level of BMPs are to be installed. These measures include erosion control logs (EL), vehicle tracking control (VTC) at all construction exit points onto paved roads, materials staging area (SSA), materials stockpile area (SP) and a concrete washout area (CW).

The Second level of BMPs to be installed once the site is graded in, include erosion control logs (EL) from the previous phase, rock sock protection (RS), and inlet protection (IP). During the installation of the storm sewer, the contractor shall also adhere to this Stormwater management plan. Installation of erosion control measures that are better suited to the work being performed may need to be considered.

Third level of BMPs to be installed once the storm drain system is installed include the continued use of inlet protection (IP), rock sock protection (RS) and erosion control logs (EL). Permanent curb & gutter, pavement and seeding in the balance of exposed surface areas will occur with this phase of construction.

Fourth level of BMPs to be installed once the previous BMPs and construction is completed. This level includes any disturbed areas and stockpiles which are not at final grade, but will remain dormant for longer than 30 days are to be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented and vegetation has been established to 70% on areas not to be covered with gravel. These temporary BMPs are to be removed once the 70% vegetation has been established. At this point in the construction process, all landscaping should be in place and maintained for a period of time that allows for its establishment on the site.

GENERAL PERMIT APPLICATION

OPERATION AND MAINTENANCE INSPECTION RECORD

The following inspection records are to be used at each bi-monthly stormwater management system inspection and after any precipitation or snowmelt event that causes surface runoff. As a result of these inspections, the SWMP may need to be revised. The inspection records and revised SWMP shall be made available to the division upon request. If the construction activity lasts more than 12 months, a copy of the inspection records and revised SWMP shall be sent to the division by May 1 of each year covering April 1 to March 31.

EROSION CONTROL PLAN

OPERATION AND MAINTENANCE INSPECTION RECORD

Appendix C Inspection Checklist – Grading Erosion, and Stormwater Quality Controls

PEYTON, COLORADO

DATE/TIME:
INSPECTOR:
TYPE OF INSPECTION: Self-Monitoring_____ Initial _____ Compliance_____ Follow-Up_____ Reconnaissance_____ Complaint_____ Final____

SITE:	DATE OF PERMIT:
ADDRESS:	
CONTRACTOR: CONTACT: PHONE:	OWNER/OWNER'S REPRESENTATIVE: CONTACT: PHONE:
STAGE OF CONSTRUCTION: Initial BMP Installation/Prior to Construction_____ Clearing & Grubbing_____ Rough Grading_____ Finish Grading_____ Utility Construction_____ Building Construction_____ Final Stabilization_____	

OVERALL SITE INSPECTION	YES/NO/N.A.	REMARKS/ACTIONS
Is there any evidence of sediment leaving the construction site? If so, note areas.		
Have any adverse impacts such as flooding, structural damage, erosion, spillage, or accumulation of sediment, debris or litter occurred on or within public or private property, wetlands or surface waters –to include intermittent drainageways and the City's stormwater system (storm sewers, gutters, ditches, etc.)?		
Are the BMPs properly installed and maintained?		
Have the BMPs been placed as shown on approved plans?		
Are the BMPs functioning as intended?		
Is work being done according to approved plans and any phased construction schedule?		
Is the construction schedule on track?		
Are drainage channels and outlets adequately stabilized?		
Is there any evidence of discharges or spills of fuels, lubricants, chemicals, etc.?		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
CHECK DAM Has accumulated sediment and debris been removed per maintenance requirements?		
EROSION CONTROL BLANKET Is fabric damaged, loose or in need of repairs?		
INLET PROTECTION Is the inlet protection damaged, ineffective or in need of repairs? Has sediment been removed per maintenance requirements?		
MULCHING Distributed uniformly on all disturbed areas? Is the application rate adequate? Any evidence of mulch being blown or washed away? Has the mulched area been seeded, if necessary?		
SEDIMENT BASIN Is the sediment basin properly constructed and operational? Has sediment and debris been cleaned out of the basin?		
SILT FENCE Is the fence damaged, collapsed, unentrenched or ineffective? Has sediment been removed per maintenance requirements? Is the silt fence properly located?		
SLOPE DRAIN Is water bypassing or undercutting the inlet or pipe? Is erosion occurring at the outlet of the pipe?		
STRAW BALE BARRIER Are the straw bales damaged, ineffective or unentrenched? Has sediment been removed per maintenance requirements? Are the bales installed and positioned correctly?		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
SURFACE ROUGHENING Is the roughening consistent/uniform on slopes?? Any evidence of erosion?		
TEMPORARY SEEDING Are the seedbeds protected by mulch? Has any erosion occurred in the seeded area? Any evidence of vehicle tracking on seeded areas?		
TEMPORARY SWALES Has any sediment or debris been deposited within the swales? Have the slopes of the swale eroded or has damage occurred to the lining? Are the swales properly located?		
VEHICLE TRACKING Is gravel surface clogged with mud or sediment? Is the gravel surface sinking into the ground? Has sediment been tracked onto any roads and has it been cleaned up? Is inlet protection placed around curb inlets near construction entrance?		
OTHER		

FINAL INSPECTION CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
Has all grading been completed in compliance with the approved Plan, and all stabilization completed, including vegetation, retaining walls or other approved measures?		
Has final stabilization been achieved – uniform vegetative cover with a density of at least 70 percent of pre-disturbance levels, and cover capable of adequately controlling soil erosion; or permanent, physical erosion methods?		
Have all temporary measures been removed?		
Have all stockpiles, construction materials and construction equipment been removed?		
Are all paved surfaces clean (on-site and off-site)?		
Has sediment and debris been removed from drainage facilities (on-site and off-site) and other off-site property, including proper restoration of any damaged property?		
Have all permanent stormwater quality BMPs been installed and completed?		

ADDITIONAL COMMENTS:

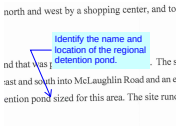
The items noted as needing action must be remedied no later than _____. The contractor shall notify the inspector when all the items noted above have been addressed.

By signing this inspection form, the owner/owner's representative and the contractor acknowledge that they have received a copy of the inspection report and are aware it is their responsibility to take corrective actions by the date noted above. Failure to sign does not relieve the contractor and owner/owner's representative of their responsibility to take the necessary corrective action and of their liability for any damages that have occurred or may occur.

INSPECTOR'S SIGNATURE:	DATE:
OWNER/OWNER'S REPRESENTATIVE SIGNATURE:	DATE:
CONTRACTOR'S SIGNATURE:	DATE:

Markup Summary

dsdlaforce (3)



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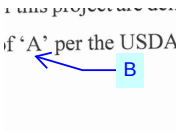
Identify the name and location of the regional detention pond.



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