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INTERIOR DESIGN
GRAPHIC DESIGN
STRATEGIC MARKETING
CONSTRUCTION ADMIN

SWPPP REPORT



SOUTH KITSAP REGIONAL PARK - PHASE 1C

SOUTH KITSAP REGIONAL PARK
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JULY 9, 2014

I hereby state that this report for the South Kitsap Regional Park development project has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers.



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CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN REPORT

1. Construction Stormwater Pollution Prevention Elements

The following paragraphs describe how each of the Construction Stormwater Pollution Prevention Plan (SWPPP) elements have been addressed in this plan.

Element 1: Mark Clearing Limits

The clearing limits are shown on the drawings, which are included as Attachment D. Prior to beginning land disturbing activities, including clearing and grading, the clearing limits within the construction area shall be marked. Any areas that are to be protected or restricted from construction activities shall be identified with *BMP C103: High Visibility Plastic or Metal Fence*. Siltation fence or diversion berms shall be placed on property or phase boundaries where stormwater has the potential to be released from the site as indicated on the SWPPP drawings.

Natural vegetation and native topsoil shall be preserved to the maximum extent possible (*BMP C101: Preserving Natural Vegetation*). If retained on-site, the native topsoil shall be stockpiled and protected from erosion.

Element 2: Establish Construction Access

A construction entrance (*BMP C105: Stabilized Construction Entrance*) shall be installed at the location indicated on the plans to provide access to the site. Only one access shall be provided, if possible. The access shall be stabilized with a pad of quarry spalls or crushed stone. If the entrance mat becomes filled with dirt, it shall be refurbished by dislodging the riprap and reconstructing the pad. Alternatively, new material may be added to the pad to provide storage for additional sediment.

Should sediment be tracked on to the street, it shall be cleaned thoroughly at the end of each day, or more frequently during wet weather. Sediment shall be removed by shoveling or pickup sweeping to prevent it from entering waterways. Only after street cleaning takes place in this manner, can street washing take place. Wastewater from street washing shall be pumped back on-site or otherwise be prevented from discharging into systems tributary to State surface waters.

Element 3: Control Flow Rates

Properties and waterways downstream will be protected from erosion due to increases in runoff volume, velocity, and peak flow that are caused by construction activities. In the existing condition, all stormwater runoff is either infiltrated onsite or sheet flows to Karcher Creek, which lies northwest of the project site. Karcher Creek will be protected from increased flow rates and velocities through the installation of the on-site infiltration pond. The infiltration ponds will be rough graded and used to control flow rates during construction. After construction is complete and the site's soils have been stabilized, the accumulated sediment will be removed, along with the top 3 feet of soil

that may have been clogged by the sediment. The 3 feet of soil will be replaced with soil that meets the infiltration pond requirements.

Element 4: Install Sediment Controls

All stormwater runoff from disturbed areas shall pass through siltation fence, a sediment trap, or other sediment removal BMPs prior to discharging off the site or being infiltrated. The grading and TESC plans for this project specify the use of various erosion/sediment control measures intended to trap sediment onsite. These measures include: temporary sediment traps, siltation fence, and catch basin inlet protection. Siltation fence (*BMP C233: Silt Fence*) or diversion berms (*BMP C200: Interceptor Dike and Swale*) shall be installed on all downstream sides of the project site to minimize the potential of sediment laden runoff leaving the site. All existing drain inlets, both on and off-site, that may receive runoff from the construction site shall be provided with inlet protection (*BMP C220: Storm Drain Inlet Protection*) to prevent sediments from entering the County storm drain system.

Element 5: Stabilize Soils

From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. Soils shall also be stabilized at the end of a shift before a holiday or weekend if a storm event is forecasted. These aforementioned conditions apply to all soils on site, whether at final grade or not.

Soil stabilization BMPs include, but are not limited to *BMP C120: Temporary and Permanent Seeding*, *BMP C124: Sodding*, *BMP C121: Mulching*, *BMP C123: Plastic Covering*, *BMP C126: Polyacrylamide for Soil Erosion Protection*, the early application of gravel base on areas to be paved, and *BMP C140: Dust Control*.

When soil stockpiles are required, they must be stabilized from erosion and protected with sediment trapping measures. When possible the stockpiles shall be located away from storm drain inlets.

Element 6: Protect Slopes

The project site is mostly flat with grades between 1% and 5%. There will be some short, steep slopes (up to 33%) in the proposed site. In order to minimize erosion due to sheet flow runoff, the on-site slopes shall be mulched (*BMP C121: Mulching*), covered with nets or blankets (*BMP C122: Nets and Blankets*), or covered with plastic sheeting (*BMP C123: Plastic Covering*). Straw wattles (*BMP C235: Straw Wattles*) or similar measures shall be installed on slopes to prevent rilling or channeling of exposed slopes. Where possible, storm drainage shall be collected at the top of slopes using an interceptor dike and swale (*BMP C200: Interceptor Dike and Swale*) and shall be routed to the on-site sediment pond by means of a piped system or controlled conveyance ditch with check dams (*BMP C207: Check Dams*).

Off-site runoff shall be diverted around the site using interceptor dikes and swales. To the maximum extent possible, off-site stormwater shall be managed separately from stormwater generated on-site.

Element 7: Protect Drain Inlets

All existing drain inlets, both on and off-site, that may receive runoff from the construction site shall be provided with inlet protection (*BMP C220: Storm Drain Inlet Protection*) as shown on the SWPPP plans. All new drain inlets shall also have inlet protection installed. Inlets shall be inspected weekly at a minimum and daily during storm events. Inlet protection devices should be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

Element 8: Stabilize Channels and Outlets

Any temporary channel constructed to convey runoff shall be armor seeded and mulched to prevent erosion. All outlets of such channels shall be stabilized with riprap or other appropriate materials to prevent erosion at the outlet.

Element 9: Control Pollutants

Control of pollutants other than sediments is the responsibility of the construction superintendent. At a minimum, he/she shall provide a centralized area for the storage, maintenance, and refueling of construction equipment (*BMP C107: Construction Road/Parking Area Stabilization*) and for washing of concrete truck drums (*BMP C151: Concrete Handling*). All runoff from the area shall be intercepted by a trench around the low side of the area and detained until it can be removed by a 'vactor' truck and properly disposed of in an approved facility.

Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities that may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. The superintendent shall be expected to use his/her best judgment in addressing any and all conditions that are potentially damaging to the environment. Emergency repairs may be performed on-site using temporary plastic placed beneath, and if raining, over the vehicle.

All pollutants, including waste materials and demolition debris that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater. Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (*BMP C153: Material Deliver, Storage and Containment*). Any slurry or process water that is generated by sawcutting or other surface operations shall be

prevented from entering the waters of the State (*BMP C152: Sawcutting and Surfacing Pollution Prevention*)

Element 10: Control De-Watering

If the need for de-watering is encountered, water from trench de-watering shall be discharged into a closed conveyance system prior to discharge to a sediment trap. Channels must be stabilized as specified in *Element #8*. Highly turbid or otherwise contaminated dewatering water, such as from construction equipment operation shall be handled separately from stormwater. Other site disposal options may include: 1) infiltration, 2) transport off-site in a vehicle, such as vacuum flush truck, for legal disposal in a manner that does not pollute State waters, 3) Ecology-approved on-site chemical treatment or other suitable treatment technologies, 4) sanitary sewer discharge with local sewer district approval, if there is no other option, or 5) use of sedimentation bag with outfall to a ditch or swale for small volumes of localized de-watering.

Element 11: Maintain BMPs

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair shall be conducted in accordance with standard procedures for the BMPs.

Sediment control BMPs shall be inspected weekly at the end of each work week, after a runoff-producing storm event during the dry season, and daily during the wet season.

All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently stabilized.

Sediment accumulation in excess of design limits shall be removed from the facilities upon identification of the condition and prior to a forecasted storm event. The construction superintendent responsible for these actions shall be responsible for maintenance of the erosion and sediment control facilities. Grading shall not occur on the site until after the aforementioned BMPs have been installed. Only then, may site grading commence.

Element 12: Manage the Project

The SKRP site is moderately large and may require some phasing. Site clearing and grading, including the construction of infiltration ponds, shall be performed after the erosion and sediment control measures have been constructed.

Trenches shall be opened only immediately prior to installation of the stormwater conveyance pipes and the trenches shall be backfilled immediately after any required

testing or inspections of the installed pipes. Trenching spoils shall be treated as other disturbed earthwork and measures shall be taken to cover or otherwise stabilize the material, as required.

A Certified Erosion and Sediment Control Lead (CESCL), who can be on-site or on-call at all times, will be identified by the contractor.

2. Project Description

The South Kitsap Regional Park (SKRP) project is envisioned as a community recreation complex consisting of a variety of athletic facilities including soccer and baseball fields, tennis courts, horseshoe pits, a skate park, and playgrounds. The project will expand the existing athletic and recreational facilities on the site, which is currently a park owned and operated by Kitsap County.

The project is located in Port Orchard, Washington. The site is bounded by Jackson Ave SE to the east, SE Lund Ave to the south, and several residential developments to the west and north. It is within Kitsap County parcels 362401-4-005-2002, 362401-4-006-2001, and 362401-1-012-2009. The parcels are outside the Port Orchard urban growth boundary. The site is located in Section 36, Township 24 North, Range 1 East, WM in Kitsap County, WA. A vicinity map has been included in Appendix A.

The limit of the work is approximately 10.13 acres, for the rough grading associated with the future baseball field and the gravel access road, and 0.30 acres, for the skate park addition. The proposed condition of the project site, within the limits of this phase, consists of rough grading and seeding a large area of the site for future development of a baseball field, the construction of a gravel access road, and an addition to the skate park along the southern side of the site. The proposed condition includes the addition of 1.35 acres of impervious surface while 0.55 acres of existing impervious surface will be converted to new pervious surface.

In addition to the aforementioned improvements, new stormwater management facilities will be provided, and existing stormwater management facilities will be modified to convey and treat the runoff generated on the project site associated with this phase of development

All flow control, water quality, and erosion control design has been completed according to the Department of Ecology Stormwater Management Manual for Western Washington (SMMWW), February 2005. A conveyance analysis has been completed per the 2010 Kitsap County Stormwater Design Manual.

A vicinity map of the site has been included in this SWPPP as Attachment A.

3. Existing Site Conditions

The portion of the site encompassed by the skate park addition is fairly flat with slopes ranging from 1% to 5%. Elevations in this area range from 334 to 336. Land cover for this segment of the project is short grass and bare soil and is not tributary to any other drainage area nor are any other drainage areas tributary to it.

The existing portion of the skate park was designed to infiltrate the entirety of the stormwater generated within the limits of the skate park. This was accomplished through the use of an infiltration trench immediately adjacent to the skate park.

The portion of the site encompassed by the grading associated with the future baseball field and the gravel access road is also fairly flat across the majority of the area with slopes ranging from 1% to 5%, to the Northwest of the future baseball field the site contains a slight hill with roughly 11 feet of relief. The slight hill creates slopes ranging from 4% to 8%. Land cover for this section of the project is mainly short grass with segments of forested area and a small segment of impervious surface, consisting of an existing basketball court and access road to be demolished, and is not tributary to any other drainage area nor are any other drainage areas tributary to it.

The existing access road includes a drainage swale connected, via pipe, to the Kitsap county infiltration facility. Runoff not channeled through the drainage swale is primarily handled through infiltration. There are several utilities that fall along or within the proposed gravel access road including a waterline, fire hydrants, sanitary sewer lines, underground power lines, and underground communication lines. A municipal water line is located onsite, within the forested area, approximately 230 feet south of the proposed improvements.

4. Adjacent Areas

The SKRP site is bound by Jackson Avenue SE to the east and SE Lund Avenue to the south. The site is bordered to the north and west by more forested County-owned park space, and beyond that, residential neighborhoods. The adjacent roadways will be affected by construction. There are several commercial, office, and residential buildings along Lund Avenue and Jackson Avenue.

Karcher Creek lies a quarter mile to the northwest of the site. The creek empties into the Sinclair Inlet of the Puget Sound approximately two miles north of the project site.

5. Critical Areas

Karcher Creek, a 1.8-mile stream that drains to the Sinclair Inlet of the Puget Sound north of the site. A wetland delineation analysis was conducted by Anchor QEA, LLC for

the park Master Plan. The analysis identified the existence of wetland areas along much of Karcher Creek. The project site is also located in a Category 1 Critical Aquifer Recharge Area.

It is not anticipated that any of the aforementioned critical areas will be affected by the project. Any runoff that might drain to the stream or wetland areas will be captured and detained to settle out sediments. Runoff that infiltrates in the Critical Aquifer Recharge Area will do so through the bioinfiltration facilities that are integrated into the site design.

6. Soil

The soils on the site and in the vicinity were characterized in a Geotechnical Engineering Investigation prepared by Krazan and Associates, Inc. on August 17, 2010. The report determined that the site soils were primarily weathered alluvium to a depth of 3.5 feet underlain by alluvial soils. The weathered alluvium was characterized as “loose silty sand” and the alluvium was characterized as “loose to medium dense, fine to medium grained sand with silt.” Towards the Northwest corner of the portion of the site associated with the proposed improvements the report indicated that a layer of stiff silt with lacustrine deposits (fine grained sand and clay) was found extending from a depth of 9 feet to a depth of 12 feet. Groundwater was not encountered in any of the exploratory soil borings. A sieve analysis of the soils sampled was performed to determine a design infiltration rate of 2 in/hr for the site. A soils map has been included as Attachment C. The Geotechnical Report has been included as Attachment B.

7. Potential Erosion Problem Areas

The SKRP site has a moderate potential for erosion. The soils are relatively well draining and the site is largely flat with few steep slopes. Any erosion hazard areas, including exposed slopes or channels, will be stabilized by implementing BMPs listed in Section 1 of this SWPPP.

There was no evidence observed during site visits by BCRA staff of existing drainage or erosion control problems within the project site basins.

8. Construction Phasing

The recommended construction sequence includes the following steps in this order. However, some portions of the steps may be performed out of sequence as conditions require.

1. Stake and flag clearing limits
2. Install inlet protection, siltation fence, and diversion berms
3. Install stabilized construction entrance
4. Rough grade infiltration ponds

5. Clear to limits shown on plans
6. Rough grade to the design contours shown on plans
7. Install sanitary sewer main and side sewers
8. Install storm drainage systems
9. Install domestic water lines
10. Install irrigation systems
11. Install electrical and communication systems
12. Fine grade and pave site per plans
13. Stabilize site with final landscaping and paving per plans
14. Install bioinfiltration facilities
15. Remove TESC measures after site is stabilized.

9. Construction Schedule

Construction for the Phase 1C component of the SKRP development is anticipated to begin in the Fall of 2014. The civil site development is anticipated to be completed and stabilized as late as Summer of 2014.

10. Financial/Ownership Responsibilities

Kitsap County will be the financially responsible entity.

11. Engineering Calculations

No engineering calculations are included in this document. The infiltration ponds that are serving as flow control facilities are sized for their final design, as shown in the Drainage Report.

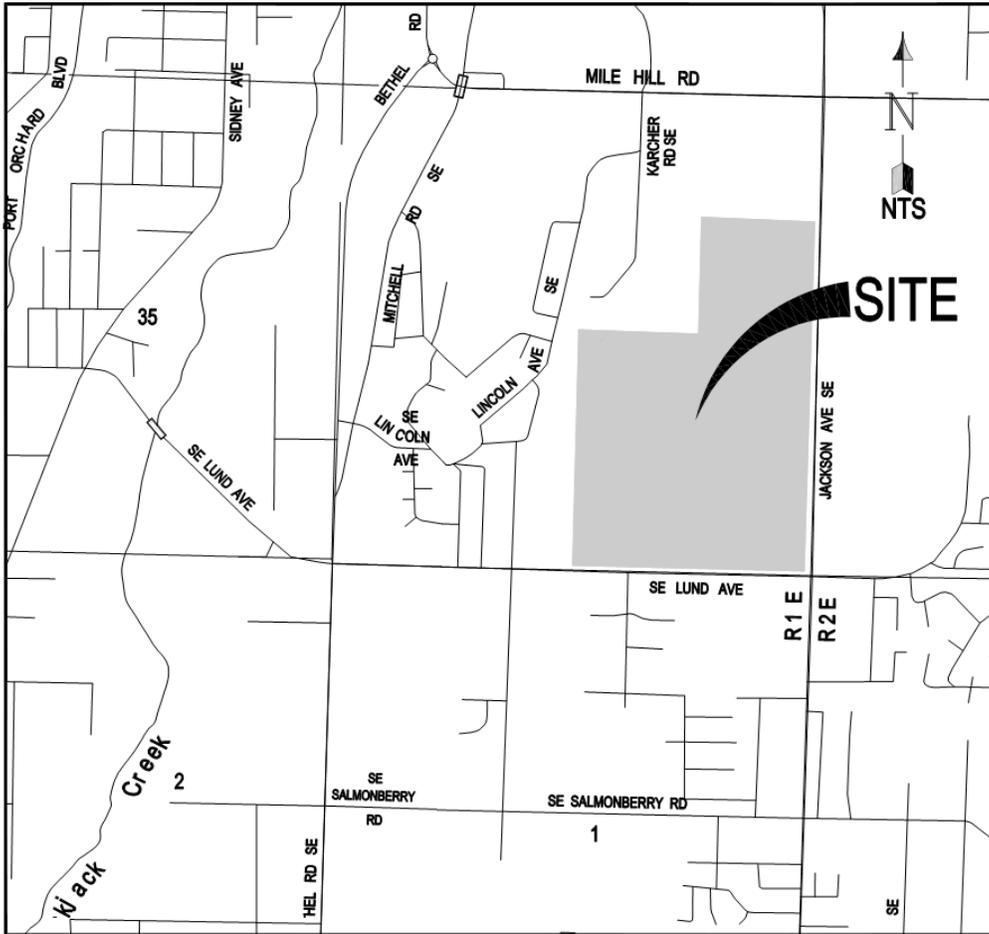
12. Certified Erosion and Sediment Control Specialist

A Certified Erosion and Sediment Control Lead (CESCL), who can be on-site or on-call at all times, will be identified by the contractor.

Attachment A

Vicinity Map

A-1 – Vicinity Map



VICINITY MAP

Attachment B

***Stormwater Pollution Prevention Plans and Notes (C1.01, C1.02, C1.03,
C1.04, and C1.05)***

