

**SKAGIT COUNTY JAIL
TRUCK CITY SITE – STORMWATER STRATEGY
July 2, 2014**

INTRODUCTION

The following narrative is largely a compilation of information gathered from documents provided by others with verification of drainage issues by the City of Mount Vernon (City). These documents include:

- "Jail Site Evaluation" by Semrau Engineering & Surveying P.L.L.C. dated February 14, 2014
- "Cursory Geotechnical Evaluation Report" for both sites by Materials Testing & Consulting, Inc. dated October 8, 2013
- "Final Environmental Impact Statement Skagit County Jail" (EIS) by David Evans and Associates, Inc. dated March 2014

EXISTING SITE CONDITIONS

The 10.4-acre site is bounded by Old Highway 99 South to the west, Suzanne Lane to the south, and private properties to the north and east. The north half of the site is currently occupied by a truck stop with a fueling station, food mart, and a mix of asphalt paving and gravel lots. The south half is undeveloped. The site is very flat, at elevation 14-16 feet throughout the site.

EARLY GRADING AND PRELOADING

The site is within the 100-year flood plain, current Flood Zone designation is A02. In order to raise the site out of the Skagit River flood plain, approximately 5 feet of fill will be required. Only 2 feet above the highest existing grade is required to raise the finish floor to the flood plain elevation, however an additional 3 feet of consolidated fill and freeboard will be needed due to the site use classification as a critical facility. The fill will be placed as part of the first phase of development and used to preload the compressible soils on site for up to 2 months. Final geotechnical design recommendations will determine the depth of fill required and the preloading phase duration. The permanent fill quantity placed on site to raise the proposed improvements and future phase out of the flood plain is approximately 92,400 cubic yards, as stated in the EIS. Raising the access roads, Old Highway 99, and Anderson Road to maintain access to I-5 during the 100-year flood event is not feasible as part of the jail construction. The flood waters surrounding the facility during a 100-year flood event could be up to 2 feet in depth.

STORM DRAINAGE

The City has adopted the 2005 Department of Ecology (DOE) Stormwater Management Manual for Western Washington. The developed northern half of the site drains east toward Old Highway 99 and north to a culvert crossing I-5 at the Anderson Road interchange. This culvert outlets to a tributary of Maddox Creek, a fish bearing stream. The southern vacant portion of the site drains west and south to a ditch at the east edge of the property. The ditch enters a culvert crossing I-5 at Sicklesteel Lane, outletting to the same tributary of Maddox Creek approximately 1/2 mile downstream. Per the 2005 DOE manual,

the project will need to provide stormwater detention to mimic predeveloped forested conditions in each of the site basins as well as basic and enhanced water quality treatment. Enhanced treatment is a level of stormwater quality for removal of dissolved metals and contaminants related to pollution generating surfaces like roads and parking lots.

An existing 48" public storm sewer, within an existing 15 foot public storm drain easement, cuts across the middle of the site from west to east and routes south along private property to cross Suzanne Lane. The 48" public storm sewer will be re-routed south along Old Highway 99 and then east along Suzanne Lane in easements along the project frontage. An existing 35 foot storm drain easement along Old Highway 99 will remain and a new 20 foot easement adjacent to the existing right-of-way.

Site stormwater will be routed to on-site surface detention ponds where feasible. Due to limited grades onsite and site layout the proposed site is divided into two basins, East and West. The West basin, approximately 65% of the total site, will be collected and routed to a linear 100,000 cubic foot detention pond that runs north-south along the west frontage with Old Highway 99. The East basin will collect stormwater from the remaining 35% of the site, generally the south east, and will drain to a series of hydraulically connected detention ponds totaling approximately 52,000 cubic feet of storage. Stormwater runoff from roof surfaces and landscaping will be routed directly to the surface ponds. Runoff from the loop road around the site and the Sally Port area will be collected in stormwater quality catch basins that are rated for enhanced level filtration prior to discharging to the respective ponds. Surface runoff from parking areas will sheet flow into either bioretention facilities or compost amended filter strips, which are rated for both basic and enhanced stormwater treatment, before draining into the surface ponds.

Flow control catch basins will be installed at the south end of each pond and basin to control the flow rate of stormwater discharge into the public storm sewer system. Dynamic flow control devices will be installed within the flow control structures to provide efficient flow characteristics for high-frequency storm events. Dynamic flow control is approved by the Department of Ecology for use in site stormwater applications and effectively reduces the required stormwater detention volume by 25-30% over conventional flow control. Attenuated stormwater discharging from both pond systems will be piped into the 48" storm sewer that runs along Suzanne Lane and eventually discharges to Maddox Creek.

As noted above, the site will be filled to account for building within a floodplain. There is no mitigation or compensatory storage required for this fill, as the drainage basin planning efforts by the City have already accounted for it.

Temporary erosion control will be provided for the entire project site during construction. A Temporary erosion and sediment control plan (TESC) will be developed as part of the construction documents and will include design and details for current best management practices (BMPs) and the requirements of the National Pollutant Discharge Elimination System (NPDES) permit to prevent sediment migration and discharge of polluted stormwater outside the project limits.

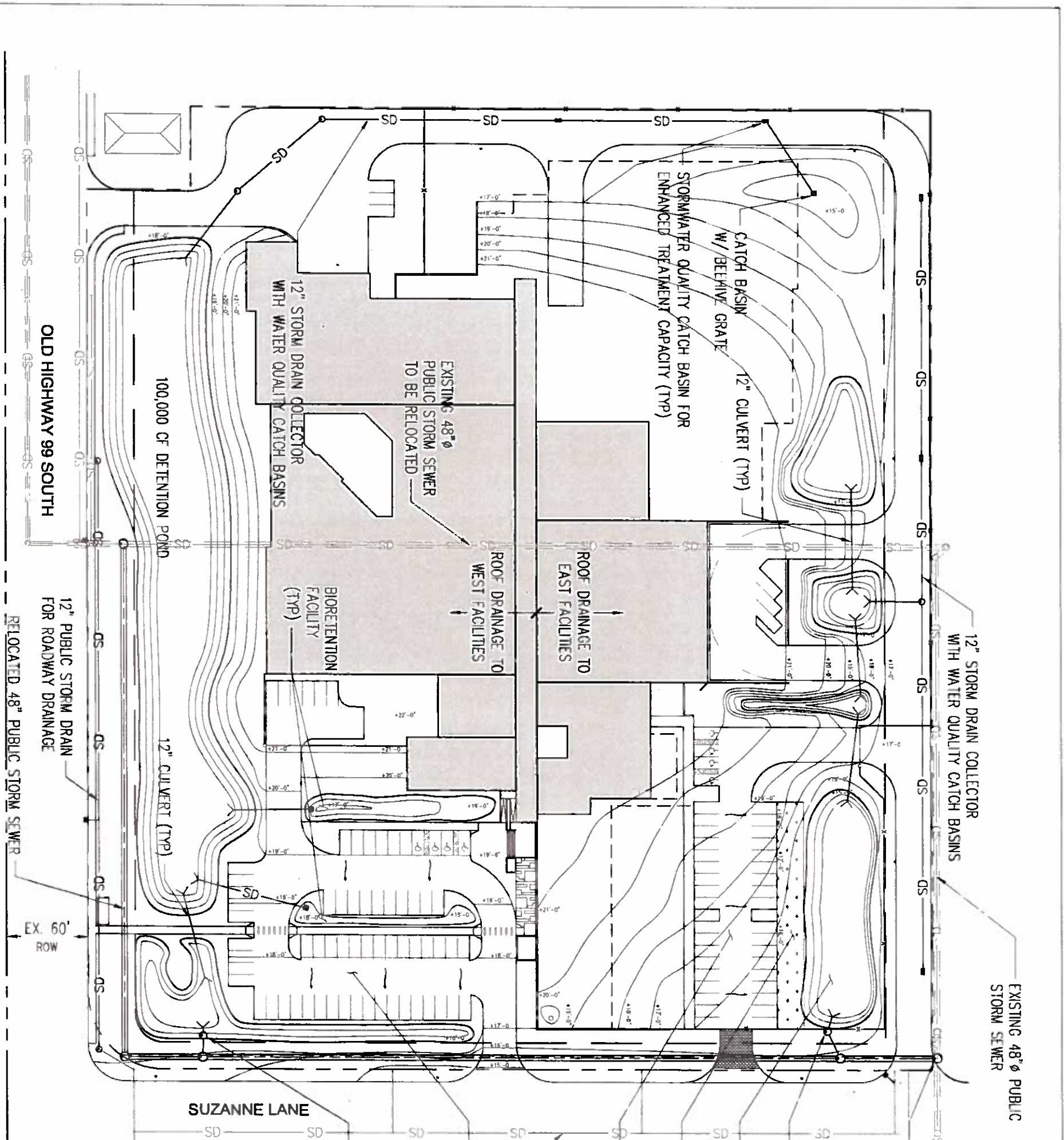
This narrative was prepared on July 2, 2014 by

Wade S. Watkinson, PE
206-926-0661

14-037
ATTACHMENT 2

RECEIVED
CITY OF MOUNT VERNON
JUL 03 2014

C.E.D. DEPARTMENT
BY _____



- EXISTING 48" PUBLIC STORM SEWER
- 12" STORM DRAIN COLLECTOR WITH WATER QUALITY CATCH BASINS
- EXISTING 48" PUBLIC STORM SEWER
- CONNECTION TO PUBLIC STORM SEWER
- DYNAMIC FLOW CONTROL STRUCTURE
- 52,000 CF DETENTION PONDS
- 20' WIDE COMPOST AMENDED FILTER STRIP
- EMPLOYEE PARKING SURFACE RUNOFF SHEET FLOWS TO FILTER STRIP FOR STORMWATER TREATMENT PRIOR TO DETENTION
- EXISTING 12" PUBLIC STORM DRAIN
- VISITOR PARKING SURFACE RUNOFF SHEET FLOWS TO BIORETENTION FACILITIES FOR STORMWATER TREATMENT PRIOR TO DETENTION
- DYNAMIC STORMWATER FLOW CONTROL STRUCTURE

LEGEND

- SD STORM DRAIN PIPE
- COMPOST AMENDED FILTER STRIP
- BOTTOM OF DETENTION POND
- TOP OF DETENTION POND



1 PROPOSED DRAINAGE PLAN

Scale: 1" = 40'
1 inch = 40 feet



EPF
1.04

07-02-14
NOT FOR CONSTRUCTION

kpff Consulting Engineers
1601 Fifth Avenue, Suite 1600
Seattle, Washington 98101-3665
(206) 622-5822 Fax (206) 622-8130

SKAGIT COUNTY JAIL
PROPOSED DRAINAGE PLAN

DLR Group
Architecture Engineering Planning Interiors
20482
07-02-14

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The proposed project will be completed in two phases. The majority of structures and site work will be completed within Phase 1. Phase 2 includes a second housing wing at the northeast corner of the site and corresponding site revisions accounting for grading and site circulation. Stormwater runoff from this area will increase as a result of grass areas in Phase 1 becoming impervious roof with Phase 2. Runoff from the Phase 2 addition will be routed to the Phase 1 pond on the west side of the site. The west pond will require additional storage to accommodate these flows. Additional storage potential will be graded

into the north end of the Phase 1 west pond, to be excavated with Phase 2. Minor modifications to the flow control structure and device at the south end of the west pond will also be required to accommodate the changes in stormwater discharge.

As noted above, the site will be filled to account for building within a floodplain. There is no mitigation or compensatory storage required for this fill, as the drainage basin planning efforts by the City have already accounted for it.

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