

**Appendix G**  
**Storm Water Management Plan**

# CAPITAL POWER ENERGY CENTER TWO TRAIN 1 X 1 COMBINED CYCLE POWER PLANT STORM WATER MANAGEMENT PLAN

B&V PROJECT NO. 180144  
B&V FILE NO. 34.1600

PREPARED FOR

Capital Power

5 SEPTEMBER 2013



PRELIMINARY

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## **Appendix A. Storm Water Site Drainage Drawings**

180144-DS-00001 Pre-Development Site Drainage Plan

180144-DS-00002 Post-Development Site Drainage Plan

# 1.0 Storm Water Management Plan

## 1.1 EXISTING STORM WATER SYSTEM

### 1.1.1 General

The Project is located adjacent to an existing generation station and the area is currently utilized as a laydown area with mostly impervious surfacing, consisting of aggregate surfacing and various buildings and pieces of equipment.

### 1.1.2 Unit 1, 2, and 3 Power Block

The current storm water collection system for the power block area, as depicted on Drawing # 180144-DS-00001 in Appendix A, includes a series of catch basins and ditches around the perimeter of the laydown yard. The surface drainage pattern allows the storm water to flow from the center of the site to the southwest and southeast where it ties into the perimeter storm water ditch. The perimeter ditch drains south at the southwest corner of the site, which then flows to the existing settling pond through a series of storm water ditches. The settling pond allows the sedimentation to settle out prior to discharging to the Genesee Cooling Pond.

### 1.1.3 Switchyard

The Project switchyard is located north of the Project power block. This area is also currently used for laydown and has aggregate surfacing. The site drains to the west from the southwest corner through storm water ditches along the perimeter of the site. Existing drainage ditches transport the runoff to the existing Cooling Water Intake Structure. See Drawing # 180144-DS-00001 in Appendix A.

## 1.2 PROJECT STORM WATER PLAN

### 1.2.1 General Design

Per the “Stormwater Management Guidelines for the Province of Alberta, January 1999”, the catch basin and piping system for the Project shall be sized to convey the flow from the 5-year storm event. The system will be designed such that the storm water runoff will not flood out of the catch basin inlets for a 25-year storm event, thus assuring that this will not cause flooding offsite. In addition the system will be designed to assure the storm water will not back up above the top of the equipment foundations for a 100-year event.

### 1.2.2 Unit 4 and 5 Power Block

The Project power block will utilize the existing drainage structures as much as feasible, see Drawing # 180144-DS-00002 in Appendix A. The perimeter storm water ditch will be replaced with a series of catch basins that will collect at the southwest corner of the power block and discharge to the existing drainage ditches to allow the runoff to flow to the settling pond. The storm water runoff from the existing power block drains to the Cooling Water Intake Canal, but it

was decided to discharge the storm water runoff from the Project power block to existing drainage ditches that flow to the existing settling basin. This will avoid release of silt, solids, and other foreign materials that could impact performance of the Project surface condensers, cooling water systems, firewater system, and service water systems. The water from the settling pond will discharge to the Genesee Cooling Pond. With minimal changes to the runoff coefficient of the site after development and maintaining the existing storm water drainage patterns, there will be little effect on the discharge rate to Genesee Cooling Pond.

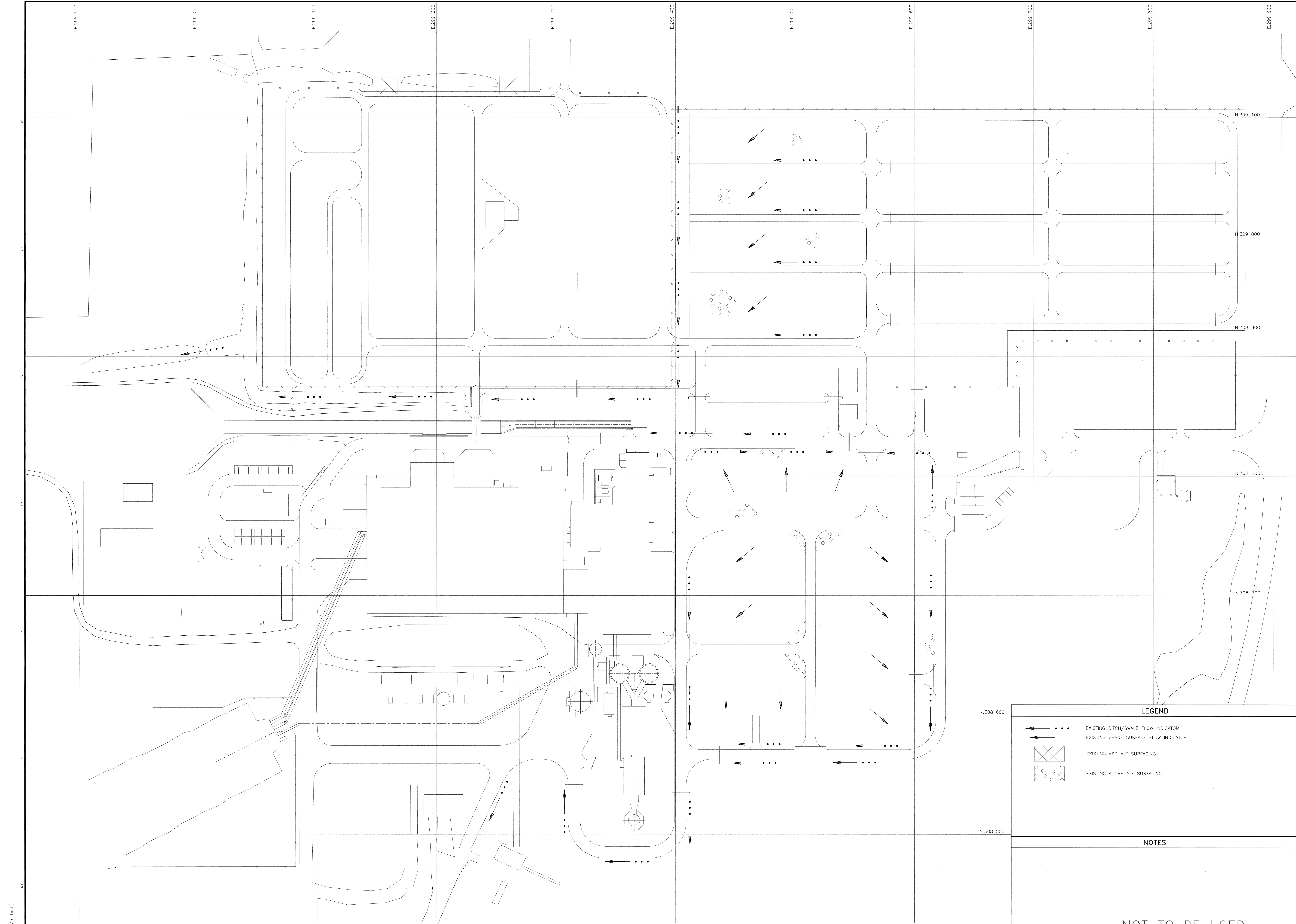
### **1.2.3 Switchyard**

The existing drainage plan will be maintained for the Project switchyard area. Crushed rock surface in the switchyard will act to minimize the release of any silt or foreign materials into the cooling water system. The switchyard will be graded to drain the overland flow to the west, and follow the existing drainage ditches to discharge to the Cooling Water Intake Structure. See Drawing # 180144-DS-00002 in Appendix A.

### **1.2.4 Equipment Oil Spill Management**

All equipment containing 55 gallons of oil or more will have a secondary containment system to contain any potential oil spills. The containment will be sized to hold the largest possible spill in addition to the rainfall from the design storm water event and 10 minutes of fire protection flow. Each containment will be piped to an Oil/Water Separator, with the Separator effluent tying into the storm water collection system. Depending on the amount of secondary containment volume required, the volume can be locally contained with a manual valve, or the Oil/Water Separator can be utilized as part of the containment.

## Appendix A. Storm Water Site Drainage Drawings



**LEGEND**

- EXISTING DITCH/SWALE FLOW INDICATOR
- EXISTING GRADE SURFACE FLOW INDICATOR
- EXISTING ASPHALT SURFACING
- EXISTING AGGREGATE SURFACING

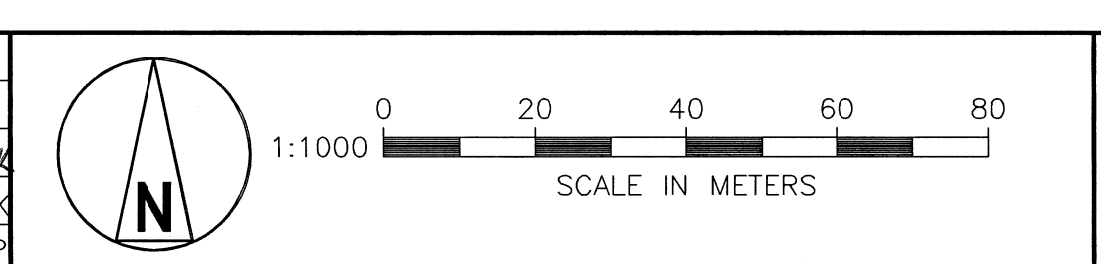
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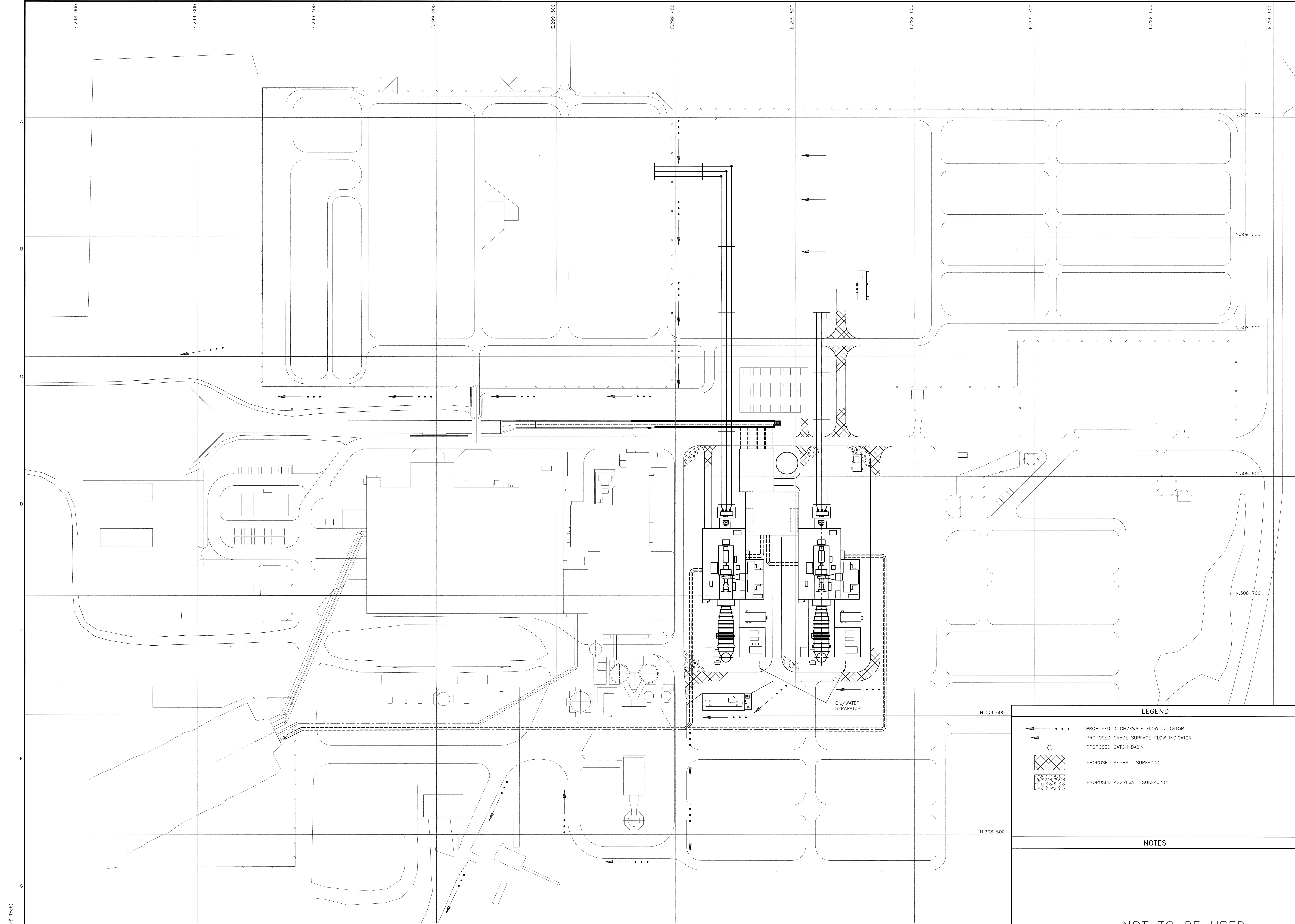
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PRE-DEVELOPMENT SITE DRAINAGE PLAN		CODE	AREA	





**LEGEND**

- PROPOSED DITCH/SWALE FLOW INDICATOR
- PROPOSED GRADE SURFACE FLOW INDICATOR
- PROPOSED CATCH BASIN
- ▨ PROPOSED ASPHALT SURFACING
- ▩ PROPOSED AGGREGATE SURFACING

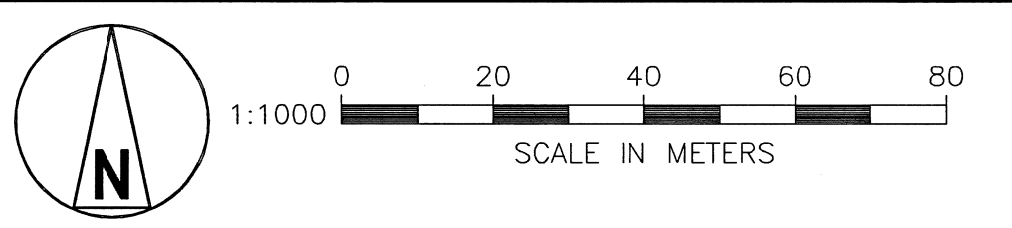
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POST-DEVELOPMENT	AREA			
SITE DRAINAGE PLAN				