OPERATION & MAINTENANCE MANUAL

DFI No. D00079
Facility Type: Detention Pond

JULY, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00079**
Facility Type:	Detention Pond Facility
Construction Drawings:	(V-File Number) 37V-041 and 25V-039
Location:	District: 2A
	Highway No.: 047
	Mile Post: 68.36 / 68.40 (beg./end)
	Description: This facility is located on the northeast quadrant of the US26 (Hwy 047) and S.W. Cedar Hills Blvd Interchange. The facility is located within the cloverleaf of the westbound on-ramp to US26 from Cedar Hills Blvd.

2. Facility Contact Information

Contact the Engineer of Record, Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

Geo-Environmental Senior Hydraulics Engineer (503) 986-3365.

3. Construction

Engineer of Record:	ODOT Designer – Region 1 Tech. Center, Henry Minton Allen, (503) 731-8200
Facility construction:	April 2004
Contractor:	Mowatt Construction Company

4. Storm Drain System and Facility Overview

A detention facility is designed to control the quantity of runoff, by reducing the peak discharge and only detaining runoff for some short period of time. These facilities are designed to store and gradually release or attenuate stormwater runoff via a control structure or release mechanism, and completely drain after the design storm has passed. The most common detention facilities include:

- Dry ponds - these are depressed storage areas that store runoff during wet weather and are dry the rest of the time. Usually they are earthen depressions.
- Tanks - these are underground storage facilities that are typically constructed from large diameter pipe.
- Vaults - these are enclosed underground storage facilities. They are typically constructed from reinforced concrete.

This facility is located on the northeast quadrant of the US26 (Hwy 047) and S.W. Cedar Hills Blvd Interchange. The facility is located within the cloverleaf of the westbound on-ramp to US26 from Cedar Hills Blvd. Entrance to the facility may be obtained from an access road, adjoining Cedar Hills Blvd. just prior to the start of the on-ramp.

Runoff from the westbound US26 off ramp and a segment of the westbound US26 is captured by numerous inlets and conveyed into a series of water quality biofiltration swales (DFI D00080, D00081, D00082). The water is then discharged into the detention pond facility where it is detained. The outlet for the pond discharges into an 18-inch concrete storm pipe within S.W. Cedar Hills Blvd.

Stormwater flows from the facility via the outlet control structure's primary inlet (Type-"ME" inlet) which is connected to a downstream flow control manhole and the 18-inch stormwater conveyance system. Should the primary inlet become plugged with debris, and the water level rises, use of the secondary/auxiliary inlet (Type-"D" inlet) begins to occur. In the event both inlets become plugged an additional auxiliary outlet in the form of a siphon box is further available to allow stormwater to leave the facility via a direct connection to the flow control manhole, bypassing the inlets altogether.

A. Maintenance equipment access:
   Access to the facility can be obtained along S.W. Cedar Hills Blvd. A gravel access road is located at the southeastern side of the detention pond facility just prior to the start of the on-ramp.

B. Heavy equipment access into facility:

   ☒ Allowed (no limitations)

☐ Allowed (with limitations)
☐ Not allowed

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains

Photo 1: Looking southwest at the detention pond/basin, the access road and the outlet control structure.

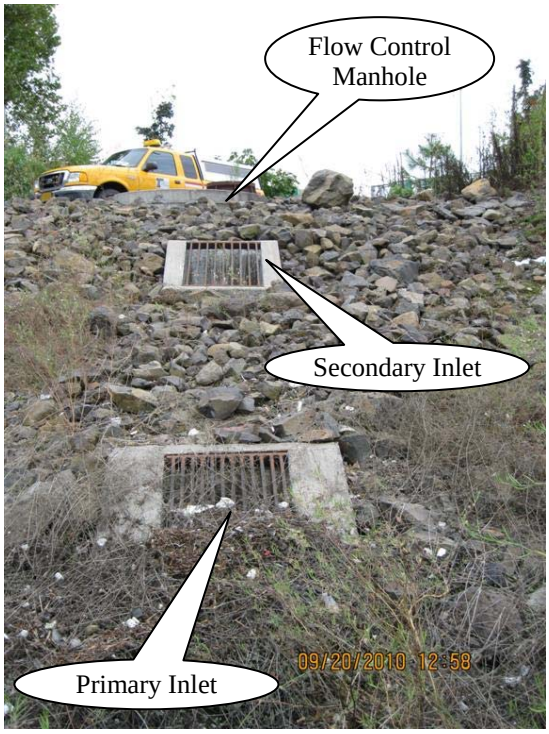


Photo 2: Outlet Control Structure comprised of both a primary and secondary set of ditch inlets, acting as the facility outlet with the flow control manhole in the background. All water entering the pond exits here.

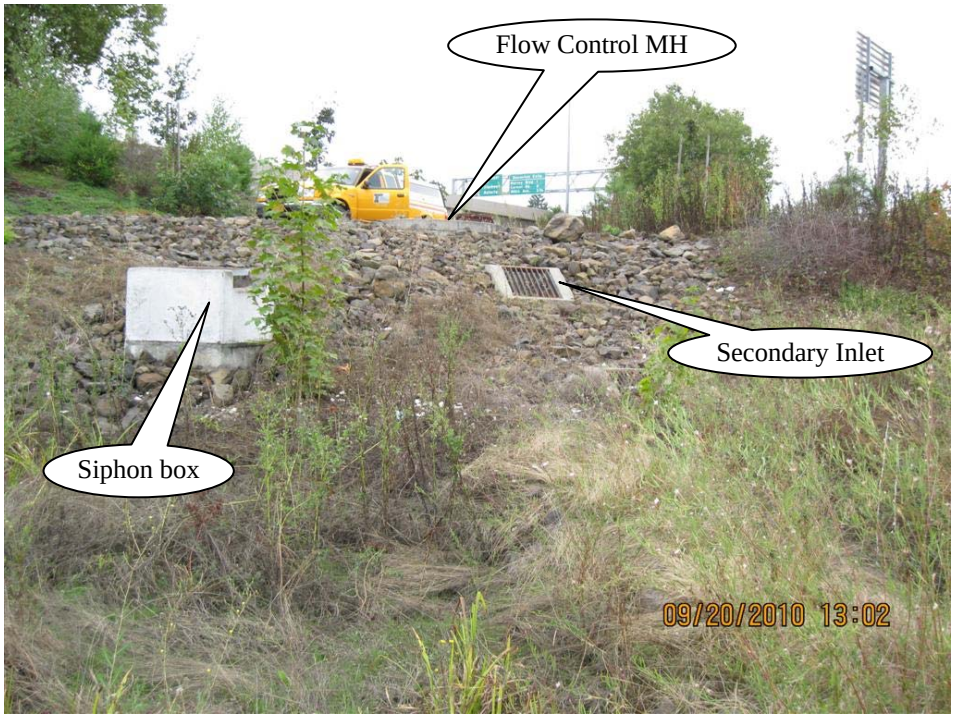


Photo 3: Outlet Control Structure including the high flow secondary ditch inlet, a flow control manhole and a siphon box to the left. All water entering the pond exits here.

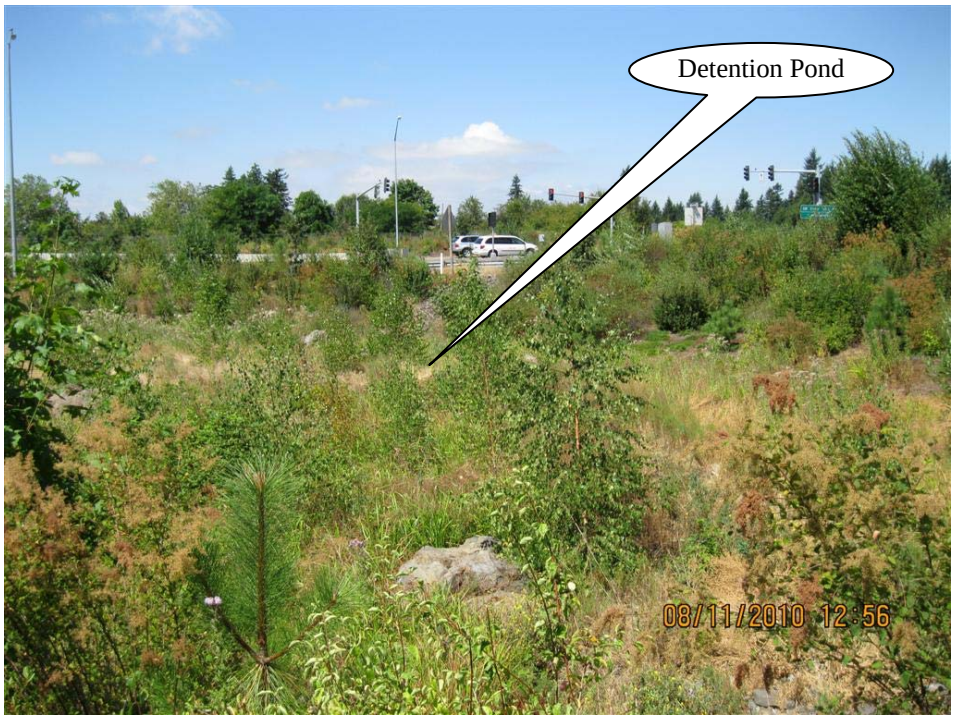


Photo 4: Looking east toward the detention pond.

5. Facility Haz Mat Spill Feature(s)

The detention pond can be used to store a volume of liquid by blocking the 18-inch diameter outlet pipe located at the outlet control structure of the detention facility. This pipe is associated with Points D and F on the Operational Plan, Appendix A. The use of a canal gate with operator will stop the flow of stormwater from leaving the pond. This gate is located within the flow control manhole, depicted as Point F on the Operational Plan, Appendix A.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure can not safely pass the projected high flows. Broad-crested spillway weirs and over flow risers are the two most common auxiliary outlets used in stormwater facility design. The auxiliary outlet feature is either a part of the facility or an additional storm drain feature/structure.

The auxiliary outlet feature for this facility is:

☒ Designed into facility
A secondary auxiliary inlet/outlet grated catch basin has been designed as part of the facility's outlet control structure, and acts as an emergency overflow in the event the primary outlet control device is plugged.

Before flows ever reach the higher level of the secondary inlet/outlet device, however, they are typically released through a primary inlet/outlet grated catch basin located below the secondary device. If runoff should ever exceed the water quality event, where flows normally are directed to the lower primary outlet, the pond level will rise and flows will be released through the secondary auxiliary inlet/outlet device located just above the primary outlet.

In the event the entire outlet control structure's primary and secondary inlets become plugged, an emergency overflow device, in the form of a siphon box, is located near the facility outlet; see Photo 3. This emergency overflow outlet is connected into the pond's flow control manhole which ultimately discharges flows into the 18-inch stormwater conveyance system within S.W. Cedar Hills Blvd.

☐ Other, as noted below

7. Maintenance Requirements

Routine maintenance table for non-proprietary stormwater treatment and storage/detention facilities have been incorporated into ODOT's Maintenance Guide. These tables summarize the maintenance requirements for ponds, swales, filter strips, bioslopes, and detention tanks and vaults. Special maintenance requirements in addition to the routine requirements are noted below when applicable.

The ODOT Maintenance Guide can be viewed at the following website:

http://www.oregon.gov/ODOT/HWY/OOM/MGuide.shtml

Maintenance requirements for proprietary structures, such as underground water quality manholes and/or vaults with filter media are noted in Appendix C when applicable.

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual or follow the Maintenance requirements outlined in Appendix C when proprietary structure is selected below:

☒ Table 1 (general maintenance)
☒ Table 2 (stormwater ponds)
☐ Table 3 (water quality or biofiltration swales)
☐ Table 4 (water quality filter strips)

☐ Table 5 (water quality bioslopes)
☐ Table 6 (detention tank)
☐ Table 7 (detention vault)
☐ Appendix C (proprietary structure)
☐ Special Maintenance requirements:

Note: Special maintenance Requirements Require Concurrence from ODOT SR Hydraulics Engineer.

8. Waste Material Handling

Material removed from the facility is defined as waste by DEQ. Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options: http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml

Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	503) 731-8304
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

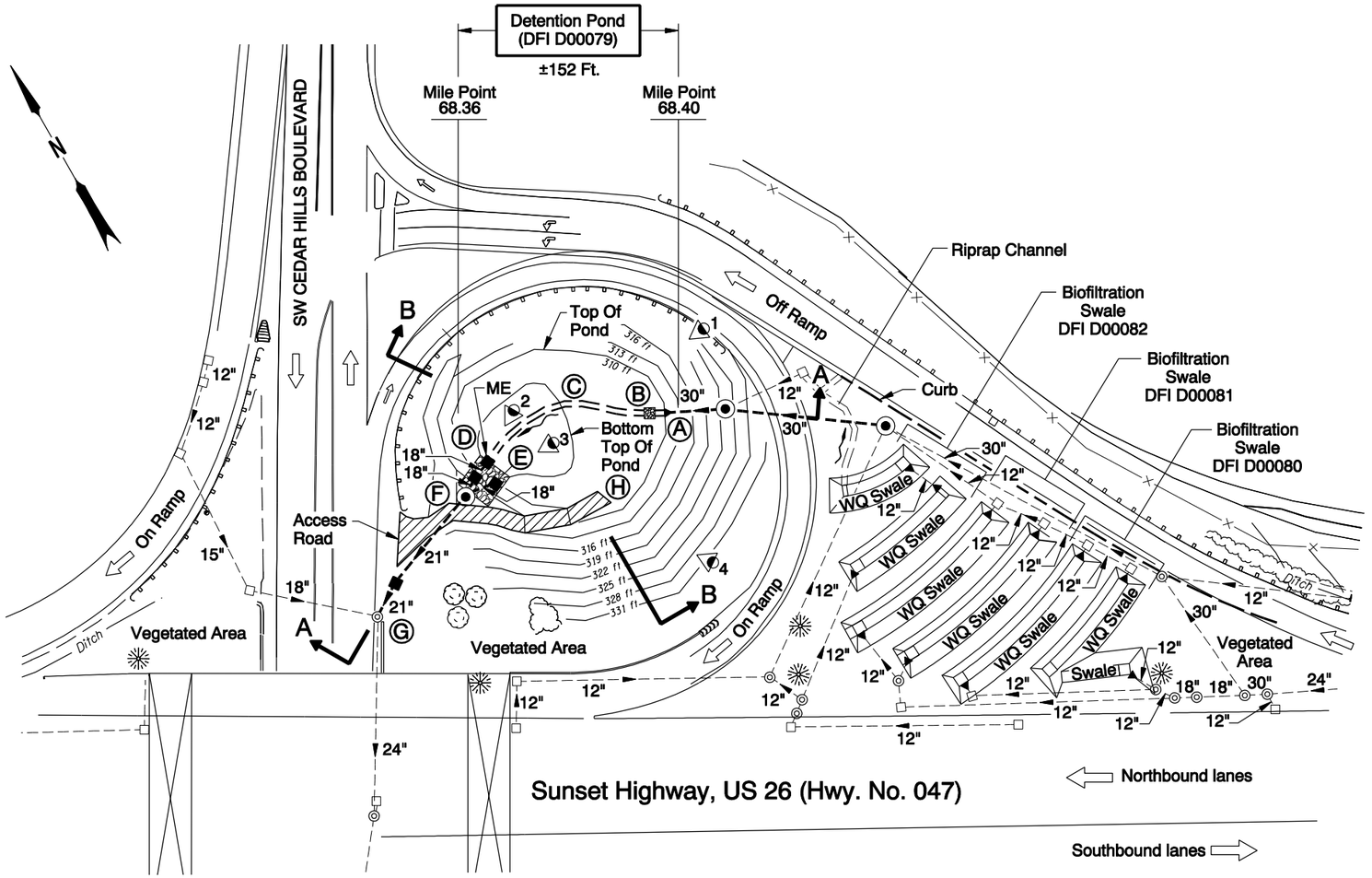
Content:

- **Operational Plan and Profile Drawing(s)**

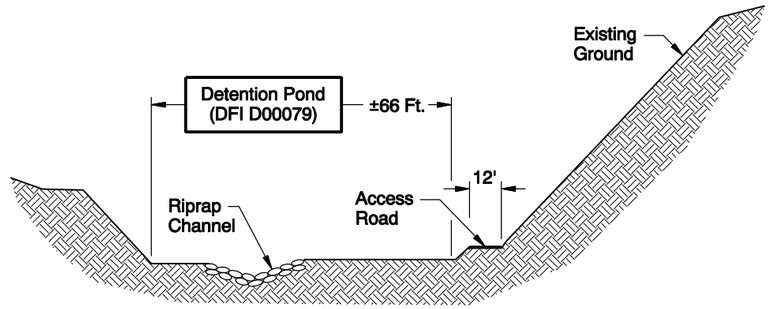
Appendix B

Content:

- **ODOT Project Plan Sheets**
  - ***Cover/Title Sheet***
  - ***Water Quality/Detention Plan Sheets***
  - ***Other Details***



PLAN
N.T.S.



SECTION B-B
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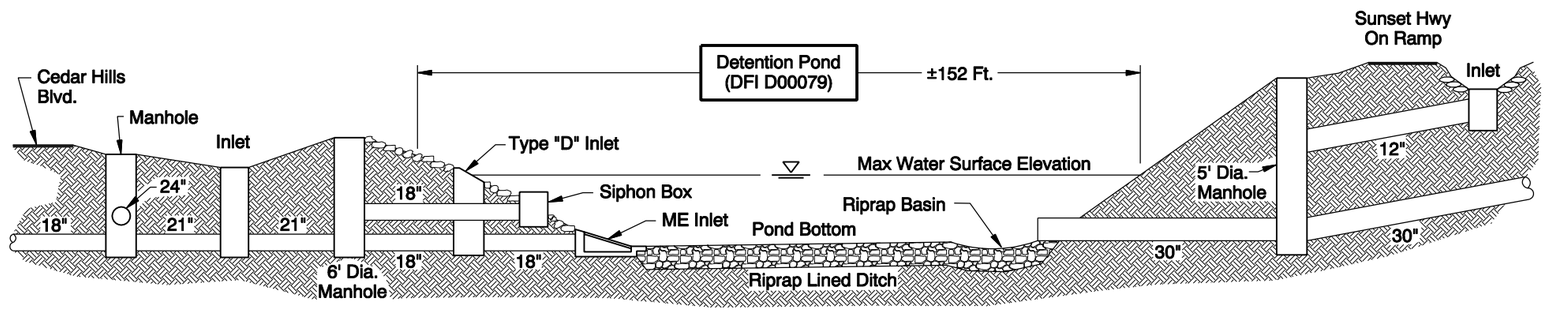


SECTION A-A
N.T.S.

LEGEND:

- Photo Location / Direction
- Ⓐ Pipe Outfall At Pond Inlet Into Riprap Lined Channel
- Ⓑ Riprap Basin
- Ⓒ Riprap Channel
- Ⓓ Outlet Control Structures In Riprap Blanket At Pond Outlet
- Ⓔ Siphon Box In Riprap Blanket
- Ⓕ Flow Control Manhole With Canal Gate
- Ⓖ Manhole Connection To Conveyance Line
- Ⓗ Access Road
- Fence, Right-Of-Way Boundary
- Riprap
- Guardrail
- Channel
- Manhole
- Inlet
- Access Area
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

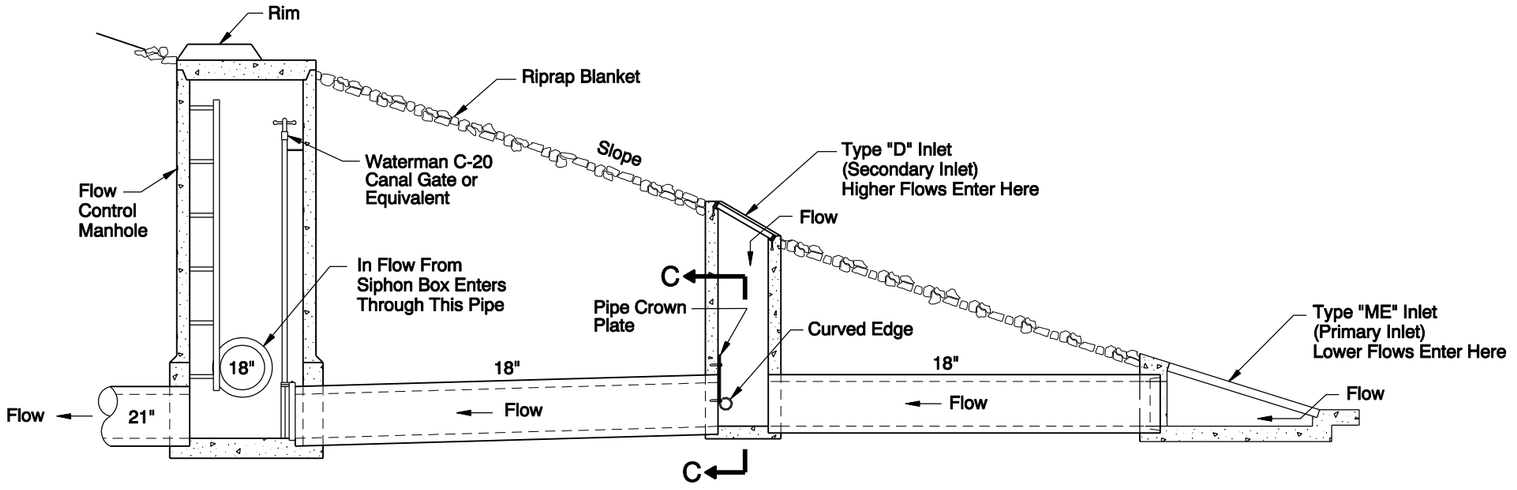
Sht. 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

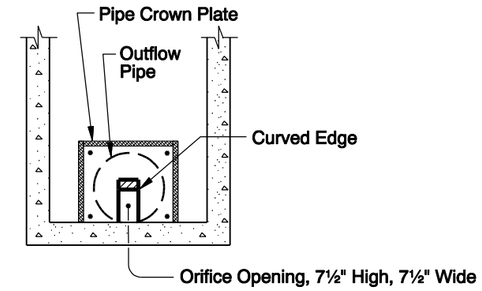
Prepared By: Wynee Hu

Drafted By: Jim Holeman

DFI D00079
MAINTENANCE DISTRICT 2A HWY 047
DETENTION POND
SUNSET HIGHWAY MP 68.40-68.36
WASHINGTON COUNTY

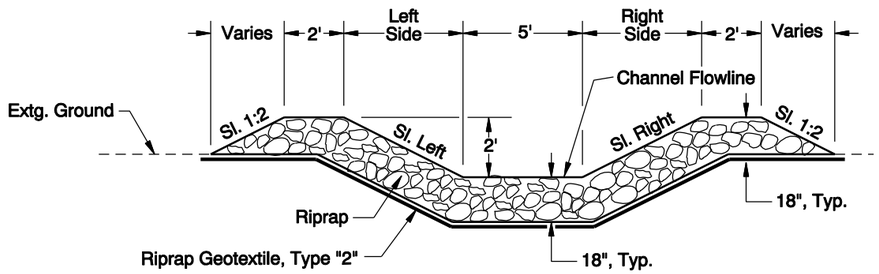


FLOW CONTROL MANHOLE WITH CANAL GATE PLUS OTULET CONTROL STRUCTURES DETAIL AT POINTS Ⓒ AND Ⓕ

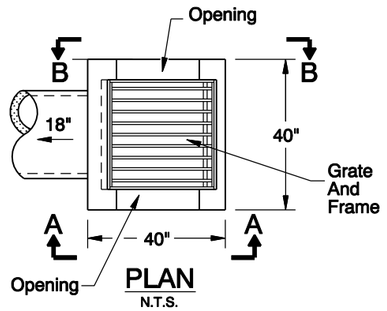


SECTION C-C

TYPE "D" DETENTION MODIFIED INLET



RIPRAP CHANNEL DETAIL AT POINT Ⓒ



PLAN
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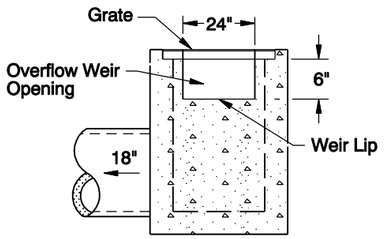

SECTION A-A
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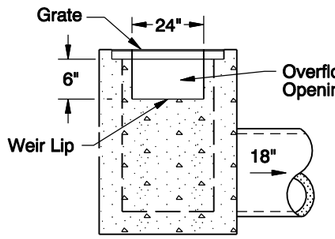

SECTION B-B
N.T.S.

SIPHON BOX WITH GRATE DETAIL AT POINT Ⓔ

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OREGON DEPARTMENT OF TRANSPORTATION

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Drafted By: Jim Holeman

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