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North Dakota Public Service Commission

Supplemental Information Filing #2

Hiland Partners Holdings LLC

Roosevelt Gas Plant Expansion Project

(PU-18-277)

Prepared by:
E3 Environmental, LLC

August 2018

Hiland Partners Holdings LLC
a Kinder Morgan company

Kinder Morgan, via its wholly owned subsidiary, Hiland Partners Holdings LLC (HILAND) has prepared an application for a Certificate of Site Compatibility for the Roosevelt Gas Plant Expansion Project (PU-18-277.) In support of this application, HILAND submits the attached documents. Attachments 3 and 5 have been prepared for the existing Roosevelt Gas Plant and will be revised to incorporate the expansion activities as appropriate.

Attachments:

Attachment 1: Agency Consultation Table and Agency Responses Received

Attachment 2: Unanticipated Discovery Plan

Attachment 3: Emergency Procedures Plan

Attachment 4: Noise Study Report

Attachment 5: Blast Radius Report

Attachment 6: Erosion Control Plan/SWPPP

Attachment 1: Agency Consultation Table and Agency Responses

Agency	Sent	Response Received	Comments Received
USFWS-Bismarck Office	June 5, 2018	June 19, 2018	Email response indicating no formal response would be provided.
North Dakota Game and Fish Department	June 5, 2018	June 29, 2018	No Concerns
North Dakota Department of Parks and Recreation	June 5, 2018	August 6, 2018	8/2/18: K. Schmidt with E3 Environmental, LLC (E3) contacted Kathy Duttenhefner at the ND Parks and Recreation office regarding the review of the project notification letter sent to her attention on June 5. Duttenhefner conducted a review of her records and was unable to locate the letter and requested that Schmidt email her the original notification letter; the letter was emailed for review on 8/2/18 directly to Duttenhefner. 8/6/18: Agency response received; no agency concerns were identified. Agency response is enclosed.
North Dakota Dept. of Trust Lands-Surface Management	June 5, 2018	August 3,2017	Received email stating that there are no concerns with the project. Agency response is enclosed.
North Dakota Dept. of Trust Lands-Minerals Management	June 5, 2018	June 8, 2018	No lands within Project Site, 2 areas within Study Area

Agency	Sent	Response Received	Comments Received
North Dakota State Historical Preservation Office	June 14, 2018	June 15, 2018	Concurrence Rcvd.
North Dakota State Water Commission	June 5, 2018	June 27, 2018	No concerns to address as there will not be any ground or surface water diverted for construction or operation of the Project. Additionally there will be no floodplains affected by the Project and no impacts to water resources are anticipated.
McKenzie County Weed Control Board	June 5, 2018	August 3, 2018	County requested that their Weed Plan be completed and sent back to the Board. The agency response is enclosed.
McKenzie County Water Resource District	June 5, 2018	Pending	Per phone conversation with Gene Veeder with the Water Resources district, no response received may be viewed, as the agency has no concerns, refer to the record of phone conversation. Phone record is enclosed.
Western Area Water Supply Authority	June 5, 2018	Pending	8/2/18: Schmidt attempted to contact the WAWSA via phone, no-one answered the call and no option to leave a message was provided. Schmidt will follow up again tomorrow 8/3. 8/3/18: Schmidt attempted secondary call, no answer and no message to leave a message was provided.

North Dakota Parks and Recreation Agency Response

Katie Schmidt

From: Duttenhefner, Kathy G. <kgduttenhefner@nd.gov>
Sent: Monday, August 6, 2018 3:24 PM
To: Katie Schmidt
Subject: RE: Consultation Letter: Hess Keene Oil Gathering Pipeline Conversion Project

Follow Up Flag: Follow up
Flag Status: Flagged

RE: Kinder Morgan-Roosevelt Gas Plant Expansion Project

Dear Ms. Schmidt

The North Dakota Parks and Recreation Department has reviewed the above referenced Kinder Morgan-Roosevelt Gas Plant Expansion Project in McKenzie County.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or affect Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has reviewed the project to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we do not have rare species or significant ecological communities documented within or adjacent to project site.

Because this natural heritage information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information, please contact me at (701-328-5370 or kgduttenhefner@nd.gov). Thank you for the opportunity to comment on this proposed project.

Sincerely,

Kathy Duttenhefner, Coordinator
Natural Resources Division

From: Katie Schmidt <KSchmidt@go2e3.com>
Sent: Thursday, March 29, 2018 2:34 PM
To: Duttenhefner, Kathy G. <kgduttenhefner@nd.gov>
Subject: Consultation Letter: Hess Keene Oil Gathering Pipeline Conversion Project

Kathy,

Good afternoon. My office sent the attached consultation letter to your office in November and I cannot find a record of receiving a response. We are preparing for the upcoming Public Hearing which is scheduled for 4/10 in Watford City. Could you review the attached and provide a response so we can provide the documentation for the ND PSC's purposes. Feel free to contact me directly with questions or concerns.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

North Dakota School Trust Lands Response

Katie Schmidt

From: Stegmiller, Joseph H. <jstegmiller@nd.gov>
Sent: Friday, August 3, 2018 10:33 AM
To: Katie Schmidt
Subject: RE: Kinder Morgan Roosevelt Gas Plant Expansion Project-Agency Notification Letter

Good Morning Katie,

The project area does not include any surface tracts that are managed by the Department of Trust Lands. Let me know if you have any questions.

Joseph H. Stegmiller
Natural Resources Professional
North Dakota Department of Trust Lands
1707 N 9th Street
Bismarck ND 58506-5523
PH: (701)328-1912

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Tuesday, June 5, 2018 11:48 AM
To: Stegmiller, Joseph H. <jstegmiller@nd.gov>
Subject: Kinder Morgan Roosevelt Gas Plant Expansion Project-Agency Notification Letter

Mr. Stegmiller,

On behalf or Kinder Morgan E3 is requesting review and comment from your agency regarding the proposed gas plant expansion activities for the existing Roosevelt Gas Plant in McKenzie County, ND. The proposed expansion activities will increase the processing capacity of the Plant exceeding the PSC's siting threshold. Attached you will find a consultation letter with maps and associated shapefiles. Should you have any questions feel free to contact me.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881

871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

McKenzie County Weed Control Board Response

Katie Schmidt

From: Amber Higgins <mcweed@restel.net>
Sent: Friday, August 3, 2018 6:22 AM
To: Katie Schmidt
Subject: RE: HIland/Kinder Morgan Roosevelt Gas Plant Expansion Project-Project Notification Letter
Attachments: Weed Management Plan - Copy.doc

Follow Up Flag: Follow up
Flag Status: Flagged

Katie-

Good morning! If you could print the attachment off, have it filled out and signed once I receive it and go over it I can approve it!

Amber Higgins
McKenzie County Weed Officer
Phone- 701-842-4131
Fax -701-8424731

From: Katie Schmidt [mailto:KSchmidt@go2e3.com]
Sent: Thursday, August 02, 2018 1:56 PM
To: Amber Higgins
Subject: HIland/Kinder Morgan Roosevelt Gas Plant Expansion Project-Project Notification Letter

Amber,

Good afternoon. As discussed, attached you will find a copy of the project notification letter that was mailed to your attention on June 5, 2018. I look forward to your response.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

Katie Schmidt

From: Katie Schmidt
Sent: Monday, August 13, 2018 1:48 PM
To: 'Amber Higgins'
Cc: McCraw, Andrew; 'Mott, Brady'; 'Jones, Richard'
Subject: RE: HIland/Kinder Morgan Roosevelt Gas Plant Expansion Project-Project Notification Letter
Attachments: Weed Management Plan - Copy (2).doc.pdf

Amber,

Attached you will find a Weed Control Plan for the Kinder Morgan/Hiland Roosevelt Gas Plant. Upon your review should you have any questions or concerns please let me know.

Thanks-Katie

Katie Schmidt, EIT
Senior Consultant
E3 Environmental, LLC
kschmidt@go2e3.com
O: 651.282.0652
M: 651.216.6881

From: Amber Higgins [mailto:mcweed@restel.net]
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To: Katie Schmidt <KSchmidt@go2e3.com>
Subject: RE: HIland/Kinder Morgan Roosevelt Gas Plant Expansion Project-Project Notification Letter

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St. Paul, MN 55102
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McKenzie County
Weed Management Plan

Date _08/13/2018_ **Circle One:** **PRIVATE** **COMMERCIAL**

Name of Landowner Kinder Morgan's Hiland Partners

Name of Party Responsible for Weed Control if Different than Landowner

George Stuckers – Plant Manager

Address of Responsible Party
Kinder Morgan Roosevelt Gas Plant
12527 Spring Creek Road
Watford City, ND 58854

Phone Number 701-444-5060

E-Mail george_stuckers@kindermorgan.com

Approximate Size of Property 26 acres

Legal Description of Property
Section- 30
Township- 149 North
Range- 98 West
County- McKenzie
State- North Dakota

Purpose of Property
Process Natural Gas

Surface Movement for Commercial Construction Purposes: Circle or highlight one

Scoria Manure Dirt Sand Gravel Construction Other_____

Please list your management goals as they apply to this property:
This property is used for the processing of natural gas.
1.0 Management Goals:

1) To manage the spread of noxious weeds while developing an effective long term integrated weed management plan that implements chemical, cultural, biological and mechanical weed control.
2) To increase awareness and educate the employees of Kinder Morgan's Hiland

Partners Roosevelt Gas Plant about the impact of noxious weeds, the North Dakota Noxious weed law and proper weed control techniques.

3) To build and implement programs that foster cooperative efforts between groups, agencies and individuals on noxious weed control issues.

1.1 Methods:

1) Mowing operations that prevent the weeds from growing into the seed producing stages.
2) Application of herbicides by a licensed third party at a minimum of once per year prior to peak growing season and, on an as needed basis due to changing conditions.
3) Annual consultation with the county Noxious Weed Board to proactively adapt this plan based on projected noxious weed germination.

2.0 Weed Control Objectives:

1) Learn which species of noxious weeds occur at Kinder Morgan's Hiland Partners Roosevelt Gas Plant. What threat those species pose to McKenzie County and Kinder Morgan's Hiland Partners Roosevelt Gas Plant.
2) Develop in consultation with the McKenzie County Weed Board the proper means for control and eradication of the noxious weeds encountered at Kinder Morgan's Hiland Partners Roosevelt Gas Plant.
3) Complete an "end of season" review with McKenzie County Weed Board to assess the effectiveness of each year's efforts.

3.0 Weed Control Objectives – 3 year plan

1st Year Weed Control Objective: Follow steps 1 and 2 from Weed Control Objectives plan as stated in 2.0. Complete an "end of season" review with McKenzie County Weed Board to assess the effectiveness of each year's efforts.

2nd Year Weed Control Objective: Continue to follow the Weed Control Objectives as stated in 2.0. Verify by a plant walk through that the objectives of the plan are effective and no new weeds have been identified. If so contact McKenzie County Weed Board to assess.

3rd Year Weed Control Objective: Continue to follow the Weed Control Objectives as stated in 2.0. Verify by a plant walk through that the objectives of the plan are effective and no new weeds have been identified. If so contact McKenzie County Weed Board to assess.

4.0 Evaluating Weed Control:
We will use Section 1.1 Step 3): "Complete an "end of season" review with McKenzie County Weed Board to assess the effectiveness of each year's efforts."

ND Law 4.1-47-02. Control of noxious weeds.

Each Person shall do all things necessary and proper to control the spread of noxious weeds.

In signing this document I understand that I will be responsible for noxious weed control on the property listed above.

Responsible Party GEORGE STUCKERS Date 8-13-18

McKenzie County
Weed Board Chairperson:_____ Date_____

Please allow 48 hours for review of this plan prior to receiving confirmation of approval.

McKenzie County Water Resource District Response

RECORD OF TELEPHONE CONVERSATION

Contact: Gene Veeder, Vice Chairman, McKenzie County Water Resource District	
Phone No: 601-444-2533 (City Hall, request Gene by name)	
Date: July 6, 2017	**Time:** 10:15 am CST
Prepared By: Katie Schmidt	
Subject: North Dakota Public Service Commission Project Notification Letter	

K. Schmidt contacted Mr. Veeder on July 6, 2017 in regards to the project notification letters sent as part of the North Dakota Public Service Commission (ND PSC's) siting process. The purpose of the letters are to provide the McKenzie County Water Resource District (District) notice of the proposed ND PSC jurisdictional project and allow the District the opportunity to provide comment.

Mr. Veeder acknowledged notification letters and stated that due to the volume of letters the District receives they only provide a response when they have a concern or comment. As such, the lack of response documents that the District does not have a concern or comment for a proposed Project.

Attachment 2: Unanticipated Discovery Plan

Hiland has submitted the Unanticipated Discovery Plan to the North Dakota State Historic Preservation Office for review and approval. Approval is pending.

IN SITU
Archaeological Consulting

2225 Manuela Drive
Chaska, MN 55318
Ph: 952-658-8891
Web: www.insitucrm.com

August 9, 2018

Susan Quinnell
Review & Compliance Coordinator
State Historical Society of North Dakota
Archeology & Historic Preservation Division
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830

Subject: An Unanticipated Discovery Plan on behalf of E3 Environmental, LLC.

Dear Ms. Quinnell:

I have attached to this letter one (1) copy of the unanticipated discovery plan prepared by E3 Environmental, LLC on behalf of Hiland Partners Holdings, LLC. In Situ Archaeological Consulting, LLC reviewed the plan and recommends it appropriate for this project. The plan, *Roosevelt Gas Plant Expansion Project Procedures for Unanticipated Cultural Resource Discoveries,* describes the procedures for any discovery of any cultural resources during the construction of the Roosevelt Gas Plant Expansion in McKenzie County. The North Dakota Public Service Commission is the lead agency for this undertaking and the unanticipated discovery plan will be reviewed by the NDPSC and North Dakota State Historic Preservation Office.

The project is located approximately 7.5 miles south of Watford City in McKenzie County, North Dakota. The associated Class I and Class III inventory was conducted in 2018 and reported in Manuscript #**2018-1030 PSC,** *Kinder Morgan Roosevelt Gas Plant Expansion Project: A Class I and Class III Cultural Resource Investigation in McKenzie County, North Dakota*.

Please let me know if you have any questions regarding the attached plan.

Sincerely,

Daniel M. Salas, M.S., RPA
Principal Investigator, Archaeology

Enclosure: 1

Roosevelt Gas Plant Expansion Project

Procedures for Unanticipated Cultural Resources Discoveries

Prepared for:

Hiland Partners Holdings LLC

Prepared By:

E3 Environmental, LLC

2018

E3 Environmental, LLC ™
871 Jefferson Ave
St. Paul, MN 55102

CONTENTS

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St. Paul, MN 55102

SECTION 1: INTRODUCTION

This Unanticipated Discovery and Monitoring Plan (Plan) presents procedures to be implemented in the event potential cultural resources are discovered during construction of the Hiland Partners Goldings LLC (Hiland) Roosevelt Gas Plant Expansion Project (Project) that is located in McKenzie County, North Dakota

Significant historical or archaeological artifacts or sites under the jurisdiction of the State of North Dakota or its political subdivisions are protected under Section 55-02-07 of the North Dakota Century Code (NDCC). Furthermore, NDCC Section 23-06-27 and North Dakota Administrative Code (NDAC) Section 40-02-03 provide special protection of human burial sites, human remains and burial goods. This Plan presents procedures for addressing potential cultural resource discoveries identified during the construction of the Project, including procedures for the initial treatment of discoveries, the evaluation and treatment of discoveries, and the treatment of human remains.

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SECTION 2: TRAINING

Training is necessary in order for construction personnel to recognize potential archaeological resources. All construction personnel will meet with Hiland representatives for basic training prior to participating in construction. This training will provide orientation regarding recognition of cultural resources as well as a general overview of the culture history of the region, so construction personnel are familiar with the types of archaeological resources that may be encountered during construction. The training will also outline the steps to be followed in the event of a potentially significant archaeological discovery during construction (e.g., the discovery of human remains). The following items will be reviewed within the program:

- Definition of a discovery and examples of discoveries;
- Steps towards discovery protection until such time as they can be properly evaluated by a qualified archaeologist;
- Proper notification of the appropriate Hiland personnel;
- Necessity of reporting discoveries in a timely manner and complying with the other stipulations provided in this plan;
- Need to treat any human skeletal remains that are encountered with dignity and respect; and
- Penalties for failure to report discoveries or to comply with the procedures outlined in this Plan.

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SECTION 3: UNANTICIPATED CULTURAL RESOURCE DISCOVERY PROCEDURE

3.1 Definition of an Unanticipated Cultural Resources Discovery

Cultural resource discoveries consist of evidence of human activity, more than 50 years old, with potential to yield data pertinent to regional history and prehistory. Prehistoric discoveries include, but are not limited to, features (small hearth features, housepit features, storage features, etc.), artifact concentrations (points), and activity areas. Historic discoveries include, but are not limited to, features (historic hearths, foundations, structures, old canals, roads, etc.), artifact concentrations (glass or pottery shards, trash deposits, abandoned equipment) and activity areas. Isolated historic artifacts or small concentrations of non-human bone will not be considered discoveries.

3.2 Procedure for Addressing Discoveries Identified by Construction Personnel

The following procedures will be initiated in the event unanticipated potential cultural resources are discovered.

- Construction activity that resulted in the exposure of the discovery will be **immediately** halted.
- The Construction Manager will be notified.
- A buffered area will be set up around the discovery. A minimum 50-foot (15 m) perimeter is recommended. Visual barriers such as temporary fencing are recommended. No ground disturbing activities, including vehicle traffic, are allowed within the area until the proper cultural resource evaluation has been completed.
- Hiland will notify and consult a professional archaeologist to review the discovery.
- During the review phase, suspension of all work and vehicle traffic in the buffered area is required. If the archaeologist determines that the discovery is non-cultural, Hiland will be notified and the halted construction activity can resume.
- If the discovery is deemed cultural and a field visit is required, no ground disturbing activities are allowed within the buffered discovery area until the field visit by the archaeologist occurs. During the field visit, the archaeologist will determine whether the discovery is potentially significant.

3.3 Procedure for Treatment of Discoveries by Professional Archaeologist

An archaeologist will review and fully record a discovery according to approved standards. The initial treatment of any discovery will consist of recording the location of

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the discovery; recording summary data concerning the feature(s) and/or other remains (including dimensions, qualitative characteristics, and associated remains); photographing the discovery and the overall context of the exposed material; and profiling trench walls containing cultural features or strata (where safe and prudent). The feature(s) will then be excavated and a sample will be collected for laboratory analysis as appropriate. Feature plans and profiles will be drawn. Features will be photographed. Uncollected feature fill will be screened using 0.25-inch mesh. If necessary, additional horizontal exposure of sediments/deposits around the feature may be investigated to evaluate the feature context.

When appropriate, the location around the discovered cultural material will be tested to determine the extent of the cultural material. Testing can include, but is not limited to, excavation of controlled units over and around the feature area or placement of test units and/or auger probes. Testing will be designed to identify the nature and extent of the discovery and any associated activity area(s) or other features, if present.

3.4 Special Procedures for Discoveries of Human Remains

Should human remains be encountered during construction of the Project, per the protocol outlined above, all work will be immediately halted at the general location of the discovery. The location will be immediately secured, including a buffer zone of 100 feet (30 m) surrounding the discovery. Construction personnel and vehicles will promptly vacate the buffer zone. Vehicle traffic within the buffer zone will be limited to that necessary to remove other vehicles and equipment from the buffer zone. Care will be taken to prevent any disturbance of the potential human remains during removal of vehicles and equipment. Until appropriate consultation has occurred, the discovery shall remain protected from any disturbance, such that no remains or associated artifacts are touched, moved or collected.

Following notification of the Construction Manager and the Hiland Project Manager, Hiland will immediately notify local law enforcement and the county coroner (see Table 1).

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St. Paul, MN 55102

Table 1: Project and Agency Contact Information

CONTACT	NAME	PHONE NUMBER
Hiland Construction Manager	TBD	O: M:
Hiland Project Manager	TBD	O: M:
Environmental Representative (on-site)	TBD	M:
E3 Environmental	Katie Schmidt	O: 651-282-0652 M: 651-216-6881
McKenzie County Sherriff	Gary Schwartzenberger	701-444-3654
McKenzie County Coroner	McKenzie County Medical Examiner & Coroner	701-770-4522
North Dakota State Historic Preservation Office	Paul Picha (Chief Archaeologist)	701-328-3574

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SECTION 4: STATE HISTORICAL SOCIETY COORDINATION AND REPORTING

If the discovery is deemed potentially significant, Hiland and the archaeologist will consult and coordinate with the State Historical Society to propose procedures for further treatment of the discovery, while minimizing impacts to the construction schedule to the extent possible. Suspended construction activities in the discovery area may not proceed until approval has been obtained from the State Historical Society and other involved agencies and parties.

A report detailing all cultural resources identified, recorded, tested and/or excavated during the construction phase of the Project, regardless of significance, will be prepared by the archaeologist and submitted to the State Historical Society for review within six months of project completion.

Attachment 3: Emergency Procedures Plan

KINDER MORGAN FIELD SERVICES LLC

(*dba* Roosevelt Gas Plant a Kinder Morgan Facility)

ACCOUNTABILITY

Name of Facility:	**Roosevelt Gas Plant**
Date of Initial Plan Development:	10-1-2015
Date of Last Review for Plan Accuracy:	05-01-2018
Date of Last Revision:	05/01/2018
Facility Operations Manager Name:	George Stuckers
Facility Operations Supervisor Name:	
Annual Review Conducted by: ***Signature:***	*George Stuckers* ***Date:*** 05/01/2018

REFERENCE

- NGBU O&M 1900, Emergency Response, Procedure
- NGBU O&M 1900-01 through 1900-17 Forms
- NGBU O&M 159, Emergency Reporting & Investigation, Procedure
- NGBU PSM 1201, Emergency Planning & Response Program Procedures

DOCUMENTATION

- **Emergency**

  When an incident occurs, start documentation immediately. Recording facts as they occur assist company personnel and emergency responders manage the incident as part of the Incident Comment System. Accurate documentation is also critically important for incident investigations and learning root cause. Start documentation, refer to
  - **Tab 11 – O&M 1900-14, Emergency Response Site Health and Safety Plan, Form**
  - **Tab 11 – O&M 1900-05, Chronological Record of Emergency, Form**

- **Plan Reviews**

  The Emergency Response Plan must be reviewed with all employees at least annually.
  - Document review on OM100-20 Training or Safety Meeting Attendance Record Form or equivalent.
  - Record "Last Review" date on page 1 of this form and any revision changes within the "Revision Table" within Tab 10.
  - Print and insert page 1 following annual review updating of dates.

- **Drills**
  - Facility: Compressor / Pipeline / Gathering

    Facility Supervisors / Managers will schedule annual area training reviews and or drills to determine effectiveness of the site-specific Emergency Response Manual.
    - Refer to O&M 1900, Section 3.12 – Emergency Response Manual Reviews / Drills
    - **Refer to Tab 9 – O&M 1900-13, Emergency Drill Form**
  - Facility: PSM / RMP:

    Facility Supervisors / Managers will schedule annual facility drills to determine effectiveness of the site-specific Emergency Planning and Response Program.
    - Refer to PSM 1201, Section 3.10 – Emergency Planning & Response Program Reviews / Drills
    - **Refer to Tab 9 – PSM 1201-01, Emergency Drill Report Form**

TABLE OF CONTENTS		
		Facility & Accountability
		Documents of Reference
		Documentation
		Table of Contents
Tab 1	**Section**	**NOTIFICATION**
	1.1	Information Contact and Verification of Plan
	1.2	Facility Personnel Responsibilities
	1.3	Emergency Records: First Facts • Tab 11 – O&M 1900-014 Emergency Response Site Health & Safety Plan, Form • Tab 11 – O&M 1900-05 Chronological Record of Emergency: First Facts, Form
	1.4	Bomb Threat Checklist • Tab 11 – O&M 1900-09, Bomb Threat Checklist, Form
	1.5	Information for Gas Control • Notification of Incidents Form • Information for Gas Control Form
Tab 2	**Section**	**CONTACT NAMES & NUMBERS**
	2.0	Primary Notification Contacts – Internal • Gas Control • Facility • Secondary (Facility)
	2.1	Facility (if no contact with primary)
	2.2	Additional Internal Support Emergency Numbers
	2.3	Emergency Contacts – External • Fire Departments • Civil Defense • Policy Departments • County Sherriff's • Highway Patrol • Hospital's • Ambulance
Tab 3	**Section**	**SITE SPECIFIC FACILITIES – GENERAL PLAN**
	3.0	Emergency Escape Procedures In case of fire in the Plant, all occupants in the Maintenance Shop, MCC/Control Room/Office will evacuate through the South Doors of the buildings putting the Buildings between you and the fire, and meet in Main Assembly Area. Making note of the Wind direction. The assembly area will change due to the wind direction. Note: All occupants have to wear FR Clothing at all times in the Maintenance Shop.
	3.1 3.1.1 3.1.2	Designated Reporting Areas • Field Facility • Processing Plant / Pipeline facilities
	3.2	After Work Hours Incident
	3.3 3.3.1 3.3.2 3.3.3	Plan to make Area Safe • People First, then Property • Notification • Implementation

	3.3.4	• Returning Facility to Service
	3.3.5	• Natural Disasters & Severe Weather Conditions
	3.3.6	• Disruption to Normal Operations
	3.3.7	• Catastrophic Failures
	3.3.8	Major Environmental Releases
	3.4	Natural Disasters and Severe Weather Conditions
	3.4.1	• Floods
	3.4.2	• Damaging Storms
	3.4.3	• Earthquakes
	3.4.4	• Weather Extremes
	3.4.5	Lightning & Wildfires
	3.5	Disruption to Normal Operations
	3.6	Unintended Valve Closure or
	3.7	Unscheduled Equip Shutdown
	3.8	Increase / Decrease in Flow Rate Out-side Normal Operations
	3.9	Major Accidents Involving Company Vehicles or Equip Owned by Contractors
	3.10	Bomb Threat
	3.11	Threats Against Employees or Company Facilities
	3.12	Facilities or Multiple Hospitalization Involving Employees or Members of the Public
	3.13	Disturbances or Damage to Company Property
	3.14	Disruption of Service to Customers (scheduled or unscheduled)
	3.15	Loss of Communication
	3.16	Gas Detected inside or Near a Building
	3.17	Catastrophic Failures and Damages
	3.17.1	Major Pipeline Ruptures • Ruptures ○ Facility Specific Releases ▪ Small Release ▪ Medium Release ▪ Large Release
	3.17.2	Major (Explosion) Fires • Small Fires • Medium to Large Fires
	3.18	Fire Located Near a Pipeline Facility
	3.19	Major Environmental Release
	3.20	Significant Destruction of Facilities
	3.21	Procedures for Critical Operations Before Evacuation
	3.22	Emergency Shutdown Device Locations
	3.22.2	Facility: Compressor / Pipeline / Gathering
	3.22.2	Facility: PSM / RMP Plants
	3.23	Facility Isolation
	3.23.1	Facility: Compressor / Pipeline / Gathering
	3.23.2	Facility: PSM / RMP Plants
	3.24	Restoration of Service
	3.25	Cathodic Protection

Tab 4	Section	RESOURCES
	4.0	On Site Emergency Response Equipment • Spill Containment • Fire Equipment • Other
	4.1	Contractors and Available Equipment • Trucking / Haulers • Non-Hazardous / Hazardous Oilfield Waste Disposal Facilities • Laboratories for Analysis • Emergency Response Contractors
	4.2	Off-Site Media Center • Kinder Morgan – Tulsa Office • Kinder Morgan – Stroud Office • Brief Description of Media Security Procedures
Tab 5	**Section**	**INCIDENT REPORTING – O & M 159**
	5.0	Facility: Compressor / Pipeline / Gathering
	5.1	Facility: PSM / RMP Plants
	5.1.1	PSM 1201 / 3.2.2 Employee Detecting or Receiving Emergency Notification
	5.1.2	PSM 1201 / 3.9 Post-Emergency Investigation & Critique
Tab 6	**Section**	**PLOT PLAN and / or PIPELINE MAP**
	6.0	Drawings & Maps • Roosevelt Gas Plant – ESD & Evacuation Plot Plan • Site-Specific Area Compressor / Pipeline / Gathering Maps
Tab 7		**FIRE PREVENTION**

	7.0	Fire Prevention Plan
		• O&M 111 Fire Prevention
		• Purpose
		• Scope
		• Training
		• Inspection & Maintenance
		  ○ Contractor Responsibilities
		  ○ Facility Responsibilities
		• Major Work Place Hazards
		• Proper Handling & Storage Procedures
		• Potential Ignition Sources
		• Fire Prevention

	7.1	Table 1 – Classes of Fire Extinguisher
	7.2	Table 2 – Facility Location of Fire Extinguishers / Agent / Type
Tab 8	**Section**	**SPCC PLAN**
	8.0	Site Specific SPCC Plan
Tab 9	**Section**	**EMERGENCY DRILL**
	9.0	Facility: Compressor / Pipeline / Gathering
	9.1	Facility: PSM / RMP Plants
Tab 10	**Section**	**EMERGENCY RESPONSE PLAN REVISIONS**
		Revision Table
Tab 11	**Section**	**ATTACHED FORMS**
		Tab 1 / O&M 1900-05, Chronological Record of Emergency, Form

		Tab 1 / O&M 1900-14, Emergency Response Site Health & Safety Plan Tab 1 / O&M 1900-09, Bomb Threat Checklist Form Tab 9 / O&M 1900-13, Emergency Drill Form Tab 9 / PSM 1201-01, Emergency Drill Report Form

TAB 1 NOTIFICATION

1.1 INFORMATION CONTACTS & VERIFICATION OF PLAN

For further information about the Emergency Response Plan, evacuation, response to emergency events or other information's regarding area / facility emergencies contact the following people:

NAME	TITLE	TELEPHONE	
Gary Yett	Director OPS	Office: Cell Phone:	405-792-6116 806-672-5061
Rick Bartlett	Manager OPS	Office: Cell Phone:	507-381-3141

1.2 FACILITY PERSONNEL RESPONSIBILITIES

NAME	TITLE	RESPONSIBILITIES DURING AN EMERGENCY
George Stuckers	Incident Commander	The Incident Commander is responsible for managing the emergency event, and will coordinate emergency response activities. ***Refer to O&M 1900 section 3.2.1 for complete list of responsibilities.***
Rick Bartlett	Incident Commander Alternate	
Additional Personnel available, as Situation Requires:		
David Kniffen	Site Safety Coordinator	The Safety Coordinator ensures site, public and employee safety, establishes the site safety plan, coordinates environmental response, maintains contact with the area/region EHS Coordinator and other EHS personnel as required, maintains contact with local, state and federal emergency response organizations, or other agencies as necessary.
George Stuckers	On-Site Coordinator	The On-Site Coordinator handles on-site activities.
George Stuckers	Logistics / Planning Coordinator	The Logistics/Planning Coordinator obtains necessary response equipment, materials, contractors, other company personnel, etc.
Johnna Driggars	Financial / Administrative Coordinator	Financial/Administration arranges for humanitarian assistance, lodging, meals, etc. and manages purchase orders, contracts, etc.
Other Facility / Area Personnel:		
	Operations Supervisor	
George Stuckers	Operations Manager	
	Rescue Personnel	Refer to site specific tabs for emergency response personnel

	Medical Personnel	Refer to site specific tabs for emergency response personnel
	Other Regional Personnel	Refer to site specific tabs for emergency response personnel

1.3 EMERGENCY RECORDS: FACTS

- When an incident occurs, start documentation immediately. Recording facts as they occur assist company personnel and emergency responders to manage the incident as part of the Incident Command System. Accurate documentation is also critically important for incident investigations and learning root cause. Always be mindful of the proper **Personal Protective Equipment (**PPE) for the type of emergency you are dealing with. At a minimum is the standard PPE as determined by the site specific PPE assessment.
- Start documentation, refer to:
  - **Tab 11 – O&M 1900-14, Emergency Response Site Health and Safety Plan Form**
  - **Tab 11 – O&M 1900-05, Chronological Record of Emergency, Form**

1.4 BOMB THREAT CHECKLIST

Refer to:
- **Tab 11 – O&M 1900-09, Bomb Threat Checklist, Form**

1.5 INFORMATION KINDER MORGAN FOR GAS CONTROL

Phone: 866-431-3635

- **NOTIFICATION OF INCIDENTS:**

Immediately upon completion of RECEIVING NOTIFICATION OF AN INCIDENT notify your supervisor and or Gas Control. Report the information recorded on the RECEIVING NOTIFICATION OF AN INCIDENT FORM as well as the following:

✓ Intensity and distance of the incident from our pipeline or facilities:

✓ Extent of damage to Company and/or third party property:

✓ Has there been any environmental damages/exposure:

✓ What response measures have been implemented:

✓ Is gas flow shutoff:

✓ Status and position of valves in effected area:

- **INFORMATION FOR GAS CONTROL FORM**

✓ Estimated duration of the incident:

✓ Names of Managers and Supervisors notified:

✓ Is medial involved:

✓ Has there been any evacuations of the public:

TAB 2 CONTACT NAMES & NUMBERS

When you note an emergency, call Supervisor and or Gas Control as soon as possible. Gas Control is prepared to notify appropriate Company personnel so that you may proceed with more urgent matters.

WARNING	***Anyone not directly involved in the emergency must refrain from using the Company radios and telephones or telephoning area/facility personnel unless absolutely necessary.***

2.1 PRIMARY NOTIFICATION CONTACTS – INTERNAL

PRIMARY NOTIFICATION GAS CONTROL		
Name	**Title / Positon**	**Phone Number**
Kinder Morgan Gas Control	24 Hour / Toll Free	Office: 866-431-3635 Office: Fax:
Note: For email communication, send to controller on duty.		

PRIMARY NOTIFICATION FACILITY		
Name	**Title / Position**	**Phone Number**
George Stuckers	Manager-OPS	Office: 701-444-5060 Cellular: 701-609-2461 Fax:
	Supervisor-OPS	Office: Cellular: Fax:
SECONDARY NOTIFICATION FACILITY (if no contact with primary)		
Name	**Title / Position**	**Phone Number**
Rick Bartlett	Manager-OPS	Office: Cellular: 507-381-3141 Fax:
Gary Yett	Director OPS	Cellular: 806-672-5061 Office: 405-792-6116
		Office: Cellular: Fax:

2.2 ADDITIONAL INTERNAL SUPPORT EMERGENCY NUMBERS

ADDITIONAL EMERGENCY NUMBERS			
Name	**Title**	**Phone Number**	
Jason Merritt	Operator	Office:	
		Cellular:	406-480-2272
Israel Lopez	Operator	Office:	
		Cellular:	360-807-3443
Sara DiFonzo	Damage Prevention Supervisor	Office:	701-580-7410
		Cellular:	701-580-8460
Donald Thomas	EHS Manager	Office:	713-420-3382
		Cellular:	
		Office:	
		Cellular:	

2.3 EMERGENCY CONTACTS – EXTERNAL

ALL REGULATED LINES ARE HIGHLIGHTED

Watford City System		
Agency	**Location**	**Phone Number**
Northern Border		800-447-8066 888-421-2875 opt #4
Agency	**Location**	**Phone Number**
Oneok		918-595-1588
Agency	**Location**	**Phone Number**
Fire Department		**911**
Alexander Fire Department	Alexander, North Dakota	701-828-3311
Watford City Fire Department	Watford City, North Dakota	701-444-3516
Williston Fire Department	Williston, North Dakota	701-572-2196
Agency	**Location**	**Phone Number**
Police Department		**911**
Watford City Police Department	Watford City, North Dakota	701-842-2280
Williston Police Department	Williston, North Dakota	701-577-1212
Agency	**Location**	**Phone Number**
County Sherriff		**911**
McKenzie County Sheriff	Watford City, North Dakota	701-444-3654
Williams County Sheriff	Williston, North Dakota	701-577-7700

Agency	**Location**	**Phone Number**
Highway Patrol	Williston, North Dakota	**911**
State Highway Patrol		701-774-4360
Agency	**Location**	**Phone Number**
Hospital	Watford City, North Dakota Williston, North Dakota	**911**
McKenzie County Hospital		701-842-3000
Mercy Medical Center		701-774-7420
Agency	**Location**	**Phone Number**
Ambulance	Watford City, North Dakota Williston, North Dakota	**911**
Ambulance Service		701-842-6364
Ambulance Service		701-572-3400
Agency	**Location**	**Phone Number**
Other		
McKenzie County Local Emergency Management Coordinator	Watford City, North Dakota	701-444-6853
Williams County Local Emergency Management Coordinator	Williston, North Dakota	701-577-7707
EPA Region 8 Response	Denver, Colorado	303-293-1788
North Dakota Emergency Management	Bismarck, North Dakota	800-472-2121 (in-state) 701-328-2121 (out-of-state)
North Dakota Oil and Gas Division	Bismarck, North Dakota	701-328-8200
North Dakota Department of Health	Bismarck, North Dakota	701-328-5210
American Red Cross	Fargo, North Dakota	701-364-1800
Federal Aviation Administration (FAA)	Bismarck, North Dakota	701-328-9650

TAB 3 SITE SPECIFIC FACILITIES

When responding to various types of emergencies, always take action to secure the safety of the people in the area first; then take steps to protect property and control the emergency. Always maintain a log of events in chronological order and preserve the emergency site condition to facilitate an investigation for the root cause of the emergency.

3.0 EMERGENCY ESCAPE PROCEDURES

Roosevelt Gas Processing Plant
Refer to: • **Tab 6 – Plot Plan** • **Tab 6 – Pipeline Maps**

3.1 DESIGNATED REPORTING AREAS

3.1.1 Facilities: Compressors / Pipelines / Gathering

When an incident occurs at a pipeline field facility, e.g. Compressor Station, Treating Facility, office, etc. such as unplanned venting of gas, explosion, fire, fire alarm, or other significant alarms **ALL** personnel at the site must report immediately to the main gate, (if safe), to be accounted for. The alternate meeting area is outside the facility gate upwind a safe distance as determined by Incident commander/designee.

3.1.2 Facilities: Processing PSM / RMP Plants

When an incident occurs at any of the area processing plant locations such as an unplanned venting of gas, fire, fire alarm, or other significant events, the personnel at that site must immediately gather at a pre-designated location to be accounted for utilizing the facility "Sign-In / Sign-Out Log" or equivalent. Personnel are then to immediately notify the Operations Manager or designee of the situation. The meeting area is outside the facility upwind a safe distance as determined by Incident commander/designee.

Roosevelt Gas Processing Plant
Wind Sock Location:
• One (1) Wind Sock on Top of API Tanks • One (1) Wind Sock on Top of Mole Sieve Vessels • One (1) Wind Sock on Top of Refrigeration Skid • Four (4) Green Wind Socks at Muster Points
Emergency Assembly Locations: (*Muster Points*)
Primary and Secondary emergency assembly locations have been established. If the Primary location is deemed unsafe or not accessible, proceed to the Secondary location. Remain at

assembly location until accounted for by plant person and provided further instructions.

- Primary Emergency Assembly Location:
  - Southeast Main Plant Entrance
- Secondary Emergency Assembly Location:
  - NE, NW, SW Corner of Plant Identified by Green Wind Socks

Plant Alarms

The following alarm descriptions are to be used for reference purposes only.

- Steady Siren:
  - All personnel, contract and plant, are to evacuate the plant through any of the egress gates and report to either the Primary or Secondary assembly locations
- Steady Horn Blast:
  - Steady horn blast that lasts for approximately ten (1) seconds is indicative of "Normal Plant Alarm"
  - NO emergency action is required
- All Clear Alarm (Dueling Banjos)– Plant is Safe to Enter

3.2 AFTER WORK HOURS INCIDENTS

When notified of an incident from Control Center or other sources, personnel should immediately notify the Operations Manager or designee and investigate for confirmation. Immediately, upon identification of suspected abnormal operation, contact Gas Control who will initiate the ERL process. If the nature of the incident cannot be confirmed, personnel are to remain near their usual phone for further instructions.

3.3 PLAN TO MAKE AREA SAFE

Take extra precaution, conduct work as safely as possible at all times and do not take unnecessary risk. The safety of the public, our employees and the environment will be our primary concern if any unforeseeable component malfunctions or if a deviation in normal operation's occurs, and/or the operation of any safety device that results in abnormal operations of the plant/ pipeline and/or facilities. In the event of medical emergency, personnel are expected to notify 911 if needed and render first aid to the level of training received.

3.3.1 People first, then Property:

The first employee detecting or notified of an emergency is responsible for: …Initiating defensive measures to control the emergency if these measures can be taken safely and only if the employee has been trained in emergency response, including the Incident Command System or has completed eight-hour Hazardous Waste Operations and Emergency Response (Hazwoper) operations level training.

- When responding to various types of emergencies, always take action to:
  - Secure the safety of the people in the area first; then
  - Take steps to protect property, and

Control the emergency.

-

3.3.2 Notification:

- If a deviation from normal operations and or activation of a safety device occurs that impact the safety of personnel, environment and or facility equipment, personnel shall notify Facility Management, or designee.

- Facility Management, or designee, shall evaluate the abnormal operations to determine severity, corrective and or evasive actions.

3.3.3 Implementation:

- The Incident Commander will initiate the ICS (Incident Command System) and follow the procedures as outlined within this Emergency Response Plan and within O&M 1900.
- For Site Specific Facility Personnel Responsibilities, refer to:
  - **Tab 1.2 – Facility Personnel Responsibilities**
- Activate the Emergency Plan as needed based on the Determining Reporting Levels outlined in O&M 159 Procedure and implement the response actions as outlined within this Emergency Response Plan and within O&M 1900.
- Have a blank form of the Chronological Record of Emergency: First Facts available to fill out. Refer to:
  - **Tab 11 – O&M 1900-05, Chronological Record of Emergency Form**
- Notify the appropriate Emergency Personnel as outlined in:
  - **Tab 2 – Contact Names & Numbers**
- For detailed escape routes, refer to:
  - **Tab 3.0 – Emergency Escape Procedure**
- Work with Gas Control to establish alternative gas supply to affected customers.
- Secure additional manpower, outside services, equipment and expertise as needed. Refer to:
  - **Tab 4 – Resources**.
- If an Emergency Shutdown or Isolation of a facility needs to be initiated, Refer to:
  - **Tab 3.6.1 – Emergency Shutdown Device Locations**
  - **Tab 3.7 – Facility Isolation**
- For field stations – use inlet & outlet valves of compressor stations.
- If rectifiers will need to be shut in, refer to:
  - **Tab 3.9 – Cathodic Protection**
- For onsite Emergency Response Equipment, refer to:
  - **Tab 4.0 – On Site Emergency Response Equipment**
- If the Media will be involved, refer to:
  - **Tab 4.2 – Off-Site Media Center Procedures**
- **No Service** is to be restored until all systems, sites, and / or conditions related to the site, facilities or the system have been deemed safe.

3.3.4 Returning Facility to Service:

- Notify the Director of Operations , Operations Manager and Gas Control of the following :
- Extent of the damage.
- Estimated time required to repair the equipment / facility.
- For purging and re-pressuring of pipeline and facilities, refer to:
  - O&M Procedure 227
- To restore the facility back to normal operations, refer to:
  - **Tab 6 - Pipeline Maps** for valves that need to be open or closed.

Roosevelt Gas Processing Plant
Refer to Roosevelt Gas Plant Operating Procedures – Startup Following Turnaround & Emergency Shutdown

3.3.5 Natural Disasters and Severe Weather Conditions:

- Floods
- Damaging Storms
- Earthquakes
- Weather Extremes
- Lightning and Wildfires

3.3.6 Disruption to Normal Operations:

- Non-Permitted Environmental/Chemical Releases
- Unintended Valve Closure or any Unscheduled Emergency Shutdown
- Increase or Decrease in Flow Rate Outside Normal Operations
- Major Accidents Involving Company Vehicles or Equipment Owned by Contractors
- Bomb Threat
- Threats Against Employees or Company Facilities
- Fatalities or Multiple Hospitalizations Involving Employees or Members of the Public
- Disturbances or Damage to Company Property
- Disruption of Service to Customers
- Loss of Communications
- Gas Detected Inside or Near a Building

3.3.7 Catastrophic Failures:

- Major Pipeline Ruptures or Fires

3.3.8 Major Environmental Releases

- If possible determine the type, quantity of material released and any hazards associated with the material. Employee should not endanger life or health for this information.
- The Person in Charge will, until being relieved by the Incident Commander, be responsible for implementing the Spill Prevention Control and Countermeasure (SPCC) Plan, refer to:
  - **Tab 8 – SPCC Plan**
- Significant Destruction of Facilities:
  - When responding to various types of emergencies, always take action to secure the safety of the people in the area first; then take steps to protect property and control the emergency. Always maintain a log of events in chronological order and preserve the emergency site condition to facilitate an investigation for the root cause of the emergency.

3.4 NATURAL DISASTERS AND SEVERE WEATHER CONDITIONS

3.4.1 Floods

- Necessary emergency actions may include:
  - Evacuation to protect the public or Company personnel.
  - Sandbagging facilities to protect them from rising water.
  - Incident Commander will work with Gas Control to take whatever steps are necessary to prevent interruption of gas transportation.

3.4.2 Damaging Storms

- If a damaging storm (hurricane, tornadoes, etc.) appears likely, affected personnel will be notified.
- If a damaging storm appears imminent the Incident Commander, or his designee, will evaluate the need to activate the facilities Emergency Blowdown System based on the severity of the damaging storm and the projected track of said storm. All employees will take shelter in the nearest office, a nearby ditch or any place that will offer protection from flying debris.
- After the damaging storm has passed, the Incident Commander or his designee will evaluate area to insure the safety of the personnel and will inform Gas Control of the condition of the facility.

3.4.3 Earthquakes

- If a significant earthquake occurs, all personnel are to exit any occupied buildings. The employees will meet at the Designated Reporting Area. The Incident Commander, or his designee, will blow down the station by operating the emergency blow down stand if deemed necessary.
- After the earthquake has subsided, Gas Control will be notified and a damage survey will be completed prior to any facilities being returned to service.

3.4.4 **Weather Extremes** (cold, blizzards, heat):

- The Incident Commander will work with Gas Control to take whatever steps are necessary to prevent interruption of gas transportation.
- Monitor all systems that may be affected by severe cold weather and take necessary steps to insure continued operation of equipment and facilities including:
  - Use Bruest heaters or other means to prevent freeze-offs of regulators in the fuel meter buildings and other areas deemed critical to operations of facilities.
  - Insulate above ground fuel, water, oil, glycol lines and other areas deemed critical.
  - Add methanol to control air lines and control gas lines to prevent freeze-offs.
  - Insure that control air lines, control gas lines, operators and relief valve outlets are free from ice, water, condensates and hydrocarbons.
  - Add portable heaters to keep engine oil warm.

3.4.5 Lightning And Wildfires

- If Company facilities are damaged by lightning or if Company facilities are damaged or threatened by wildfires, necessary emergency actions may include:
  - Working with local officials to determine the threat to Company facilities.
  - Blowing down facilities to protect the public and Company personnel.

- After the fire has been extinguished, Gas Control will be notified and a damage survey will be completed prior to any facilities being returned to service.

3.5 DISRUPTION TO NORMAL OPERATIONS

Non-Permitted Environmental / Chemical Releases

- If possible, using the SDS determine the type, quantity of material released and any hazards associated with the material. Employee should not endanger life or health for this information.
- The Person in Charge will, until being relieved by the Incident Commander, be responsible for implementing the Spill Prevention Control and Countermeasure (SPCC) Plan. Refer to SPCC Plan on file.

3.6 UNINTENDED VALVE CLOSURE

- The Person in Charge will, until being relieved by the Incident Commander, be responsible for attempting to locate the closed valve using pressure and flow information.
- When the closed valve is located use pressure gauges upstream and downstream of the valve to insure that the line has not ruptured. If the line has ruptured refer to the district specific plan for that situation.
- Insure that valves immediately upstream and downstream of the closed valve are open. Keep Gas Control informed of the status of valve positions.
- Visually inspect the valve and operator to make sure that it is in good working condition.
- Take the valve out of automatic service. Open the bypass around the valve to equalize pressure on both sides of the valve.
- After the pressures have equalized, open the mainline valve. Close and lock the bypass. Personal shall report to the Incident Commander the time that the valve was placed back in automatic service.

3.7 UNSCHEDULED EMERGENCY SHUTDOWN

- The Person in Charge will, until being relieved by the Incident Commander, be responsible for determining the cause of the shutdown.
- Facilities involved in the shutdown will be inspected to determine the cause of the shutdown and possible hazards to the public, Company personnel, equipment and facilities.
- Refer to the following procedures in Kinder Morgan Inc. Operating and Maintenance Manual

3.8 INCREASE OR DECREASE IN FLOW RATE OUT-SIDE NORMAL OPERATIONS

- Refer to section 3.6 above.

3.9 MAJOR ACCIDENTS INVOLVING COMPANY VEHICLES OR EQUIPMENT OWNED BY CONTRACTORS

- The employee involved in or notified of the accident will contact local authorities and the Operations Manager and, if applicable, the Contractor's supervisor immediately.

3.10 BOMB THREAT

- *Bomb threats shall be taken seriously!*

- Complete the information on the **BOMB THREAT NOTIFICATION FORM,** refer to;
  - **Tab 11 – O&M 1900-09, Bomb Threat Checklist, Form**
- Stay calm and do not panic.
- Signal another employee who can inform the District Manager or supervisor of the call.
- Attempt to keep the caller talking and obtain the following information:
  - Location of the bomb
  - Time of detonation
  - Appearance, size and kind of bomb
  - Purpose
  - Take notes (utilize the Bomb Threat Checklist)
- Notify appropriate fire, police, and other public officials.
- Evacuate people in the bomb threat area to a safe distance.

3.11 THREATS AGAINST EMPLOYEES OR COMPANY FACILITIES

Utilize the **BOMB THREAT NOTIFICATION FORM**, including notification of Gas Control and the Operations Manager.

- **Tab 11 – O&M 1900-09, Bomb Threat Checklist, Form**

3.12 FACILITIES OR MULTIPLE HOSPITALIZATIONS INVOLVING EMPLOYEES OR MEMBERS OF THE PUBLIC

- Notify Gas Control they will implement the ERL+
- Per Kinder Morgan Inc. Corporate Crisis Response Plan, in case of fatalities, the Crisis Management Team chairman or President & COO, Kinder Morgan Inc., will designate a senior company officer to go to the scene to represent the company to those affected by the incident, to the community and to the press.

3.13 DISTURBANCES OR DAMAGE TO COMPANY PROPERTY

- Disturbances or damage to Company facilities includes, but is not limited to:
  - Vandalism
  - Damage by third party excavation
  - Damage by non-company vehicles or equipment
  - Explosion Occurring Near or Directly Involving a Pipeline Facility
- The Person in Charge will, until being relieved by the Incident Commander, be responsible for determining the extent of the damage.
- The Incident Commander will be responsible for determining if the damage presents a danger to the public or Company personnel and notifying local authorities. If necessary, the Incident Commander will work with these local authorities to coordinate evacuation.
- Utilizing any Company or outside resources necessary, the Incident Commander will develop a plan to repair the damage and return the facilities to service as soon as possible.
- The Incident Commander will work with Gas Control to take whatever steps are necessary to prevent interruption of gas transportation.

3.14 DISRUPTION OF SERVICE TO CUSTOMERS (SCHEDULED OR UNSCHEDULED)

The Incident Commander will work with Gas Control and pipeline personnel to take whatever steps are necessary to restore service to customers as soon as possible. These steps may include the manning of facilities, rental of emergency generators, etc.

3.15 LOSS OF COMMUNICATIONS

The Person in Charge will, until being relieved by the Incident Commander, be responsible for notifying the Communication Technician and assisting him in determining the cause of the loss of communications. Cell phones will be utilized to maintain communications with Gas Control, field personnel and other affected parties.

3.16 GAS DETECTED INSIDE OR NEAR A BUILDING

- Evacuate people to a safe distance and see that anyone overcome by gas receives prompt first aid and medical attention.
- Eliminate all ignition sources in the danger area by:
  - Shutting off all pilot lights;
  - First Responders will knock on doors to alert residence; do not use telephone or doorbell;
  - Do not start vehicles in the danger area; and
  - Alert electrical utility for broad based power shut-off.
- Take necessary steps to block off the hazardous area to traffic and unauthorized persons, guarding against accidental ignition and possible injuries.
- Notify appropriate fire, police, and other public officials when assistance is needed.
- Use gas detection equipment to monitor gas migration in the danger area.
- Take steps to locate and eliminate the source of gas from the area.
- Contact Gas Control giving location and evaluation of the situation.
- Return facility to service as soon as possible.

3.17 CATASTROPHIC FAILURES AND DAMAGES

3.17.1 Major Pipeline Ruptures

- **Ruptures (Explosions**)
  - The Person in Charge will, until being relieved by the Incident Commander, be responsible for attempting to locate the rupture using pressure and flow information.
  - If a rupture has occurred, isolate that section of pipe. Extinguish open flames and smoking materials and obtain assistance from the fire department, police, public officials, etc. to:
    - Warn persons in the nearby area
    - Seal the area and reroute traffic
    - Evacuate the area immediately
  - Stop all vehicle engines within 200 yards, or more, of the escaping gas.
  - Insure that valves immediately upstream and downstream or the rupture are closed. Keep Gas Control informed of the valve positions and the status of the emergency.
  - If the ruptured pipeline is burning emergency response personnel are to be instructed to not attempt to put out the fire. They are to limit their firefighting activities to controlling secondary fires and the wetting down of nearby buildings to prevent the spread of the fire.
  - The Incident Commander will work with Gas Control to take whatever steps are necessary to prevent interruption of gas transportation.

Roosevelt Gas Processing Plant

Facility Releases: Facility will Evaluate all Product-Release Emergencies.

Small Release – Definition:

- Little or no Danger to People or Property
- Safe to Continue Operation
  - A small release will not usually present a significant hazard in an open area.
  - Vapors generally disperse in the air as they form.
  - A small release may cause a hazardous condition if the vapors collect in a confined space in quantities sufficient to form a flammable mixture.
  - Detection of a small release may be difficult and an explosion meter should be used in any suspicious area.

Small Release – Procedure:

- Determine location of release – isolate if necessary
- Advise Facility Management and obtain agreement on proposed repair action.
- Contact appropriate personnel for repair
- Complete repair – document

Medium Release – Definition:

- Potential Danger to People and Property
  - A medium release may be detected by ground stains, frost at release location, odor, visible vapors and or facility detection systems (gas detectors).
  - A medium release may not disperse within release area thus creating a very hazardous condition. Cold vapor, heavier than air, will tend to flow downwind and into depressions and form a flammable mixture with air.

Medium Release – Procedure:

- Determine Location of Release – Isolate if Necessary
- Shutdown System
- Report Release
- Implement Emergency Response Plan
- Evacuate

 ***WARNING***	***The danger of detonation exists for flammable part of the vapor-air plume form any source of ignition and all people should be kept away from the area to avoid injury.***

Large Release – Definition

- Hazardous Condition at Release Area
  - A large release may be detected by Gas Control, process control monitoring, odors, visible vapors and or facility detection systems (gas or fire detectors)
  - A large release will consist of an immediate outflow of liquid at the failure followed by intermittent slugs of liquid and vapor. About one-third of liquid will flash into vapor. The remainder will form a pool of super cooled liquid and vaporize as rapidly as the heat from the surrounding air and ground will permit.
  - Every effort should be made to prevent accidental ignition of the vapor plume.

Large Release – Procedure:

- Shutdown System

- Report Release
- Alert Local Agency – 911
- Implement Emergency Response Plan
- Evacuate

WARNING	***The danger of detonation exists for flammable part of the vapor-air plume form any source of ignition and all people should be kept away from the area to avoid injury.***

3.17.2 Major (Explosion) or Fires

- **Fires**
  - **Small Fires:**
    - If in your judgment the fire is not serious, (can be extinguished with one hand held fire extinguisher) attempt to put the fire out with a fire extinguisher.
  - **Medium to Large Fires:**
    - If in your judgment the fire is serious or cannot be put out after a brief attempt, operate the emergency blow down system and/or isolate the facility, leave the area and get assistance. Do not attempt to fight a major fire. If pipeline system is involved route qualified Company personnel to the proper valves to shut in or remove the gas supply and allow the fire to burn out. Do not attempt to put out a natural gas fire.

3.18 FIRE LOCATED NEAR A PIPELINE FACILITY

- Evacuate people to a safe distance and see that anyone injured in connection with the fire receives prompt first aid and medical attention.
- Take necessary steps to block off the area to traffic and unauthorized persons.
- Contact Gas Control and inform the controller on duty of the location and evaluation of the situation.
- If the fire is not serious, attempt to put the fire out with a fire extinguisher.
- If the fire is serious or cannot be extinguished after a brief attempt, notify appropriate fire and police departments for assistance.

3.19 MAJOR ENVIRONMENTAL RELEASE

- If possible, using the SDS, determine the type, quantity of material released and any hazards associated with the material. Employee should not endanger life or health for this information.
- The Person in Charge will, until being relieved by the Incident Commander, be responsible for implementing the Spill Prevention Control and Countermeasure (SPCC) Plan, refer to:
  - **Tab 8 – SPCC Plan**
- Significant Destruction of Facilities:
  - When responding to various types of emergencies, always take action to secure the safety of the people in the area first; then take steps to protect property and control the emergency. Always maintain a log of events in chronological order and preserve the emergency site condition to facilitate an investigation for the root cause of the emergency.

3.20 SIGNIFICANT DESTRUCTION OF FACILITIES

- The Person in Charge will, until being relieved by the Incident Commander, be responsible for determining the extent of the damage.
- The Incident Commander will be responsible for determining if the damage presents a danger to the public or Company personnel and notifying local authorities. If necessary, the Incident Commander will work with these local authorities to coordinate evacuation.
- Utilizing any Company or outside resources necessary, the Incident Commander will develop a plan to repair the damage and return the facilities to service as soon as possible.
- The Incident Commander will work with Gas Control to take whatever steps are necessary to prevent interruption of gas transportation.

3.21 PROCEDURE FOR CRITICAL OPERATIONS BEFORE EVACUATION

In the event of emergency, personnel will follow roles defined within this **EMERGENCY RESPONSE PLAN.**

Roosevelt Gas Processing Plant
• Roosevelt Gas Plant has NO ongoing Operations during an Emergency. • Refer to Roosevelt Operating Procedures – Emergency Operations

3.22 EMERGENCY SHUTDOWN DEVICE LOCATIONS

3.22.1 Facility: Compressor / Pipeline / Gathering

- Compressor Stations – Manual ESD buttons
- Pipeline – HP-ESD pressure sensing valves

3.22.2 Facility: Process PSM / RMP Plants

- Refer to Site Plot Plan which identifies ESD locations.
- Total Emergency Shutdown may be actuated manually with any one of the following devices:

Roosevelt Gas Processing Plant **Tab 6 – Plot Plan**
ESD Pushbuttons: (Manual Shutdown) • ESD 1 Main Drive Gate • ESD 2 Third Drive Gate • ESD 3 MCC/Control Room BLDG North Side • ESD 4 South West Man Gate • ESD 5 South Pipe Rack • ESD 10 Pig Receiver/Launcher • ESD 11 Second Drive Gate • ESD 12 North Pipe Rack • ESD 13 Y-Grade Storage MCC-4 BLDG • ESD 14 API Storage

- Emergency Shutdown may be automatically actuated by various automatic safety shutdowns.

Roosevelt Gas Processing Plant Tab 6 – Plot Plan
Flame Detectors: (Auto Shutdown) • Six (6) Fire Eyes in Main Compressor BLDG • Two (2) Fire Eye in Refrigeration Compressor BLDG
Gas Detectors: (Auto Shutdown) • Fourteen (14) LEL Detectors located in process areas throughout Roosevelt Gas Plant (see plot plan for locations) • Three (3) Open Path Combustible Gas Detectors (see Plot plan for locations)

- The Emergency Shutdown system is designed to isolate:
  - The plant vessels and piping from the inlet pipeline, the only valve that closes is the main valve at the inlet and outlet of the plant.
  - Upon initiation of an Emergency Shutdown, the following events occur almost simultaneously but not necessarily in the order shown:
    - The ESD pilot system is activated
    - Block valves on plant inlet/outlet shuts

3.23 FACILITY ISOLATION

3.23.1 Facility: Compressor / Pipeline / Gathering

Valves and taps closest to the FACILITY that may have to be closed to isolate the station because of an emergency are listed below:

- **Refer to: TAB 6 for pipeline map & sketch for identifying locations.**

ESD Valve Tag Number	Isolation Description
XV-1300A	Plant Inlet
ESV-4703D	Residue Sales to Northern Borders
ESV-9703	Product Sales to Oneok
ESV-1302-South	South field line to surge tank.

3.23.2 Facility: Process PSM / RMP Plant

Roosevelt Gas Processing Plant		
ESD Valve Tag Number	**Plant Location**	**Result of Activation**
ESD 6	Compressor BLDG East	Shut down all Residue & Overhead Compressors
ESD 7	Compressor BLDG West	Shut down all Residue & Overhead Compressors
ESD 8	Refrigeration Compressor BLDG	Shut down Refrigeration

	North	compressors
ESD 9	Refrigeration Compressor BLDG South	Shut down Refrigeration compressors

3.24 RESTORATION OF SERVICE

The Incident Commander will prepare a plan to restore service following an interruption that is due to an emergency. The restoration of service plan will include the following:

- ✓ Coordination with Gas Control
- ✓ Strict control of gas service to customers.
- ✓ Purging and re-pressuring of pipeline & plant facilities.
- ✓ Identifying and working with Gas Control to establish alternative gas supply if necessary.
- ✓ Securing additional manpower, outside services, equipment and expertise as needed.
- ✓ Establishing shifts or schedules to minimize the impact on customers and the system.
- ✓ If restoration of services involves revisions to any facilities, O&M Procedure 155 "Management of Change" must be followed.
- ✓ No service is to be restored until all systems, facilities and conditions are deemed to be safe.
- ✓ Restoration of service will take place only after the go ahead is given by the Incident Commander. This assures an overall look at the circumstance before service is restored

Roosevelt Gas Processing Plant
Refer to Roosevelt Gas Plant Operating Procedures – Startup Following Turnaround & Emergency Shutdown

3.25 CATHODIC PROTECTION

The following Cathodic protection rectifier installation(s) may need to be shut down during an emergency:

Name	Location
N/A	N/A

TAB 4 RESOURCES

4.0 ON SITE EMERGENCY RESPONSE EQUIPMENT

Equipment	Location
Spill Containment	
Spill Pack	Maintenance Shop and Lube BLDG
Fire Extinguishment	
Fire Extinguishers	47 total (Refer to Table Below and Plot Plan in for Fire Extinguisher Locations)
Control System Alarms	
Flame Detectors	Eight (8) total located in process areas throughout Roosevelt Gas Plant (Refer to plot plan for locations)
Gas Monitors	14 total located in process areas throughout Roosevelt Gas Plant (Refer to plot plan for locations)
Open Path Combustible Gas Detectors	Three (3) total located in process areas throughout Roosevelt Gas Plant (Refer to plot plan for locations)
Other	
First Aid Kits	Control Room/Main Office, Maintenance Shop, Main Compressor BLDG, Plant Pickup Trucks
Self-Contained Breathing Apparatus (SCBA)	No SCBA at Watford City Gas Plant
Automated External Defibrillator (AED)	No AED at Watford City Gas Plant
Fall Protection/Personnel Harness	Maintenance Shop

Roosevelt Gas Plant – Fire Extinguisher Locations			
Ext. #	**Serial #**	**Type / Class / Size**	**Location / Area**
1	A-93752535	Cartridge/BC Purple K/30lb	API TANKS
2	A-93752534	Cartridge/BC Purple K/30lb	API TANKS
3	B-68255001	Cartridge/BC Purple K/30lb	PIPELINE PUMPS
4	B-68254990	Cartridge/BC Purple K/30lb	RERUN PUMPS
5	B-68255011	Cartridge/BC Purple K/30lb	Y-GRADE STORAGE
6	B-68254993	Cartridge/BC Purple K/30lb	Y-GRADE STORAGE

7	B-13566581	Stored Pressure/ABC Halotron I/11lb	MCC 4
8	B-68255010	Cartridge/BC Purple K/30lb	HOT OIL HEATER
9	A-93754018	Cartridge/BC Purple K/30lb	CRYO SKID SOUTH SIDE
10	B-68255007	Cartridge/BC Purple K/30lb	NW CORNER PIPERACK
11	B-68254967	Cartridge/BC Purple K/30lb	REGEN HEATER
12	B-68255000	Cartridge/BC Purple K/30lb	HOT OIL SLOP TANK
13	B-68254989	Cartridge/BC Purple K/30lb	FLARE KNOCKOUT DRUM
14	B-68254997	Cartridge/BC Purple K/30lb	DEMETH PRODUCT COOLER
15	A-93754087	Cartridge/BC Purple K/30lb	COLD SEPERATOR
16	B-68254998	Cartridge/BC Purple K/30lb	EAST SIDE REFRIDGE SKID
17	A-93754086	Cartridge/BC Purple K/30lb	WEST SIDE OF REFRIDGE SKID
18	B-68254988	Cartridge/BC Purple K/30lb	EXPANDER COOLER FAN
19	A-93754088	Cartridge/BC Purple K/30lb	EXPANDER/COMPRESSOR
20	A-93753999	Cartridge/BC Purple K/30lb	WALK-UP NEAR REGEN SKID
21	B-68254991	Cartridge/BC Purple K/30lb	N/S PIPERACK NEAR REFRIDGE BLDG.
22	B-68255009	Cartridge/BC Purple K/30lb	WALK-UP NEAR STABILIZER SKID
23	A-93754000	Cartridge/BC Purple K/30lb	STABILIZER SURGE TANK
24	B-68255008	Cartridge/BC Purple K/30lb	RESIDUE/SALES METER SHACK
25	B-68254985	Cartridge/BC Purple K/30lb	NW CORNER SLUG CATCHER
26	B-68254987	Cartridge/BC Purple K/30lb	NE CORNER SLUG CATCHER
27	B-68255002	Cartridge/BC Purple K/30lb	WEST WALK-UP CAT WALK
28	B-68255006	Cartridge/BC Purple K/30lb	MIDDLE WALK-UP CAT WALK
29	B-68254994	Cartridge/BC Purple K/30lb	EAST WALK-UP CAT WALK
30	A-93796490	Cartridge/BC Purple K/30lb	LUBE OIL BUILDING
31	B-68255005	Cartridge/BC Purple K/30lb	RESIDUE 3
32	B-68254992	Cartridge/BC Purple K/30lb	RESIDUE 2
33	B-68254982	Cartridge/BC Purple K/30lb	RESIDUE 1
34	B-68254984	Cartridge/BC Purple K/30lb	MIDDLE OF COMPRESSOR BLDG
35	B-68254996	Cartridge/BC Purple K/30lb	OVERHEAD 3
36	B-68254999	Cartridge/BC Purple K/30lb	OVERHEAD 2
37	B-68255003	Cartridge/BC Purple K/30lb	OVERHEAD 1
38	B-68254986	Cartridge/BC Purple K/30lb	SW CORNER SLUG CATCHER
39	B-68254995	Cartridge/BC Purple K/30lb	SE CORNER SLUG CATCHER
40	A-93796533	Cartridge/ABC Dry Chem/30lb	SE DOOR SHOP
41	B-68255158	Cartridge/ABC Dry Chem/30lb	NE DOOR SHOP
42	A-32706708	Stored Pressure/ABC Halatron I/11lb	NORTH DOOR MAIN MCC
43	B-13566584	Stored Pressure/ABC Halatron I/11lb	EAST WALL MAIN MCC
44	A-32706699	Stored Pressure/ABC Halatron I/11lb	SOUTH DOOR MAIN MCC
45	B-04281451	Stored Pressure/ABC Dry Chem/5lb	SOUTH OFFICE DOOR
46	B-04287674	Stored Pressure/ABC Dry Chem/5lb	EAST OFFICE DOOR
47	B-04281441	Stored Pressure/ABC Dry Chem/5lb	NORTH DOOR CONTROL ROOM
48	B-04281477	Stored Pressure/ABC Dry Chem/5lb	OFFICE KITCHEN

49	B-68255169	Cartridge/BC Purple K/30lb	SW CORNER SHOP BLDG
50	A-93796534	Cartridge/BC Purple K/30lb	NW CORNER SHOP BLDG
51	A-93752511	Cartridge/BC Purple K/30lb	OUTSIDE COMPRESSOR BLDG EAST
52	A-93752510	Cartridge/BC Purple K/30lb	OUTSIDE COMPRESSOR BLDG WEST
53	B-68255157	Cartridge/BC Purple K/30lb	INLET BASKET STRAINERS
54	A-93754023	Cartridge/BC Purple K/30lb	PIG LAUNCHER WEST
55	A-93754009	Cartridge/BC Purple K/30lb	PIG LAUNCHER EAST
56	A-93754010	Cartridge/BC Purple K/30lb	REFRIDGE OIL COOLERS
57	A-93754020	Cartridge/BC Purple K/30lb	REFRIDGE BLDG SOUTH
58	A-93754016	Cartridge/BC Purple K/30lb	REFRIDGE BLDG NORTH
59	B-68255004	Cartridge/BC Purple K/30lb	Y-GRADE STORAGE WALKOVER

4.1 CONTRACTORS AND AVAILABLE EQUIPMENT

Additional contractor information including scope of services and available equipment is located in the District Office Contractor Agreement files.

Trucking / Haulers				
Vacuum Truck Services	**Vacuum Truck Services**	**Vacuum Truck Services**		**Vacuum Truck Services**
S&L Services Inc.	S&L Services Inc.	S&L Services Inc.	S&L Services Inc.	S&L Services Inc.
Dynamic Energy Services Inc.	Dynamic Energy Services Inc.	Dynamic Energy Services Inc.	Dynamic Energy Services Inc.	Dynamic Energy Services Inc.
Non-Hazardous Oilfield Waste / Hazardous and Non-Hazardous Waste Disposal Facilities				
		*HAZWOPPER		
		*HAZMAT		
Laboratories for Regulatory and Non-Regulatory Analysis				
Emergency Response Contractors				

4.2 OFFSITE MEDIA CENTER

Name of Media Center	**Address**	**Phone Number**
Kinder Morgan Corporate	1001 Louisiana St. Houston, TX / 77002	713-420-2600
Emergency Response Line (ERL)		886-855-5544
Name of Equipment Sources (Fax,	**Address**	**Phone Number**

phone, audio-visual, etc.)		
Meeting Room/Suites and all necessary equipment to set up a Media Center as stated above		
Brief Description of Media Security Procedures:		
All media personnel must have the proper credentials with them at all times. No media personnel will be allowed near the incident scene unless the incident commander allows site inspection. If Site inspection is granted media personnel will be accompanied by the designated company Representative at all times.		

Local Media	Contact	Phone	
		Office:	
		Office:	

4.3 POWER COMPANIES

Power Utility Companies	Contact	Phone	
McKenzie Electric Cooperative		Office:	701-444-9288
	After Hours	Office:	800-584-9239
Other	Contact	Phone	

TAB 5 INCIDENT REPORTING

5.0 FACILITIES: COMPRESSOR / PIPELINE / GATHERING

Incident reporting for all incidents follows:

- O&M 159 – Incident Reporting Procedures

5.1 FACILITIES: PSM / RMP PLANTS

Incident reporting for all incidents follows:

- O&M 159 – Incident Reporting Procedures

5.1.1 PSM 1201 / 3.2,2 Employee Detecting or Receiving Emergency Notification

- The first employee detecting or notified of an emergency is responsible for:
  - Actuating an Emergency Shutdown (ESD) if warranted (some emergencies don't require ESD)
  - Notifying emergency personnel (If necessary)
  - Notifying the person in charge or Gas Control, depending upon the site-specific ERP requirements
  - Initiating the site-specific ERP
  - Initiating defensive measures to control the emergency if these measures can be taken safely and only if the employee has been trained in emergency response, including the Incident Command System or has completed eight-hour Hazardous Waste Operations and Emergency Response (Hazwoper) operations level training
  - If the first employee has not completed emergency response training, including the training listed above, he/she shall not initiate defensive measures but shall complete notification procedures
  - Reporting all emergencies described in **O&M Procedure 159 – Emergency Reporting and Investigation** to a supervisor or, if the supervisor cannot be reached immediately, Gas Control

5.1.2 PSM 1201 / 3.9 Post-Emergency Investigation and Critique

Emergencies will be investigated per **O&M Procedure 159 – Emergency Reporting and Investigation**.

- The post-emergency investigation will determine the emergency's root cause and recommend any needed changes to prevent recurrence.
- The critique will assess emergency response effectiveness, the ICS and the action plan to determine whether the ERP needs to be improved.

TAB 6 PLOT PLAN and / or PIPELINE MAP

6.0 Drawings / Maps

Reference from Tab	Drawing or Map Name
3.0	Site-Specific Area Compressor / Pipeline / Gathering Maps
3.0	Plot Plan with ESD Locations

TAB 7 FIRE PREVENTION

7.0 FIRE PREVENTION PLAN – O&M 1900-17

Facility Location: **Roosevelt Gas Processing Plant**

PURPOSE

The purpose of this plan is to provide Company employees with a minimum standard for fire protection and prevention. This plan complies with the OSHA Fire Prevention Standard, Title 29 CFR 1910.38 (b). This program incorporates the Company's policy on fire prevention, training and maintenance, refer to:

- **O&M Procedure 111 – Fire Prevention**

SCOPE

The Facility Operations Manager is the program coordinator. His or her duties include:

- Supervising the program
- Scheduling training for Company personnel
- Purchasing and distributing portable fire extinguishers
- Assigning maintenance, inspection and testing duties
- Verifying that portable fire extinguishers inspection and maintenance and employee training are properly documented

TRAINING

All Company personnel will receive training regarding fire hazards of the materials and processes to which they are exposed as well as the care and use of portable fire extinguishers, fire extinguisher location and emergency action plan implementation.

- Annual refresher training
- Hands on training every five years

INSPECTION AND MAINTENANCE

Contractor Responsibilities:

- An approved contractor will inspect all portable fire extinguishers annually. This will consist of thoroughly examining each extinguisher's shell, gauge, hose and nozzle; weighing and retagging each fire extinguisher.
- An approved contractor shall conduct hydrostatic testing and scheduled maintenance (when required) for:
  - Dry Chemical and Halon fire extinguishers
  - CO_2 extinguishers
- All service, maintenance or hydrostatic testing information shall also be documented.

Facility Responsibilities:

- Facility personnel will visually inspect each fire extinguisher for readiness and proper location monthly. This inspection will be documented on each fire extinguisher inspection tag.

Major Work Place Hazards

When working with flammable and combustible materials (e.g. Petroleum Based Products), fires in the workplace pose a constant threat. At Company facilities the major fire hazards include, but are not limited to the following:

- Aboveground storage tanks
- Truck loading Facilities
- Piping and associated compressors, valves, fittings

- Buildings
- Vehicles

Proper Handling and Storage Procedures

Proper handling and storage procedures are outlined in:

- **O&M Procedure 119, Flammable and Combustible Liquid Storage**

Potential Ignition Sources

Potential ignition sources at Company facilities include but are not limited to the following:

- Electrical, including faulty wiring, motors, switches and lighting
- Matches and smoking materials, especially near flammable liquids and stored combustibles
- Friction, including hot bearings, misaligned or broken machine parts and poor adjustments of moving parts
- Hot surfaces, including exposure of combustibles to electric lamps, heating elements or hot metal
- Overheated materials, including abnormal temperatures and overheating of flammable liquids
- Open flames, especially near flammable vapors, natural gas, gasoline, condensate or other flammable materials
- Incompatibility of products, such as the mixture of fuels and oxidizers
- Spontaneous heating, such as scrap materials, oily waste and trash
- Cutting and welding in hot areas where sparks can ignite combustibles
- Lighting
- Static Charge

Fire Prevention

Facility personnel will be responsible for monitoring the accumulation of flammable and combustible waste materials and residues that contribute to fires.

- Flammable substances are those liquids, solids or gases that have flashpoints below 100° F. Some of the more common flammables are gasoline, natural gas, propane, methanol and certain paints, primers and thinners.
- Combustible substances are those liquids, solids or gases that have flashpoints greater than 100° F. Some of the more common combustibles include grasses, paper, wood, paint, certain lubricating oils and greases.

Good housekeeping and equipment maintenance are essential to keep fire hazards to a minimum. Listed below are housekeeping and maintenance requirements for controlling the supply and accumulation of flammables and combustible substances:

- Flammable liquids shall be stored in original or approved containers.
- Each flammable liquid container shall have a bonding and grounding cable attached between it and the receiving container while liquids are being transferred or dispensed.
- Oil-soaked rags shall be stored in UL approved covered metal containers.
- Scrap paper and wrapping or packing materials shall be removed from the work area immediately after unpacking. Waste receptacles shall be emptied daily and contents placed in the trash containers provided.
- Weeds and grasses will not be allowed to grow or accumulate around the outside of flammable storage facilities, compressor stations or regulator sets.
- Fire prevention signs shall be posted in conspicuous locations and kept in good condition as follows:

Sign Description	Locations to be Posted
EXIT	Posted above all EXIT doorways
NO EXIT	Posted above all NON-EXIT doorways
DANGER - NO SMOKING, MATCHES OR OPEN	Posted at entry point to plant

FLAMES	
DANGER – FLAMMABLE	Posted on doors of flammable storage cabinets
NO SMOKING	Posted in main office building
FIRE EXTINGUISHER	Signs posted or distinguishing markings above each fire extinguisher

- Fire extinguishers Class, Extinguishing Agent, Distance - see Table 1 below
- Fire extinguisher Locations, Size, Extinguishing Agent, Type – see Table 2 below
- Hot Work Permits will be issued according to
  - **O&M Procedure 103 – Hot Work**
- Insulate or protect hot surfaces that might be sources of ignition against fuel spillage or leakage.
- Using gasoline or condensate for cleaning agents is strictly prohibited.
- All Plant & Field employees are responsible for visually inspecting heat-producing equipment and ensuring that good housekeeping and equipment maintenance are being performed to keep fire hazards to a minimum.

7.1 Table 1 – Classes of Fire Extinguishers

Class	Definition	Recommended Extinguishing Agent	Max. Distance to Fire Extinguisher
A	Ordinary combustibles, wood, paper, cloth	Pressurized Water, Foray (ABC)	**75 feet**
B	Combustible and flammable liquids	Foray (ABC), Purple K	**50 feet**
C	Electrical equipment	Foray (ABC), Purple K, CO_2	**50 feet**
D	Combustible metals	Dry Powder	**50 feet**

7.2 Table 2 – Facility Location of Fire Extinguishers / Agent / Type

Location	# of Extinguishers	Size	Agent	Type
Pickups (Vehicles)	1	20 or 30 lb.	ABC or Purple K	Stored Press or Cartridge Operated
			CO2	Stored Press
Mechanic Trucks	1	20 or 30 lb.	ABC or Purple K	Stored Press or Cartridge Operated
			CO2	Stored Press
Welding Trucks	1	20 or 30 lb.	ABC or Purple K	Stored Press or Cartridge Operated
			CO2	Stored Press
Plant Processing Areas	Determined by plant size	20 and 30 lb.	Purple K	Cartridge Operated
			CO2	Stored Press
Offices	Determined by office size	Various	Determined by Hazard	Various types
Transmission Stations	Determined by station size	20 and 30 lb.	Purple K	Cartridge Operated
			CO2	Stored Press
Electrical equipment rooms and areas	Determined by room and area size	10 lb.	CO2	Stored Press

TAB 8 SPCC REQUIREMENTS

8.0 Site Specific SPCC Plan

Refer to:

- **SPCC binder at the facility main office in management's office.**

TAB 9 EMERGENCY DRILLS

Facility managers will schedule annual facility training reviews and / or drills to determine effectiveness of the site-specific Emergency Planning and Response Program. Facility managers will meet annually with local agencies to discuss pre-emergency planning and coordination.

9.0 FACILITY: COMPRESSOR / PIPELINE / GATHERING

Area / Facility Managers will schedule annual area / facility training reviews and or drills to determine effectiveness of the site-specific Emergency Response Plan. Reviews and drills will be defined in the site-specific ERP.

Emergency Drills shall be documented using the following form or equivalent:

- **Tab 11 – O&M 1900-13 – Emergency Drill Form**

Document reviews and or drills and keep on file three (3) years.

9.1 FACILITIES: PSM / RMP PLANTS

Facility Managers will schedule annual facility training drills to determine effectiveness of the site-specific Emergency Response Plan. Refer to:

- **PSM 1201 / 3.10 Emergency Planning and Response Program Reviews / Drills**

Emergency Drills shall be documented using the following form:

- **Tab 11 - PSM 1201-01 – Emergency Drill Report Form**

Emergency Drills are to be evaluated by at least one Evaluator from outside of the facility. Evaluators will represent EHS Professional, Operations Supervisor / Manager, Emergency Response Leader and or other Subject Matter Experts (SME's). Evaluations are documented within PSM1201-01 Emergency Drill Form and communicated to all affected personnel.

Evaluations that fail to meet drill or procedure satisfaction will require Action Items. All Action Items are documented within PSM1201-01 Emergency Drill Form. Action Items that may impose imitate danger to personnel and or facility that require budgeting and or engineering with extended lead times will be entered into a management tracking system, e.g. OpsInfo, Maximo, etc., for tacking to completion.

Completion of all corrective Action Items will be communicated to all affective personnel, including affective contractors and emergency response agencies and documented on PSM1201-01 Emergency Drill Form.

Documentation of Drills is to be retained for three (3) years. The facility will maintain on-site and off-site PSM records via the Company EDMS (Electronic Data Management System).

Documentation of Drills with Action Items requiring management system tracking will be retained for two (2) audit cycles or as per system record keeping protocol.

TAB 10 EMERGENCY RESPONSE PLAN REVISIONS

10.0 REVISION CHANGE RECORD

Revision Table				
REV	***DATE***	***DESCRIPTION OF MODIFICATION***	***MOC***	***BY***
0	3.27.2014	Initial Kinder Morgan Site-Specific Plan		*KG*
1	9.92.2015	• Reformatted Original Plan • Added Footer / Header • Added Table of Contents • Added documents for Reference • Added PSM / RMP Specific Paragraphs • Added PSM / RMP Facility Specific Tables for Data • Tab 3.17.1: Added Facility Specific Release Procedures for Small, Medium, Large Releases • Tab 7: Added sign requirement "NO-EXIT" • Tab 9: Added PSM / RMP Drill Requirement • Tab 9: Added PSM / RMP Drill Evaluator Requirement • Tab 9: Added PSM / RMP Drill Action Item Tracking • Tab 11: Added PSM Drill Form	2868	*KG / TKT*
2	11.30.2015	• Updated ERP for Roosevelt Gas Plant Site-Specific Information		*JCL Risk*
3	10/17/2016	Updated ERP per audit action item ID 29755 Updated contact info, 3.31, 3.32, 3.16. Updated fire extinguisher list.	15220	BG
4	12/07/2016	Annual review, updated contact information and numbers, added SDS reference to 3.5 and 3.19.	15684	BG
4.1	1/30/2016	Changed Daniel Salter to Ben Tupper for "Additional Emergency Numbers". Ben's training on the ERP completed on 1/30/2017 and uploaded to LMS.Changed "Isolation Description" ESV-1320 to ESV-4703D and added ESV-1302 South Field line to surge tank. No steps changed or added.	NA	BG
4.2	2/09/2017	Updated 3.3.1 with first employee defensive statemtent.	NA	BG
4.3	4/25/2017	Removed references to Jon Obergfell.	NA	BG
4.4	10/02/2017	Updated Contact Information – removed Allen Leavitt and added Israel Lopez	NA	BG
4.5	12/28/2017	Update contact information – removed Ben Tupper and added Jason Merritt	NA	BG
5.0	05/01/2018	Changed Manager OPS Mike Liebelt to Risk Bartlett and updated phone numbers.	19515	BG

TAB 11 ATTACHED FORMS

Reference from Tab	Form #	Name
Tab 1.3	O&M 1900-05	Chronological Record of Emergency
Tab 1.3	O&M 1900-014	Emergency Response Site Health & Safety Plan
Tab 1.4	O&M 1900-09	Bomb Threat Checklist
Tab 9.0	O&M 1900-13	Emergency Drill Form
Tab 9.0	PSM 1201-01	Emergency Drill Report Form

Attachment 4: Noise Study Report

Hiland will complete the requested noise study and supply the results upon request.

Attachment 5: Blast Radius Report

The Roosevelt Plant is currently and will continue to be subject to OSHA/EPA regulations for Process Safety Management and Risk Management Plan. These federal guidelines require Hiland to analyze both the worst case and an alternative release scenario for product release and ignition. This study has been undertaken and submitted to these agencies for the existing Roosevelt Plant and has been included in this submittal. By federal regulation this analysis is required for the expansion of the plant, but it is dependent on detailed engineering information of the actual equipment being installed. As the plant expansion is still in the engineering phase and all equipment has not been specified or procured yet, this calculation will not be performed until construction of the expansion has commenced. Hiland requests that this information be submitted the commission following permit approval but before the facility is placed in service.

RMP*Comp

RMP*Comp

Back

Estimated Distance Calculation

Estimated distance to 1 psi overpressure: 0.5 miles (0.9 kilometers)

This is the distance to the overpressure endpoint of 1 pound per square inch specified for this regulated substance under the RMP Rule.

Scenario Summary

Chemical Name	CAS Number	Quantity Released (pounds)
Butane	106-97-8	38357
Ethane	74-84-0	2964
Isobutane [Propane, 2-methyl]	75-28-5	107706
Methane	74-82-8	0
Pentane	109-66-0	23691
Propane	74-98-6	144904

Threat type: Flammable

Scenario type: Worst-case

Release type: Vapor Cloud Explosion

RMP*Comp

RMP*Comp

Back

Estimated Distance Calculation

Estimated distance to 1 psi overpressure: 0.1 miles (0.2 kilometers)

This is the distance to the overpressure endpoint of 1 pound per square inch specified for this regulated substance under the RMP Rule.

Scenario Summary

Chemical:	Propane
CAS number:	74-98-6
Threat type:	Flammable Gas
Scenario type:	Alternative
Physical state:	Liquefied under pressure
Release duration:	10 minutes
Release type:	Vapor Cloud Explosion
Release rate:	1049 pounds per min
Mitigation measures:	NONE

Assumptions about this scenario

Wind speed:	3 meters/second (6.7 miles/hour)
Stability class:	D
Air temperature:	77 degrees F (25 degrees C)

Attachment 6: Erosion Control Plan/SWPPP

Stormwater Pollution Prevention Plan for the Roosevelt Gas Plant Expansion, McKenzie County, North Dakota

July 2018

TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

LIST OF APPENDICES

Appendix

1.0 STORMWATER POLLUTION PREVENTION PLAN ADMINISTRATION

1.1 REGULATORY OVERVIEW

The U.S. Environmental Protection Agency controls stormwater and sewer overflow discharges through its National Pollutant Discharge Elimination System (NPDES) program and provides guidance to municipalities, and state and federal permitting authorities on how to meet stormwater pollution control goals as flexibly and cost-effectively as possible. Responsibility for implementation of these regulations has been delegated to the North Dakota Department of Health (NDDH), Division of Water Quality, through the North Dakota Pollutant Discharge Elimination System (NDPDES). NDPDES general permit NDR100000 applies to stormwater discharges associated with large construction activity and small construction activity, as defined in Title 40 of the Code of Federal Regulations, Parts 122.26(b)(14)(x) and (b)(15), respectively, and summarized below.

- Large construction activity includes clearing, grading, and excavation that disturbs a land area equal to or greater than 5 acres and includes the disturbance of less than 5 acres that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb 5 acres or more.
- Small construction activity includes clearing, grading, and excavation that disturbs a land area equal to or greater than 1 acre, and includes the disturbance of less than 1 acre that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb a total area equal to or greater than 1 acre and less than 5 acres.
- Discharges of stormwater from oil and gas exploration, production, processing or treatment operations, or transmission facilities composed of contaminated runoff by contact with or that has come into contact with any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

Stormwater discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) may be covered by NDR100000 as part of a related construction site. Similar facilities that will serve multiple projects or are commercial in nature must be covered by a different permit.

NDDH regulations require submittal of a complete application (Notice of Intent [NOI]) and development of a Stormwater Pollution Prevention Plan (SWPPP). Permit coverage becomes effective automatically 7 days after submittal of the NOI unless otherwise notified by the NDDH.

Construction activities potentially produce many different kinds of pollutants that may adversely impact stormwater. The goal of a SWPPP and the use of Best Management

Practices (BMPs) are to improve water quality by reducing pollutants in stormwater discharges. The main pollutant of concern with construction projects is sediment, which can become entrained in stormwater runoff following excavation and/or grading activities that remove the protective vegetative cover. When the stormwater runoff carrying these sediments reaches a lake or stream and slows down, the suspended sediments are deposited, and can choke the stream channel or cover areas where fish spawn and aquatic plants grow. The sediment can cloud surface waters and cause aquatic respiration problems, potentially resulting in the death of fish and plants in these systems. Further, sediment-laden stormwater runoff can adversely impact downgradient land resources and wildlife habitats. Construction activities may also involve the use of toxic or hazardous materials, such as petroleum products (fuels, lubricants, solvents), fertilizers, pesticides, herbicides, building materials (asphalt, sealants, concrete), and other chemicals that can be harmful to humans and aquatic life, and these materials can be transported in stormwater runoff.

This SWPPP was developed for the Hiland Partners Holdings LLC (Hiland) Roosevelt Gas Plant Expansion to satisfy the NDR100000 general permit conditions and SWPPP requirements. Copies of the NOI, the Notice of Coverage letter, and the General Permit are included in Appendix A. Copies of the SWPPP will be maintained at Hiland's office, and in the construction trailer at the project site.

1.2 SWPPP CONTENTS

This SWPPP includes the following information.

Section 1: SWPPP Administration

- Regulatory Overview
- Owner/Operator Information
- SWPPP Administration
- SWPPP Implementation Team
- Spill Notification Contacts

Section 2: Project Description

- Location
- Land Disturbance Area Estimate
- Climate
- Soils and Geology
- Construction Narrative and Planned Timeframe
- Nearby Surface Water Drainages
- Section 303 (d) Total Maximum Daily Load Impaired Waterbodies
- Construction Dewatering

Section 3: Potential Pollution Sources and Materials Inventory

- Structural Controls to Reduce Stormwater Pollution
- Materials Handling, Unloading, and Storage Areas

- Description of Significant Spill, Leaks, and Releases
- Potential Pollutants
- Description of Significant Materials Storage

Section 4: Stormwater Management Controls

- Soil Erosion and Sediment Controls
- Operational Controls

Section 5: Inspection and Maintenance Procedures

- Inspection Procedures
- Maintenance Procedures

Section 6: Recordkeeping Procedures

Section 7: Non-Stormwater Discharges

Section 8: Certifications

1.3 OWNER/OPERATOR INFORMATION

Owner/Operator

Hiland Partners Holdings LLC (wholly owned subsidiary of Kinder Morgan)
2 North Nevada Ave
Colorado Springs, Colorado 80903

1.4 SWPPP ADMINISTRATION

Hiland Roosevelt Gas Plant Expansion Project Contacts:

Scott Bare
Vice President of Project Management
Kinder Morgan
1001 Louisiana Street, Suite 1000
Houston, Texas 77002
Office: 713-369-8328

Megan Mater
Senior EHS Specialist Kinder Morgan
2 North Nevada Ave
Colorado Springs, Colorado 80903
Office: 719-520-3739
Cell: 713-806-3933

Richard Jones
Principal Project Manager
Kinder Morgan
5410 S Bell Suite 600
Amarillo, Texas 79109
Office: 806-731-8906

1.5 SWPPP IMPLEMENTATION TEAM

The persons listed in Table 1 will ensure that the SWPPP is effectively implemented and that appropriate BMPs are installed correctly, inspected regularly, and maintained until the site has achieved final stabilization. *The assignment of responsibilities in this section is to the job title; even if new personnel are filling the role, the assignment of responsibility remains valid.*

Table 1. SWPPP Team

Name and Title	Company	SWPPP Responsibility
Scott Bare, Vice President, Project Management	Kinder Morgan; 713-369-8328	Verify existing procedures are implemented so that projects subject to permit requirements are identified and permitted. Verify that procedures exist to develop, implement, maintain, and revise the SWPPP. Allocate resources to ensure that projects are implemented in compliance with permit requirements during construction and post-construction through final stabilization. The authorized signatory for permit applications.
Megan Mater, Environmental Project Manager	Kinder Morgan; 719-520-3739	SWPPP contact. Review projects and identify which projects are subject to SWPPP requirements and communicate requirements to the Project Manager in a timely manner. Develop a SWPPP for the project. Prepare the permit application and obtain necessary permits. Revise the SWPPP as necessary to reflect changes in the regulations or any procedural changes required by on-site conditions. Monitor construction and restoration and terminate the permit when restoration is complete. In case of a spill or discharge, perform agency reporting as necessary, and ensure a review of the SWPPP and identify any required modifications. Assist Project Manager with record-keeping requirements as necessary.
Richard Jones, Project Manager, Gas Plant	Kinder Morgan; 806-731-8906	Review proposed projects with Environmental Project Manager so that projects subject to permit requirements are identified and permitted. Allocate resources to implement and maintain the SWPPP. In the event of a spill or discharge, notify the Environmental Project Manager and trigger the Emergency Response Line reporting procedures as appropriate. Maintain record-keeping requirements related to the implementation of the SWPPP, including inspection requirements.
George Stuckers Operations Manager	Kinder Morgan 701-444-5060	Upon handoff from Project Manager, allocate resources to implement and maintain the SWPPP. In the event of a spill or discharge, notify the Environmental Project Manager and trigger the Emergency Response Line reporting procedures as appropriate. Maintain record-keeping requirements related to the implementation of the SWPPP, including inspection requirements.

Name and Title	Company	SWPPP Responsibility
Chief Inspector	TBD	Perform required inspections and training to ensure implementation of the SWPPP during construction. Identify any on-site conditions that may require modification of the procedures within the SWPPP. Notify the Project Manager of any spills or discharges. Maintain inspection records and field markups within the field copy of the SWPPP. At the end of construction, handoff the field copy of the SWPPP to the Post-Construction Inspector or to the Project Manager.
Post-Construction Inspector	TBD Environmental Consultant	Perform required inspections and training to ensure implementation of the SWPPP during post-construction restoration. Identify any on-site conditions that may require modification of the procedures within the SWPPP. Notify the Project Manager and/or Environmental Project Manager of any spills or discharges. Maintain inspection records and field markups within the field copy of the SWPPP. At the end of construction, handoff the field copy of the SWPPP to the Project Manager or Environmental Project Manager.

1.6 SPILL NOTIFICATION CONTACT INFORMATION

Spill notification contact information for outside parties, public safety officials, and government agencies is summarized in Table 2. Spill prevention, response, and notification procedures are discussed in Section 4.8.

Table 2. Notification of Outside Parties, Public Safety Officials, and Government Agencies for the Hiland Roosevelt Gas Plant Expansion Facility Site

PUBLIC SAFETY NOTIFICATION	
Fire	911
Police	911
GOVERNMENT AGENCY NOTIFICATIONS – VERBAL	
National Response Center	1-800-424-8802 24 hours/day, 7 days/week
North Dakota Department of Health	
24-hour Environmental Emergency Spill Reporting Line – from inside North Dakota	1-800-472-2121
24-hour Environmental Emergency Spill Reporting Line – from outside North Dakota	701-328-9921
Spill Reporting to the State	
North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division	701-328-8020
North Dakota Department of Health, Environmental Health Section	701-328-5200 or 701-328-5150
McKenzie County	
Emergency Management (Karolin Jappe)	701-444-7483
McKenzie County Sheriff's Department (Gary Schwartzenberger, Sheriff)	701-444-3654

GOVERNMENT AGENCY NOTIFICATIONS – WRITTEN	
Reporting spills that have the potential to reach, or have reached, state waters	
North Dakota Department of Health, Environmental Health Section 918 East Divide Avenue Bismarck, North Dakota 58501	701-328-5200 or 701-328-5150
National Response Center c/o United States Coast Guard (G-OPF) Room 2611 2100 2nd Street SW Washington, D.C. 20593-0001	1-800-424-8802 (24-hour) or 202-267-2675
North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division 600 East Boulevard Avenue, Department 405 Bismarck, North Dakota 80505	701-328-8020
OTHER GOVERNMENT AGENCY CONTACTS	
Environmental Protection Agency - Region 8 999 18th Street, Suite 300 Denver, Colorado 80202-2466	1-800-227-8917 303-312-6312
North Dakota Department of Transportation 608 East Boulevard Avenue Bismarck, North Dakota 58505	701-328-2500
North Dakota Public Service Commission 600 East Boulevard Avenue, Department 408 Bismarck, North Dakota 58505-0480	701-328-2400
McKenzie County Healthcare Systems 516 Main Street Watford City, North Dakota 58854	701-842-3000

1.7 PERMIT COMPLIANCE

Hiland will comply with the general permit conditions and provisions of this SWPPP until a Notice of Termination (NOT) has been submitted to the NDDH. The NOT will be submitted when one of the following conditions has been met.

- Final stabilization, as specified in Part II(E) of the general permit and discussed in Section 4.6, has been achieved on all portions of the project; or
- Another owner, operator, or permittee has assumed control, in accordance with the transfer provisions of Part I(F) of the general permit, over all areas of the project that have not achieved final stabilization.
- Meets the requirements for the oil and gas exemption

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The project site is located approximately 7.5 miles south of Watford City, North Dakota, in the SW¼ SE¼ Section 30, Township 149 North, Range 98 West, McKenzie County, North Dakota. Figure 1 is a general location map.

2.2 PROJECT DESCRIPTION

The existing Roosevelt Gas Plant was placed into service on March 1, 2016. The facility currently has a nominal inlet gas capacity of 50 million standard cubic feet per day (MMSCFD). As part of the Roosevelt Gas Plant Expansion Project (Project), Hiland plans to increase the nominal inlet gas capacity of the total plant to 200 MMSCFD. All work associated with this Project will occur within the previously developed and cleared facility footprint located on Hiland fee property. Expansion activities will include the addition of inlet gas slug catchers, produced concentrate handling, filtration and stabilization, mole sieve dehydration, cryogenic gas cooling for Natural Gas Liquid (NGL) extraction, residue gas compression, NGL pipeline pumps, a flare system and ancillary systems including control, electrical, air and heat transfer systems. Development of the site will involve three stages: 1) initial construction that includes topsoil removal/stockpiling, soil excavation/filling, and preparation of the facility construction; 2) facility construction; and 3) final stabilization. This SWPPP covers construction activities associated with all three stages of site development, during which precipitation and stormwater run-on has the potential to come into contact with toxic and hazardous materials used during site development that can be transported offsite and have direct impacts to wildlife habitats, land use, surface water resources, and groundwater.

2.2.1 Total Land Disturbance Area

The total land disturbance area will be approximately 30 acres.

2.2.2 Climate

Annual precipitation in western North Dakota averages approximately 13 to 18 inches. Most of the precipitation originates as frontal storms, with some of it deposited as snow, or from thunderstorms. Prevailing winds are generally from the northwest, but may come from other directions as well.

From May through September, precipitation comes primarily from thunderstorms, with the preponderance of storms occurring from June through August. Thunderstorms occasionally produce intense showers that can deposit 1.5 inches or more of rain within a few hours. Flash floods sometimes occur in streambeds that are normally dry.

The expected precipitation within a 24-hour period for a 25-year frequency storm event in northwestern North Dakota is approximately 3.5 inches. The precipitation for a 10-day, 25-year frequency storm event is approximately 6.0 inches.

2.3 SOILS AND GEOLOGY

The main soils in the immediate vicinity of the project site consist of the Daglum-Belfield complex (0%–6% slopes), and the Rhoades-Daglum complex (0%–6% slopes). The Daglum-Belfield soils consist of loam to silty loam topsoil that extends to a depth of 7 to 8 inches, which is underlain by a clay loam to a silty clay loam that can extend to a depth of 47 to 60 inches. The Rhoades-Daglum complex consists of a silt loam that ranges in depth from 0 to 3 inches and is underlain by a silty clay, a silty clay loam, to a clay loam that extends to a depth of 46 to 60 inches. All of the soils in the project area are moderately erodible, either by water or wind, and adequate BMPs, as described herein, will be used to minimize erosion of the disturbed soils. Soils will be significantly more erodible by either wind or water when dry.

Bedrock geology in the vicinity of the facility site consists of Pleistocene glacial deposits and deposits of the Paleocene-age Sentinel Butte Formation which is comprised of shale, siltstone, sandstone, and some lignite deposits. The land surface forms a rolling plain, with locally moderate relief that slopes to small streams and intermittent drainageways.

The other soil types at the Roosevelt Gas Plant Expansion location and associated pipelines are illustrated in the soils map in Appendix B.

2.4 CONSTRUCTION NARRATIVE AND PLANNED TIMEFRAME

Stormwater management has two primary objectives: 1) to prevent or minimize surface water from flowing onto the site (i.e., run-on) so that the site is maintained in good condition and is accessible to facilitate site operations; and 2) to control stormwater runoff so that any deleterious effects (e.g., erosion and sedimentation) from this runoff on the downgradient land and water resources are prevented or minimized. An integral aspect of these two objectives is to prevent precipitation and surface water run-on/run-off on the site from coming into contact with toxic or hazardous materials.

In general, stormwater drainage will occur from south to north and appropriate structural controls (e.g., silt fence, roadside ditches, straw wattles, culverts, etc.), will be used to properly manage this stormwater. The site will be constructed on a shallow, north-sloping, flat primarily between the forks of Spring Creek. Soil will be removed and stockpiled in the northeast and northwest corners of the construction area. As described below, the project will encompass four phases. See Appendix B – Updated Construction Schedule for the timeline/sequence of events.

BMPs to be implemented in each phase are discussed below, and more specific BMP information is presented in Section 4.0, Appendix B and C.

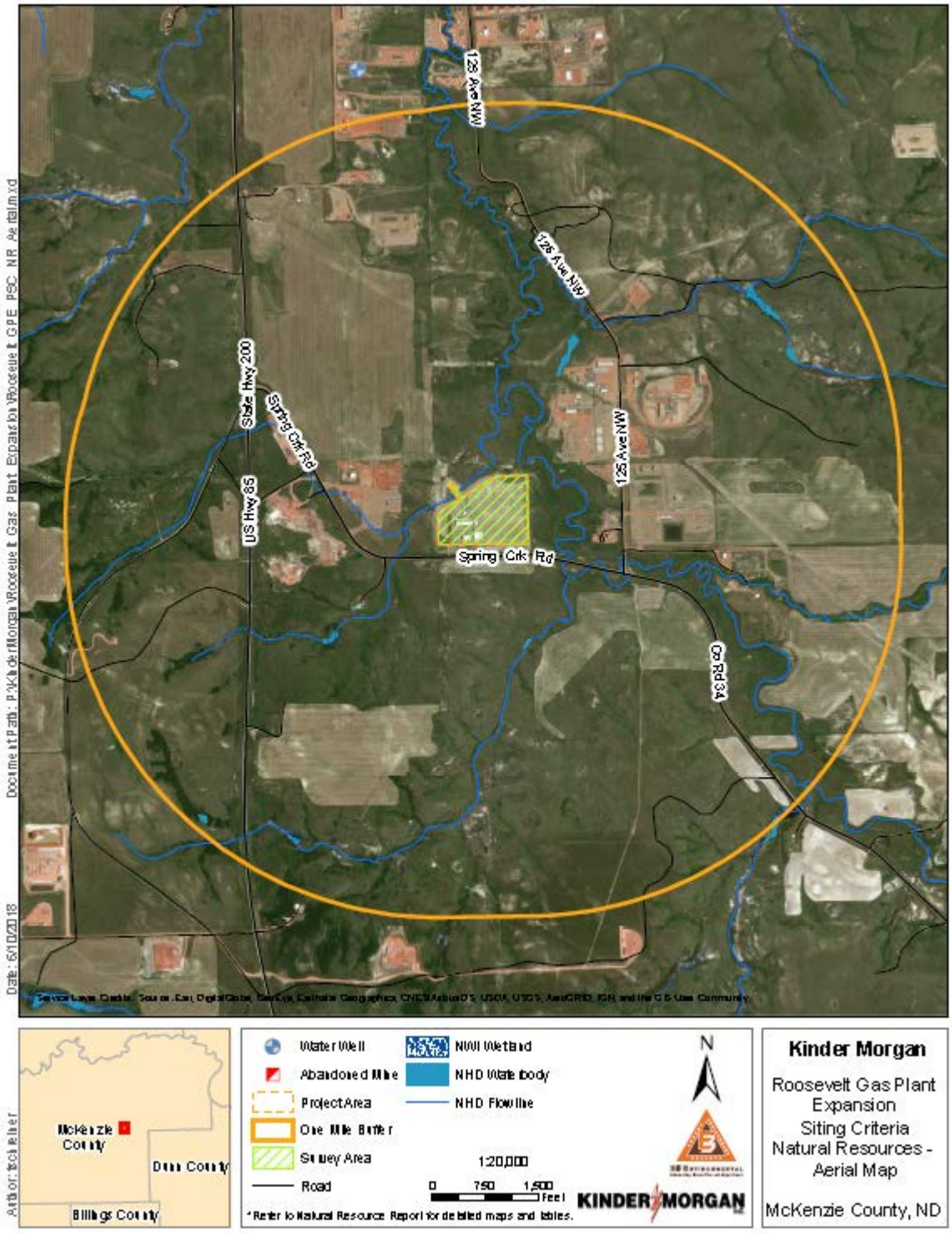


Figure 1. Roosevelt Gas Plant Expansion facility location map.

2.4.1 Phase 01 – Pre-Construction Activities

Pre-construction activities will include the project kick-off meeting, contractor and employee SWPPP training, and installation of the selected temporary pre-disturbance BMP, which will be a perimeter silt fence along the eastern, western, and southern project boundaries. In conjunction with the silt fence, existing vegetation around the entire construction site will be preserved (permanent BMP) as much as possible to help retard stormwater run-on and provide a vegetative buffer on the downhill sides of the site. Existing vegetation on the downhill side of the silt fence will help to retain any sediment that may escape from this perimeter control. The silt fence will remain in place during construction of the earthen secondary containment structure and until final BMPs have been installed.

2.4.2 Phase 02 – Initial Construction

The initial construction stage involves the greatest amount of land disturbance and requires the greatest attention to proper stormwater management. Typical construction activities include topsoil removal and stockpiling, soil excavation/filling, site grading, access road and parking area construction, and equipment foundation and pier preparation.

Stormwater run-on will come primarily from the northern and northwestern sides of the site and will be captured by the perimeter diversion ditches that will route the water around the facility and direct it to the northeastern discharge point. Stormwater in the operations area will be directed to the detention basin and ultimately be discharged from the northeastern discharge point as well. Different structural controls and BMPs will be used to manage surface water run-on and stormwater runoff. Prior to land disturbance, structural controls necessary for the protection of nearby watercourses, wetlands, and wildlife habitats will be implemented.

During this phase, the perimeter temporary silt fence and the existing permanent vegetative buffer will be the principal BMPs in use at the site until construction of the earthen secondary containment berm and diversion ditches has been completed. A temporary silt fence will be installed around the perimeter base of the soil stockpiles to help control sediment runoff and the stockpile will be seeded with a weed-free native grass mixture once soil in the stockpile is no longer being used for construction of the secondary containment berm.

As shown in Appendix B, permanent diversion ditches have be installed around the perimeter to direct stormwater runoff around the site. These diversion ditches have rock check dams installed in them to help reduce water velocity in the ditches. The ditches discharge into sediment trap/reservoirs for erosion control and sedimentation purposes.

Culverts will have energy dissipation/riprap for inlet and outlet protection.

Surface roughening and the use of erosion control blankets of the fill and cut slopes will be used as a temporary erosion control BMP until revegation (the permanent erosion control BMP) of these areas is established. Gravel surfacing of the facility access roads, and the

office and operations areas, will be used as both temporary and permanent BMPs during and after construction of the site.

2.4.3 Phase 03 – Tank Construction and Equipment Installation

The majority of the site construction and land-disturbing activities have been completed by this phase, but the greater concerns are: 1) on-site stormwater management to prevent contact with toxic or hazardous materials; 2) ensuring the proper location and functioning of stormwater controls; 3) the use of BMPs to prevent or minimize downgradient erosion and sedimentation; and 4) physical maintenance of the site and access road to facilitate site operations. During this stage, the site will receive heavy vehicular traffic that could degrade the integrity of the site and access road, which will require maintenance and may necessitate reconstruction of portions of the site and/or access road. With a high volume of vehicular traffic, additional runoff and erosion of the site is likely to occur, which will require greater diligence to ensure that potential stormwater impacts are minimized.

The BMPs installed during Phase 02 will be regularly inspected and maintained, as required. During this phase, proper materials storage and BMP usage will be paramount to prevent stormwater contact with toxic or hazardous materials, as discussed in Section 3.0.

2.4.4 Phase 04 – Post-Construction Inspection and Maintenance

During the post-construction final stabilization period, temporary and permanent stormwater BMPs will be regularly inspected and maintained, as required, to ensure that they are functioning properly. Once final stabilization has been achieved, any temporary BMPs will be removed and a NOT will be submitted to the NDDH to terminate the permit.

2.5 NEARBY SURFACE WATER DRAINAGES

As illustrated in Figure 1, the nearest surface water drainage is Spring Creek, which is approximately 200 feet east of the site, and it will flow 6.1 miles to join Cherry Creek. Once in Cherry Creek the water will flow approximately 29.7 miles to enter the Little Missouri River. Uncontrolled stormwater runoff has the potential to flow into either of the two forks of Spring Creek along the east and west sides of the site. As shown in Appendix B, structural controls (e.g., diversion ditches) will be used to prevent or minimize water flowing onto the site, and similar controls and the detention pond will be used to manage surface water runoff and discharges from the site in an attempt to slow runoff and cause ponding, infiltration, and evaporation. Areas of concern, such as streams, wetlands, and drainageways, were identified at the site.

2.5.1 Location of Stormwater Outfalls

Stormwater that is diverted around the facility will be discharged at the northeast discharge point. Water captured in the retention pond will be inspected for any indication of contamination (e.g., sheen, floating debris, etc.) and, if not evident, the water will be released into the portion of Spring Creek that runs along the northeast side of the site. Stormwater outfall 3 is located where flow from the northeast discharge point releases water to Spring Creek.

2.5.2 Drainage Controls within the Outfalls

During site construction, engineering controls and work practices will be used to prevent potential stormwater impacts resulting from erosion of excavated materials or chemical impacts due to stormwater coming into contact with construction materials, fuel products, or equipment and being transported off site. Diversionary dikes or swales may be necessary to prevent or control stormwater running onto disturbed areas of the site.

Stormwater runoff may leave the site construction area via small drainage channels; however, in cleared areas or on slopes, stormwater may form rills or gullies before flowing into a nearby tributary draw or drainageway. Structural controls will be placed at the outfalls to prevent erosion and reduce the amount of sediment becoming entrained in the stormwater runoff.

2.6 NEARBY SECTION 303(D) IMPAIRED WATERBODIES

No nearby Section 303(d) impaired waterbodies with a Total Maximum Daily Load limitation are present within 2,000 feet of the project site.

2.7 CONSTRUCTION DEWATERING

Uncontaminated stormwater, surface water, and groundwater that collects on site in excavations or diked areas may be discharged under the general permit. These discharges will use adequate control measures (e.g., filter bags, discharge containment structures, etc.) to minimize soil erosion and sedimentation at the discharge location.

While not anticipated, there is a potential for dewatering during site construction and/or discharges from onsite operations, such as hydrostatic testing of the proposed storage tank and/or piping. If the need for these discharges becomes apparent, Hiland will submit a NOI (Short Form C, SFN 8319) for a general permit (NDG070000) for discharges associated with hydrostatic testing and dewatering. The NOI will be submitted a minimum of 30 days prior to the anticipated discharge date. Water generated from these activities will be directed to a sediment pond, settlement trap, or other control device to remove sediment and minimize downgradient erosion.

Dewatering activities will be inspected daily to ensure that the BMPs at the discharge location are being implemented correctly and that they are functioning as intended to prevent discharges of pollutants to state waters. The dewatering inspection report will contain the following information.

- Date and time of the inspection.
- Inspector name.
- Approximate volume of water discharged.
- Findings of the inspection, including recommendations and schedule for corrective actions.

- Corrective actions taken (including dates, times, and party completing maintenance activities).
- Documentation that the SWPPP has been amended when changes are made to the dewatering activity in response to inspections.

3.0 POTENTIAL POLLUTION SOURCES AND MATERIAL INVENTORY

3.1 STRUCTURAL CONTROLS TO REDUCE STORMWATER POLLUTION

Table 3 provides a summary of potential pollution sources and associated BMP selection guidelines to address the potential pollution sources during the phases of site construction. Each of the structural control measures for these BMPs is discussed in Section 4.0, and BMP details and specifications are presented in Appendix C.

Structural control measures will be used to protect slopes and dissipate erosive energy along cut/fill slopes, and shoulders of the access road to prevent excess sediment runoff. Stormwater diversion structures and/or secondary containment structures should be built around soil stockpiles to prevent eroded sediments from becoming entrained in stormwater runoff from these areas. Excavated topsoil, ground cover, and overburden will be stored in locations away from natural drainages.

From the discharge area, stormwater conveyances will direct the runoff to the northeastern corner of the property and into Spring Creek. Stormwater conveyances need to be maintained and kept clear of debris and vegetation in order to adequately handle stormwater from the construction activities. Stormwater may also be directed away from construction areas by stockpiling the excavated materials or using diversion structures.

Table 3. Inventory of Potential Pollutants and Associated BMPs

Material Trade Name or Type of Activity	Applicable to Site? (Y or N)	Potential Pollutant	Associated BMP(s)
Glue, adhesives, epoxy powders	Y	Polymers, epoxies	Disposal of used containers must follow manufacturer specifications. Proper application (see manufacturer recommendations). Storage of products: properly sealed containers indoors, on a pallet, preferably under shelter or tarp, or inside a vehicle tool cabinet.
Asphalt	Y	Oil, petroleum distillates	Follow manufacturer's application specifications. Disposal of used containers and excess material must follow manufacturer specifications.

Material Trade Name or Type of Activity	Applicable to Site? (Y or N)	Potential Pollutant	Associated BMP(s)
Concrete, concrete washout water	Y	Limestone, sand, pH	Designated concrete washout tank or pit. Do not clean out hopper or chute onto ground or into drainage channels. Concrete washout area must be within a bermed containment area. It must be cleaned out when it reaches 75% capacity. Recommend cleanout at 50%. All washout areas will be in the site boundary.
Cleaning solvents	Y	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment.
Wood preservatives	N	Stoddard solvent, petroleum distillates, arsenic, copper, chromium, creosote, pentachlophenol	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment.
Hydraulic oil/fluids (brake, power steering, etc.), greases, lubrication oils	Y	Mineral oil	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment. All onsite vehicles will be routinely inspected for leaks and drips.

Material Trade Name or Type of Activity	Applicable to Site? (Y or N)	Potential Pollutant	Associated BMP(s)
Gasoline/diesel fuel	Y	Benzene, ethyl benzene, toluene, xylene, MTBE (methyl tertiary butyl ether)	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment. All onsite vehicles will be routinely inspected for leaks and drips.
Kerosene	N	Coal oil, petroleum distillates	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment.
Antifreeze/coolant	Y	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment. All onsite vehicles will be routinely inspected for leaks and drips.
Detergents	N	Phosphorous	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: tightly sealed containers indoors, or within a shed or truck tool box. If product is stored outdoors, must be stored under a shelter or tarp preferably within secondary containment.

Material Trade Name or Type of Activity	Applicable to Site? (Y or N)	Potential Pollutant	Associated BMP(s)
Dust- or particulate-generating processes	Y	Dust, particulates	BMPs used on site to reduce the movement of dust and particulates include, but are not limited to, watering practices during earth-moving activities; the application of a chemical dust suppressant substance to bind the dirt to the earth during construction; speed limit controls to ensure minimal dust kick up produced by moving vehicles; ceasing any earth-moving activity during high wind. Other BMPs may be introduced on site during construction.
Drilling activities	Y	Bentonite, diesel-based drilling muds, barium-based drilling muds, saline solutions (potassium chloride, calcium chloride)	Proper application (see manufacturer recommendations). Disposal of used containers and excess material must follow manufacturer specifications. Storage: mud storage tank/trailer, tightly sealed containers, placed on a pallet, use of plastic shrink-wrap, under shelter or tarp. Use of secondary containment practices. Use of a designated containment pit and/or a vacuum truck for removal from project site and or reuse. Hay bales, wattles, and earthen berms are to be used for containment of bentonite releases.
Sediment	Y	Nutrients, suspended solids, sediment	Sediment erosion and sedimentation on site should be controlled by structural and non-structural BMPs. Structural BMPs can include, but are not limited to, sediment control logs, erosion control blankets, riprap, earth berms, and silt fence. Non-structural BMPs can include, but are not limited to, seed and mulch, exposure time of disturbed soils, education of onsite personnel.

BMP = Best Management Practice

3.2 MATERIALS HANDLING, LOADING, AND STORAGE AREAS

3.2.1 Materials Handling, Loading, and Storage Area Locations

Materials stored at the site during construction activities may include metal tank wall sections and supports, connectors, construction supplies, petroleum products, solvents, concrete, and other materials (see Table 3). Materials handling, loading, and storage areas will be located away from natural stormwater drainageways and/or will be surrounded with earthen, gravel clad berms to prevent stormwater impacts. Construction materials and chemical storage will be kept covered to prevent stormwater impacts.

3.2.2 Description of Significant Material Storage

During initial construction, chemical storage is expected to be minimal, but subsequent tank and facility construction and operation activities will use greater quantities of chemicals that will be stored on site. Chemical containers should be covered and properly stored in areas where they will not come in contact with stormwater. Stockpiles of excavated soils should be bermed at base levels to prevent stormwater from transporting sediments into nearby drainages. Any fuel storage tanks for trucks or construction equipment will be contained in prefabricated secondary containment structures or in an earthen, lined berm capable of containing the entire volume of the largest tank and sufficient freeboard to contain impounded stormwater.

Additional specific recommendations for material storage and management are provided in Section 4.3.

3.3 DESCRIPTION OF SIGNIFICANT SPILLS, LEAKS, AND RELEASES

No known spills, leaks, or releases that have occurred at the site. If soil contaminated with petroleum hydrocarbons such as diesel fuel, or if other potentially hazardous conditions are discovered during excavation activities, work will be stopped and an assessment of the situation will be initiated. The type of contamination will be identified and specific plans will be made to obtain approvals for removal, transport, and disposal of the contaminated soil or to modify the construction plans.

3.4 POTENTIAL POLLUTION SOURCES

It is the responsibility of the stormwater inspector to continually monitor and update the materials inventory in this SWPPP and to ensure that each identified potential pollutant has a BMP installed to prevent discharges.

3.4.1 Construction Materials

Table 3 provides an inventory of potential materials/pollutants that may be on site during site construction and equipment installation activities as well as the potential pollutants associated with those materials and the BMPs that will be used on site to eliminate the possible discharge of pollutants.

3.4.2 Sediment

The most common source of pollution from the project area will be sediment, which can be carried away from the work site with stormwater runoff and impact the water quality of a receiving stream or wetland. Clearing, grading, and otherwise altering previously undisturbed land can increase the rate of soil erosion over pre-disturbance rates. Stockpiles of excavated soil and aggregate (soil, gravel, and similar materials) and access roads should also be constructed with erosion protection measures.

3.4.3 Petroleum Products

Petroleum products can also be potential stormwater pollutants. These products are used in construction activities to power or lubricate equipment and include gasoline, diesel fuel, lubricant oils, hydraulic oils, used oils, brake fluid, grease, and solvents. Sources of petroleum product leaks include vehicle and equipment engines, fuel transfers, oil drips/leaks, and fuel from aboveground storage tanks. In addition, paints and solvents used to coat piping, sealants, emulsions, concrete, pesticides, and herbicides may be used in project activities. Mobile refuelers may frequently transfer fuel to onsite construction vehicles, equipment, and portable tanks.

3.4.4 Laydown Areas, Equipment Cleaning and Maintenance, and Solid Waste

Debris from laydown areas, residue from equipment cleaning and maintenance, and solid waste generated from land clearing operations and human activity (trees, brush, paper, trash, etc.) present other potential pollution sources within the construction site. Additionally, the project area may contain construction supplies such as various sized pipe; culverts; empty tanks, drums, and vessels; and fencing.

3.4.5 Human Waste/Chemical Toilets

Chemical toilets will be provided for worker use during construction activities. The toilets will be located on the southeastern side of the site, near the entrance for easy access, servicing, and maintenance by a third-party commercial vendor. The toilets will be securely fastened to the ground so they cannot be tipped over by the wind or by accident. Contained wastes will be routinely removed by the service contractor for disposal at an approved facility.

3.4.6 Concrete Washout Areas

If concrete is used during site construction activities, concrete truck washout waters will be managed to prevent them from being transported off site and reaching waters of the state. A designated concrete truck washout water tank or lined earthen pit will be installed at the site to capture and hold the water so it can evaporate. Concrete truck washout will only occur at this designated location and signage provided to indicate such. Dried and hardened solids will be removed, broken, and used to supplement gravel surfaces as needed or removed for disposal at an approved offsite facility.

4.0 STORMWATER MANAGEMENT CONTROLS

Stormwater management controls include both erosion and sediment controls and operational controls that are used to prevent or minimize stormwater impacts and control soil erosion and subsequent sedimentation. The use of a combination of physical BMPs, good work practices, and proper fuel, chemical, and materials storage practices will prevent or minimize stormwater impacts. The types and locations of physical BMPs to be used at the project site area are illustrated on construction drawings in Appendix B.

4.1 EROSION AND SEDIMENT CONTROL REQUIREMENTS

The objective of erosion and sediment controls is to minimize the release of sediments to stormwater runoff. This can be accomplished through the use of structural and operational controls to prevent stormwater run-on, enhance on-site stormwater containment and management, and reduce stormwater runoff volume and velocity.

Storm water controls implemented at the site are selected to withstand and function properly during precipitation events up to the 2-year, 24-hour storm event, which in North Dakota ranges from 1.9 inches in the east to 2.3 inches in the west. If stormwater inspections or other information indicates that the selected stormwater control has been used inappropriately or incorrectly, the control will be replaced or modified within 24 hours or prior to the next rainfall event (whichever comes first) or as field conditions allow. All stormwater controls will be implemented in accordance with the manufacturer's specifications, unless justification is provided for a deviation from those requirements.

A 50-foot natural buffer or equivalent erosion and sediment controls will be provided when project activities are within 50 feet of a surface water and stormwater runoff flows to that surface water. If equivalent erosion and sediment controls are used, the rationale for using equivalent controls will be included herein.

If working within 100 feet of a surface water listed as impaired for sediment, suspended solids, or turbidity, a 100-foot natural buffer or equivalent sediment and erosion controls will be provided. If equivalent erosion and sediment controls are to be used, the rationale for using equivalent controls will be included herein.

Temporary soil stockpiles will have effective sediment controls implemented, and will not be placed in surface waters, including stormwater conveyances such as curb and gutter systems, conduits, or ditches.

If off-site sediment transport occurs, any off-site accumulations will be removed in a manner and frequency that is sufficient to minimize off-site impacts. If such off-site sedimentation occurs, the SWPPP will be modified accordingly to prevent further off-site sediment deposition.

The following commonly used erosion and sediment controls and practices will be implemented, as appropriate.

- Grade or extend terraces across slopes to prevent stormwater from flowing onto the construction area and plant open areas with native grasses or low growing plants soon after work is completed.
- Place energy dissipating material, such as riprap, check dams, straw bales, wattles, and/or gabions, at stormwater outfalls to slow water runoff, thereby minimizing erosion and preventing entrained sediments from entering water ways.
- Prevent erosion damage by using geotextiles or energy dissipating devices such as check dams, gabions, or riprap along stream courses or their banks that are impacted by the construction.
- Protect culverts with inlet controls to prevent suspended particles from entering stormwater drainages.
- Maintain gravel entrance/exit pads at each construction site entrance/exit location to provide a buffer to reduce the amount of mud and soil transported on vehicle tires from the site to paved public roadways.
- Temporary or permanent erosion protection and stabilization (e.g., cover crop or mulching) will be implemented immediately for all exposed soil surface areas where activities have been completed or temporarily stopped.

4.2 SELECTION OF STRUCTURAL CONTROLS

Physical erosion and sediment controls that may be used at construction sites to minimize possible sediment impacts to stormwater runoff are described in the following sections. Specific BMP installation details and specifications are provided in Appendix C, and selection guidelines for each construction phase are summarized in Table 4.

4.2.1 Berms

A berm is a ridge of compacted soil located at the top or base of a sloping disturbed area to contain or divert surface runoff. Where used, soil berms will be constructed of soil with sufficient fines to minimize flow through the berm. The purpose of a berm is to control runoff velocity, divert onsite surface runoff to a sediment trapping or filtration device, and/or divert clean water away from disturbed areas.

4.2.2 Check Dams

Check dams are small, temporary dams constructed across a diversion or roadside ditch. Check dams can be constructed using gravel, rock, gravel bags, geo-ridges, earth with erosion control blanketing, straw bales, or wattles, and are used to slow the velocity of concentrated flow in a channel. As a secondary function, check dams also can be used to catch sediment from the channel itself or from the contributing drainage area as stormwater runoff flows through or over the structure.

Table 4. BMP Selection Guidelines

BMP	Construction Phase		
	Initial Construction	**Facility Construction and Equipment Development**	**Post-Construction**
Berms	X	X	
Check dams		X	X
Culverts	X	X	X
Diversion ditch or berm	X	X	X
Drainage dip	X	X	
Erosion control blanket		X	X
Filter berm	X	X	
Gabions	X	X	X
Gravel surfacing		X	X
Land grading	X		
Level spreader	X		
Mulching	X	X	
Revegetation			X
Riprap	X	X	X
Sediment trap	X	X	
Sediment Basin	X	X	X
Siltfence	X	X	
Slope drain		X	X
Slope stabilization		X	X
Stabilized construction entrance	X	X	
Straw bale barrier	X	X	
Straw wattles	X	X	
Surface roughening	X	X	
Terracing	X	X	X
Vegetative buffer	X	X	X
Water bar	X	X	X

BMP = best management practice

4.2.3 Culverts

Culverts are typically used to move ditch water under the road or to direct stream flow under the access road. Culverts are typically constructed of concrete, steel, aluminum, or plastic pipe. Where used, culverts should have inlet and outlet protection features to minimize erosion.

4.2.4 Diversion Ditch or Berm

A diversion ditch or berm is used to prevent sediment-laden stormwater runoff from leaving the construction site or disturbed area, to prevent flows from eroding slopes, and to direct sediment-laden flows to a trapping device. A diversion ditch or berm also can be used to divert surface runoff from upgradient areas away from construction area.

4.2.5 Drainage Dip

Drainage dips intercept and remove surface water from the access roads, facilities, pipelines, and roadside ditches before the combination of water volume and velocity begin to erode the structures. Drainage dips are constructed diagonally across the flow of the surface water and tend to reduce the speed of vehicles, while dispersing surface water.

4.2.6 Erosion Control Blanket

Erosion control blankets and turf reinforcement mats are porous fabrics and are manufactured by weaving or bonding fibers made from organic or synthetic materials. Erosion control blankets are installed on steep slopes, over berms, or in channels to prevent erosion until final vegetation is established. Erosion control blankets can also be used as separators or to aid in plant growth.

4.2.7 Filter Berm

A filter berm is a temporary ridge made of natural materials that already occur on the project site. Brush filter berms use small tree branches, root mats, grass, leaves, stone, or other debris or material naturally available or left over from the site clearing and grubbing. Rock filter berms use site gravel, stone, or rock. Both types of filter berms are placed along a level contour to slow, filter, and divert flow and act as an efficient form of sediment control.

4.2.8 Gabions

Gabions are partitioned, wire fabric containers, filled with stone to form flexible, permeable, monolithic structures for earth retention. Gabions are used as retaining walls, temporary floodwalls, or other structures to filter silt from runoff and to dissipate energy from flowing water. They may be used to direct the force of a flow of flood water around a vulnerable structure.

4.2.9 Gravel Surfacing

Gravel surfacing may be used to cover soil in areas of high traffic such as roads, facility areas, and in construction areas. Gravel surfacing forms a layer that protects and minimizes soil erosion and vehicle soil tracking.

4.2.10 Land Grading

Grading involves reshaping the ground surface to planned grades as determined by an engineering survey, evaluation, and layout. Grading provides more suitable topography for pipelines, facilities, and access roads and helps to control surface runoff, soil erosion, and sedimentation during and after construction in these areas. Grading also includes road crowning and sloping to properly route access road runoff.

4.2.11 Level Spreader

A level spreader is used to prevent erosion and to improve infiltration by spreading concentrated stormwater runoff evenly over the ground as shallow sheet flow instead of through channels. It usually involves a depression in the soil surface that disperses flow

onto a flatter area across a slight slope and then releases the flow onto level vegetated areas. This reduces flow speed and increases infiltration and promotes evaporation.

4.2.12 Mulching

Mulching is a temporary erosion control practice in which materials such as grass, straw, hay, wood fibers, or wood chips are placed or implanted into soils on exposed or recently planted soil surfaces. Mulching stabilizes soils by minimizing rainfall impact and reducing stormwater runoff velocity. When mulching is used in combination with seeding, surface soils retain moisture, promote seed germination, and help insulate roots from extreme temperatures.

4.2.13 Revegetation

Revegetation involves planting seed to establish a vegetative cover on disturbed areas to reduce erosion by stabilizing disturbed areas. It also reduces runoff volumes by increasing water percolation into the soil, binds soil with roots, and protects soil from wind erosion. The permanent seed mixture, rate, application method, and supplemental materials will be selected by the revegetation contractor, landowner or the Bureau of Land Management representative for federal sites.

4.2.14 Riprap

Riprap is a permanent, erosion-resistant layer made of stones, rock, or boulders. It is intended to stabilize areas subject to erosion and protect against scour of the soil caused by concentrated, high-velocity flows.

4.2.15 Sediment Trap

Sediment traps are intended to intercept, trap, and retain sediment from runoff while allowing detained runoff to slowly drain, infiltrate, or both. They are usually installed in a drainageway or other point of discharge from a disturbed area and are formed by excavating below grade and/or constructing an earthen embankment with a protected spillway to slow the release of runoff.

4.2.16 Silt Fence

Silt fences are temporary perimeter control structures designed to slow, temporarily impound, and filter sediment-laden water. Installation technique and maintenance is critical to proper performance.

4.2.17 Slope Drains

Slope drains are used to convey collected stormwater off the pad site without eroding the fill slope.

4.2.18 Slope Stabilization

The use of appropriate materials, such as mulch, staked sod, riprap, erosion control blanket, or other materials that prevents erosion on slopes from occurring.

4.2.19 Stabilized Construction Entrance

A stabilized construction entrance is a pad of gravel laid over filter cloth where construction traffic will be entering or leaving a construction site to or from a public right-of-way, street, or highway. The purpose of a stabilized entrance to a site is to minimize the amount of tracked mud and dust that leaves the site. As a vehicle drives over the gravel, mud and sediment are removed from the vehicle's wheels and offsite transport of soil is reduced. This BMP reduces erosion and tire rutting, and the filter fabric separates the gravel from the soil below by minimizing gravel migration into the subsurface soil caused by heavy vehicle loads. A stabilized construction entrance should be used at facility ingress and egress locations.

4.2.20 Straw Bale Barrier

A straw bale barrier is a series of entrenched and staked straw bales placed on a level contour to intercept sheet flows. The barrier reduces runoff velocity and filters sediment-laden runoff from small drainage areas of disturbed soil and may also be used to protect against erosion in small, shallow drainage channels.

4.2.21 Straw Wattles

Straw wattles or rolls are intended to capture and keep sediment on slopes or in small shallow drainage channels. Straw rolls can be used to temporarily stabilize slopes by reducing soil creep, and sheet and rill erosion, until permanent vegetation can be established. Straw rolls will last an average of 1 to 2 years.

4.2.22 Surface Roughening

Soil surface roughening is a temporary erosion control practice often used in conjunction with grading. Soil roughening involves increasing the relief of a bare soil surface with horizontal grooves (corrugating) or tracks (tracking) using construction equipment. Slopes that are not fine graded and that are left in a roughened condition can reduce erosion, trap sediment, and prepare ground surfaces for seeding.

4.2.23 Terracing

Terraces are made of either earthen embankments or ridge and channel systems that are properly spaced along a fill slope. Terraces are constructed with an adequate grade to promote drainage to a stabilized outlet. They reduce damage from erosion by collecting and redistributing surface runoff to stable outlets at slower speeds and by decreasing the distance of overland runoff flow. They also surpass smooth slopes in holding moisture and help to minimize sediment loading of surface runoff.

4.2.24 Vegetative Buffer

Vegetative buffers are areas of either natural or established vegetation that are maintained to protect the water quality of neighboring areas. Vegetative buffers reduce stormwater runoff velocity, prevent soil erosion, promote infiltration, and act as a filter to remove sediment. Vegetated buffers will have a minimum width of 1 foot for every 5 feet of

disturbed area that drains to the buffer. The width of the buffer will have a slope of 5% or less and the area draining to the buffer will have a slope of 6% or less. Buffers will consist of dense grassy vegetation, 3 to 12 inches tall, with a uniform coverage area greater than 90% and less than 10% comprised of woody vegetation.

4.2.25 Water Bar

A water bar is an earthen ridge, or ridge and channel, constructed diagonally across a slope road, trail, or disturbed area. Water bars are normally used for drainage and erosion protection of closed, blocked, or infrequently used roads to divert stormwater runoff and minimize erosion.

4.3 OPERATIONAL CONTROLS

4.3.1 Dust Control

Wind is capable of causing erosion, particularly in dry climates or during the dry season. Wind erosion can occur where surface soil is loose and dry. Wind erosion may also occur in areas where vegetation is sparse or absent, and can transport sediments to where they can be washed into receiving waters during the next storm event or snowmelt runoff.

The prevailing winds in western North Dakota are generally from the northwest, although a southeasterly wind direction occurs occasionally. The excavated topsoil, ground cover, and overburden materials will be stockpiled for future reuse during dry cuttings pit closure activities and final site reclamation. If possible, these stockpiles should be laid out perpendicular to the predominant wind direction to serve as wind breaks and vegetated cover should be established to minimize erosion.

During construction, disturbed areas, excavated materials, soil piles, and stockpiled materials will be watered regularly to minimize fugitive dust. Access roads associated with the construction activities will also require frequent watering or use of chemical dust suppressants to prevent fugitive dust from blowing offsite.

4.3.2 Construction Site Housekeeping

Housekeeping will consist of neat and orderly storage of materials and containerized fluids. Wastes will be temporarily stored in sealed containers and regularly collected and disposed of at off-site, suitable facilities. If spills occur, prompt cleanup is required to minimize any commingling of waste materials with stormwater runoff.

Cleanup of trash and discarded materials will be conducted at the end of each work day. Cleanup will consist of patrolling the roadway, access areas, and other work areas to pick up trash, scrap debris, other discarded materials, and any contaminated soil. These materials will be disposed of appropriately.

Deposited sediment will be removed from paved surfaces, using loaders, shovels, and/or brooms, by the end of the work day or within 24 hours of tracking the sediment.

4.3.3 Operations and Maintenance Techniques

The following actions will be implemented to ensure a clean and orderly project area.

- Develop and maintain inspection schedules; correct deficiencies noted during these inspections; clean and maintain stormwater management system components.
- Perform routine trash collection and disposal, and grounds maintenance.
- Dispose of trash generated by project activities at a suitable solid waste disposal facility.
- Familiarize employees with good housekeeping procedures, tips, reminders, and pollution prevention concepts.

4.3.4 Petroleum Products, Material Storage, and Management

Petroleum products that may be present at the construction site include gasoline, diesel fuel, lubricant oils, hydraulic oils, used oils, and solvents. Gasoline and diesel fuel will be stored in portable storage tanks with secondary containment. Lubricant, hydraulic, and miscellaneous oils and solvents will be stored in 55-gallon or smaller containers within a secondary containment area or in approved tool and equipment sheds or other protected structures.

Routine maintenance will be limited to fueling and lubrication of equipment. Drip pans, mats, or similar methods will be used during routine fueling and maintenance to contain spills or leaks. Any waste product from maintenance will be containerized and transported off site for disposal or recycling. No major equipment overhauls will be conducted within the project area. Equipment will be transported off site for major overhauls.

Pollutants from petroleum products used during construction activities adhere easily to soil particles and other surfaces. In case of a spill or leak, soils contaminated with petroleum products will be contained and removed to a proper disposal site. Soil erosion and sediment control practices will aid in retention of spills or leaks. Maintenance and safe storage practices will reduce the chance of petroleum products contaminating the project area. Oily wastes such as crankcase oil, cans, rags, and paper containing oils will be placed in proper receptacles and disposed of or recycled. An additional source of petroleum contamination is leaks from equipment and vehicles. Routine daily inspections will be conducted to identify leaks and initiate corrective actions, if needed.

4.3.5 Petroleum Product Storage and Management Guidelines

The following guidelines for storing and managing petroleum products will be used.

- All product containers will be clearly labeled and stored in areas away from vehicle traffic.
- All drums will be kept off the ground within secondary containment, labeled, securely fastened, and stored under cover if needed.
- Fuel tanks will be stored within secondary containment.

- Emergency spill response procedures/materials will be available at the project area. Persons trained in handling spills will be on call at all times.
- Employees will be familiar with the storage locations for spill cleanup equipment and trained in the use of spill cleanup equipment.
- Spill cleanup and containment materials (absorbent, shovels, etc.) will be easily accessible. Spills will be immediately cleaned up and contaminated materials will be properly stored on site until they can be disposed of in accordance with applicable regulations.
- Storage areas and containers will be regularly monitored for leaks and repaired or replaced as necessary. Contractors and subcontractors should be reminded about proper storage, handling, and transferring of petroleum products or other hazardous materials during safety meetings.
- Chemical substances used at the site will be identified, properly labeled, inventoried, and the Material Safety Data Sheets will be kept on file.

A hazardous substance release in any amount which enters or threatens to enter waters of the state shall be reported to the National Response Center and to NDDH. Refer to Table 2 for notification information.

State reportable spills and/or releases of petroleum products/materials that result in a visible sheen on water, or a visible deposit on the bottom or shoreline of any water body must be reported to NDDH at 701-328-5210 as soon as practical after discovery. A NDDH General Environmental Incident Report Form should be used for any environmental incident or release that is not exempt under Resource Conservation and Recovery Act oilfield exemptions.

4.3.6 SWPPP Revisions

This SWPPP is a working document and will be modified as necessary when there are changes in the design, construction, and operation or maintenance activities during the life of the construction project or until final stabilization is achieved. Updates and revisions to the SWPPP will be made as soon as practicable. Errors in paperwork, changes to BMPs, or the removal, addition, or adjustment of erosion and sediment control measures must be made to the SWPPP or appropriate site maps.

4.3.7 Inspection and Maintenance Procedures

See Section 5.0 for a discussion of inspection and maintenance procedures.

4.3.8 Recordkeeping Procedures

See Section 6.0 for a discussion of recordkeeping procedures.

4.3.9 Other Operational Controls

Other operational controls include implementing stormwater controls before beginning construction; considering predominant wind directions, soil types, topography, and drainage features in project design; prohibiting or modifying work practices that may cause or increase erosion; and scheduling work for times of the year or times of the day when precipitation is less likely.

4.4 STABILIZATION REQUIREMENTS

To meet the permit conditions, stabilization means that the exposed ground surface will be covered by appropriate materials, such as mulch, staked sod, riprap, erosion control blankets, or other material that prevents erosion from occurring on the exposed surface. Grass seeding alone does not constitute stabilization, nor does snow cover and/or frozen ground conditions.

If stabilization requirements cannot be met due to circumstances beyond the Hiland's control, the following actions will be implemented.

- If vegetative stabilization is to be used, immediately initiate, and within 14 calendars days complete, the installation of temporary non-vegetated stabilization; or
- Complete all methods of initiating stabilization as soon as conditions or circumstances allow.

If any above conditions are encountered, Hiland will document the circumstances that prevented achieving the stabilization requirements contained in this SWPPP and will provide a schedule to be followed to meet the stabilization requirements.

4.4.1 Steep Slopes

For all steep slopes, with a grade equal to or greater than 3:1 (horizontal:vertical), stabilization will be initiated immediately once activities have been completed or temporarily ceased. Stabilization will be completed as soon as practicable, but no later than 7 calendar days after the initiation of soil stabilization.

4.4.2 Exposed Areas

All exposed soil areas will be stabilized and stabilization will be initiated immediately where activities have been permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization will be completed as soon as practicable, but no later than 14 calendar days after the initiation of soil stabilization activities. Temporary stockpiles without significant silt, clay, or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) will not be stabilized.

4.4.3 Frozen Ground Conditions

Hiland will implement winter stabilization methods during frozen ground conditions, if the site was not stabilized prior to the ground freezing.

4.4.4 Diversion Ditches with Continuous Flows

Stream diversions or any temporary or permanent drainage ditches that will have a continuous water flow will be stabilized with appropriate controls prior to connection with any surface water. The entire area (channel and bank) of the diversion ditch will be appropriately stabilized to bankfull height.

The normal wetted perimeter of any temporary or permanent drainage ditch that conveys water from the project site, or diverts water around the site, will be stabilized at least 200 linear feet from the project or property boundary, or from the point of discharge to any surface water. Stabilization of the conveyance will be completed prior to connection with a surface water. Any remaining portion of the temporary or permanent drainage ditch must be stabilized within 14 calendar days for portions in which construction activities have temporarily or permanently ceased.

4.5 CHEMICAL TREATMENT

While not anticipated, if chemical treatment is to be used for sediment removal, it will be used in accordance with the manufacturer's specifications. Treatment chemicals will be selected in consideration of the anticipated soil particle size and stormwater characteristics (e.g., pH, turbidity, stormwater flow rate into the chemical treatment system, etc.) and a description of the chemical treatment process will be included herein.

If chemical treatment will be pursued, Hiland will comply with the following.

- Hiland will submit a written request to the NDDH for review and approval to ensure that the selection and management of chemicals will minimize the potential for harmful effects from the discharge.
- The request to discharge chemically treated stormwater be submitted 60 days prior to the anticipated usage date and will include all of the following information:
  - Material Safety Data Sheet/Safety Data Sheet;
  - proposed water additive discharge concentration;
  - discharge frequency (i.e., number of hours per day/number of days per year);
  - proposed discharge monitoring point;
  - type of treatment, if any, to remove additive prior to discharge;
  - product function (e.g., coagulant, flocculant, etc.);
  - a 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (*Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.); and
  - Toxicity test results for one other North American freshwater aquatic species (other than a planktonic crustacean).
- Hiland understands that any discharges from the chemical treatment of stormwater must not cause a violation of the standards of quality for waters of the state and that the discharge must be consistent with the dewatering requirements of Part II(C)(3)(g) of the general permit and Section 2.6 of this SWPPP.

4.6 FINAL STABILIZATION

Achieving final stabilization for the site ensures that stormwater runoff from the site will not result in soil erosion and sedimentation, will not contribute pollutants to waters of the state, and will not contravene water quality standards. Implementation of this SWPPP will continue until the final stabilization criteria, as specified in Part II, Section E of the General Permit and outlined below, have been met and a NOT has been submitted to the NDDH.

Final stabilization can be achieved in three different ways.

1. All soil-disturbing activities have been completed and all soils have been stabilized by a uniform perennial vegetative cover, with a density of 70% of the pre-existing cover over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions and:
    a. all drainage ditches constructed to drain water from the site after construction is complete have been stabilized to prevent erosion;
    b. all temporary erosion and sediment control BMPs (e.g., silt fence) have been removed; and
    c. all sediment has been removed from conveyances and temporary sedimentation basins that will be used as permanent water quality management basins. Removed sediment will be stabilized to prevent it from being washed into basins, conveyances, or drainageways and discharging off-site or to surface waters. Permanent basins must be sufficiently cleaned out to return the basin to design capacity.
2. In areas of the state where the average annual rainfall is less than 20 inches, all soil-disturbing activities have been completed and erosion control measures (e.g., degradable rolled erosion control products) and stabilization methods have been selected, designed, and installed, along with an appropriate seed mixture, to provide erosion control for at least 3 years and achieve 70% of the pre-existing vegetative cover within 3 years, without active maintenance, so that the site meets the criteria outlined in Items 1 (a), (b), and (c), above.
3. Disturbed areas on land used for agricultural purposes that are restored to their pre-construction agricultural use do not have to meet the foregoing final stabilization criteria. If the construction activity removed a standing crop, the area must be restored in accordance with the landowner's requirements.
4. Disturbed areas that were not previously used for agricultural activities, such as buffer strips immediately adjacent to state waters and areas that are not being returned to their pre-disturbance use, must meet the final stabilization criteria listed in Items 1 or 2 above.

4.7 LOCAL REQUIREMENTS

There are no known local stormwater management requirements for construction activities at the site. If applicable local requirements are identified during the project timeline, Hiland will comply with said requirements to the extent practicable.

4.8 SPILL RESPONSE PLANS

Contractors and subcontractors working on-site will have individual spill control and response plans or will conform to the Hiland's project-specific spill control and response plan. A minimum of one Spill Response Kit that includes the items listed in Table 5 will be maintained at the site at all times.

Table 5. Spill Response Kit Contents

Quantity	Description
Booms and Sorbent Materials	
4	5-inch by 10-foot absorbent booms
100	17- by 19-inch absorbent pads
3	50-pound bags of sorbent material
Personal Protective Equipment	
2	Pairs of gloves
2	Pairs of safety glasses
2	Pairs of protective coveralls
Equipment	
1	Flat-bladed non-sparking shovel
1	Box heavy duty (3-mil) garbage bags

4.8.1 Spill Response Procedure

In the event of a spill, leak, or release, the following procedure will be implemented.

- Account for personnel, assure their safety, and evacuate if a fire, explosion, or exposure hazard exists.
- Remove all sources of ignition. Position fire suppression equipment. Alert the Hiland Construction Manager, SWPPP Team Coordinator, or on-site inspector, who will contact the local fire department, if necessary.
- Shut off pumps and close valves that allow oil to flow to the segment of the system causing the spill. Plug or patch leak/discharge if possible.
- The Hiland Construction Manager or SWPPP Administrator will alert adjacent property owners/operators, as warranted by the incident.
- As safety allows, attempt to contain the spill. Prevent or divert spilled oil from approaching structures or draining towards water or storm drains. Absorbent material, spark-proof shovels, brooms, neoprene gloves, and other spill response materials are kept in the Spill Response Kit that is stored at the site.

- The Hiland Construction Manager or SWPPP Administrator will conduct a safety assessment and determine additional cleanup actions as needed.

For all occurrences, the Hiland Construction Manager or SWPPP Administrator will evaluate the incident and determine if notification is necessary. If a reportable quantity spill occurs, the SWPPP will be amended to include a description of the spill, equipment changes, and/or operational changes required to prevent a recurrence.

4.8.2 Disposal of Recovered Materials

Waste oil, oily material, or other potentially contaminated material recovered from spill cleanup operations will, in every case, be disposed of in a manner approved by the local, state, and federal agencies. Permits required for disposal vary on a case-by-case basis depending on type, volume, and condition of the material to be disposed. The designated Hiland Construction Manager or SWPPP Administrator is responsible for arranging the disposal of all recovered oil, contaminated absorbents, and other oily or contaminated debris.

The following disposal methods for recovered materials may be used by Hiland.

- Offsite bioremediation, or offsite disposal for contaminated soils.
- Offsite disposal for liquids and surface water recovered from impacted surface waters.
- Offsite disposal of wastes generated from recovery activities.

5.0 INSPECTION AND MAINTENANCE PROCEDURES

Inspection and maintenance of erosion and sediment controls will occur during all phases of the project, as described in Section 2.3. Continued inspection and maintenance is required for specific erosion and sediment controls after construction is completed until final stabilization is achieved. Additionally, inspections will also identify potential sources of pollutants that could impact stormwater discharges.

5.1 STORMWATER INSPECTION PROCEDURES

The inspection program will include the following.

1. A trained and qualified person familiar with this SWPPP and stormwater controls will conduct facility inspections by completing the Stormwater Inspection and Maintenance Form included Appendix E. The form will summarize the scope of the inspection, the name of the inspector, date of the inspection, the functional condition of the stormwater controls, and recommended corrective actions, if any.
2. Inspections will cover:
    - disturbed areas without stabilization, slopes, and berms;
    - material and chemical storage areas, perimeter runoff;
    - straw bales, wattles, riprap areas, culverts, and settling ponds;
    - surface water diversions and downgradient areas;
    - culverts and inlet protection, check dams, silt fences;
    - perimeter runoff and stormwater outfalls;
    - new access roads, ditches, water bars, surface diversions; and
    - locations where vehicles enter or exit the site.

    Inspections of the site and adjoining land area may need to be separated into several segments such as:

    - access roads and site perimeters;
    - on-site construction, development, and installation activities; and
    - material and fuel storage areas.

3. Inspections will occur every 14 calendar days during active construction and within 24 hours (or the next business day) after a 0.25-inch or greater precipitation event or snowmelt event that causes or may cause surface erosion occurs. For multiple-day precipitation events, inspections will be performed within 24 hours or the next business day after rainfall of 0.25 inch or greater occurs within a 24-hour period, even if it is still precipitating. At the conclusion of the extended rainfall event, another inspection will be performed within 24 hours or the next business day.
4. Post-construction inspections of areas that have been stabilized, but do not meet the final stabilization criteria, will occur once per month and within 24 hours (or the next business day) after a 0.25-inch or greater precipitation event or snowmelt event that

causes or may cause surface erosion. Inspections will continue until final stabilization is achieved and a NOT has been filed with the NDDH.

5. A log of inspections will be completed and maintained in Hiland's Lakewood, Colorado, for a minimum of 3 years.
6. Inspections are not required for disturbed areas when snow cover exists or the ground is frozen, provided that melting conditions do not exist.
7. Water quality will be visually assessed for all receiving streams or wetlands and discharge areas during each inspection, if present.
8. Disturbed areas and material storage areas that are exposed to precipitation will be inspected for evidence of pollutants entering nearby drainages.
9. Check dams, straw wattles, and other BMPs will be inspected for evidence of deterioration, under-cutting, and build-up of sediment. Sediment will be removed when it has built up one-third to one-half of the height of the specific control structure, as discussed in Section 5.2.2 and specified in Appendix C.
10. Roads used for vehicle access will be inspected for rills and channels forming and for evidence of off-site sediment transport.
11. The results of the inspections will be used to update and revise the list of potential pollutant sources identified in Section 3.2.
12. This SWPPP will be modified as necessary whenever there is a change in design, construction, or operation that changes the potential for pollutant discharge to waters of the state.
13. An inspection report summarizing the scope of the inspection, the name of the person conducting the inspection, date of inspection, and observations relating to the inspection will be prepared using the inspection and maintenance form included as Appendix E.
14. Actions taken to modify stormwater control measures will be recorded and maintained with this SWPPP. Revisions to the SWPPP will be performed as soon as practicable, but no later than 72 hours after the corrective actions have been identified.
15. If no deficiencies are found during the inspection, the report will contain a certification statement that the site is in compliance with this SWPPP.

5.2 MAINTENANCE AND CORRECTIVE ACTION PROCEDURES

5.2.1 Personnel

Personnel performing the stormwater inspections will record site conditions, BMP status, and recommended corrective actions on the Stormwater Inspection and Maintenance Form included as Appendix E. The Hiland SWPPP Team Coordinator will be apprised immediately of any discovered deficient conditions and recommended corrective actions. The SWPPP Team Coordinator will direct designated personnel (e.g., employees or subcontractors) to perform BMP maintenance, replacement, or new installation activities.

5.2.2 Scheduling

Corrective actions for erosion and sediment control structures that are found to be performing inadequately or deteriorating will be performed before the next significant rainfall event (i.e., ≥0.25 inch) or within 24 hours (whichever comes first) or as field conditions allow. Rill or gully surface erosion and steep slopes (i.e., ≥3:1 slope) will be immediately repaired and stabilized. The Hiland SWPPP Team Coordinator has the authority and will direct subcontractors to install new and/or additional stormwater control BMPs as needed.

5.2.3 Maintenance/Corrective Action Requirements

All control devices similar to, and including, silt fence or fiber rolls must be repaired, replaced, maintained, or supplemented when they become nonfunctional (e.g., torn from posts, visible tears, eaten, etc.). Collected sediment must be removed as it approaches one-half of the above ground capacity of the control device.

- Fiber rolls/straw wattles must be replaced when one-half of the original above ground height of the device when it was installed has been lost as a result of flattening, other damage, or sediment build-up.
- Sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half of the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow. Documentation must be provided in the maintenance records if field conditions do not allow access, along with a plan of action for performing maintenance activities.
- Maintenance and cleaning of inlet protection devices must be performed when sediment accumulates, the filter becomes clogged, and/or performance is compromised.
- Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment deposited by erosion. All deltas and sediment deposits in surface waters, drainageways, catch basins, and other drainage systems must be removed as soon as practicable.
- Areas where sediment removal results in exposed soil must be stabilized. Removal and stabilization will take place immediately, but no more than 7 calendar days after the discovery, unless precluded by legal, regulatory, or physical access constraints.
- If precluded, removal and stabilization will take place immediately, but no more than 7 calendar days after obtaining access. Hiland is responsible for contacting all local, regional, state, and federal authorities, and receiving any applicable permits prior to conducting any work.
- Vehicle tracking of sediment from the site must be minimized by BMPs, which may include having a designated egress with aggregate surfacing from the site or by designating off-site parking. Hiland will be responsible for (or make arrangements for) street sweeping and/or scraping of paved roads/highways, if BMPs are not adequate to prevent sediment from being tracked onto the paved road/highway surface.

- Accumulations of tracked and deposited sediment will be removed from all off-site paved surfaces by the end of the work day, shift, or if applicable, within a shorter time specified by local authorities or the NDDH.
- If sediment escapes the construction site, off-site accumulations of sediment will be removed in a manner and at a frequency sufficient to minimize off-site impacts.
- Vegetative buffers must be inspected for proper distribution of flows, sediment accumulation, and signs of rill formation. If a buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other control measures will be implemented. Eroded areas will be repaired and stabilized within 24 hours of discovery, or as soon as field conditions allow. Documentation will be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

6.0 RECORDKEEPING PROCEDURES

Records of project inspections, spills, and maintenance activities will be maintained by Hiland at Hiland's Lakewood, Colorado, office and copies of inspection reports will be maintained with the SWPPP, as Appendix F, Completed Inspection Reports. If a reportable quantity petroleum hydrocarbon spill occurs, an Oilfield Related Environmental Incident Report will be filed electronically through the North Dakota Industrial Commission's website at: https://www.dmr.nd.gov/oilgas/mvc/wincident/. For a general environmental incident or non-exempt oilfield incident, a General Environmental Incident Report will be filed electronically through the NDDH's website at: http://www.ndhealth.gov/ehs/eir/NonOilField/.

Records and reports are required to be maintained for a period of at least 3 years or until final stabilization is achieved and the stormwater permit is canceled or terminated.

7.0 NON-STORMWATER DISCHARGES

Non-stormwater discharges are not expected from the site construction, tank construction, and equipment installation activities associated with this facility. Possible exceptions include fire prevention/suppression activities, hydrostatic testing, and potable water used for dust control and watering seeded areas to promote germination. The intent is that potable water will remain within the disturbed areas of the project area and not run off or be discharged to receiving waters or wetlands. Stormwater will leave the project area along the ground surface via natural drainage swales, not through sewers or other buried piping; therefore, non-stormwater discharges are unlikely to occur once the site and tank construction and equipment installation activities are completed.

8.0 CERTIFICATIONS

8.1 OWNER/APPLICANT CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

By: Scott Bare

Title: Vice President of Project Management

Signature: _____

Date: _____

Owner Home Office Address: Hiland Partners Holdings LLC
370 Van Gordon
Lakewood, Colorado 80228

8.2 CONTRACTOR/SUBCONTRACTOR CERTIFICATION

All contractors and subcontractors that will perform construction activities that could impact stormwater will be familiar with the SWPPP and will sign the following certification.

I certify under penalty of law that I understand the terms and conditions of the Hiland Roosevelt Gas Plant Expansion SWPPP and associated NDDH Construction Permit NDR100000 that authorizes stormwater discharges associated with the construction of this site.

Signature: _____

Name: _____ Title: _____ Date: _____

Representing:

Company: _____

Address: _____

Phone: _____

Work to be conducted:

Activity 1: _____

Activity 2: _____

Activity 3: _____

Activity 4: _____

APPENDIX A

Notice of Intent

Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System (Construction Activity) Permit No. NDR10-0000

Permit No: NDR10-0000
Effective Date: April 01, 2015
Expiration Date: March 31, 2020

AUTHORIZATION TO DISCHARGE UNDER THE

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33-16-01 of the North Dakota Department of Health rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

Facilities both qualifying for and satisfying the requirements identified in Part I of the permit

are authorized to discharge stormwater associated with **construction activity**

to waters of the state

in accordance with conditions set forth in this permit.

This permit and the authorization to discharge shall expire at midnight,

March 31, 2020.

Signed this 31 day of March, 2015.

Karl H. Rockeman, P.E.
Director
Division of Water Quality

BP 2014.06.12

Table of Contents

I. PERMIT COVERAGE AND LIMITATIONS

A. Discharges Covered

1. This permit applies to all areas within the state of North Dakota, except for those areas defined as Indian Country. Construction activity located within Indian Country within the state of North Dakota must obtain a permit through the United States Environmental Protection Agency. If the construction activity is located with the jurisdiction of the state of North Dakota, and the United States Environmental Protection Agency, a permit must be obtained from both regulatory entities.

2. This permit applies to stormwater discharges associated with construction activity and small construction activity as defined in Title 40 of the Code of Federal Regulations (CFR), Parts 122.26(b)(14)(x) and (b)(15), respectively. The reference to construction activity in this permit includes both large construction activity and small construction activity as described below.

    a. Large construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than five (5) acres and includes the disturbance of less than five (5) acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb five (5) acres or more.

    b. Small construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than one (1) acre, and includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater that one (1) and less than five (5) acres.

    c. Discharges of stormwater from oil and gas exploration, production, processing or treatment operations, or transmission facilities composed of contaminated runoff by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

3. Stormwater discharges from support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) may be covered by this permit as part of a related construction site. The support activities may only be in association with one project. If the support activity is associated with more than one project, a separate stormwater permit (Industrial or mining, extraction or paving material preparation) is required.

4. Certain non-stormwater discharges from facilities covered by this permit and meeting the requirements specified in Part II(A).

5. Stormwater discharges from construction activity covered by the previous permit, issued October 12, 2009, where a notice has been submitted to obtain coverage under this permit.

6. Projects which have obtained coverage under this permit shall amend and implement a Stormwater Pollution Prevention Plan (SWPPP) that meets the requirements of this permit within ninety (90) days of the effective date of this permit.

7. Discharges from dewatering activities related to construction activities (discharges of uncontaminated stormwater).

8. Local Authority. This permit does not preempt or supersede the authority of local agencies or operators of municipal separate storm sewer systems to prohibit, restrict, or control discharges of stormwater to storm sewer systems or other water courses within their jurisdiction.

B. Discharges Not Covered

1. Stormwater discharges associated with industrial activity from any source other than construction activities described in Part I(A).

2. Post-construction discharges from industrial activity that originate from the site after construction activities have been completed at the site. Industrial and post-construction stormwater discharges may need to be covered by a separate stormwater permit.

3. The placement of fill into waters of the state requiring local, state, or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits).

4. This permit does not substitute for obligations under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), Wild and Scenic Rivers Act, or National Historic Preservation Act (NHPA), it is your responsibility to ensure the project and resulting discharges comply with the respective requirements.

5. Discharges to waters for which there is a total maximum daily load (TMDL) allocation for sediment and/or parameters associated with sediment transport are not covered unless you develop a Stormwater Pollution Prevention plan (SWPPP) that is consistent with the assumptions and requirements in the approved TMDL. To be eligible for coverage under this general permit, the SWPPP must incorporate the conditions applicable to the discharge necessary for consistency with the assumptions, allocations and requirements of the TMDL. If a specific numeric wasteload allocation has been established that would apply to discharges from construction activity, the permittee must incorporate that allocation into the SWPPP and implement necessary steps to meet that allocation. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

6. Stormwater discharges that the department determines will cause, or have the reasonable potential to cause or contribute to a violation of the standards for quality for waters of the state (North Dakota Administrative Code (N.D.A.C.) 33-16-02.1).

7. Discharges from hydrostatic testing, well points, water line disinfection and treatment of gasoline or diesel contaminated groundwater.

8. Discharges of wash water using detergents, wastewater, or sanitary waste.

C. Obtaining Coverage and Authorization Effective Date

1. To obtain authorization under this general permit for stormwater discharges you must submit a complete application and develop a SWPPP in accordance with Part II(C) of this permit. A SWPPP must be in place as a condition of the permit and a copy of the SWPPP must be retained by the permittee.

2. Permit coverage will become effective seven (7) days after you submit a complete application unless otherwise notified by the department (based on the department receipt date).

3. Upon the effective date of permit coverage you, as the permit applicant, are authorized to discharge stormwater from eligible activities under the terms and conditions of this permit.

D. Application (Notice of Intent) Process

1. You must use a Notice of Intent (NOI) to complete your application. An NOI form (or a replacement application form) is available at the following website: www.ndhealth.gov/WQ/Storm/Construction/ConstructionHome.htm.

2. Application Content and Conditions.

   a. The owner, or owner jointly with the operator (usually the general contractor), shall submit a completed application for this permit. The owner is responsible for compliance with all terms and conditions of this permit. The operator has day to day supervision of construction activities and is jointly responsible with the owner for compliance with the permit conditions as they pertain to the construction activities delegated to the operator.

   b. The application (Notice of Intent) shall contain, at a minimum, the following information:

      (1) Owner name, mailing address and phone number;
      (2) Project contact name and phone number;
      (3) Project/site name;
      (4) Project/site location (street address; section, township, range; or latitude and longitude) and county;
      (5) A brief description of the construction activity;
      (6) The anticipated start date and the anticipated completion date for the project (if known);
      (7) The estimated total area of the site and the total area of disturbance in acres;
      (8) The name of receiving water(s), or the name of the municipal storm sewer system and receiving water(s);
      (9) The signature of the applicant(s), owner (and operator if co-applicants) signed in accordance with the signatory requirements in Part IV(A)(6) of this permit.

   c. A SWPPP (Part II(C)) for the project must be prepared and available for review, upon request, by the department at the time of application. A partially complete plan is acceptable when it clearly identifies the item(s) to be completed, the person(s) responsible for completing the item(s) and the deadline for completing the item(s). The SWPPP must be completed prior to the start of construction (or the applicable construction phase). You are not required to submit the SWPPP with the application unless otherwise notified by the department.

3. For residential construction activity occurring within a common plan of development (such as a subdivision) subject to the permit requirements, coverage may be obtained by the following:

   a. The owner of the lot(s) shall submit one (1) NOI for all of the owner's construction activity within the common plan of development, or

   b. The operator, such as a homebuilder who may represent one (1) or more lot owners, shall submit one (1) NOI for all of the operator's construction activity within each addition of the common plan of development.

      In addition, a SWPPP must be developed and implemented for the permittee's activities within the common plan of development. Additional phases of the common plan of development may be included under the initial application and permit coverage provided the SWPPP is amended to include the additional area or phases.

4. For oil and gas exploration, production, processing, treatment operations, or transmission facilities, which discharge contaminated stormwater, permit applications may be submitted for individual project sites or for an area of operations such as well field or by county.

5. Completed applications and any reports required by this permit shall be submitted to:

North Dakota Department of Health
Division of Water Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

E. Notice of Termination (NOT)

1. Permittees wishing to terminate coverage under this permit must submit a Notice of Termination (NOT) or other written request identifying the facility, reason why the permit is no longer needed and signed in accordance with Part IV(A)(6) of this permit. Compliance with the conditions of this permit is required until a NOT is submitted to the department.

2. Permittees may only submit a NOT after one of the following conditions have been met:

   a. Final stabilization (Part II(E)) has been achieved on all portions of the site for which the permittee is responsible.

   b. Another owner/operator/permittee has assumed control, in accordance with the transfer provisions (Part I(F)), over all areas of the site that have not achieved final stabilization.

   c. For residential construction only, a NOT is not required for each lot that is sold, transferred, or has achieved final stabilization. The permittee must modify their SWPPP to indicate that permit coverage is no longer required for that lot. The SWPPP shall indicate the reason why coverage is no longer needed and the date the lot was sold, transferred, or achieved final stabilization. In order to terminate coverage, all lots under the control of the owner or operator must be sold, transferred, or achieved final stabilization (Part II(E)).

F. Transfer of Ownership or Control

1. When the owner or operator of a construction project changes, the new owner or operator must submit a written request for permit transfer/modification within fourteen (14) days of assuming control of the site or commencing work on-site, or of the legal transfer, sale or closing on the property; except as provided in Part I(F)(2). Late submittals will not be rejected; however the department reserves the right to take enforcement for any unpermitted discharges or permit noncompliance. For stormwater discharges from construction activities where the owner or operator changes, the new owner or operator can implement the original SWPPP created for the project or develop and implement their own SWPPP. Permittee(s) shall ensure either directly or through coordination with other operators that their SWPPP meets all terms and conditions of this permit and that their activities do not interfere with another party's erosion and sediment control practices.

2. A permit transfer/modification request is not required for the legal transfer, sale or closing on a property between permittees covered by this permit. Examples include the sale of a property parcel from a developer to a builder, or the transfer of an easement from a developer to a local government authority. If the new party is not covered by this permit at the time of transfer or sale, then the new owner/operator must submit a completed application/NOI within 14 days of assuming control of the site.

II. STORMWATER DISCHARGE REQUIREMENTS

A. Prohibition of Non-Stormwater Discharges

The discharge of wastewater is not authorized by this permit. The following sources of non-stormwater discharges are allowed if they are not a significant source of pollution and are identified in the SWPPP: fire-fighting, fire hydrant flushing, potable water line flushing, equipment wash down without detergents or hazardous cleaning products, uncontaminated foundation drains, springs, surface water, lawn watering, chemical treatment of stormwater and air conditioning condensate. Impervious surface wash water may not be directed into any surface water or storm drain inlet unless appropriate pollution prevention measures have been implemented. Discharges may not come into contact with oil and grease deposits or any other toxic or hazardous materials (unless cleaned up using dry clean-up methods). The SWPPP must include a description of the pollution prevention measures to be implemented while non-stormwater discharges are occurring.

If chemical treatment for sediment removal is intended to be used on-site, the permittee shall provide the department with the information outlined in Appendix 1(A)(14) of this permit for approval prior to use. This information shall be provided to the department no later than sixty (60) days prior to use.

B. Releases in Excess of Reportable Quantities

This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302, nor the reporting requirements found in Chapter 33-16-02.1 of the North Dakota Administrative Code. Any releases which meet any reporting requirement, must be reported to the agencies identified in Part IV(A)(7).

C. Stormwater Pollution Prevention Plans

All permittees shall implement a SWPPP for any construction activity requiring this permit until final stabilization is achieved. The SWPPP and revisions are subject to review by the department. The objectives of the SWPPP is to identify potential sources of sediment and other sources of pollution associated with construction activity, and to ensure practices are implemented and maintained to reduce the contribution of pollutants in stormwater discharges from the construction site to waters of the state and storm sewer systems. Stormwater management documents developed under other regulatory programs may be included or incorporated by reference in the SWPPP, or used in whole as a SWPPP if it meets the requirements of this part.

The SWPPP may identify more than one permittee and may specify the responsibilities of each permittee by task, area, and/or timing. Permittees may coordinate and prepare more than one SWPPP to accomplish this. However, in the event there is a requirement under the SWPPP for which responsibility is ambiguous or is not included in the SWPPP, each permittee shall be responsible for implementation of that requirement. Each permittee is responsible for assuring that their activities do not render another permittee's controls ineffective.

The SWPPP must incorporate the requirements provided in Appendix 1 and shall include the following information.

1. **Site Description**. Each plan shall provide a description of the construction activity and potential sources of pollution as indicated below:

    a. A description of the overall project and the type of construction activity;

b. Estimates of the total area of the site and the total area that is expected to be disturbed by excavation, grading, grubbing, or other activities during the life of the project;

c. A proposed timetable/schedule, or chart, of activities that includes major phases/stages, BMP implementation, BMP removal, disturbances, and stabilization for major portions of the site;

d. A description of the soil within the disturbed area(s);

e. The name of the surface water(s) and municipal storm sewer system at or near the disturbed area that will receive stormwater runoff from the project site; and

f. A site map which indicates the following items as applicable (more than one (1) map may be needed). If an item is not applicable, provide rationale describing why the item is not applicable to the construction activity:

1) Project boundaries;
2) Areas of ground disturbance during each phase/stage of the project;
3) Areas where disturbance will not occur, such as avoidance areas (e.g. wetlands, critical habitat, Threatened and Endangered Species, etc);
4) Drainage patterns including: flow direction (run-on and runoff);
5) Dividing lines, discharge points, and storm sewer system inlets which the site drains to or may be affected by the activity;
6) Pre-existing and final grades;
7) Location of all temporary and permanent sediment and erosion controls during each particular phase;
8) Location of any stormwater conveyances such as: retention ponds, detention ponds, ditches, pipes, swales, stormwater diversions, culverts, and ditch blocks;
9) Location of potential sources of pollution (e.g. portable toilets, trash receptacles, etc.);
10) Location of soil stockpiles;
11) Identify steep slopes;
12) Surface waters, including an aerial extent of wetland acreage;
13) Location of surface water crossings;
14) Locations where stormwater is discharged to surface waters;
15) Location of dewatering discharge points;
16) Locations of where chemical treatment of stormwater will be performed, including discharge points;
17) Fueling locations, vehicle and equipment maintenance areas, designated wash water collection site, lubricant and chemical storage, paint storage, material storage, staging areas, and debris collection area;
18) Location of any impervious surfaces upon completion of construction; and
19) Where included as part of the project, the site maps for off-site concrete/asphalt batch plants, equipment staging areas, borrow sites or excavated fill material disposal sites. Site maps must show items 1 through 18 of this section.

g. Projects that discharge stormwater which flows to a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids or turbidity must identify the water body and impairment in the SWPPP. The Department's 303(d) list may be found at the following website under Integrated Reports: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

h. For water bodies which have a TMDL, the SWPPP must describe and conform to the Waste Load Allocations (WLA) of the water body as per Part II(C)(4)(g) of this permit. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

2. **Narrative.** The SWPPP must include a narrative description of the selected operational controls and sediment and erosion controls as outlined in Part II(C)(3), Part II(C)(4), and Appendix 1 of this permit. When applicable, a description of the requirements for any additional environmental regulations (federal) and local requirements related to the project, as it relates to waters of the state, must also be included or incorporated by reference (e.g. The Wild and Scenic Rivers Act, The National Historic Preservation Act, The Endangered Species Act, Fish and Wildlife Coordination Act, National Environmental Policy Act, Section 404 of the Clean Water Act, etc.).

   The narrative shall describe at a minimum:

   a. The installation, removal (if applicable), and maintenance requirements of selected Best Management Practices (BMPs) for each phase/stage of construction activity;
   b. The rationale for the selection of all BMPs (calculations should be included if appropriate);
   c. Whether selected BMPs are temporary or permanent;
   d. Any descriptions of infeasibility or explanations as required in Part II, Part III(A), and Appendix 1 of this permit.

3. **Operational Controls**. The SWPPP shall describe the BMPs used in day to day operations on the project site that reduce the contribution of pollutants in stormwater runoff.

   a. The SWPPP must identify a person knowledgeable and experienced in the application of erosion and sediment control BMPs who will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion and sediment control BMPs before and during construction, until a NOT is filed or the permit is transferred. A knowledgeable and experienced person is someone who meets the requirements of Part II(C)(3)(e) of this permit.

      The owner shall develop a chain of responsibility with all operators on the site to ensure that the SWPPP will be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a NOT has been submitted to the department.

   b. The SWPPP must include a description of good housekeeping practices used to maintain a clean and orderly site. The SWPPP shall describe how litter, debris, chemicals and parts will be handled to minimize exposure to stormwater. The SWPPP also shall describe what measures will be used to reduce and remove sediment tracked off-site by vehicles or equipment. In addition, the SWPPP shall describe methods which will be used to reduce the generation of dust.

   c. The SWPPP shall describe preventative maintenance practices used to ensure the proper operation of erosion and sediment control devices (e.g., fiber rolls, erosion control blankets and silt fences) and equipment used or stored on site. The SWPPP shall describe proper inspection procedures for ensuring proper operation of erosion and sediment control devices.

   d. The SWPPP shall describe spill prevention and response procedures where potential spills can occur. Specific handling procedures, storage requirements, spill containment, cleanup procedures, and disposal must be identified. Storage structures for petroleum products and other chemicals shall have adequate leak and spill protection to prevent any spilled materials from entering waters of the state or storm sewer systems.

      The potential discharge of hazardous substances in stormwater discharges shall be minimized by including measures onsite, detailed in the SWPPP to prevent and respond to releases of hazardous substances. If a reportable quantity release occurs, the SWPPP shall be revised to prevent the reoccurrence of such a release.

e. The SWPP shall outline how employees and responsible parties shall be trained on the implementation of the SWPPP. Training must be provided at least annually, as new employees or responsible parties are hired or as necessary to ensure compliance with the SWPPP and the general permit. Employees and responsible parties include individuals who are responsible for design, installation, maintenance and repair of stormwater controls and conducting inspections.

    1) On-site personnel must understand the requirements of this permit as it pertains to their role in implementing the SWPPP. On-site personnel must know:

        a. The purpose of the SWPPP, requirements of the SWPPP, and how the SWPPP will be implemented;

        b. The location of all BMPs identified in the SWPPP; and

        c. Correct installation, function, maintenance and removal (if applicable) of BMPs identified in the SWPPP.

    2) Personnel responsible for performing site inspections must understand when inspections must be conducted (Part III(A)), what must be inspected (Part II(C)(7), how to record findings, when to initiate corrective actions, and properly document corrective actions.

    3) Maintenance personnel must understand when maintenance must be performed on BMPs in order to maintain properly functioning BMPs and what needs to be recorded for corrective actions/maintenance records in accordance with Part III(A)(5) of this permit.

f. The SWPPP must describe how concrete grindings and slurry will be managed. Wastewater from concrete washout, cleanout or washout from: stucco, paint, joint compound, and other building materials shall not be discharged to waters of the state, storm sewer systems or curb and gutter systems.

    1) Wash water must be collected in leak-proof containers or leak-proof pits. Containers or pits must be designed and maintained so that overflows cannot occur due to inadequate sizing, precipitation events, or snowmelt.

g. The SWPPP shall describe any dewatering activities planned at the site. Dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) related to the permitted activity must be managed with appropriate BMPs, such that the discharge does not adversely affect the receiving water. The following conditions apply to dewatering activities:

    1) Dewatering is limited to un-contaminated stormwater, surface water, and groundwater that may collect on-site and those sources identified in Part II(A), if they are not a significant source of pollution. A separate permit must be obtained to discharge water from other sources such as hydrostatic testing of pipes, tanks, or other similar vessels; disinfection of potable water lines; pump testing of water wells; and the treatment of gasoline or diesel contaminated groundwater or surface water.

    2) The permittee(s) must operate the discharge to minimize the release of sediment and provide adequate BMPs where necessary to minimize erosion due to the discharge. Discharges must not lead to the deposition of sediment within stormwater conveyance systems or surface waters. Discharges must not cause or potentially cause a visible plume within a surface water body.

3) When dewatering, utilize structures or BMPs which allow for draw down to occur from the surface of the water, unless infeasible. If infeasible, documentation must be provided in the SWPPP. In addition, you must describe what BMP(s) will be used in its place.

4) In addition to the inspection requirements in Part III, dewatering activities shall be inspected daily. The inspection must include the dewatering site, areas where BMPs are being implemented and the discharge location. A record shall be maintained to document the inspections of the dewatering operation and actions taken to correct any problems that may be identified.

   a. Records shall contain at a minimum:

      i. Date and time of the inspection,
      ii. Inspector name,
      iii. Approximate volume of water discharged,
      iv. Findings of the inspection, including recommendations and schedule for corrective actions;
      v. Corrective actions taken (including dates, times, and party completing maintenance activities); and
      vi. Documentation that the SWPPP has been amended when changes are made to the dewatering activity in response to inspections.

5) Local authorities may require specific BMPs for discharges affecting their storm sewer system.

4. **Erosion and Sediment Controls**. Erosion and sediment controls and stabilization requirements must be implemented for each major phase of site activity (e.g., clearing, grading, building, and landscaping phases). A description of the erosion and sediment controls and site stabilization methods must be provided in accordance with Part II(C)(2) of this permit. Erosion and sediment controls, and site stabilization must conform to the requirements provided in Appendix 1. The description and implementation of controls shall address the following minimum components:

   a. The selection of erosion and sediment controls, and site stabilization shall consider the following:

      1. The expected amount, frequency, intensity, and duration of precipitation events;

      2. The nature of stormwater run-on and runoff from the site as well as changes during, and as a result of, construction activity. This includes changes to impervious surfaces, slopes, seasonal changes, and drainage features on-site;

      3. Channelized flow, must be handled in order to minimize erosion at outlets and to minimize impacts to downstream receiving waters;

      4. Soil types (wind and water erodibility, and settling time); and

      5. Seasonal conditions.

   b. Sediment basins, or an appropriate combination of equivalent sediment controls such as smaller sediment basins and/or sediment traps, silt fences, fiber logs, vegetative buffer strips, berms, etc., are required for all down slope boundaries of the disturbance area and for those side slope boundaries as may be appropriate for site conditions.

c. Temporary or permanent erosion protection and stabilization (such as cover crop planting or mulching) must be initiated immediately, as described in Appendix 1(A), for all exposed soil areas where activities have been completed or temporarily ceased.

d. All control measures must be properly selected, installed and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site situations. Corrective actions must be made prior to the next anticipated rainfall event of within 24 hours of discovery (whichever comes first) or as soon as field conditions allow. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

   The permittee may deviate from the manufacturer's specifications and erosion and sediment control requirements in Appendix 1 if they provide justification for the deviation and document the rationale for the deviation in the SWPPP. Any deviation must provide equivalent erosion and sediment control.

e. If sediment escapes from the site, off-site accumulations of sediment must be removed in a manner and frequency sufficient to minimize off-site impacts as outlined in Appendix 1(B). The SWPPP must be modified to prevent further sediment deposition off-site.

f. Stormwater controls are expected to withstand and function properly during precipitation events of up to the 2-year, 24-hour storm event. Visible erosion and/or off-site sediment deposition from such storm events should be minimal. The 2-year, 24-hour rainfall event in North Dakota ranges from about 1.9 inches in the west to 2.3 inches in the east.

g. For projects that discharge stormwater which flows to a water body for which there is a TMDL allocation for sediment and/or parameters associated with sediment transport, the SWPPP must be consistent with the assumptions, allocations, and requirements in the approved TMDL. If a TMDL specifies certain BMPs or controls to meet a WLA applicable to the project's discharges, the BMPs or controls must be incorporated into the SWPPP. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

5. **Stormwater Management**. The SWPPP must identify permanent practices incorporated into the project to control pollutants in stormwater discharges occurring after construction operations have been completed.

   a. Identify stormwater ponds; flow reduction methods; infiltration of runoff on-site; sequential systems which combine several practices or other post-construction stormwater management features.

   b. Identify velocity / energy dissipation devices placed at discharge locations and appropriate erosion protection for outfall channels and ditches.

   c. Maintenance for on-site stormwater management features is the responsibility of the permittee until the NOT is submitted or the feature is accepted by the party responsible for long term maintenance.

   d. The design, installation and use of stormwater management features must comply with applicable local, state or federal requirements.

6. **Maintenance**. All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition. The SWPPP must indicate, as appropriate, the maintenance or clean out interval for sediment controls. If site inspections, required in Part III of this permit, identify BMPs that are not operating effectively, maintenance shall be arranged and accomplished in accordance to Appendix 1 or as soon as practicable.

7. **Inspections**. The SWPPP must provide for site inspections as outlined in Part III. The permittee shall ensure that personnel conducting site inspections are familiar with permit conditions and the proper installation and operation of control measures. Inspectors must be knowledgeable in their role of the SWPPP, as outlined in Part II(C)(3)(e) of this permit. The erosion and sediment control measures and stabilized areas identified in the SWPPP shall be observed to ensure they are operating correctly and in serviceable condition. Inspections shall include areas used for storage of materials, permanent stormwater control measures and vehicle maintenance areas. These areas shall be inspected for evidence of, or the potential for, pollutants entering a drainage system. If necessary, the plan shall be revised based on the observations and deficiencies noted during the inspection.

8. **SWPPP Review and Revisions**.

    a. The SWPPP shall be signed in accordance with the Signatory Requirements, Part IV(A)(6), and retained on-site for the duration of activity as outlined in Part III(B).

    b. The permittee shall make the SWPPP available upon request to the department, EPA, or, in the case of discharges to a municipal storm sewer system, the operator of the municipal system.

    c. The permittee shall amend the SWPPP whenever there is a change in design, construction, operation, maintenance, or BMPs. The SWPPP shall be amended if the plan is found to be ineffective in controlling pollutants present in stormwater. The SWPPP shall be amended as soon as practicable.

D. Local Requirements

All stormwater discharges must comply with the requirements, policies, or guidelines of municipalities and other local agencies as applicable to the construction site. Any discharges to a storm sewer, ditch or other water course under the jurisdiction of a municipality must comply with any specific conditions or BMPs required by the municipality or agency.

E. Final Stabilization

The permittee(s) must ensure final stabilization of the site. The permittee(s) should submit a NOT within 30 days after final stabilization has been achieved, or another owner/operator (permittee) has assumed control according to Part I(F) for all areas of the site that have not undergone final stabilization. Final stabilization can be achieved in one of the following ways.

1. All soil disturbing activities at the site have been completed and all soils must be stabilized by a uniform perennial vegetative cover with a density of 70 percent of the pre-existing cover over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions and;

    a. All drainage ditches, constructed to drain water from the site after construction is complete, must be stabilized to preclude erosion;

b. All temporary erosion prevention and sediment control BMPs (such as silt fence) must be removed as part of the site final stabilization; and

c. The permittee(s) must remove all sediment from conveyances and temporary sedimentation basins that will be used as permanent water quality management basins. Sediment must be stabilized to prevent it from being washed into basins, conveyances or drainage ways discharging off-site or to surface waters. The cleanout of permanent basins must be sufficient to return the basin to design capacity.

2. For areas of the state where the average annual rainfall is less than 20 inches, all soil disturbing activities at the site have been completed and erosion control measures (e.g., degradable rolled erosion control product) and stabilization methods are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years and achieve 70 percent of the pre-existing vegetative cover within three (3) years without active maintenance. Sites must meet the criteria outlined in items 1(a), (b), and (c) above.

3. Disturbed areas on land used for agricultural purposes that are restored to their pre-construction agricultural use are not subject to these final stabilization criteria. If the construction activity removed standing crop, the area must be restored in accordance with the landowner.

   Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to waters of the state, and areas which are not being returned to their pre-disturbance use must meet the final stabilization criteria in (1) or (2) above.

4. For residential construction only, final stabilization may be achieved when soil is stabilized (see Appendix 1(A)(3)) and down gradient perimeter control for individual lots has been implemented and the residence has been transferred to the homeowner. Additionally, the permittee must distribute a “homeowner fact sheet” to the homeowner to inform the homeowner of the need for, and benefits of, final stabilization. The permittee also must demonstrate that the homeowner received the fact sheet.

III. SELF MONITORING AND REPORTING

A. Inspection and Maintenance Requirements

1. Inspections shall be performed by or under the direction of the permittee at least once every 14 calendar days and within 24 hours after any storm event of greater than 0.25 inches of rain per 24-hour period. Inspections are only required during normal working hours. The permittee shall use a rain gauge on-site or utilize the nearest National Weather Service precipitation gauge station. Rain gauge locations or stations must be representative of the site.

   a. “Within 24 hours after any storm event greater than 0.25 inches rain per 24-hour period” means that you are required to conduct an inspection within 24 hours once a storm event has produced 0.25 inches, even if the storm event is still continuing. If there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.25 inches or more rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.

2. There may be times when a site inspection may not be practical at the specified time. Adverse climatic conditions, such as flooding, high winds, tornadoes, electrical storms, site access constraints, etc., may prohibit inspections. The permittee must include a description of why the inspection(s) could not be performed at the designated time in the next inspection record. If an inspection is delayed due to adverse weather conditions or rain events outside normal working hours, an inspection must be conducted during the next working day, or as conditions allow.

3. Some erosion and sediment control measures may require more frequent inspection based on location (e.g., sensitive areas or waters of the state) or as a result of recurring maintenance issues. Erosion or sediment control measures found in need of maintenance between inspections must be repaired or supplemented with appropriate measures as soon as practicable. Erosion and sediment control measures which require more frequent inspection based on location or as a result of recurring maintenance issues must be identified in the SWPPP.

4. All inspections conducted during construction must be recorded in writing and these records must be retained in accordance with Part III(B). Records of each inspection activity shall include:

    a. Date and time of inspections;

    b. Name of person(s) conducting inspections;

    c. Findings of inspections, including recommendations and schedule for corrective actions;

    d. Date and amount of all rainfall events greater than 1/4 inch (0.25 inches) in 24 hours; and

    e. Documentation that the SWPPP has been amended when changes are made to BMPs in response to inspections.

    f. All inspection reports shall be signed in accordance with Part IV(A)(6) of this permit.

5. Corrective actions (maintenance activities) performed during construction must be recorded in writing and these records must be retained in accordance with Part III(B). Records for maintenance activity shall include:

    a. Best Management Practice corrected;

    b. Date and time of corrective action;

    c. Name of person(s) performing corrective actions;

    d. Corrective actions taken; and

    e. Corrective actions/maintenance records shall be signed in accordance with Part IV(A)(6) of this permit.

6. Completed areas that have been stabilized but do not meet the 70 percent perennial vegetative cover criteria for final stabilization may be inspected once per month. Inspections may be suspended for parts of the construction site that meet final stabilization requirements of Part II(E) of this permit. The SWPPP must update to identify any areas which meet this condition.

7. Inspections may be suspended where earthwork has been suspended due to frozen ground conditions. The required inspections and maintenance must resume as soon as runoff occurs or the ground begins to thaw at the site. The permittee must record freeze/thaw and runoff dates as part of the inspection records.

B. Records Location

A copy of the completed and signed NOI, coverage letter from the department, SWPPP, site inspection records, and this general permit shall be kept at the site of the construction activity in a field office, trailer, shed, or in a vehicle that is on-site during normal working hours. If the site does not have a reasonable on-site location, then the documents must be retained at a readily available alternative location; preferably with the individual responsible for overseeing the implementation of the SWPPP. Electronic copies of records are acceptable if the records can be accessed on-site. If the site is inactive, then the documents may be stored at a local office. Permittees should avoid using personal electronic devices for storing electronic records.

IV. STANDARD CONDITIONS

A. COMPLIANCE RESPONSIBILITIES BP 2014.12.08

1. Duty to Comply
The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. Proper Operation and Maintenance
The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

3. Planned Changes
The department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

4. Duty to Provide Information
The permittee shall furnish to the department, within a reasonable time, any information which the department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

5. Records Retention
All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the department or EPA.

6. Signatory Requirements
All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the department; and

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under 6. Signatory Requirements is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:

    a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under 8. Bypass of Treatment Facilities;

    b. Any upset which exceeds any effluent limitation in the permit under 9. Upset Conditions; or

    c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.

2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:

    a. A description of the noncompliance and its cause;

    b. The period of noncompliance, including exact dates and times;

    c. The estimated time noncompliance is expected to continue if it has not been corrected; and

    d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    Reports shall be submitted to the address in **Part I(D) Application (Notice of Intent) Process**. The department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the department at 701.328.5210 as identified above.

    All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

8. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.

Bypass exceeding limitations-notification requirements.

a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of bypass.

b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required under 7. Twenty-four Hour Notice of Noncompliance Reporting.

2. Prohibition of Bypass. Bypass is prohibited, and the department may take enforcement action against a permittee for bypass, unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required under the 8(a). Anticipated Bypass subsection of this section.

The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three (3) conditions listed above.

9. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with erosion and sediment or site stabilization methods if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and the permittee can identify its cause(s);

2. The permitted facility was, at the time being, properly operated;

3. The permittee submitted notice of the upset as required under 7. Twenty-four Hour Notice of Noncompliance Reporting and

4. The permittee complied with any remedial measures required under 10. Duty to Mitigate.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

10. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

11. Removed Materials

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard.

12. Duty to Reapply

Any request to have this permit renewed should be made 15 days prior to its expiration date.

B. GENERAL REQUIREMENTS

1. Inspection and Entry

The permittee shall allow department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the construction activity and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

2. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

3. Transfers

This permit is not transferable except upon the filing of a Transfer/Modification request (Part I(F)) by the new party. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the Department of the possible change.

4. New Limitations or Prohibitions

The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

9. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

10. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

V. DEFINITIONS Permit Specific BP 2009.02.05

"303(d) List" or "Section 303(d) List" means a list of North Dakota's water quality-limited waters needing total maximum daily loads or TMDLs developed to comply with section 303(d) of the Clean Water Act. A copy of the latest integrated report is available on the state's web site at: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

"Act" means the Clean Water Act.

"Bankfull" means the channel is filled to the top of one or both of its banks.

"BMP" or "Best Management Practices" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

"Common Plan of Development or Sale" means a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

"Construction Activity" means construction activity as defined in 40 CFR part 122.26(b)(14)(x) and small construction activity as defined in 40 CFR part 122.26(b)(15). This includes a disturbance to the land that results in a change in topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

"Department" means the North Dakota Department of Health, Division of Water Quality.

"Energy Dissipation" means methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to: concrete aprons, riprap, splash pads, and gabions that are designed to prevent erosion.

"Indian Country" means (1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservations; (2) All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

"Infeasible" means not technologically possible or not economically practicable and achievable in light of best industry practices.

"Immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased.

“Large Construction Activity” means land disturbance of equal to or greater than five (5) acres. Large construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater that five acres.

“Normal Wetted Perimeter” means the area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events that are expected to occur once every year.

“Non-Stormwater Discharges” means discharges other than stormwater. The term includes both process and non-process sources. Process wastewater sources that require a separate NDPDES permit include, but are not limited to industrial processes, domestic facilities and cooling water. Non-stormwater sources that may be addressed in this permit include, but are not limited to: fire-fighting, fire hydrant flushing, potable water line flushing, equipment wash down without detergents or hazardous cleaning products, uncontaminated foundation drains, springs, surface water, lawn watering, chemical treatment of stormwater and air conditioning condensate.

“Operator” means the person (usually the general contractor) designated by the owner who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPPP. The person must be knowledgeable in those areas of the permit for which the operator is responsible and must perform those responsibilities in a workmanlike manner.

“Owner” means the person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease holder, the party or individual identified as the lease holder; or the contracting government agency responsible for the construction activity.

“Permanently Ceased” means clearing and excavation within any area of your construction site that will not include permanent structures has been completed.

“Permanent Cover” means final stabilization. Examples include grass, gravel, asphalt, and concrete.

"Severe Property Damage" means substantial physical damage to property, damage to best management practices which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in construction.

"Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

"Significant Spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

“Small Construction Activity” means land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than one and less than five acres

"Stabilized" means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, or other material that prevents erosion from occurring. Grass seeding alone is not stabilization. Snow cover and frozen ground conditions are not considered stabilized.

“Steep Slopes” means slopes which are fifteen (15) percent or greater in grade.

"Stormwater" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

“Stormwater Associated with Industrial Activity” means stormwater runoff, snow melt runoff, or surface runoff and drainage from industrial activities as defined in 40 CFR 122.26(b)(14).

“Stormwater Associated with Small Construction Activity” means the discharge of stormwater from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than once acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

(ii) Any other construction activity designated by EPA or the department, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the state.

“Temporarily Ceased” means clearing, grading, and excavation within any area of the site that will not include permanent structures, will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future.

"Temporary Erosion Protection" means methods employed to prevent erosion. Examples of temporary cover include; mulch, straw, erosion control blanket, wood chips, tackifiers, and erosion netting.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with permit requirements because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed erosion and sediment controls or site stabilization methods, inadequate erosion and sediment controls or site stabilization methods, lack of preventive maintenance, or careless or improper operation.

“Waters of the State” means any and all surface waters that are contained in or flow in or through the state of North Dakota as defined in NDCC 61-28-02. This definition includes all water courses, even if they are usually dry.

“You” means the owner, operator or permittee as appropriate.

Appendix 1 – Erosion and Sediment Control Requirements

Requirements for designing, implementing and maintaining erosion and sediment controls.

A. Erosion and Sediment Control Practices

1. Sites using temporary (or permanent) sediment basins must meet the following requirements:

    a. Sediment basins shall be designed for a calculated volume of runoff from a 2-year, 24-hour storm per acre drained to the basin and provides not less than 1,800 cubic feet of sediment storage below the invert of the outlet pipe from each acre drained to the basin; or

    b. Basins shall be sized to provide 3,600 cubic feet of sediment storage below the invert of the outlet pipe per acre drained to the basin if calculations are not performed.

    c. Basin outlets must be designed to avoid short-circuiting and the discharge of floating debris. Basins must be designed with the ability to allow complete basin drawdown for maintenance activities. Basins must release the storage volume in at least 24 hours. Outlet structures must be designed to withdraw water from the surface, unless not practicable. If not practicable, rationale must be provided in the SWPPP. The basin must have a stabilized emergency overflow to prevent failure of pond integrity. Energy dissipation must be provided for the basin outlet.

2. Erosion, sediment, and stabilization practices shall be provided. Erosion, sediment and stabilization practices include such things as: silt fences, fiber logs, vegetative buffer strips, erosion control blankets, mulch, hydro-seeding combined with mulch or tackifiers, etc.

3. All exposed soil areas must be stabilized (see definitions). Stabilization must be initiated immediately where activities have been permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding fourteen (14) calendar days. Stabilization must be completed as soon as practicable, but no later than fourteen (14) calendar days after the initiation of soil stabilization. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) are exempt from this requirement.

    a. For slopes with a grade of 3:1 or greater, stabilization must be initiated immediately once activities have been completed or temporarily ceased. Stabilization must be completed as soon as practicable, but no later than seven (7) calendar days after the initiation of soil stabilization.

4. Temporary soil stockpiles must have effective sediment controls, and cannot be placed in surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches.

5. The normal wetted perimeter of any temporary or permanent drainage ditch that drains water from a construction site, or diverts water around a site, must be stabilized at least 200 linear feet from the property edge, or from the point of discharge to any surface water. Stabilization shall be completed prior to connection with a surface water. Any remaining portion of the temporary or permanent drainage ditch must be stabilized within fourteen (14) calendar days for portions which construction activities have temporarily or permanently ceased.

6. If stabilization requirements cannot be met due to circumstances beyond the control of the permittee, the permittee may comply with following:

    a. If vegetative stabilization is to be used, immediately initiate, and within 14 calendars days complete, the installation of temporary non-vegetated stabilization; or

    b. Complete all methods of initiating stabilization as soon as conditions or circumstances allow.

If any conditions in parts a or b above are encountered, the permittee must document the circumstances which prevented you from meeting the stabilization requirements in the SWPPP of this paragraph and provide a schedule in the SWPPP which will be followed in order to meet the stabilization requirements.

Permittees are responsible for implementing winter stabilization methods during frozen ground conditions if the site was not stabilized prior to the ground freezing.

7. Stream diversions or any temporary or permanent drainage ditch or trench, which will have continuous flow, shall be stabilized with appropriate controls prior to connection with any surface water. The entire area (channel and bank) of the stream diversion or temporary or permanent drainage ditch, or trench, must be appropriately stabilized to bankfull height.

8. While working in or around surface waters, sediment and erosion controls must be used above the anticipated level of the surface water. Floating silt curtain does not satisfy the down slope and side slope boundary requirements in Part II(C)(4)(b) of this permit, unless the construction activity is on or below the elevation of the surface water. The floating silt curtain must be placed as close to shore as possible. Sediment control must be installed where exposed soils drain to the surface water immediately after construction activity along the waterline has been completed.

9. Pipe and culvert outlets must be provided with energy dissipation within 24 hours of connection to a surface water.

10. Splash pads and/or downspout extensions must be provided for roof drains to prevent erosion from roof runoff.

11. All storm drain inlets in the immediate vicinity of the construction site must be protected by appropriate BMPs during construction until all disturbed areas and stockpiles with the potential to discharge to the inlet have been stabilized. This includes storm drain inlets which may be affected by sediment tracked onto paved surfaces by vehicles or equipment.

12. Inlet protection devices are a last line of control – erosion and sediment control practices must be used on-site. Inlet protection devices must conform to local ordinances or regulations. In general, inlet protection devices need to provide for adequate drainage to prevent excessive roadway flooding. Inlet protection may be removed for a particular inlet if a specific concern (i.e., street flooding/freezing, snow removal) has been identified and documented in the SWPPP. In this situation, additional erosion and sediment control practices, or stabilization methods must be used to supplement the loss of the inlet protection device to prevent sediment from entering the storm sewer system.

13. Vegetated buffers must have a minimum width of 1 foot for every 5 feet of disturbed area that drains to the buffer. The width of the buffer shall have a slope of 5 percent or less and the area draining to the buffer shall have a slope of 6 percent or less. Concentrated flows should be minimized throughout the buffer.

    Buffers shall consist of dense grassy vegetation, 3 to 12 inches tall with uniform coverage over 90 percent of the buffer. Woody vegetation shall not be counted for the 90 percent coverage. No more than 10 percent of the overall buffer may be comprised of woody vegetation.

14. A 50 foot natural buffer or equivalent erosion and sediment controls must be provided when a project is within 50 feet of a surface water and stormwater flows to the surface water. If equivalent erosion and sediment controls are used, rationale for using equivalent controls must be provided in the SWPPP.

If working within 100 feet of a surface water listed as impaired for sediment, suspended solids or turbidity, a 100 foot natural buffer or equivalent sediment and erosion controls must be provided. If equivalent erosion and sediment controls are to be used, rationale for using equivalent controls must be provided in the SWPPP.

15. If the permittee(s) intend to use chemical treatment for sediment removal, they must be used in accordance with the manufacturer's specifications. Treatment chemicals must be selected appropriately for the anticipated soil particle size and characteristics of the stormwater (pH, turbidity, flow rate of stormwater flowing into the chemical treatment system, etc.). A description of the chemical treatment process must be included in the SWPPP.

    a. To ensure selection and management of chemicals minimize the potential for harmful effects in the discharge, the permittee shall provide a written request to the department for review and approval. Additional monitoring and reporting may be required as a condition for the approval to discharge.

       A request to discharge chemically treated water shall include all of the following information and be provided sixty (60) days prior to use:

       i. Material Safety Data Sheet/Safety Data Sheet (MSDS/SDS);
       ii. Proposed water additive discharge concentration;
       iii. Discharge frequency (i.e., number of hours per day and number of days per year);
       iv. Monitoring point for product discharge;
       v. Type of removal treatment, if any, that the water additive receives prior to discharge;
       vi. Product function (e.g., coagulant, flocculant, etc.);
       vii. A 48-hour LC_{50} or EC_{50} for a North American freshwater planktonic crustacean (*Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.); and
       viii. Results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean).

    b. Discharges from the chemical treatment of stormwater must not cause a violation of the standards of quality for waters of the state (N.D.A.C. § 33-16-02.1). The discharge must meet the dewatering or basin draining requirements provided in Part II(C)(3)(g) of this permit.

16. Minimize the duration of exposed soils on steep slopes.

B. Maintenance Requirements for Erosion and Sediment Controls

1. All erosion prevention and sediment control BMPs must be inspected to ensure integrity and effectiveness. All nonfunctional BMPs must be repaired, replaced, maintained or supplemented with functional BMPs. If a nonfunctioning BMP is supplemented, the nonfunctional BMP shall be removed. Corrective actions must be made prior to the next anticipated rainfall event or within 24 hours of discovery (whichever comes first), or as soon as field conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

   Permittee(s) must investigate and comply with the following inspection and maintenance requirements:

   a. All control devices similar to, and including, silt fence or fiber rolls must be repaired, replaced, maintained or supplemented when they become nonfunctional (torn from posts, visible tears, etc.). Collected sediment must be removed as it approaches 1/2 of the above ground capacity of the control device.

   b. Fiber rolls must be replaced when 1/2 of the original above ground height of the device when it was installed has been lost as a result of flattening or other damage.

c. Sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

d. Maintenance and cleaning of inlet protection devices must be performed when sediment accumulates, the filter becomes clogged, and/or performance is compromised.

2. Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment deposited by erosion. Permittees must remove all deltas and sediment deposits in surface waters, drainage ways, catch basins, and other drainage systems. Areas where sediment removal results in exposed soil must be stabilized. Removal and stabilization must take place immediately, but no more than, seven (7) calendar days after the discovery unless precluded by legal, regulatory or physical access constraints. Permittees shall use all reasonable efforts to obtain access. If precluded, removal and stabilization shall take place immediately, but no more than, seven (7) calendar days after obtaining access. Permittees are responsible for contacting all local, regional, state, and federal authorities, and receiving any applicable permits prior to conducting any work.

3. Vehicle tracking of sediment from the site must be minimized by BMPs. This may include having a designated egress with aggregate surfacing from the site or by designating off-site parking. Permittees are responsible for (or making the arrangements for) street sweeping and/or scraping if BMPs are not adequate to prevent sediment from being tracked onto the street from the site.

   Construction site egress locations must be inspected for evidence of sediment being tracked offsite by vehicles or equipment onto paved surfaces. Accumulations of tracked and deposited sediment must be removed from all off-site paved surfaces by the end of the work day, shift or if applicable, within a shorter time specified by local authorities or the department.

4. If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain event and/or pose a safety hazard to users of public streets).

5. Vegetative buffers must be inspected for proper distribution of flows, sediment accumulation and signs of rill formation. If a buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other control measures shall be implemented. Eroded areas shall be repaired and stabilized within 24 hours of discovery, or as soon as conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

C. **Operational Controls**

1. Properly handle construction debris and waste materials.

   a. Debris and waste must be handled appropriately until disposal. Litter and debris shall be collected and stored to reduce the potential for wind and water to carry the materials off-site or leachate discharging from a site. Collected material shall be taken to the appropriate facility for disposal or recycling.

   b. Liquid or soluble materials including oil, fuel, paint and any other hazardous substances must be properly stored, to prevent spills, leaks or other discharges. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of liquid or soluble material must be in compliance with applicable regulations.

2. Wash water containments must be cleaned out (solids and liquid) before 80 percent of storage capacity is attained.

3. Best management practices used in surface waters must be cleaned immediately upon removal from surface waters to prevent the transfer of aquatic nuisance species.

Delegation of Authority Letter

KINDER MORGAN

Interoffice Memo

Date: June 15, 2015

To: File

Cc: Jessica Toll, Director of Operations, Director of Engineering, Director of Project Management and Director of EHS

From: Gary Buchler
Chief Operating Officer

RE: Responsible Corporate Official under Clean Water Act

As Chief Operating Officer of Kinder Morgan's Natural Gas Pipelines, I hereby authorize and delegate responsible corporate officer authority for the purposes of 40 CFR Part 122 and related Clean Water Act programs and state-specific certification requirements including permit applications, reports and submittals, md compliance certifications, to the individuals listed below. This delegation is effective for all companies listed in Attachment A and their affiliates and subsidiaries.

The position of Director of Operations, Director of Engineering, Director of Project Management, and Director of EHS meet the definition of Responsible Corporate Officer because, among other reasons, they are authorized to make management decisions which govern the operation of regulated facilities and directing measures to assure environmental compliance. This delegation memorandum memorializes their authority and can be provided to a state or federal agency should there be any question about whether a Director is duly authorized to sign a document.

Gary Buchler
Chief Operating Officer

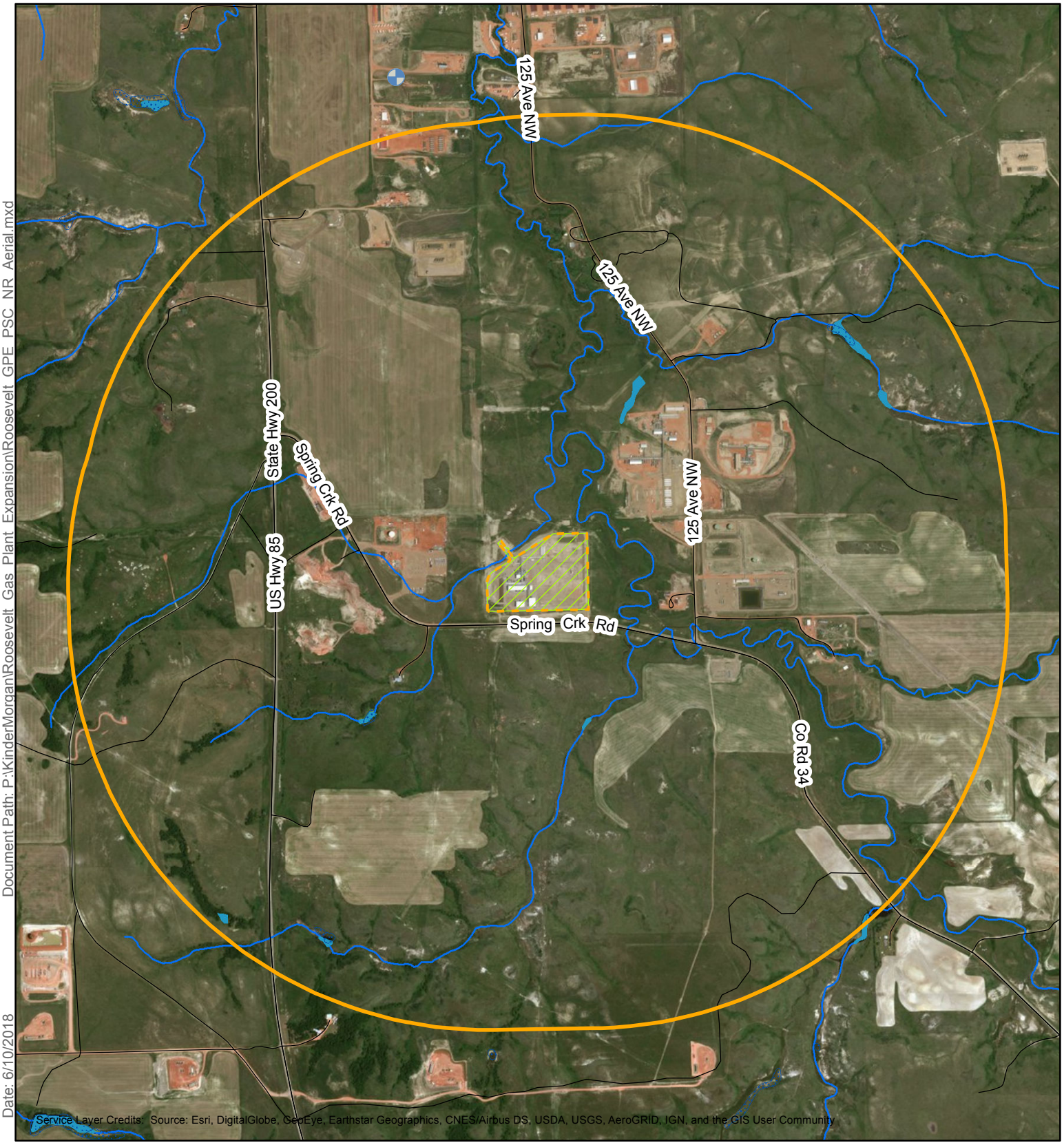
Attachment A

Bear Creek Storage Company, L.L.C.
BHP Billiton Petroleum (Eagle Ford Gathering) LLC
Bighorn Gas Gathering, L.L.C.
Bighorn Gas Operating, LP
Camino Real Gathering Company, L.L.C.
Cantera Gas Company LLC
CDE Pipeline LLC
Cheyenne Plains Gas Pipeline Company, L.L.C.
CIG Gas Storage Company LLC
Cimmarron Gathering LLC
Citrus Energy Services, Inc.
Citrus LLC
Colorado Interstate Gas Company, L.L.C.
Colorado Interstate Issuing Corporation
Copano Double Eagle LLC
Copano Energy, L.L.C.
Copano Energy Finance Corporation
Copano Energy Services/Upper Gulf Coast LLC
Copano Field Services GP, L.L.C.
Copano Field Services/North Texas, L.L.C.
Copano Field Services/South Texas LLC
Copano Field Services/Upper Gulf Coast LLC
Copano Liberty, LLC
Copano NGL Services (Markham), L.L.C.
Copano NGL Services LLC
Copano Pipelines Group, L.L.C.
Copano Pipelines/North Texas, L.L.C.
Copano Pipelines/Rocky Mountains, LLC
Copano Pipelines/South Texas LLC
Copano Pipelines/Upper Gulf Coast LLC
Copano Processing LLC
Copano Risk Management LLC
Copano/Webb-Duval Pipeline LLC
Cottonwood Creek, Inc.
Coyote Gas Treating Limited Liability Company
CPNO Services LLC
Cypress Interstate Pipeline LLC
Double Eagle Pipeline LLC
Eagle Ford Gathering LLC
El Paso Citrus Holdings, Inc.
El Paso LLC
El Paso Natural Gas Company, L.L.C.
Elba Express Company, L.L.C.

Elba Liquefaction Company, L.L.C.
Endeavor Gathering LLC
EP Ruby LLC
EPBGP Contracting Services LLC
Fayetteville Express Pipeline LLC
Florida Gas Transmission Company, L.L.C.
Fort Union Gas Gathering, L.L.C.
GLE Channel Improvement, LLC
Gulf LNG Energy, LLC
Gulf LNG Energy (Port), LLC
Gulf LNG Holdings Group, LLC
Gulf LNG Liquefaction Company, LLC
Gulf LNG Pipeline, LLC
Harrah Midstream LLC
Hiland Crude, LLC
Hiland GP, LLC
Hiland LP, LLC
Hiland Partners Finance Corp.
Hiland Partners Holdings LLC
Horizon Pipeline Company, L.L.C.
Independent Trading & Transportation Company I, L.L.C.
KinderHawk Field Services LLC
Kinder Morgan Altamont LLC
Kinder Morgan Border Pipeline LLC
Kinder Morgan Crude & Condensate LLC
Kinder Morgan Endeavor LLC
Kinder Morgan Energy Partners, L.P.
Kinder Morgan EP Midstream LLC
Kinder Morgan Freedom Pipeline LLC
Kinder Morgan G.P., Inc.
Kinder Morgan Illinois Pipeline LLC
Kinder Morgan, Inc.
Kinder Morgan Keystone Gas Storage LLC
Kinder Morgan, LLC
Kinder Morgan Louisiana Pipeline Holding LLC
Kinder Morgan Louisiana Pipeline LLC
Kinder Morgan NatGas O&M LLC
Kinder Morgan North Texas Pipeline LLC
Kinder Morgan Operating L.P.
Kinder Morgan Pecos Valley LLC
Kinder Morgan Tejas Pipeline GP LLC
Kinder Morgan Tejas Pipeline LLC
Kinder Morgan Texas Pipeline LLC

Kinder Morgan Treating LP
Kinder Morgan Treating Production LLC
Kinder Morgan Utica LLC
KM Eagle Gathering LLC
KM Gathering LLC
KM Treating GP LLC
KM Treating Production LLC
KMGP Services Company, Inc.
Liberty Pipeline Group, LLC
Midco LLC
Midcontinent Express Pipeline, LLC
Mojave Pipeline Company, L.L.C.
Mojave Pipeline Operating Company, L.L.C.
Natural Gas Pipeline Company of America LLC
NGPL HoldCo Inc.
NGPL Holdco LLC
NGPL PipeCo LLC
North Denton Pipeline, L.L.C.
Northeast Expansion LLC
Red Cedar Gathering Company
Reno Pipeline, L.L.C.
Ruby Investment Company, L.L.C
Ruby Pipeline Holding Company, L.L.C.
Ruby Pipeline, L.L.C.
Scissor Tail Energy, LLC
Sierrita Gas Pipeline LLC
Sonoran Pipeline LLC
Southern Dome, LLC
Southern Gulf LNG Company, L.L.C.
Southern Liquefaction Company LLC
Southern LNG Company, L.L.C.
Southern Natural Gas Company, L.L.C.
Southern Natural Issuing Corporation
SouthTex Treaters LLC
Tejas Gas, LLC
Tejas Natural Gas, LLC
Tennessee Gas Pipeline Company, L.L.C.
TransColorado Gas Transmission Company LLC
Utica Marcellus Texas Pipeline LLC
Webb/Duval Gatherers
WYCO Development LLC
Wyoming Interstate Company, L.L.C.
Young Gas Storage Company, Ltd.

APPENDIX B



Document Path: P:\KinderMorgan\Roosevelt Gas Plant Expansion\Roosevelt GPE PSC NR Aerial.mxd

Date: 6/10/2018

Author: tschreiner

Water Well
Abandoned Mine
Project Area
One Mile Buffer
Survey Area
Road

NWI Wetland
NHD Waterbody
NHD Flowline

1:20,000

0 750 1,500 Feet

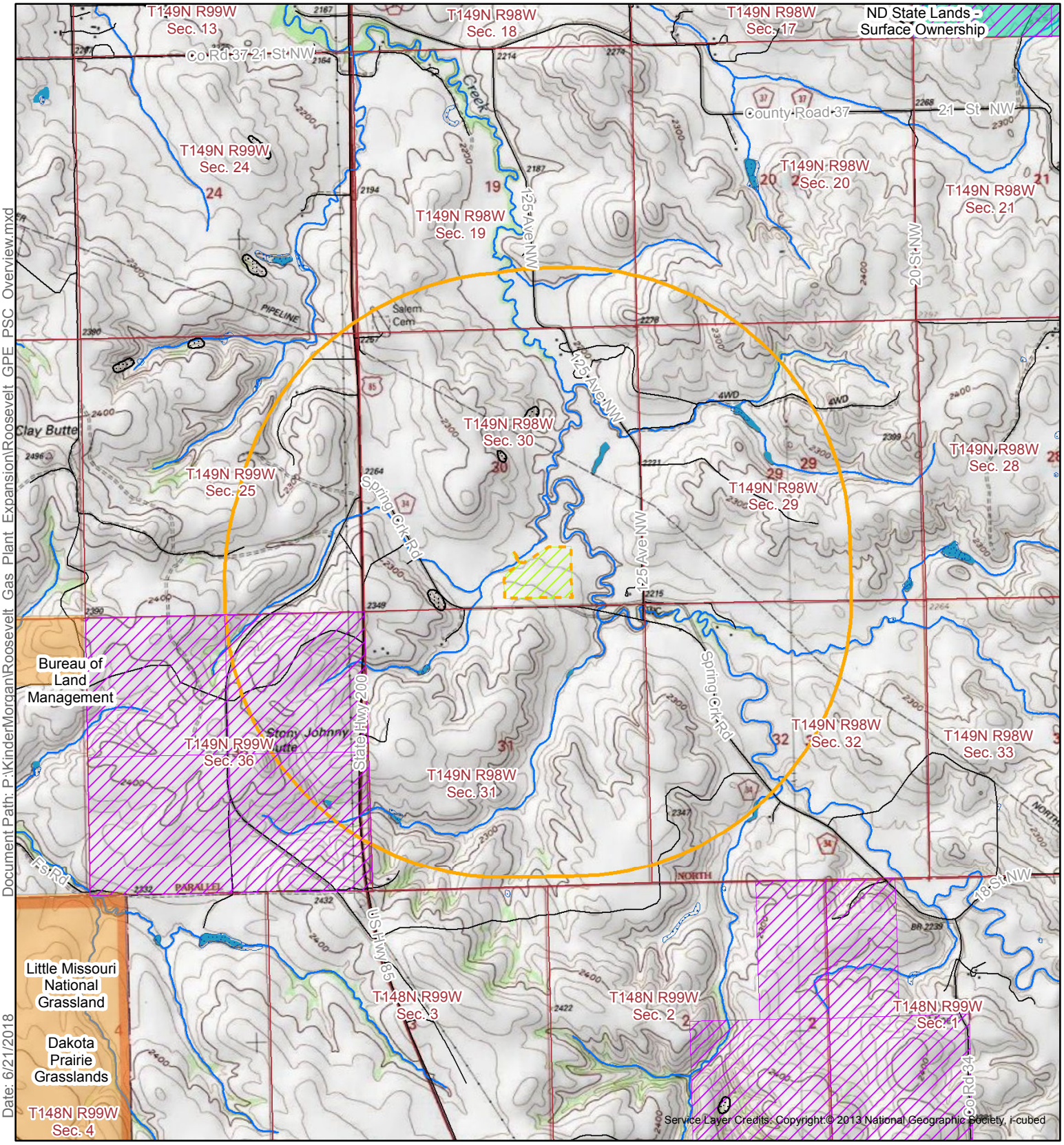
*Refer to Natural Resource Report for detailed maps and tables.

N

E3 Environmental
Enhancing Execution with Experience

Roosevelt Gas Plant Expansion
Siting Criteria
Natural Resources - Aerial Map

McKenzie County, ND



Document Path: P:\KinderMorgan\Roosevelt Gas Plant Expansion\Roosevelt GPE PSC Overview.mxd

Date: 6/21/2018

Author: tschreiner

Landslide Deposits
Mineral Trust Lands
Project Area
One Mile Buffer
Survey Area
Section
Road

NWI Wetland
NHD Waterbody
NHD Flowline

Land Ownership
Federal
State

N

1:30,000

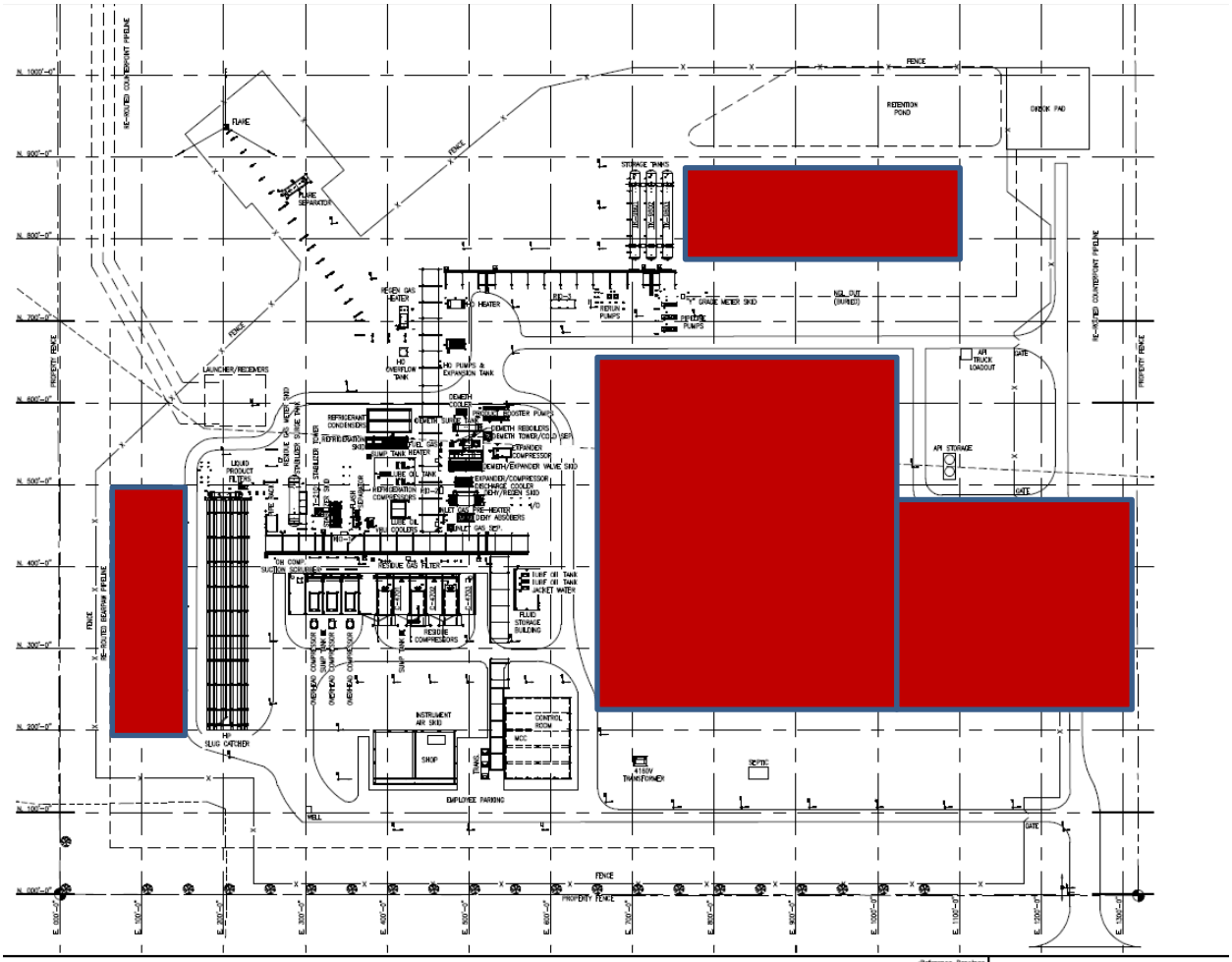
0 1,000 2,000 Feet

*Refer to Natural Resource Report for detailed maps and tables.

E3 Environmental
Enhancing Execution with Experience

Roosevelt Gas Plant Expansion Overview Map

McKenzie County, ND

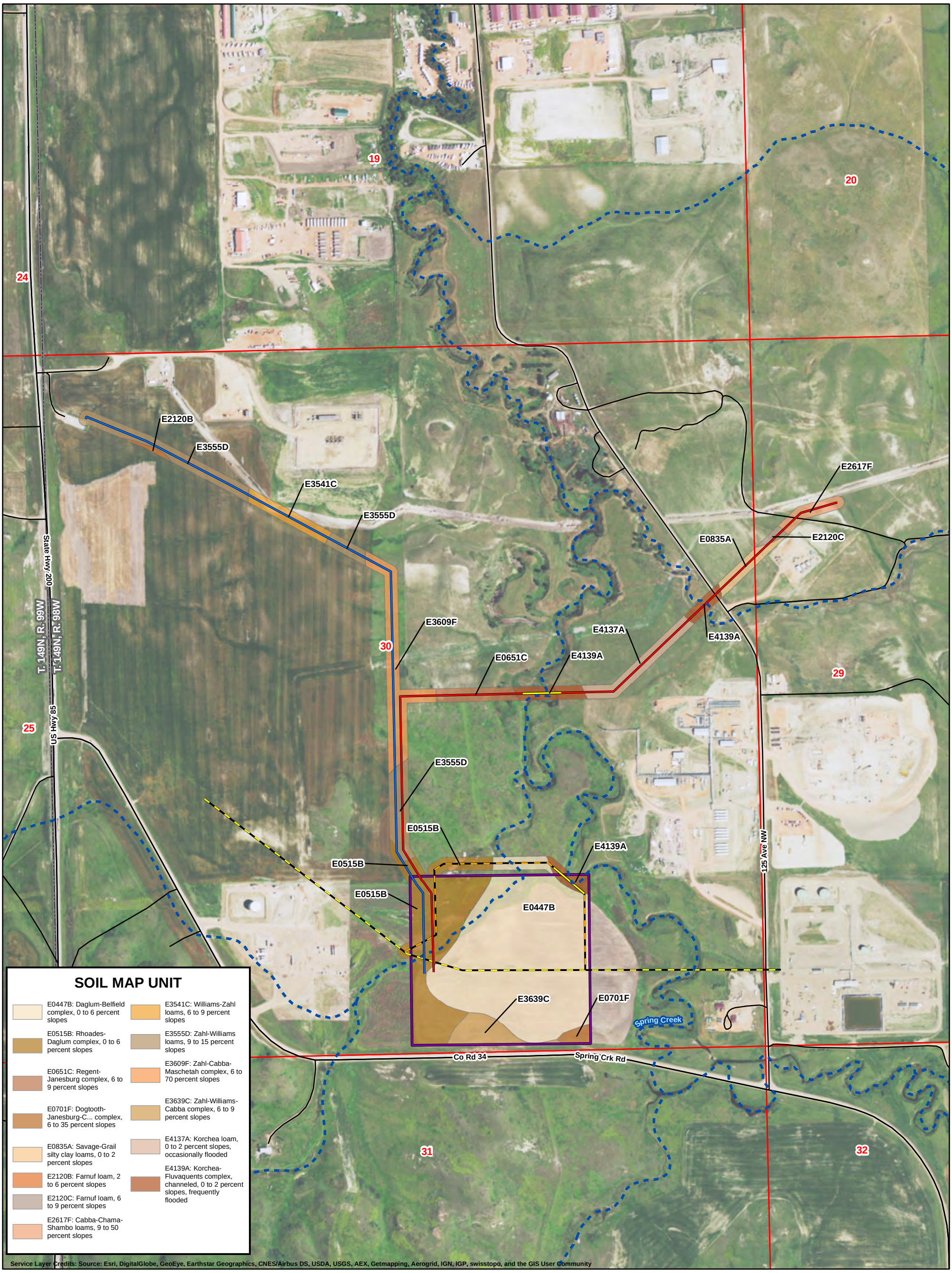


ADD JIRA 1738	12-21-2017	NOTES:
ADD JIRA 1738	12-20-2017	
	08-21-2015	

KINDER MORGAN

Reference Drawings

PLOT PLAN
UNDERGROUND PIPING



Hiland Roosevelt Gas Plant Soils

- Center Point Bakken Crude
- Center Point Bakken Crude Reroute
- Roosevelt Gas Plant Connection Pipeline
- Proposed Northern Borders Connection Pipeline
- Bore Path
- NHD Flowline
- Existing Road
- Project Area
- Section Boundary
- Township/Range Boundary

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Fax: 701.258.5957
www.swca.com

Meters
0 250 500

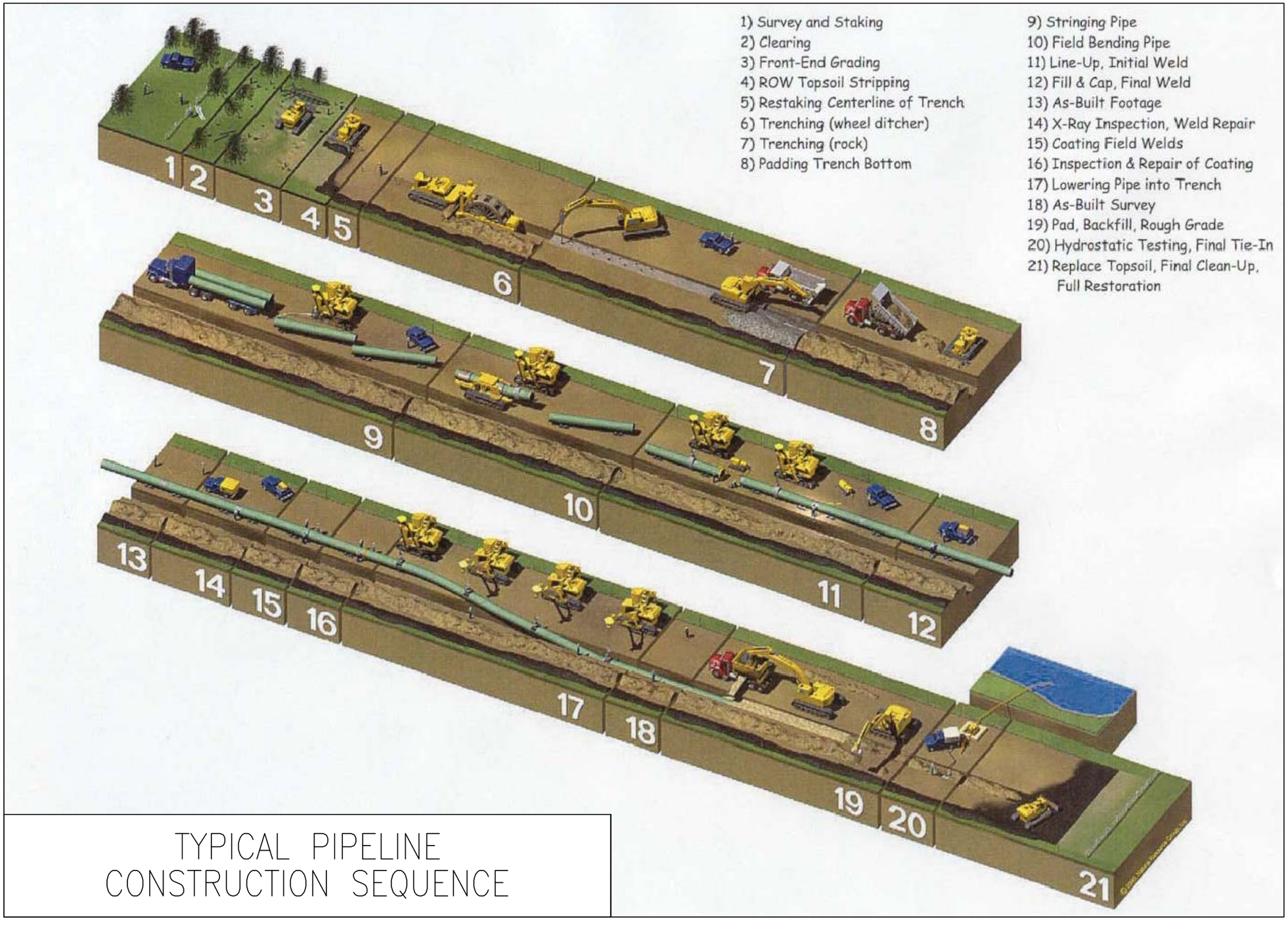
Feet
0 1,250 2,500

Base Map: Aerial Imagery
Source: Esri ArcGIS online service
Quadrangle: Teepee Buttes (1995)
T. 149N, R. 98W, Sec. 30
McKenzie County, North Dakota

Projection: NAD 1983 UTM Zone 13N

N W E S

APPENDIX C



TYPICAL PIPELINE CONSTRUCTION SEQUENCE

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	03/08/04	ISSUED FOR REVIEW	RB	CM	
2	07/01/05	ENG REWRITE RELEASE	WS		

DESIGNED IN ACCORDANCE WITH TITLE 49–PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

KINDER MORGAN INC

TYPICAL PIPELINE CONSTRUCTION SEQUENCE

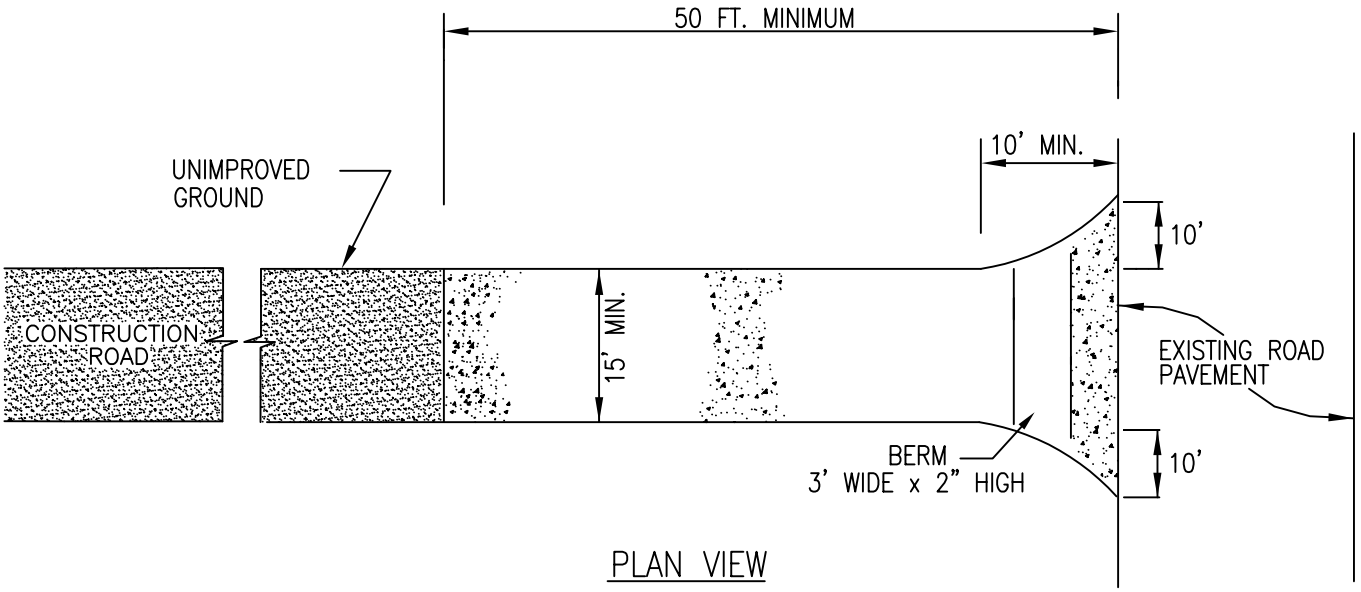
DRAWN	CHK. DR.	SCALE	DATE
RB	CM	N.T.S.	07/01/05
PROJECT ENGR. / PROJECT MGR.		FILE NO.	
- -		CST–P–1000–B060	

Typical Construction Drawings

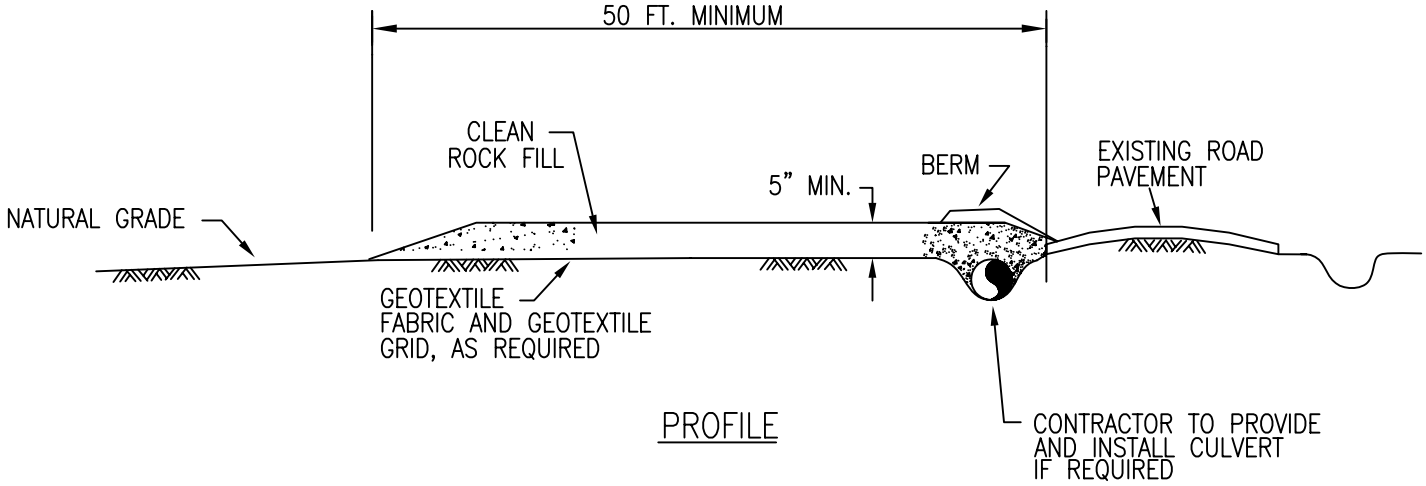
Drawing #	Description
CST-P-1000-A145	TYPICAL TEMPORARY PAVED ROAD ACCESS PAD
CST-P-1000-A150	TYPICAL TEMPORARY PAVED ROAD ACCESS DRIVE
CST-P-1000-A160	TYPICAL SPLASH PUP FOR TEST WATER DISCHARGE
CST-P-1000-A165	TYPICAL GEOTEXTILE FILTER BAG FOR DEWATERING
CST-P-1000-A335	TYPICAL WATER BODY BRIDGE ROCKFILL & FLUME
CST-P-1000-A340	TYPICAL PORTABLE WATER BODY BRIDGE
CST-P-1000-A345	TYPICAL PORTABLE WATER BODY BRIDGE WITH CULVERT SUPPORT
CST-P-1000-A350	TYPICAL TIMBER MAT WATER BODY BRIDGE
CST-P-1000-A355	TYPICAL FLEXI-FLOAT WATER BODY BRIDGE
CST-P-1000-B060	TYPICAL PIPELINE CONSTRUCTION SEQUENCE
CST-P-1000-B065	TYPICAL HYDROSTATIC TESTING FABRICATION DETAILS
CST-P-1000-B170	TYPICAL STRAW BALE DEWATERING STRUCTURE LARGE VOLUME
CST-P-1080-A085	TYPICAL FOREIGN LINE CROSSING TEST POINT
CST-P-1080-A135	TYPICAL INSULATED JOINT CATHODIC TEST POINT "D"
CST-P-1085-A005	TYPICAL THERMITE WELD CONNECTION
CST-P-1085-B030	CATHODIC PROTECTION TEST LEAD STATION
CST-P-1085-B086	CASED CROSSING TEST LEAD STATION
CST-P-1150-A275	TYPICAL FLOWING WATER BODY CROSSING OPEN CUT TRENCHED
CST-P-1150-A280	TYPICAL NON-FLOWING WATER BODY CROSSING OPEN CUT TRENCH
CST-P-1150-A370	WATER BODY CROSSING OPEN CUT DAM & PUMP
CST-P-1150-A375	WATER BODY CROSSING OPEN CUT DRY FLUME
CST-P-1160-A365	WATER BODY CROSSING HORIZONTAL DIRECTIONAL DRILL
CST-P-1260-A155	TYPICAL TEMPORARY SOIL CONTAINMENT BERM FOR WATER BODY TRENCH SPOIL
CST-P-1260-A175	TYPICAL STRAW BALE & SILT FENCE EROSION CONTROL
CST-P-1260-A180.1	TYPICAL SILT FENCE SEDIMENT BARRIER EROSION CONTROL
CST-P-1260-A180.2	TYPICAL SILT FENCE SEDIMENT BARRIER EROSION CONTROL
CST-P-1260-A190.1	TYPICAL STRAW BALE SEDIMENT BARRIER EROSION CONTROL
CST-P-1260-A190.2	TYPICAL STRAW BALE SEDIMENT BARRIER EROSION CONTROL
CST-P-1260-A200	TYPICAL TRENCH BREAKER

CST-P-1260-A205.1	TYPICAL STREAM BANK/WATER BODY RIPRAP EROSION CONTROL
CST-P-1260-A205.2	TYPICAL STREAM BANK/WATER BODY RIPRAP EROSION CONTROL
CST-P-1260-A215	TYPICAL STRAW MULCH EROSION CONTROL
CST-P-1260-A220.1	TYPICAL SLOPE BREAKER
CST-P-1260-A220.2	TYPICAL SLOPE BREAKER
CST-P-1260-A250	TYPICAL FULL TOPSOIL SEPARATION SIDE HILL CONSTRUCTION
CST-P-1260-A255	TYPICAL TOPSOIL SEPARATION TRENCH & SPOILSIDE METHOD
CST-P-1260-A260	TYPICAL TOPSOIL SEPARATION TRENCH PLUS 4" METHOD
CST-P-1260-A265	TYPICAL TOPSOIL SEPARATION BLADE WIDTH
CST-P-1260-A270	TYPICAL FULL TOPSOIL SEPARATION SIDE HILL CONSTRUCTION SPOILSIDE TRAVEL
CST-P-1260-A380.1	TYPICAL WETLAND CROSSING
CST-P-1260-A380.2	TYPICAL WETLAND CROSSING
CST-P-1260-A390.1	TYPICAL PUSH PULL WETLAND CROSSING
CST-P-1260-A390.2	TYPICAL PUSH PULL WETLAND CROSSING
	EROSION CONTROL BLANKET
	CHECK DAMS
	SURFACE ROUGHENING
	WATTLES

Total **63**



PLAN VIEW



PROFILE

NOTES:

1. ACCESS PADS, AS ILLUSTRATED ABOVE, ARE TO BE INSTALLED ADJACENT TO EXISTING PAVED ROADS AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR.
2. IF USED IN AGRICULTURAL LAND, ROCK SHALL BE PLACED ON A GEOTEXTILE FABRIC TO FACILITATE ROCK REMOVAL.
3. SHOULD THE ROCK PAD BECOME INEFFECTIVE FOR REDUCING THE BUILDUP OF MUD AND DIRT AND MINIMIZING TRACKING ONTO THE PAVED ROAD, THE CONTRACTOR SHALL WASH THE EXISTING ROCK FILL SURFACE OR ADD A ROCK FILL LAYER TO THE ACCESS PAD.
4. CONTRACTOR SHALL KEEP PAVED ROAD SURFACES CLEAR OF MUD AND DEBRIS.
5. PRIOR TO PERMANENT SEEDING, CONTRACTOR SHALL REMOVE ALL IMPORTED ROCK FILL MATERIAL, GEOTEXTILE FABRIC AND CULVERT (IF INSTALLED) AND RESTORE THE GROUND TO NATURAL CONTOURS UNLESS OTHERWISE DIRECTED BY COMPANY'S INSPECTOR.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

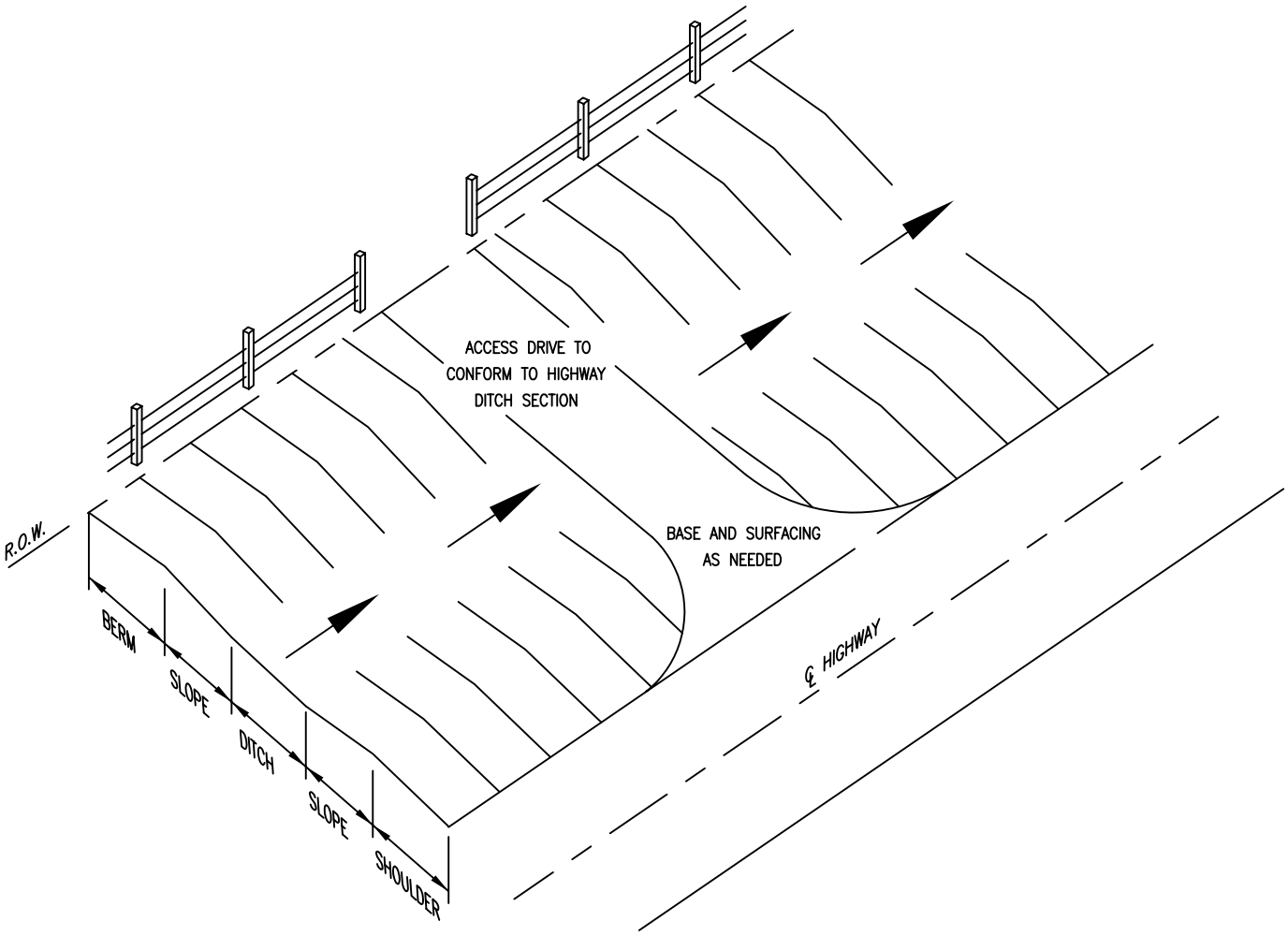
REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	02/27/04	ISSUED FOR REVIEW	RB	CM	
2	07/13/04	REVISED PER CLIENT COMMENT	RB	CM	
3	07/01/05	ENG REWRITE RELEASE	WS		

KINDER MORGAN INC

TYPICAL TEMPORARY PAVED ROAD ACCESS PAD

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A145	SH. 1 OF 1



ACCESS DRIVE
USING DIP

NOTES:

1. ACCESS PADS, AS ILLUSTRATED ABOVE, ARE TO BE INSTALLED ADJACENT TO EXISTING PAVED ROADS AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR.
2. IF USED IN AGRICULTURAL LAND, ROCK SHALL BE PLACED ON A GEOTEXTILE FABRIC TO FACILITATE ROCK REMOVAL.
3. SHOULD THE ROCK PAD BECOME INEFFECTIVE FOR REDUCING THE BUILDUP OF MUD AND DIRT AND MINIMIZING TRACKING ONTO THE PAVED ROAD, THE CONTRACTOR SHALL WASH THE EXISTING ROCK FILL SURFACE OR ADD A ROCK FILL LAYER TO THE ACCESS PAD.
4. CONTRACTOR SHALL KEEP PAVED ROAD SURFACES CLEAR OF MUD AND DEBRIS.
5. PRIOR TO PERMANENT SEEDING, CONTRACTOR SHALL REMOVE ALL IMPORTED ROCK FILL MATERIAL, GEOTEXTILE FABRIC AND CULVERT (IF INSTALLED) AND RESTORE THE GROUND TO NATURAL CONTOURS UNLESS OTHERWISE DIRECTED BY COMPANY'S INSPECTOR.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	02/27/04	ISSUED FOR REVIEW	RB	CM	
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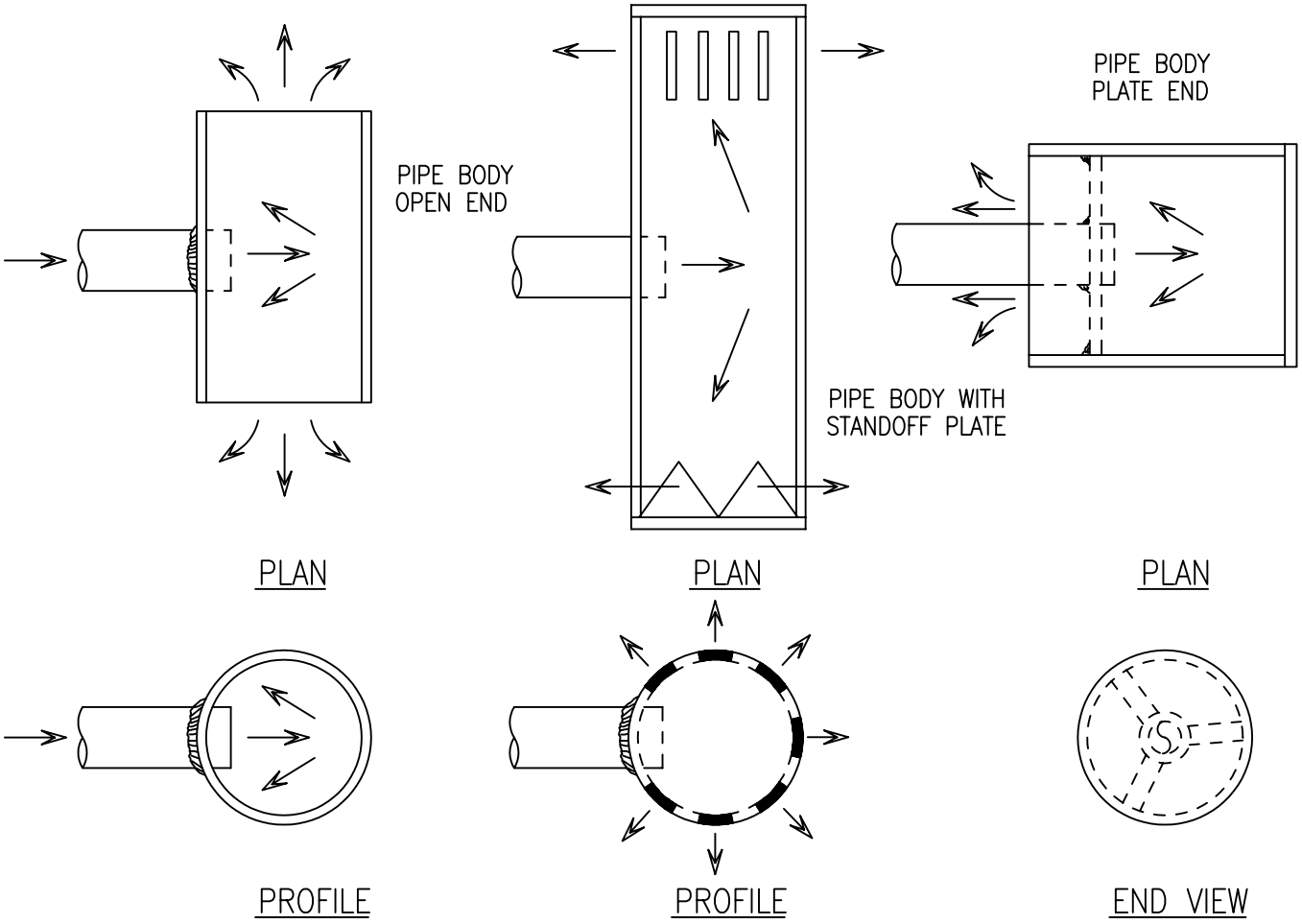
KINDER MORGAN INC

TYPICAL TEMPORARY PAVED ROAD
ACCESS DRIVE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A150	SH. 1 OF 1



NOTES:

1. AN ENERGY DISSIPATER SHALL BE UTILIZED WHENEVER WATER DISCHARGE VELOCITIES MAY CAUSE EROSION.
2. THE DESIGN AND EFFECTIVENESS OF THE ENERGY DISSIPATER IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR.
3. ENERGY DISSIPATERS ARE UTILIZED IN CONJUNCTION WITH A DEWATERING STRUCTURE. SEE CST-P-1000-A165.
4. GEOTEX FABRIC OR EQUIV. SHALL BE PLACED UNDERNEATH AND AROUND DISAPATOR DEVICE TO MIN. EROSION.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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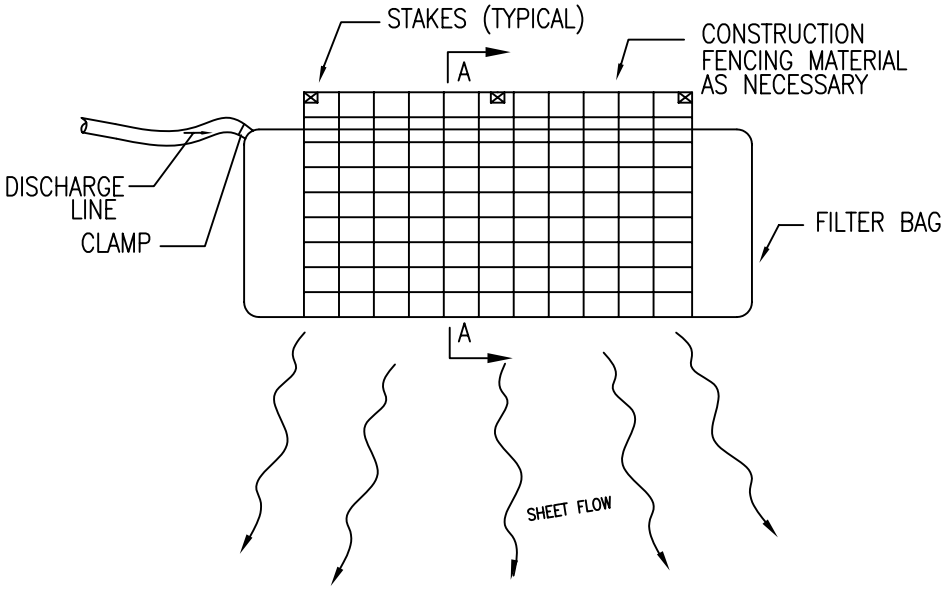
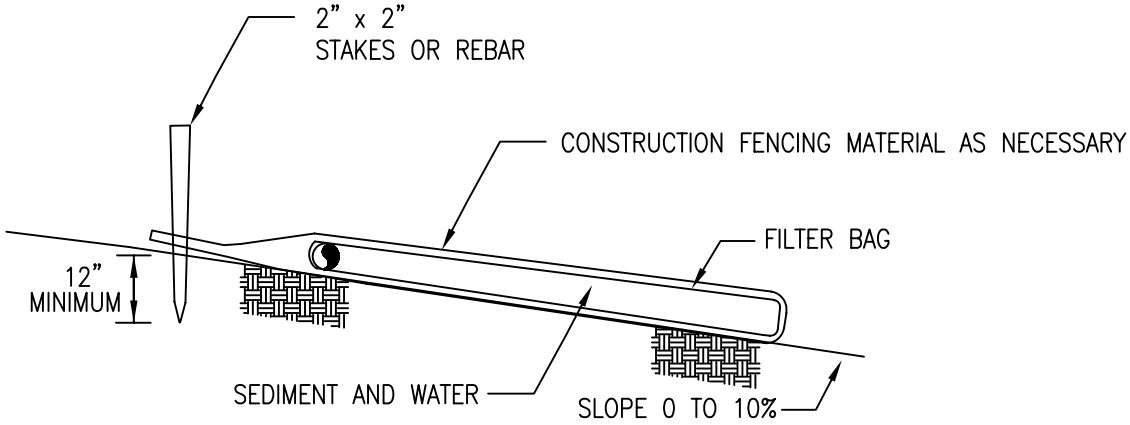
KINDER MORGAN INC

TYPICAL SPLASH PUP FOR TEST WATER DISCHARGE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A160	SH. 1 OF 1



PLAN



SECTION "A–A"

NOTES:

1. INSTALL A DEWATERING GEOTEXTILE FILTER BAG AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT THE FLOW OF HEAVILY SILT LADEN WATER INTO WATERBODIES OR WETLANDS.
2. DISCHARGE SITE SHALL BE WELL VEGETATED AND THE TOPOGRAPHY OF THE SITE SUCH THAT WATER WILL FLOW AWAY FROM ANY WORK AREAS. THE AREA DOWN SLOPE FROM THE DEWATERING SITE MUST BE REASONABLY PLANE OR STABILIZED BY VEGETATION OR OTHER MEANS TO ALLOW THE FILTERED WATER TO CONTINUE AS SHEET FLOW.
3. TO ATTACH THE DISCHARGE HOSE, CUT A CORNER OF THE BAG, INSERT DISCHARGE HOSE, AND SECURE THE HOSE TO THE BAG.
4. A SINGLE FILTER BAG SHOULD NOT BE USED FOR FLOWS GREATER THAN 600 GALLONS PER MINUTE.
5. REPLACE FILTER BAG BEFORE IT IS COMPLETELY FILLED WITH SEDIMENT. MONITOR DISCHARGE TO AVOID OVER PRESSURING DUE TO PLUGGING, WHICH MAY RESULT IN RUPTURE.
6. DISPOSE OF USED FILTER BAG AND SEDIMENT AT A SITE APPROVED BY THE COMPANY'S INSPECTOR.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

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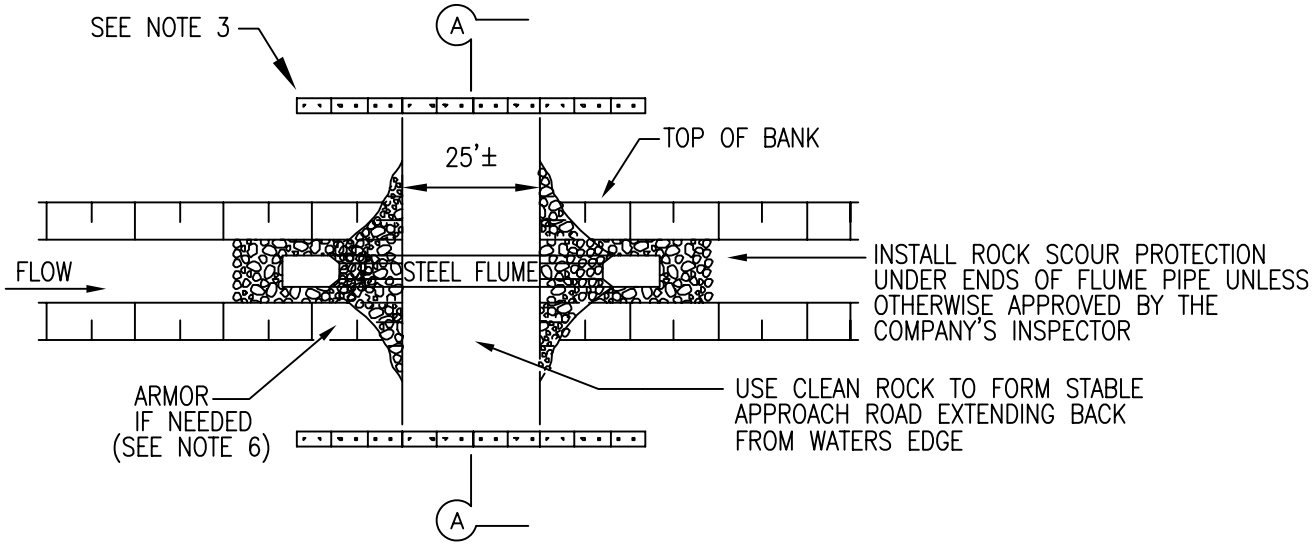
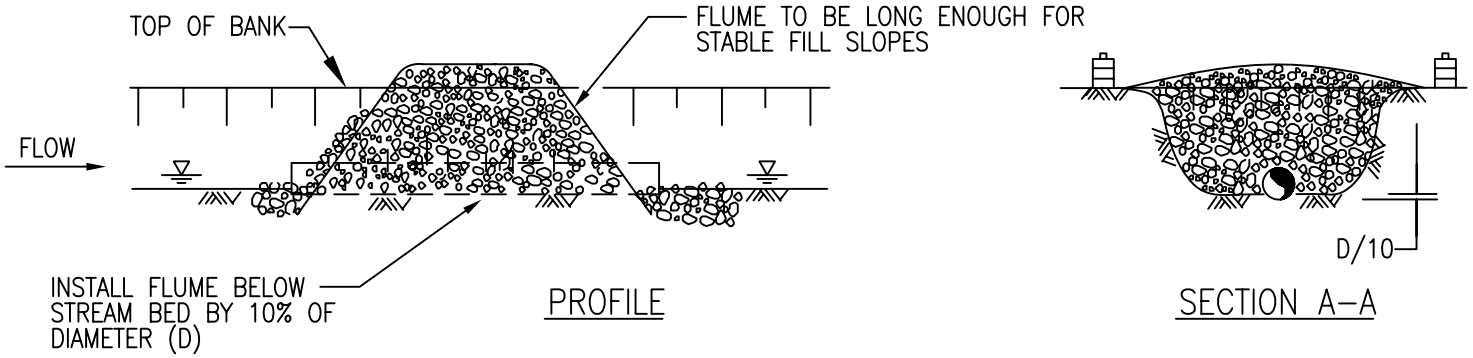
KINDER MORGAN INC

TYPICAL GEOTEXTILE FILTER BAG FOR DEWATERING

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST–P–1000–A165	SH. 1 OF 1



PLAN VIEW



PROFILE

SECTION A–A

NOTES:

1. THIS FIGURE APPLIES ONLY TO MINOR WATERBODIES WITH STATE DESIGNATED FISHERIES CLASSIFICATIONS, AND INTERMEDIATE WATERBODIES ONLY APPLICABLE WHERE PERMIT ALLOWS.
2. UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS, OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FLUME CAPACITY.
3. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SAND BAGS MAY BE USED INTERCHANGEABLY.
4. INSTALL A STEEL FLUME PIPE AND PROVIDE A MINIMUM OF 12" OF COVER OR 1/3 DIAMETER FOR FLUMES > 36" IN DIAMETER.
5. CREATE OVERFLOW AREA TO ACCOMMODATE FLASH FLOOD EVENTS IF POSSIBLE.
6. ARMOR THE INLET AND/OR OUTLET WITH LARGER ROCK OR OTHER SUITABLE MATERIAL WHERE REQUIRED BY THE COMPANY'S REPRESENTATIVE.
7. REMOVE ROCKFILL AND FLUME AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
8. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE–CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

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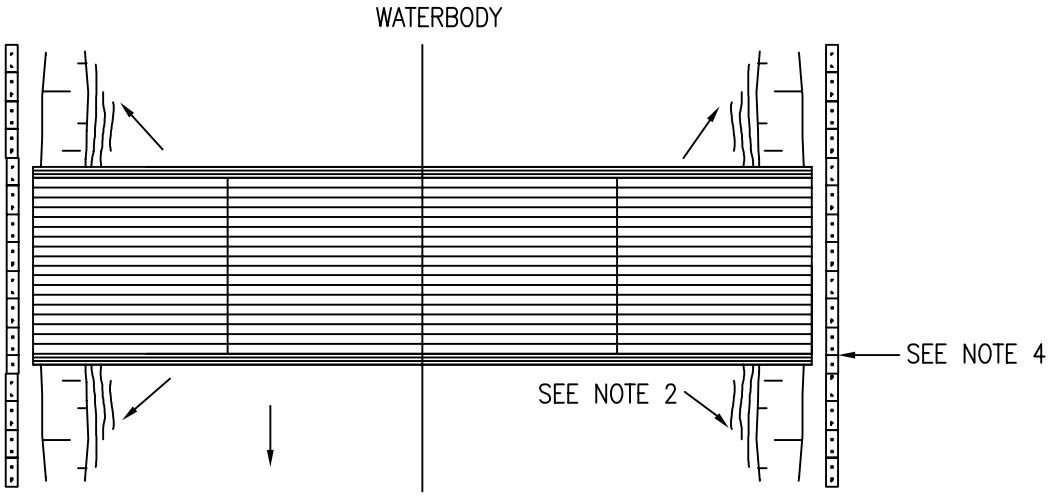
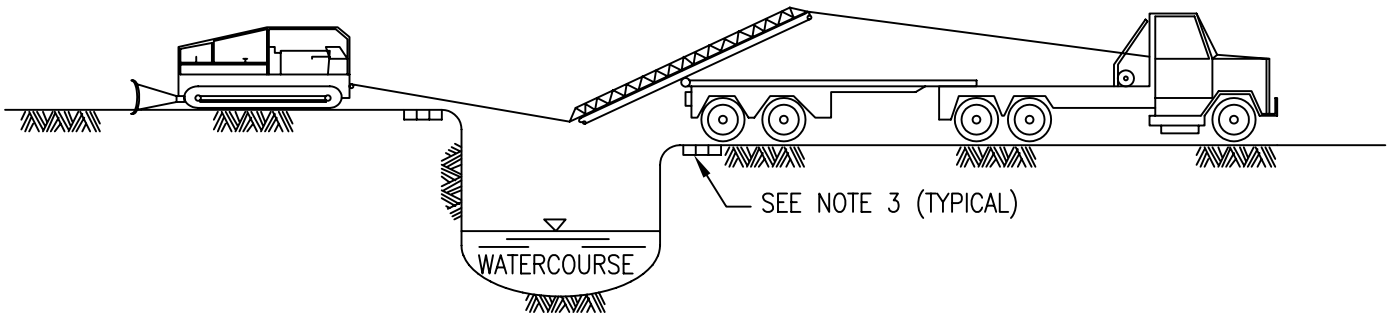
KINDER MORGAN INC

TYPICAL WATERBODY
BRIDGE ROCKFILL & FLUME

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST–P–1000–A335	SH. 1 OF 1



PLAN



PROFILE

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED ON NARROW, DEEP CROSSINGS.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY.
3. UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL USED DOES NOT SPILL INTO WATERCOURSE.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE PORTABLE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY THE COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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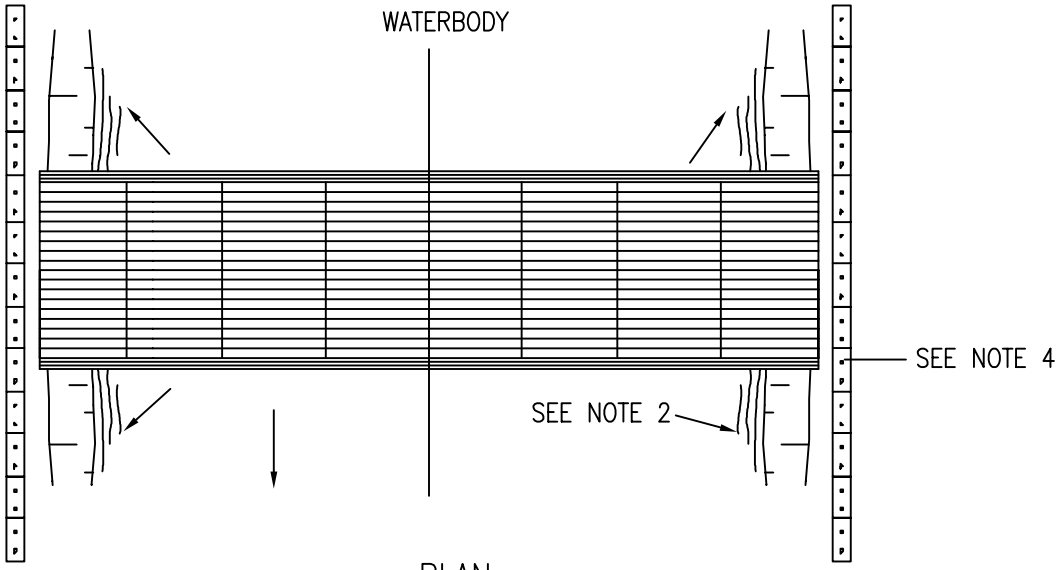
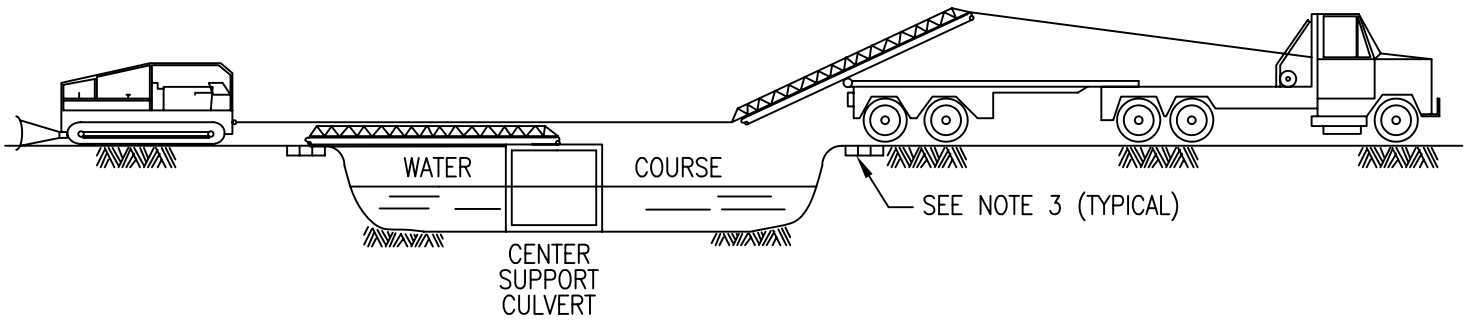
KINDER MORGAN INC

TYPICAL PORTABLE WATERBODY BRIDGE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A340	SH. 1 OF 1



PLAN



PROFILE

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED FOR CROSSINGS THAT ARE TOO WIDE FOR A SINGLE BRIDGE SECTION AND RELATIVELY SHALLOW.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY.
3. UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL, IF USED, DOES NOT SPILL INTO WATERCOURSE.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE PORTABLE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY COMPANY REPRESENTATIVE
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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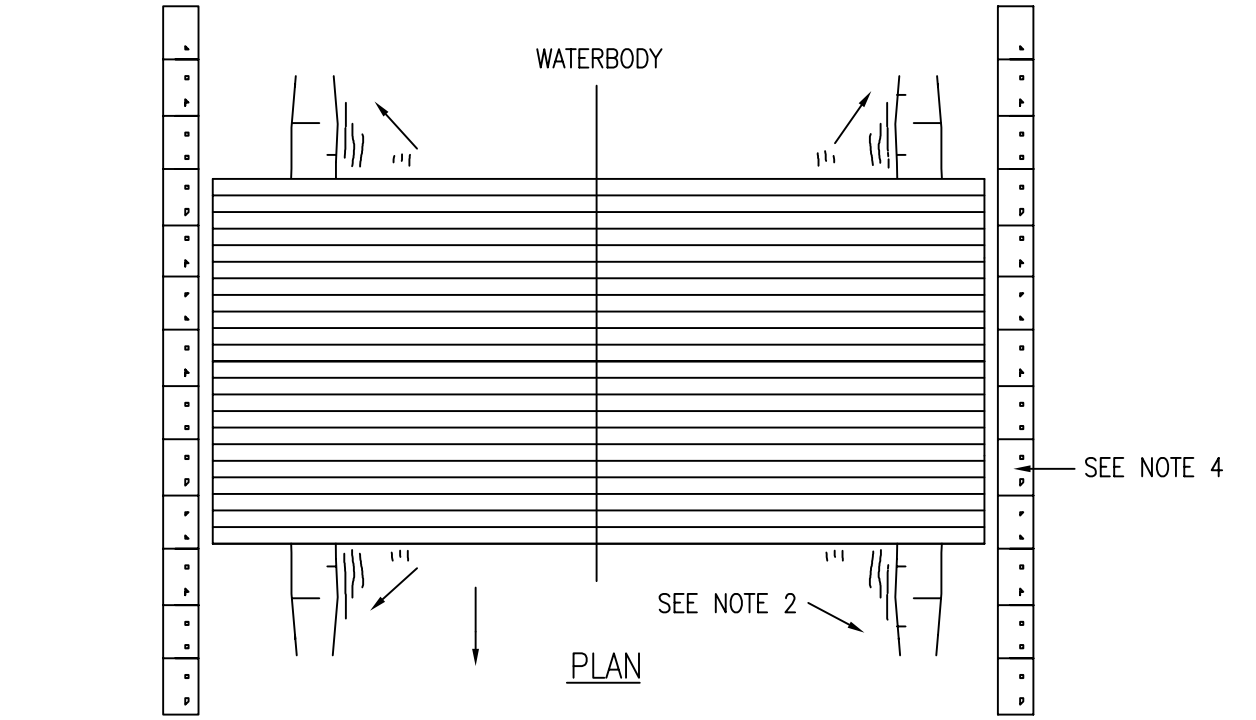
3	07/01/05	ENG REWRITE RELEASE	WS		

KINDER MORGAN INC

TYPICAL PORTABLE WATERBODY
BRIDGE WITH CULVERT SUPPORT

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A345	SH. 1 OF 1



PROFILE

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED ON NARROW CROSSINGS, LESS THAN 20 FEET WIDE WITH APPROPRIATE BANK CONFIGURATION. MULTIPLE MATS MAY BE LAYERED FOR HEAVIER EQUIPMENT CROSSINGS.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY. BRIDGE SHOULD BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE TO USE.
3. IF REQUIRED, UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL IF USED DOES NOT SPILL INTO WATERCOURSE INCLUDING REMOVAL OF DIRT FROM DECK DURING OPERATION.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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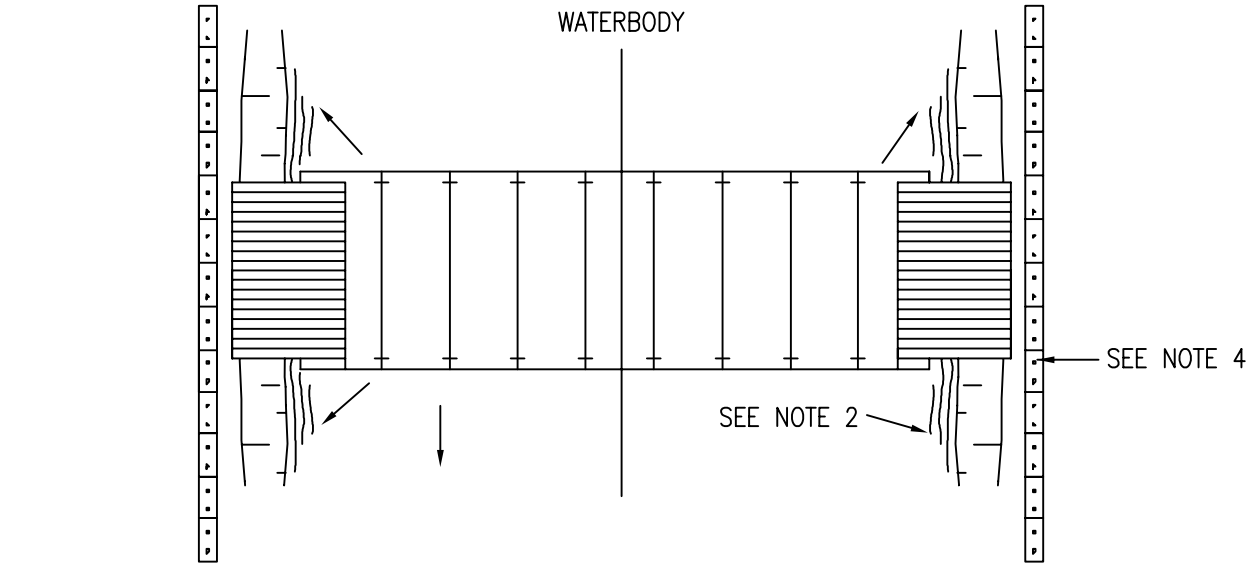
3	07/01/05	ENG REWRITE RELEASE	WS		

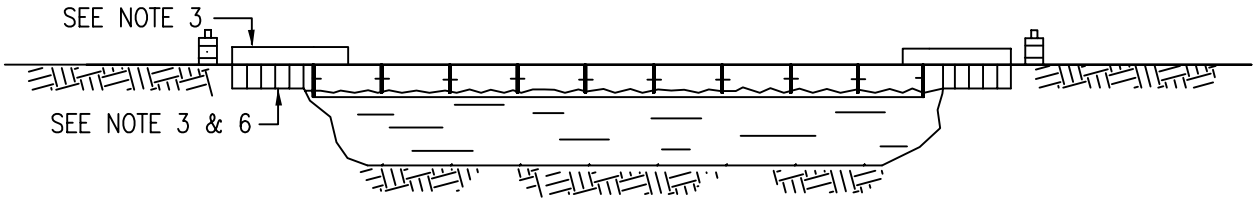
KINDER MORGAN INC

TYPICAL TIMBER MAT
WATERBODY BRIDGE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A350	SH. 1 OF 1



PLAN



PROFILE

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED ON WIDE, DEEP CROSSINGS.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY.
3. UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL, IF USED, DOES NOT SPILL INTO WATERCOURSE.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE FLOATING BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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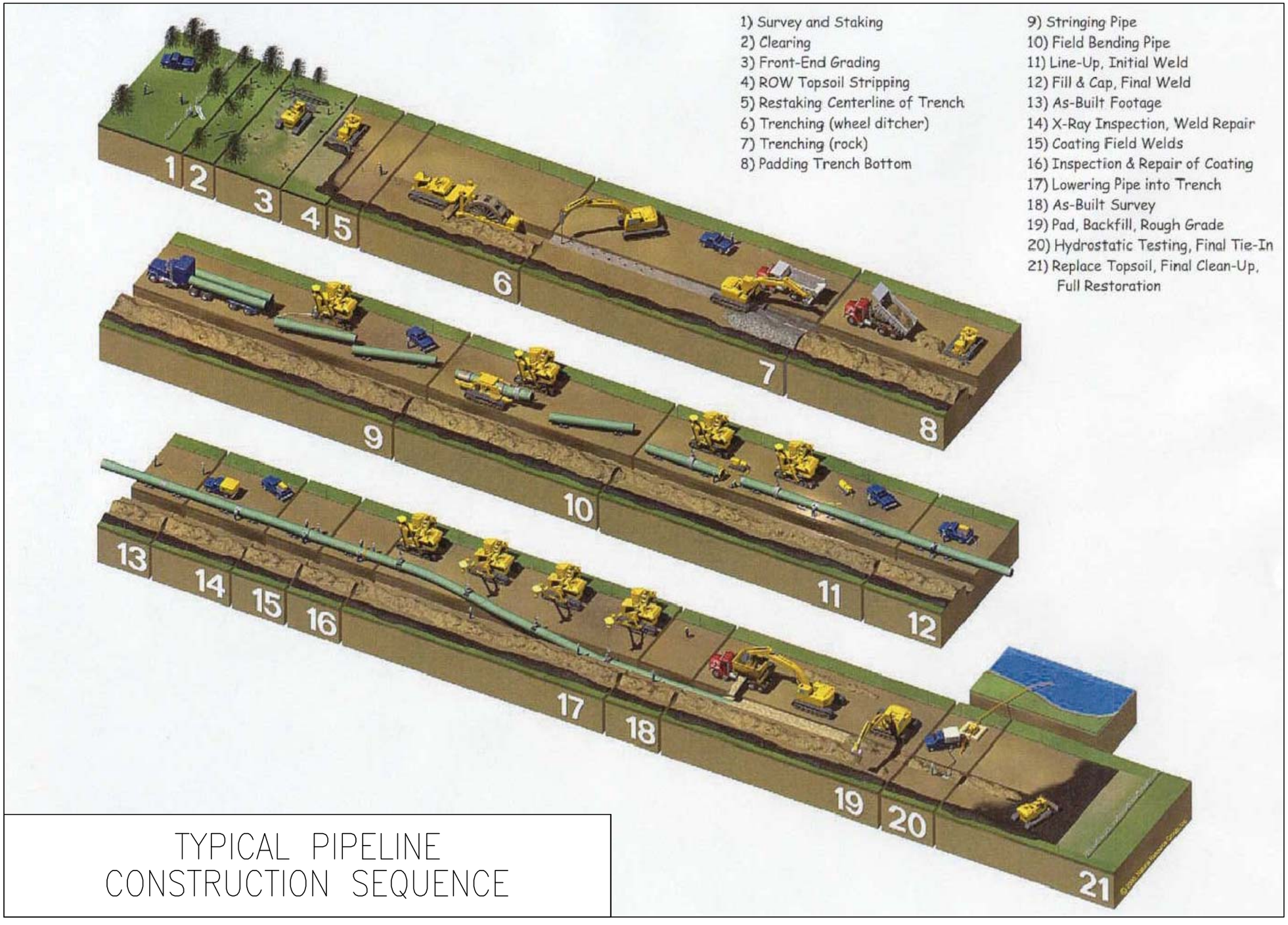
3	07/01/05	ENG REWRITE RELEASE	WS		

KINDER MORGAN INC

TYPICAL FLEXI-FLOAT WATERBODY BRIDGE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1000-A355	SH. 1 OF 1



TYPICAL PIPELINE CONSTRUCTION SEQUENCE

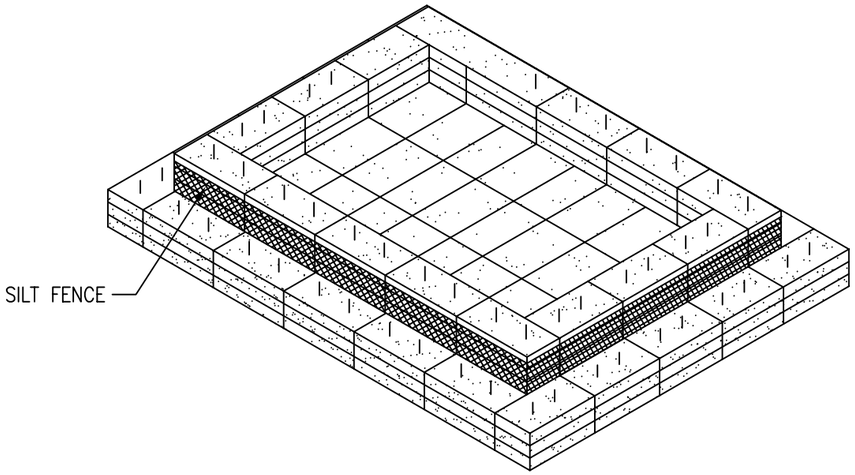
NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	03/08/04	ISSUED FOR REVIEW	RB	CM	
2	07/01/05	ENG REWRITE RELEASE	WS		

DESIGNED IN ACCORDANCE WITH TITLE 49–PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

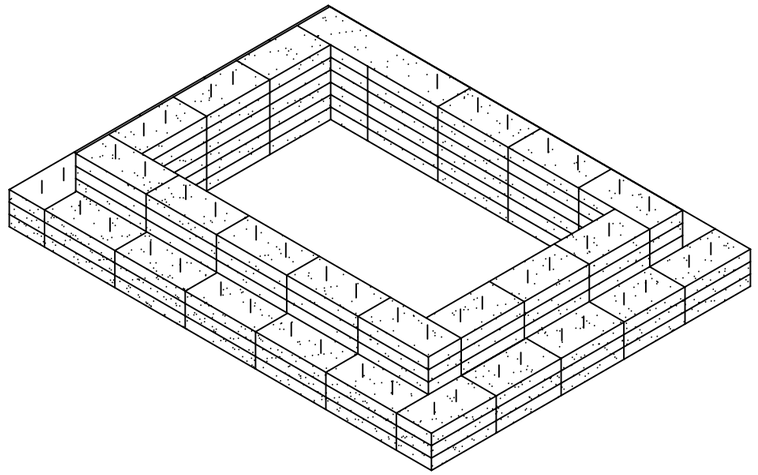
KINDER MORGAN INC

TYPICAL PIPELINE CONSTRUCTION SEQUENCE

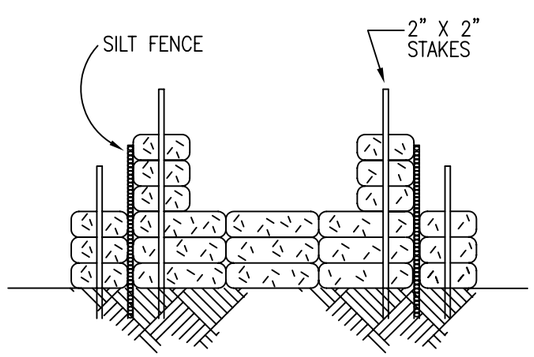
DRAWN	CHK. DR.	SCALE	DATE
RB	CM	N.T.S.	07/01/05
PROJECT ENGR. / PROJECT MGR.		FILE NO.	
- -		CST–P–1000–B060	



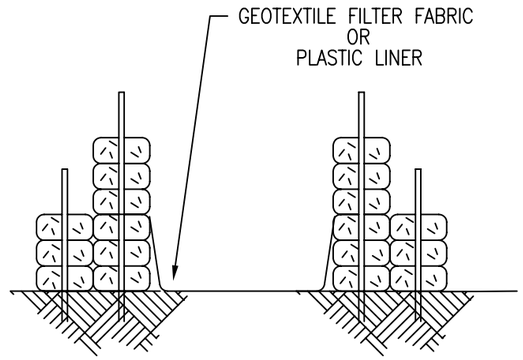
PERSPECTIVE VIEW



PERSPECTIVE VIEW



OPTION 1



OPTION 2

NOTES:

1. INSTALL A STRAW BALE DEWATERING STRUCTURE WHEREVER IT IS NECESSARY AND AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT THE FLOW OF HEAVILY SILT LADEN WATER INTO WATER BODIES OR WETLANDS.
2. DISCHARGE SITE SHALL BE WELL VEGETATED AND THE TOPOGRAPHY OF THE SITE SUCH THAT WATER WILL FLOW AWAY FROM ANY WORK AREAS. THE AREA DOWN SLOPE FROM THE DEWATERING SITE MUST BE REASONABLY PLANE OR STABILIZED BY VEGETATION OR OTHER MEANS TO ALLOW THE FILTERED WATER TO CONTINUE AS SHEET FLOW.
3. IN AREAS OF HIGHLY ERODIBLE SOILS, LINE ENTIRE STRUCTURE WITH GEOTEXTILE FILTER FABRIC, PLASTIC SHEETING, OR STRAW.
4. THE DIMENSIONS OF THE STRUCTURE SHALL BE DETERMINED IN THE FIELD BASED UPON SITE CONDITIONS.
5. DISCHARGE RATES SHALL BE SUCH THAT WATER WILL NOT OVERFLOW THE TOP OF THE STRUCTURE.
6. INSTALL A SPLASH PUP IF THE DISCHARGE VELOCITY IS EXCESSIVE. (CST-P-1000-A160)

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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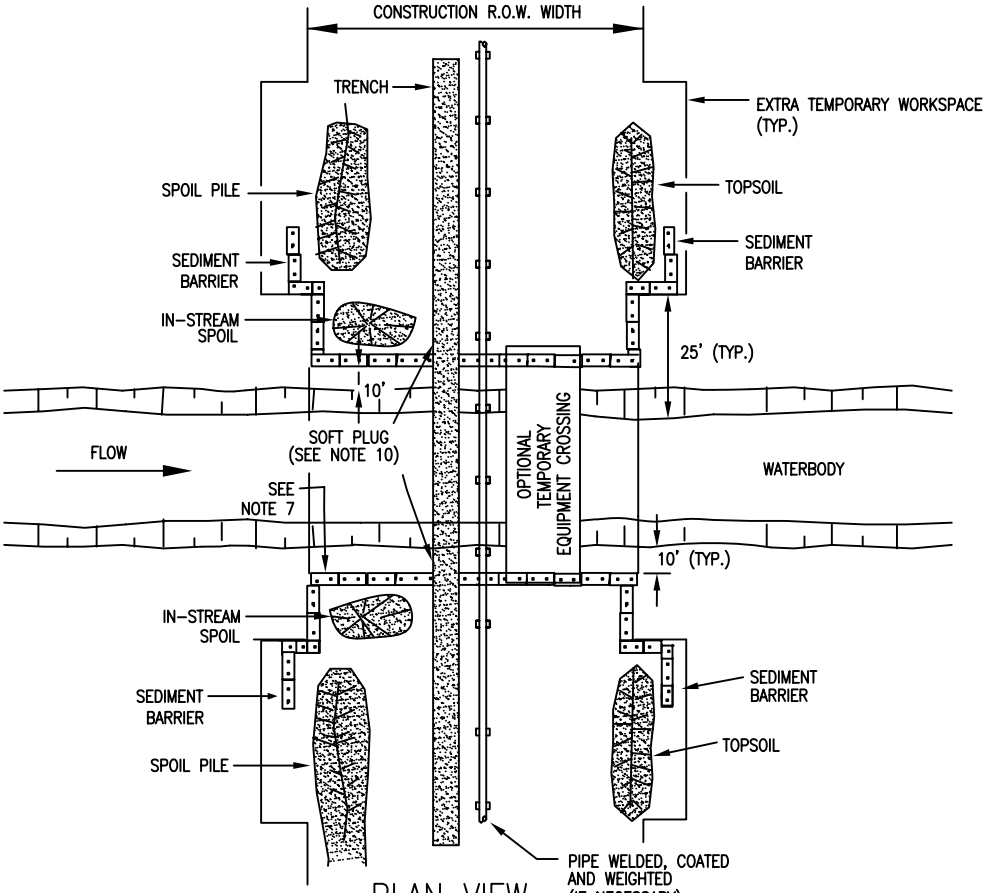
KINDER MORGAN INC

TYPICAL STRAW BALE DEWATERING STRUCTURE LARGE VOLUME

DRAWN	CHK. DR.	SCALE	DATE
RB	CM	N.T.S.	07/01/05

PROJECT ENGR. / PROJECT MGR.: - -

FILE NO.: CST-P-1000-B170



PLAN VIEW

NOTES:

1. METHOD APPLIES TO WATERBODIES THAT ARE NOT STATE-DESIGNATED FISHERIES WHERE FLUME CROSSINGS ARE NOT REQUIRED.
   - IF TOPOGRAPHY PERMITS TEMPORARY EQUIPMENT BRIDGE INSTALLATION, THE CONTRACTOR SHALL TRENCH, STRING, WELD, COAT, WEIGHT (IF NECESSARY), LOWER IN AND BACKFILL UTILIZING THE MAIN LINE CREW TRAVELING OVER THE BRIDGE.
   - IF TOPOGRAPHY PROHIBITS INSTALLATION OF A TEMPORARY EQUIPMENT BRIDGE, CONTRACTOR SHALL TRENCH UP TO BOTH SIDES OF CROSSING; STRING, WELD, COAT AND WEIGHT (IF NECESSARY) USING THE MAINLINE CREW. IN STREAM EXCAVATION, LOWER IN, AND BACKFILL WILL UTILIZES A CLAM OR HOES WORKING FROM THE BANKS.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL IN-STREAM ACTIVITIES WITHIN 24 HOURS IF FEASIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF WATERBODY. REFUEL STATIONARY EQUIPMENT AS PER THE SPCC PLAN.
5. INSTALLATION OF TEMPORARY EQUIPMENT CROSSING IS REQUIRED AT ALL STATE-DESIGNATED FISHERIES AND IS OPTIONAL AT THE DISCRETION OF THE COMPANY'S INSPECTOR AT ALL OTHER CROSSINGS. IF A TEMPORARY EQUIPMENT CROSSING IS INSTALLED, IT MUST BE BUILT IN ACCORD WITH SECTION PERMITS. PER APPLICABLE DRAWINGS CST-P-1000-A335, A340, A345, A350, A355.
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. CONSTRUCT SEDIMENT BARRIERS ALONG THE SIDES OF STOCKPILES AND ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVE TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
8. IN-STREAM SPOIL TO BE STORED OUT OF THE STREAM CHANNEL A MINIMUM OF 10 FEET FROM THE WATERS EDGE AND WITHIN THE CONSTRUCTION R.O.W. UNLESS DEPICTED OTHERWISE IN SITE SPECIFIC CROSSING PLANS. TEMPORARY WORKSPACE MUST BE A MINIMUM OF 25' FROM THE WATERS EDGE.
9. TRENCH THROUGH WATERCOURSE USING MAINLINE EXCAVATION EQUIPMENT WHERE PRACTICAL.
10. INSTALL SOFT PLUGS AT THE EDGE OF STREAM BANKS UNTIL JUST PRIOR TO PIPE INSTALLATION TO CONTROL WATER FLOW & TRENCH SLOUGHING.
11. MAINTAIN STREAM FLOW THROUGHOUT CROSSING CONSTRUCTION.
12. BACKFILL WITH NATIVE MATERIAL.
13. RESTORE WATERBODY CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
14. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.
15. ALL DIMENSIONS INDICATED SHALL BE DETERMINED BY ACTUAL CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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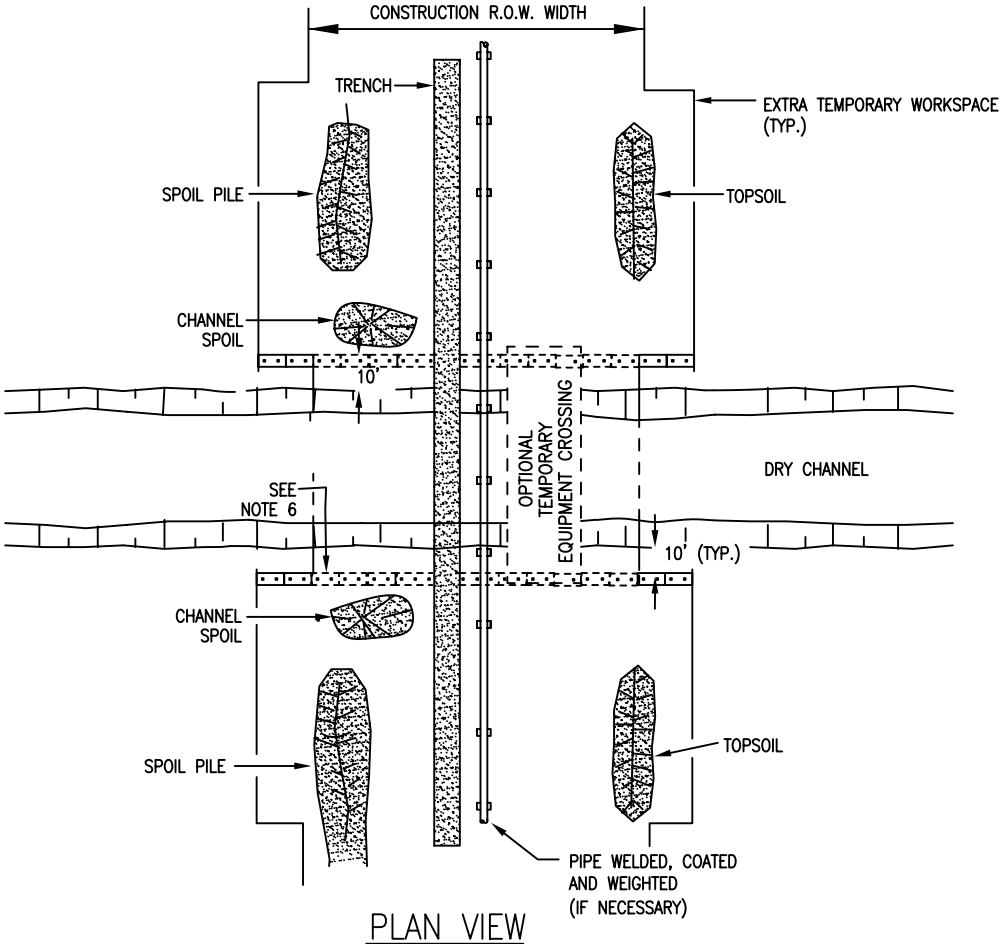
KINDER MORGAN INC

TYPICAL FLOWING WATERBODY CROSSING OPEN CUT TRENCHED

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1150-A275	SH. 1 OF 1



PLAN VIEW

NOTES:

1. METHOD APPLIES TO CROSSINGS WHERE NO FLOWING WATER IS PRESENT AT THE TIME OF CROSSING.
2. CONTRACTOR MAY "MAINLINE THROUGH" THE CROSSING OR UP TO BOTH SIDES OF THE CROSSING; STRING, WELD, COAT, AND WEIGHT (IF NECESSARY), USING THE MAINLINE CREW WITH THE PIPE SKIDDED OVER THE CROSSING.
3. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF DRY CHANNEL. REFUEL STATIONARY EQUIPMENT AS PER THE SPCC PLAN.
4. INSTALLATION OF TEMPORARY EQUIPMENT CROSSING IS OPTIONAL AT THE DISCRETION OF THE COMPANY'S REPRESENTATIVE. IF A TEMPORARY EQUIPMENT CROSSING IS INSTALLED, IT MUST BE BUILT IN ACCORDANCE WITH DETAIL CST-P-1000-A335, A340, A345, A350, A355.
5. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA. STOCKPILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL AND SPOIL WILL NOT BE STOCKPILED IN THE CROSSING CHANNEL AND WILL BE PLACED A MINIMUM OF 10 FEET FROM CROSSING BANKS WITHIN THE CONSTRUCTION R.O.W.
6. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. FOLLOWING CLEARING AND GRADING AND MAINTAIN UNTIL CONSTRUCTION OF THE CROSSING. EROSION CONTROL MEASURES SHALL BE REINSTALLED IMMEDIATELY FOLLOWING BACKFILLING OF TRENCH AND STABILIZATION OF BANKS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
7. IN-STREAM SPOIL TO BE STORED OUT OF THE STREAM CHANNEL A MINIMUM OF 10 FEET FROM HIGH BANK AND WITHIN THE CONSTRUCTION R.O.W. UNLESS DEPICTED OTHERWISE IN SITE SPECIFIC CROSSING PLANS.
8. BACKFILL WITH NATIVE MATERIAL.
9. RESTORE CROSSING CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
10. RESTORE CROSSING BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.
11. ALL DIMENSIONS INDICATED SHALL BE DETERMINED BY ACTUAL CONSTRUCTION CONDITIONS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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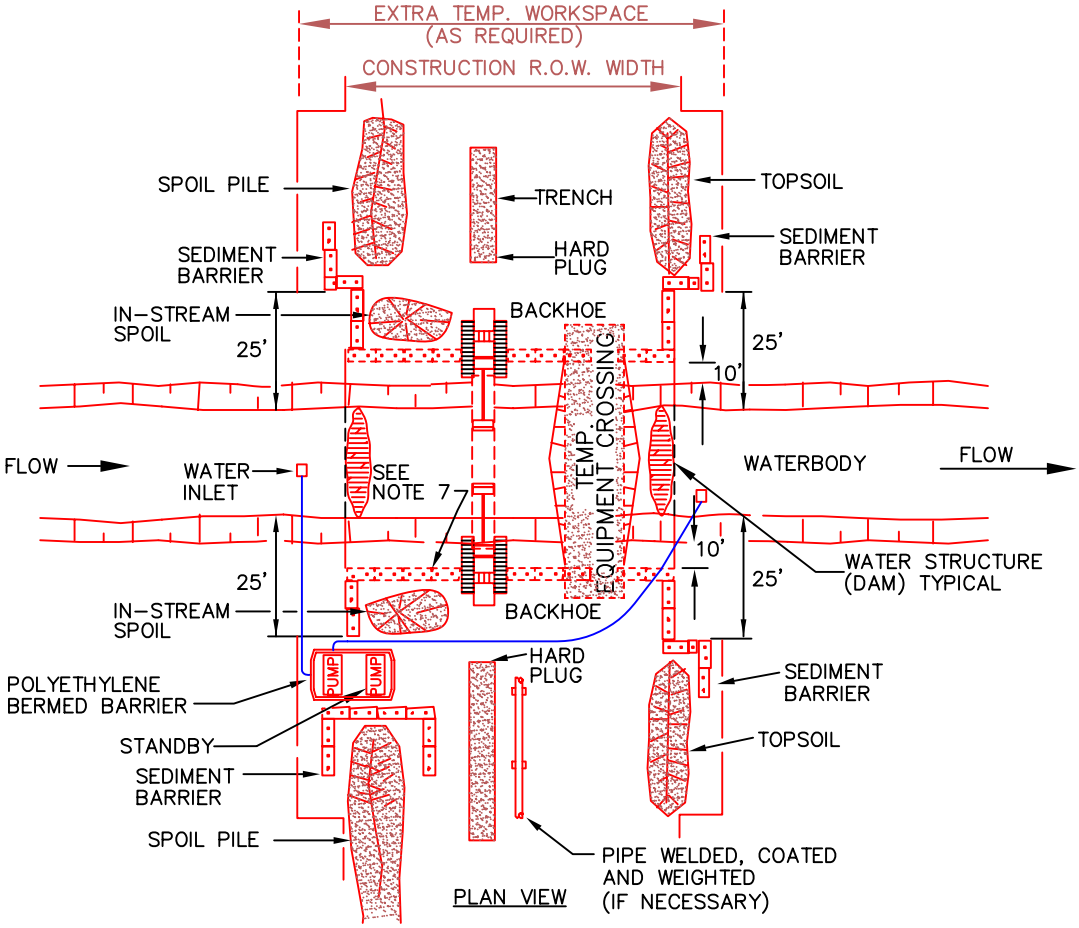
KINDER MORGAN INC

TYPICAL NON-FLOWING WATERBODY CROSSING OPEN CUT TRENCH

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1150-A280	SH. 1 OF 1



NOTES:

1. THIS METHOD APPLIES TO WATERBODIES WITH LIMITED FLOW AT TIME OF CONSTRUCTION WHERE DOWNSTREAM SILTATION MUST BE AVOIDED AND THE CROSSING WIDTH IS NOT PROHIBITIVE.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL IN-STREAM ACTIVITIES AS EXPEDIENTLY AS POSSIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF WATERBODY. REFUEL STATIONARY EQUIPMENT AS PER THE SPCC PLAN.
5. INSTALL TEMPORARY EQUIPMENT CROSSING, IF REQUIRED.
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. CONSTRUCT SEDIMENT BARRIERS TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING INTO WATERBODY. CONSTRUCTED SEDIMENT BARRIERS SHALL EXTEND ALONG THE SIDES OF THE SPOIL AND TOPSOIL STOCKPILES AND ACROSS THE ENTIRE CONSTRUCTION R.O.W. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
8. CONSTRUCT UPSTREAM STRUCTURE (DAM) FOLLOWED BY DOWNSTREAM STRUCTURE (DAM). WATER STRUCTURES' (AQUA DAM, JERSEY BARRIERS, SAND BAGS, STEEL PLATE, POLYETHYLENE LINER, ETC.) FINAL LOCATION WILL BE APPROVED BY THE ENVIRONMENTAL INSPECTOR.
9. SIZE PUMPS FOR DIVERSION OF ENTIRE STREAM FLOW. CONTRACTOR SHALL MAINTAIN 100% SPARE PUMPING CAPACITY ON SITE. PUMPS SHALL BE INSTALLED ON POLYETHYLENE BARRIERS FOR FUEL/OIL SPILL CONTAINMENT. PUMP INTAKES WILL BE SCREENED TO PREVENT ENTRAPMENT OF FISH. CONTRACTOR SHALL MONITOR PUMPS AND WATER STRUCTURES ON A 24 HOUR BASIS UNTIL THE CROSSING INSTALLATION IS COMPLETE. SHOULD LEAKAGE AT THE DAM STRUCTURES OCCUR, CONTRACTOR SHALL DEWATER BETWEEN THE STRUCTURES THROUGH AN APPROPRIATE FILTER AND ONTO A WELL VEGETATED UPLAND AREA. NO HEAVILY SILT-LADEN WATER SHALL BE DISCHARGED INTO THE STREAM.
10. LEAVE HARD PLUGS AT STREAM BANK EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION.
11. COMPLETE CONSTRUCTION OF IN-STREAM PIPE SECTION. WEIGHT PIPE AS NECESSARY PRIOR TO COMMENCEMENT OF IN-STREAM ACTIVITY.
12. TRENCH THROUGH WATERBODY AS EXPEDIENTLY AS PRACTICAL. INSTALL TEMPORARY (SOFT) PLUGS, IF NECESSARY, TO CONTROL WATER FLOW AND TRENCH SLOUGHING.
13. MAINTAIN STREAM FLOW THROUGHOUT CROSSING CONSTRUCTION.
14. LOWER-IN PIPE, INSTALL TRENCH PLUG AND BACKFILL IMMEDIATELY.
15. BACKFILL WITH NATIVE MATERIAL.
16. RESTORE WATERBODY CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
17. DISMANTLE DOWNSTREAM WATER STRUCTURE (DAM) AND UPSTREAM WATER STRUCTURE (DAM) AFTER TRENCH BACKFILL.
18. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

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KINDER MORGAN INC

WATERBODY CROSSING
OPEN CUT DAM & PUMP

DATE: 07/01/05		APPROVED BY:
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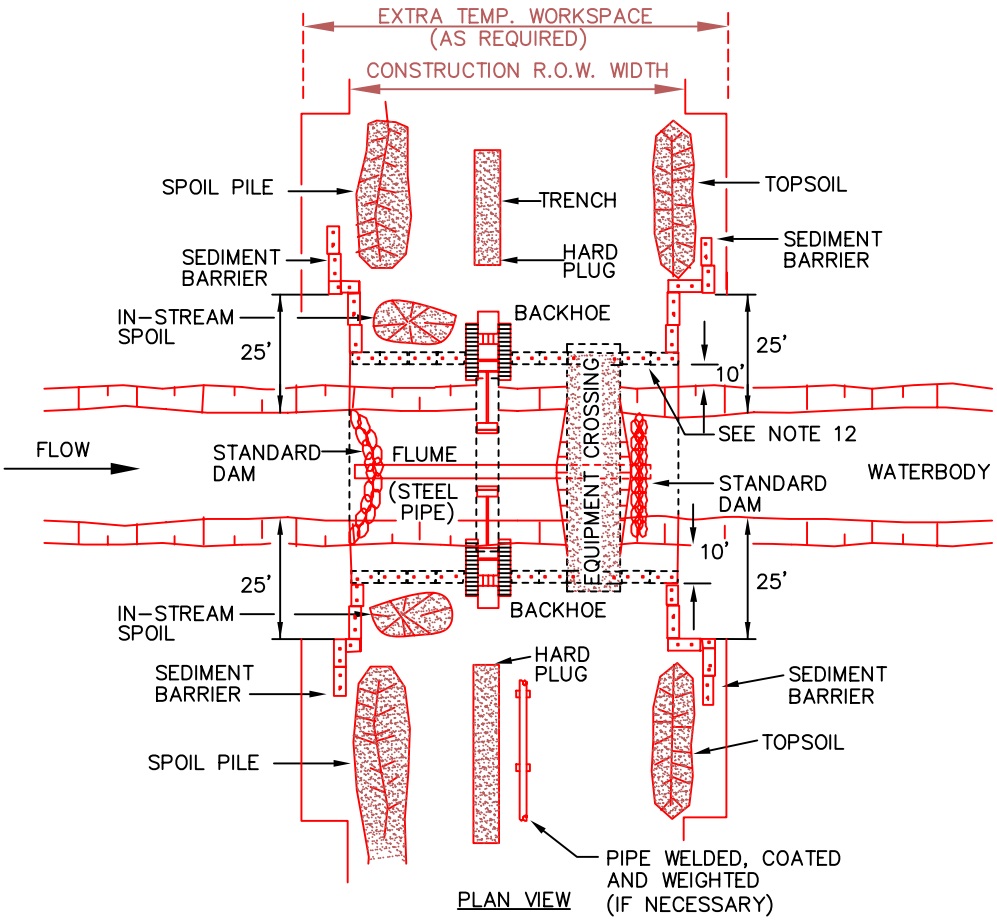

PLAN VIEW

NOTES:

1. METHOD APPLIES TO WATERBODIES WHERE DOWNSTREAM SILTATION MUST BE AVOIDED. FLUMES ARE GENERALLY NOT RECOMMENDED FOR USE ON WATERBODIES WITH A BROAD UNCONFINED CHANNEL, PERMEABLE SUBSTRATE, EXCESSIVE DISCHARGE, OR WHERE A SIGNIFICANT AMOUNT OF BED OR BANK ALTERATION IS REQUIRED TO INSTALL FLUMES OR DAMS.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL WATERCOURSE ACTIVITIES AS EXPEDIENTLY AS POSSIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF WATERBODY. REFUEL STATIONARY EQUIPMENT AS PER THE SPCC PLAN.
5. INSTALL TEMPORARY EQUIPMENT CROSSING.
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. IN-STREAM SPOIL TO BE STORED ON BANKS A MINIMUM OF 10 FEET FROM THE TOP OF THE BANK.
8. LEAVE HARD PLUGS AT THE STREAM BANK EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION.
9. SIZE FLUME TO HANDLE 150 % ANTICIPATED FLOWS. INSTALL FLUME IN WATERCOURSE AND MAINTAIN CORRECT ALIGNMENT UNTIL REMOVED.
10. CONSTRUCT UPSTREAM DAM FOLLOWED BY DOWNSTREAM DAM. INSTALL A FLANGE ON UPSTREAM END OF FLUME AND SEAL TO SUBSTRATE WITH SANDBAGS AND POLYETHYLENE LINER WHERE NECESSARY TO ENSURE A WATERTIGHT BARRIER. "KEY" DAMS INTO BANKS OR CONSTRUCT SECONDARY DAM, IF NECESSARY.
11. PUMP STREAM CHANNEL BETWEEN DAMS, IF NECESSARY. DISCHARGE WATER THROUGH A DEWATERING STRUCTURE AND ONTO A STABLE WELL VEGETATED AREA TO PREVENT EROSION AND SEDIMENTATION. NO HEAVILY SILT-LADEN WATER MAY BE DISCHARGED IN THE STREAM.
12. CONSTRUCT SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERCOURSE. CONSTRUCTED SEDIMENT BARRIERS SHALL EXTEND ALONG THE SIDES OF THE STOCKPILES AND THE ENDS OF DAMS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
13. COMPLETE PREFABRICATION OF IN-STREAM PIPE SECTION AND WEIGHT PIPE AS NECESSARY PRIOR TO COMMENCEMENT OF IN-STREAM ACTIVITY.
14. TRENCH THROUGH WATERCOURSE. INSTALL TEMPORARY (SOFT) PLUGS, IF NECESSARY, TO CONTROL WATER FLOW AND TRENCH SLOUGHING.
15. MAINTAIN STREAM FLOW, IF PRESENT, THROUGH FLUME THROUGHOUT CROSSING CONSTRUCTION.
16. LOWER-IN PIPE, INSTALL TRENCH PLUG AND BACKFILL IMMEDIATELY.
17. BACKFILL WITH NATIVE MATERIAL.
18. RESTORE WATERCOURSE CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
19. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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KINDER MORGAN INC

WATERBODY CROSSING
OPEN CUT DRY FLUME

DATE: 07/01/05		APPROVED BY:
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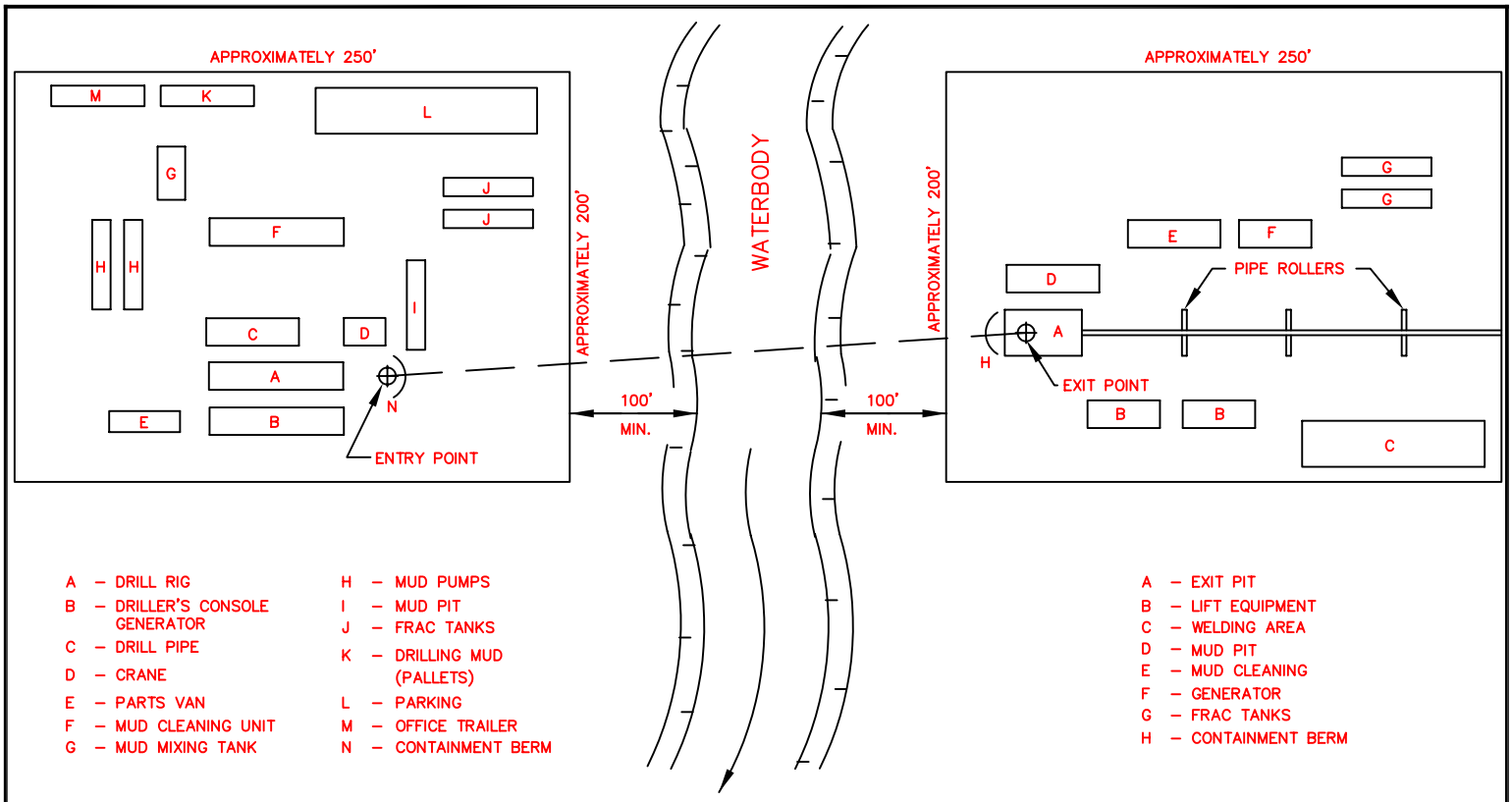

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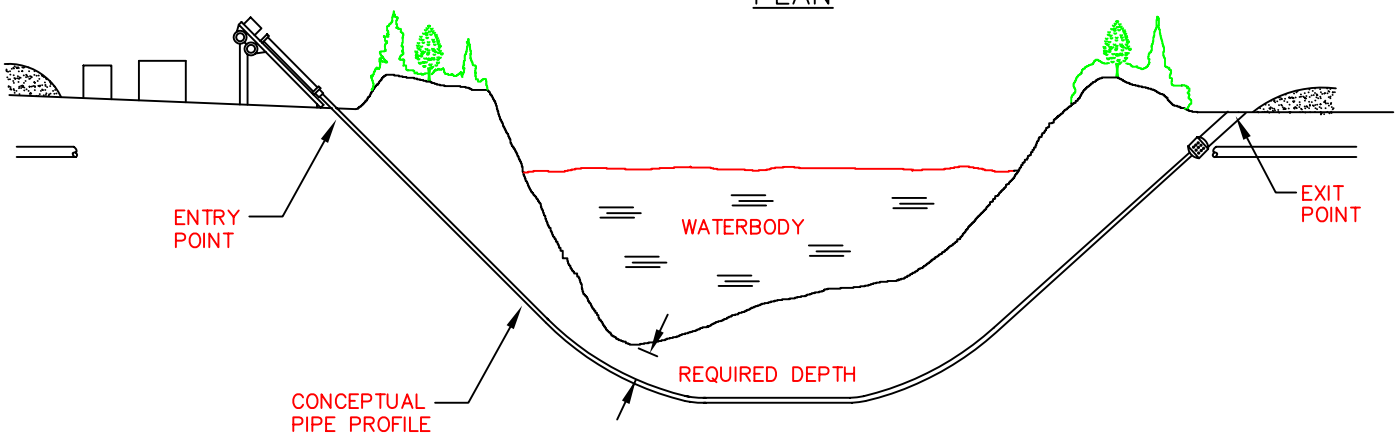

PROFILE

NOTES:

1. SET UP DRILLING EQUIPMENT A MINIMUM OF 100 FEET FROM THE EDGE OF THE WATERCOURSE. DO NOT CLEAR OR GRADE WITHIN THE 100 FOOT ZONE.
2. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY'S INSPECTOR.
3. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
4. INSTALL BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN ANY RELEASE OF DRILLING MUD.
5. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.

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KINDER MORGAN INC

WATERBODY CROSSING HORIZONTAL DIRECTIONAL DRILL

DATE: 07/01/05		APPROVED BY:
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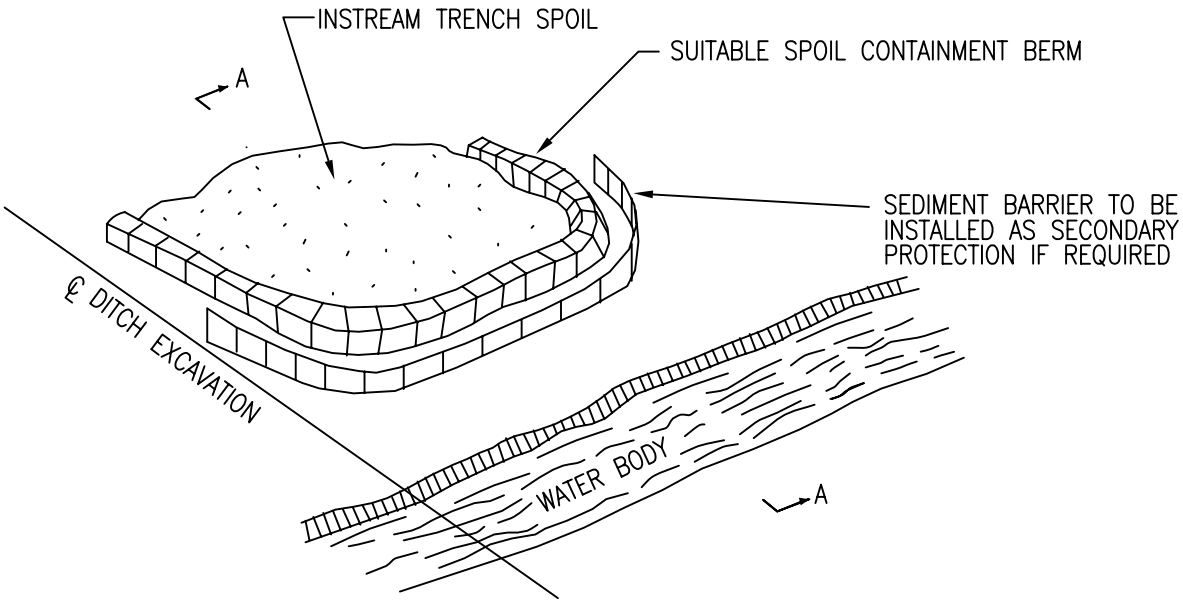

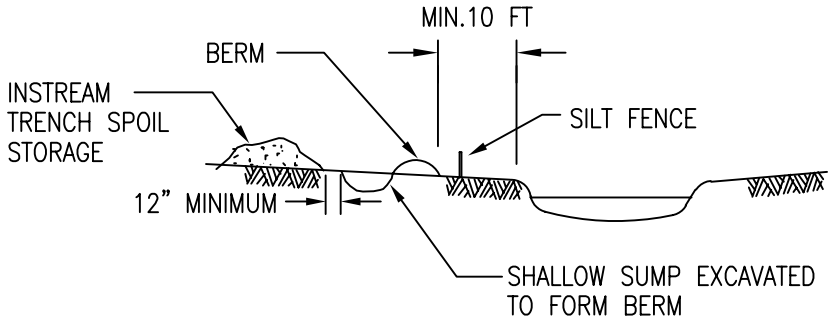

SECTION A–A

NOTE:

1. SOIL CONTAINMENT BERMS ARE TO BE USED WHERE INSTREAM TRENCH SPOIL COULD REENTER THE WATERCOURSE DIRECTLY OR INDIRECTLY AND WITH SIMULTANEOUS UTILIZATION OF SEDIMENT BARRIERS IF REQUIRED.
2. MATERIAL USED FOR THE CONTAINMENT BERM SHOULD BE A MINIMUM OF 10 FT. FROM THE WATERS EDGE. IT SHOULD BE KEPT TO A HEIGHT WHICH REMAINS STABLE DURING THE CONSTRUCTION PERIOD.
3. CARE SHOULD BE TAKEN THAT THE SPOIL PILE DOES NOT OVERTOP THE CONTAINMENT BERM.
4. THE CONTAINMENT BERM SHOULD BE DISMANTLED AND THE SITE RESTORED TO THE ORIGINAL CONDITION UPON COMPLETION OF THE WATER CROSSING.
5. WHERE POSSIBLE, RIPARIAN VEGETATION SHALL BE LEFT IN PLACE.
6. STAGED MOVEMENT OF INSTREAM SPOIL MAY BE REQUIRED IF QUANTITIES ARE EXCESSIVE.
7. CARE AND ATTENTION MUST BE TAKEN TO ENSURE SPOIL CONTAINMENT BERMS ARE MAINTAINED.
8. FULL CONSIDERATION FOR OVERALL SLOPE STABILITY IS REQUIRED WHEN SELECTING A SPOIL CONTAINMENT LOCATION.

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KINDER MORGAN INC

TYPICAL TEMPORARY SOIL CONTAINMENT BERM FOR WATERBODY TRENCH SPOIL

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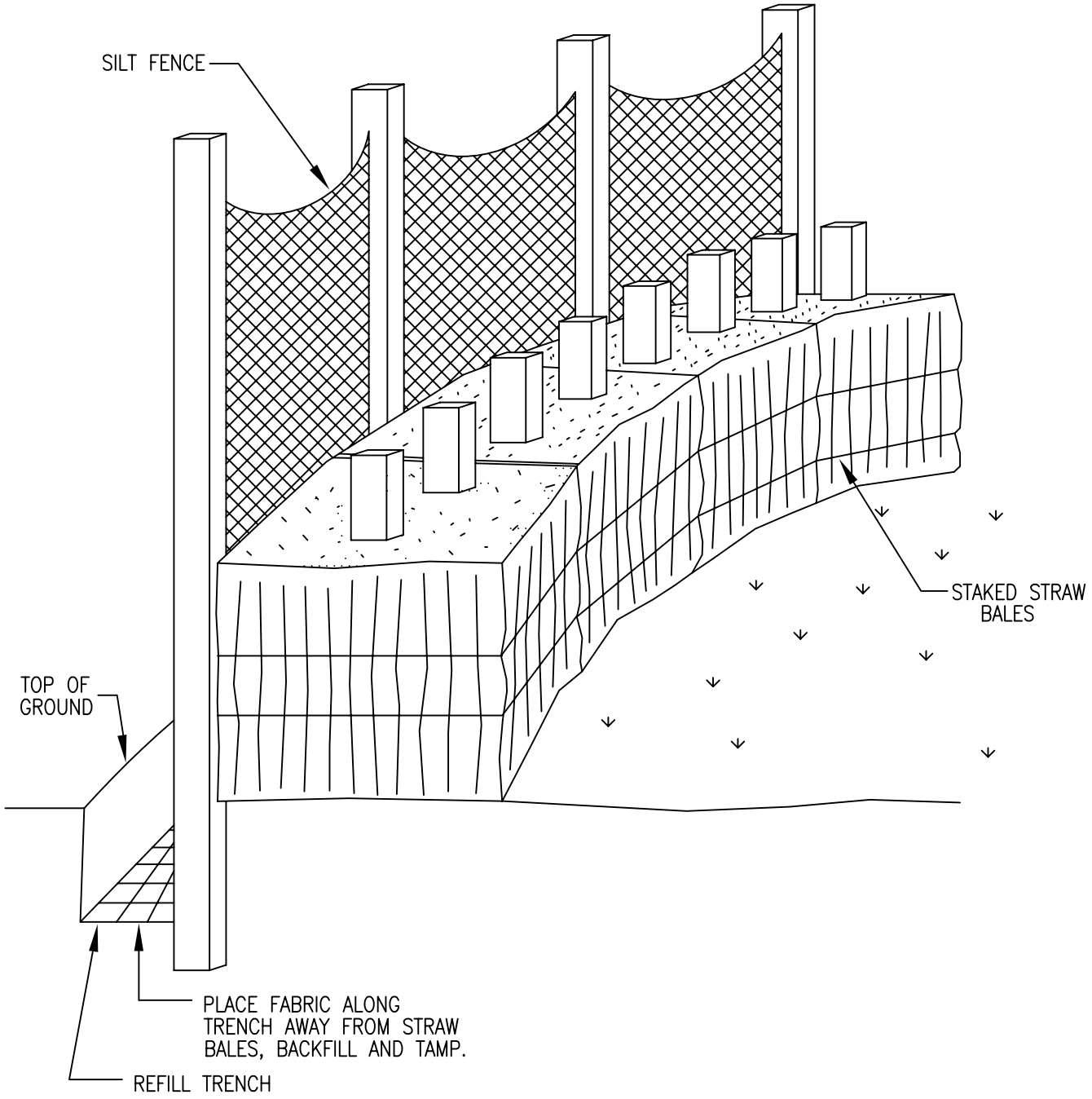

NOTE:

1. WHERE EXTREMELY ERODIBLE SOIL CONDITIONS EXIST, AT THE DIRECTION OF THE COMPANY'S INSPECTOR A COMBINED STRAW BALE AND SILT FENCE SEDIMENT CONTROL BARRIER SHALL BE INSTALLED. FOR INSTALLATION CONDITIONS AND INSTRUCTIONS SEE:
   - CST–P–1260–A190.1 & .2 EROSION CONTROL – STRAW BALE SEDIMENT BARRIERS
   - CST–P–1260–A180.1 & .2 EROSION CONTROL – SILT FENCE SEDIMENT BARRIERS

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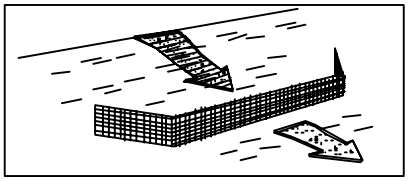
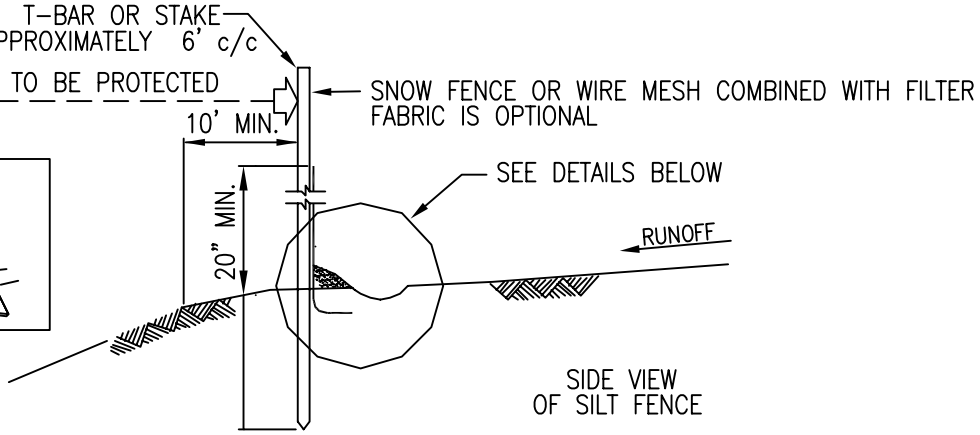
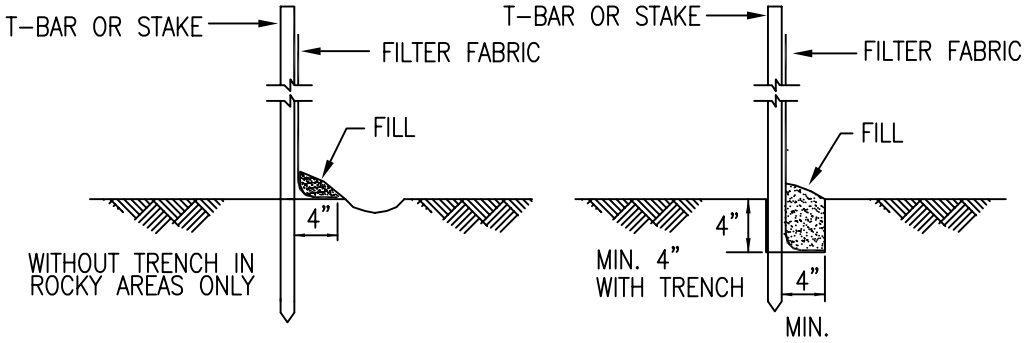
KINDER MORGAN INC

TYPICAL STRAW BALE & SILT FENCE EROSION CONTROL

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST–P–1260–A175	SH. 1 OF 1







NOTES:

1. GENERALLY WHEN A LONG SEDIMENT BARRIER IS REQUIRED, SILT FENCE WILL BE UTILIZED RATHER THAN STRAW BALES AT:
   - THE BASE OF ALL SLOPES ABOVE ROADS, SPRINGS, WETLANDS, IMPOUNDMENTS AND PERENNIAL AND INTERMITTENT STREAMS.
   - THE DOWN SLOPE RIGHT-OF-WAY EDGE WHERE ANY OF THE ABOVE MENTIONED LOCATIONS ARE ADJACENT TO THE RIGHT-OF-WAY.
   - BETWEEN TOPSOIL/SPOIL STOCKPILES AND PERENNIAL OR INTERMITTENT STREAMS OR WETLANDS WHERE BUFFER ZONE REQUIREMENTS CANNOT BE MET.
   - ALONG R.O.W. BOUNDARIES OF WETLAND CONSTRUCTION.
   - AS SPECIFIED IN THE SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN.
   - AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. THE SILT FENCE SHALL BE CONSTRUCTED AS FOLLOWS:
   - FABRIC USED FOR THE SILT FENCE SHALL BE A "STANDARD STRENGTH" GEOTEXTILE, SUCH AS MIRAFI 100X OR AN APPROVED EQUIVALENT.
   - THE FABRIC SHALL BE CUT FROM A CONTINUOUS FABRIC ROLL.
   - THE HEIGHT OF THE FENCE SHALL NOT EXCEED 24".
   - SPLICES SHALL ONLY BE DONE AT POSTS AND SHALL CONSIST OF A MINIMUM OF 6" OF OVERLAP WITH BOTH ENDS SECURED TO THE POST.
   - POSTS SHALL BE POSITIONED A MAXIMUM OF 10' APART.
   - POSTS SHALL CONSIST OF 2"X2" WOODEN STAKES, OR EQUIVALENT, OF SUFFICIENT LENGTH TO EXTEND A MINIMUM OF 12" INTO THE GROUND.
   - FABRIC SHALL BE STAPLED OR WIRED TO POSTS A MAXIMUM OF EVERY 9".
3. THE SILT FENCE SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER OR AS FOLLOWS:
   - A TRENCH, 4" WIDE AND 4" DEEP, SHALL BE EXCAVATED ALONG THE CONTOUR. THE POST SHALL BE DRIVEN INTO THE BOTTOM OF THE TRENCH ON THE DOWNSTREAM SIDE OF THE FILTER FABRIC. THE TRENCH SHALL BE BACK FILLED AND COMPACTED, ENSURING 4" OF FENCE IS BURIED WITHIN THE TRENCH.
   - IN AREAS WHERE THE TERRAIN IS TOO ROCKY FOR TRENCHING, A 4" GROUND FLAP WITH ROCK FILL TO HOLD IT IN PLACE SHALL BE USED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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KINDER MORGAN INC

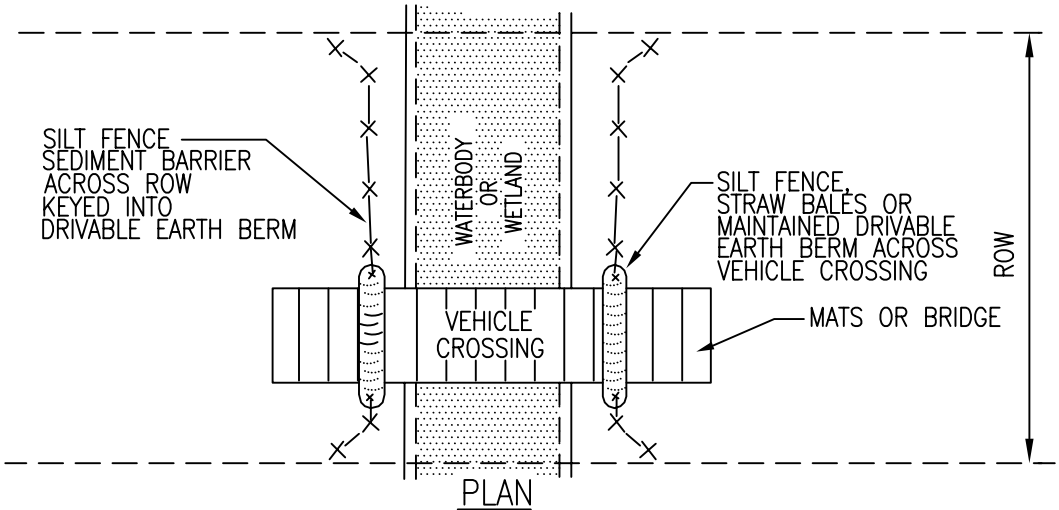
TYPICAL SILT FENCE SEDIMENT BARRIER
EROSION CONTROL

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A180.1	SH. 1 OF 2

NOTES:

- SILT FENCES PLACED AT THE TOE OF A SLOPE SHALL BE SET AT LEAST 6' DOWN GRADIENT FROM THE TOE OF THE SLOPE (WHERE POSSIBLE) IN ORDER TO INCREASE PONDING.
- SILT FENCE PLACED AT THE TOP OF SLOPES SHALL BE AT LEAST 10' BELOW THE CREST.
- SILT FENCES PLACED AT THE BASE OF SPOIL OR TOPSOIL STOCKPILES SHALL EXTEND AROUND THE BASE OF THE PILES IN ORDER TO CONTAIN ANY SEDIMENTS AND/OR PREVENT FLOW-AROUND.
- WHEN INSTALLING SILT FENCES IN DRAINAGES, EXTEND THE FENCE UP THE CHANNEL BANKS AND TURN BOTH ENDS AT A SLIGHT ANGLE TOWARDS THE CENTER OF THE RIGHT-OF-WAY.
- UPON THE REQUEST OF THE COMPANY'S INSPECTOR, SNOW FENCE, STRAW BALE OR WIRE MESH SHALL BE USED IN CONJUNCTION WITH THE SILT FENCE. IF WIRE MESH OR SNOW FENCE IS USED, THE WIRE SHALL BE ATTACHED TO THE POSTS USING WIRE TIES OR HEAVY DUTY STAPLES PRIOR TO INSTALLATION OF THE FABRIC. THE WIRE OR SNOW FENCE SHALL BE "KEYED" INTO THE TRENCH AT LEAST 2" AND EXTEND UP THE POSTS TO THE TOP OF THE FABRIC.
- IF REQUIRED, A 15' GAP SHALL BE LEFT IN THE SILT FENCE TO ACCOMMODATE TRAFFIC ON TEMPORARY CONSTRUCTION ROADS. HOWEVER, A SECTION OF SILT FENCE OR A DRIVABLE EARTH BERM TIED INTO ADJACENT SILT FENCE SHALL BE USED TO CLOSE THE GAP AT THE END OF EACH DAY. THE SILT FENCE USED TO CLOSE THE GAP MUST OVERLAP THE ENDS OF THE PERMANENT SILT FENCE FOR A MINIMUM OF 24", AND SHALL BE "KEYED" INTO THE GROUND THE SAME AS THE FILTER FABRIC ON EITHER SIDE OF THE GAP.

4. SILT FENCES SHALL BE CHECKED AND MAINTAINED ON A REGULAR BASIS. THE DEPTH OF THE ANCHOR TRENCH SHALL BE ADJUSTED IF UNDERMINED. SHOULD INSPECTION REVEAL SEDIMENT LOADING AT OR NEAR 40% CAPACITY, THE SEDIMENT SHALL BE REMOVED AND PLACED IN AN AREA WHERE IT SHALL NOT REENTER THE SILT FENCE IMPOUNDMENT OR A WATERWAY.
5. SILT FENCE SHALL BE REMOVED ONLY AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
6. EROSION CONTROL STRUCTURES SHALL BE INSPECTED DAILY IN AREAS OF ACTIVE CONSTRUCTION. STRUCTURES SHALL BE INSPECTED WEEKLY AT INACTIVE CONSTRUCTION AREAS AND WITHIN 24 HOURS OF EACH 0.5 INCH RAINFALL EVENT. STRUCTURES SHALL BE REPAIRED AS NECESSARY.



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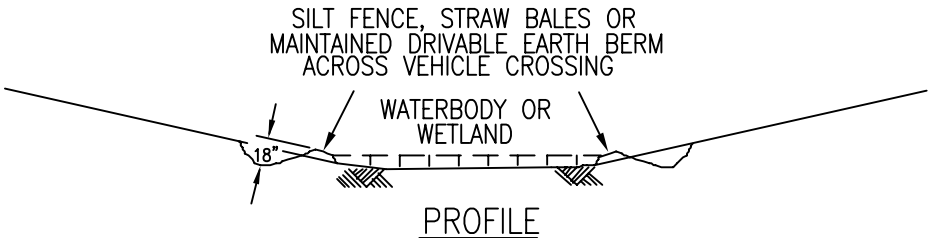

PROFILE

DRIVABLE BERM NOTES:

1. A MAINTAINED DRIVABLE EARTH BERM MAY BE INSTALLED ACROSS THE VEHICLE CROSSING IN LIEU OF SILT FENCE OR STRAW BALES.
2. BERM MUST BE TIED INTO SILT FENCE.
3. BERM MUST BE MAINTAINED TO ENSURE SEDIMENT TRAPPING CAPACITY.

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TYPICAL SILT FENCE SEDIMENT BARRIER EROSION CONTROL

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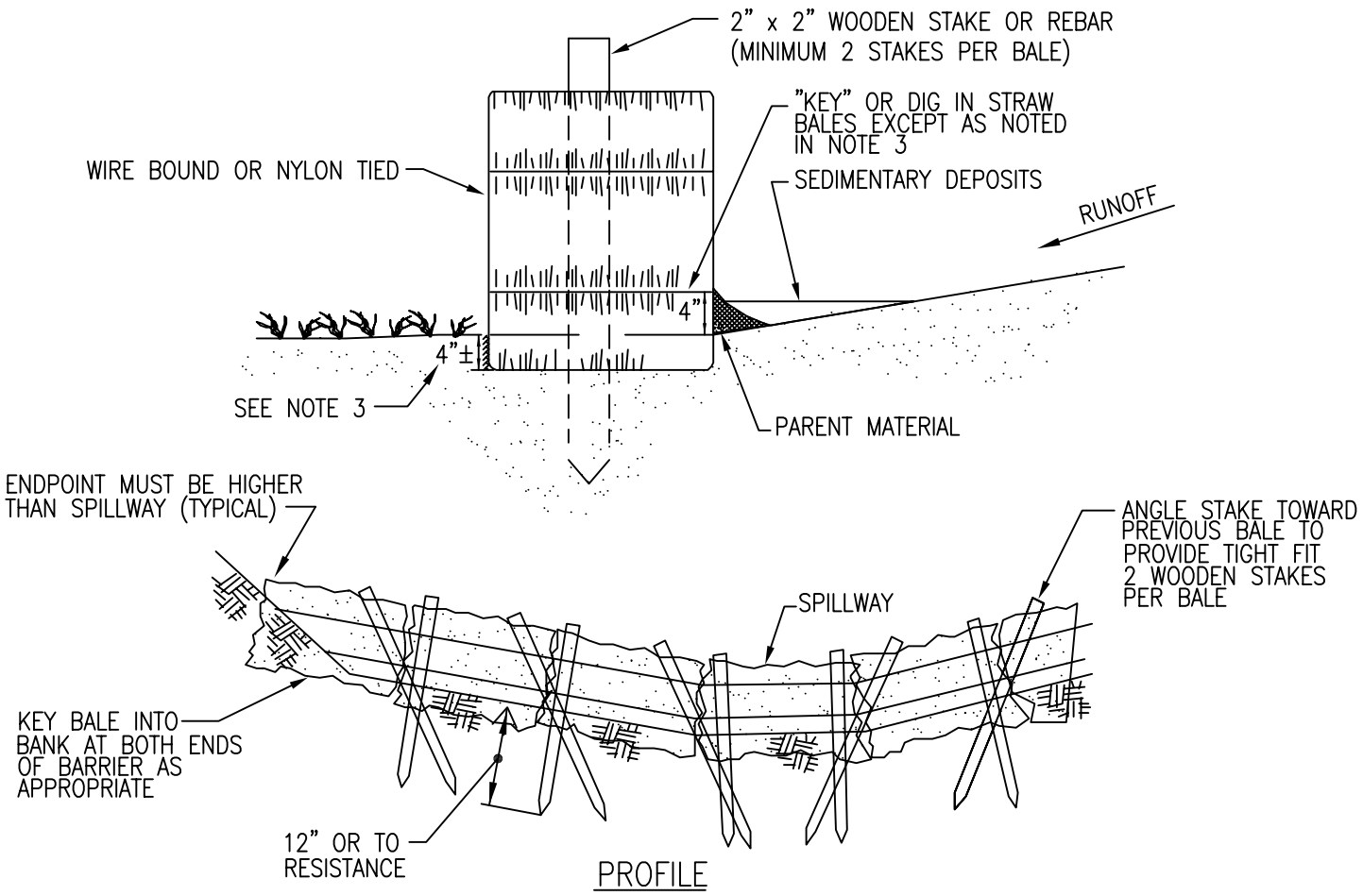

PROFILE

NOTES:

1. STRAW BALE SEDIMENT BARRIERS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
   - THE BASE OF ALL SLOPES ABOVE ROADS, SPRINGS, WETLANDS, IMPOUNDMENTS AND FLOWING STREAMS.
   - THE DOWNSLOPE RIGHT-OF-WAY EDGE WHERE ANY OF THE ABOVE-MENTIONED LOCATIONS ARE ADJACENT TO THE RIGHT-OF-WAY.
   - BETWEEN TOPSOIL/SPOIL STOCKPILES AND STREAMS OR WETLANDS AS NEEDED.
   - ALONG R.O.W. BOUNDARIES IN WETLAND CONSTRUCTION.
   - AS SPECIFIED IN THE SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN.
   - AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. STRAW BALE SEDIMENT BARRIERS SHALL CONSIST OF A ROW OF STRAW BALES, PLACED ON THE FIBER-CUT EDGE (TIES NOT IN CONTACT WITH THE GROUND). BALES SHALL BE TIGHTLY ABUTTED TO ONE ANOTHER. THE BARRIER SHALL BE ONE BALE HIGH. ONLY CERTIFIED "NOXIOUS WEED-FREE" STRAW SHALL BE USED WHENEVER POSSIBLE.
3. ENTRENCH ("KEY") STRAW BALES INTO THE GROUND TO A DEPTH OF 4" EXCEPT IN FROZEN, SATURATED, OR EXTREMELY ROCKY SOILS. PLACE PARENT MATERIAL ON UPSTREAM SIDE OF STRAW BALES TO PREVENT UNDERMINING.
4. WALK ON STRAW BALES TO INSURE ADEQUATE BALE-TO-SOIL CONTACT.
5. ANCHOR STRAW BALES SECURELY IN PLACE WITH TWO WOODEN OR STEEL REBAR STAKES DRIVEN THROUGH THE TOPS OF THE BALES. THE STAKES SHALL PENETRATE THE GROUND A DISTANCE OF 12" UNLESS ROCK OR AN IMPERMEABLE LAYER IS ENCOUNTERED:
   - THE FIRST, CENTER AND END BALES OF THE BARRIER SHALL HAVE STAKES DRIVEN VERTICALLY THROUGH THE BALE.
   - BALES, OTHER THAN THOSE LOCATED AT THE ENDS OR CENTER OF THE BARRIER, SHALL HAVE THE FIRST STAKE DRIVEN THROUGH THE TOP OF THE BALE AT AN ANGLE SO THAT THE STAKE PASSES THROUGH THE PREVIOUSLY PLACED BALE, IN ORDER TO PROVIDE TIGHT CONTACT BETWEEN BALES. THE SECOND STAKE SHALL BE DRIVEN VERTICALLY THROUGH THE TOP OF THE BALE.

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TYPICAL STRAW BALE SEDIMENT BARRIER
EROSION CONTROL

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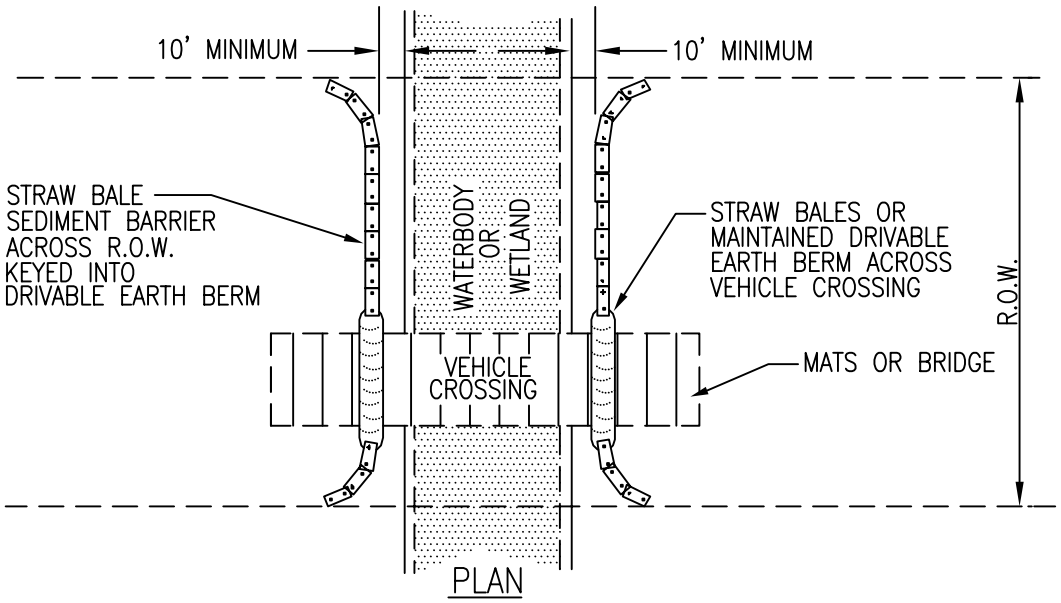
SCALE: N.T.S.	CST-P-1260-A190.1	SH. 1 OF 2

NOTES:

6. PLACE STRAW BALES SO THEY ARE EFFECTIVE BUT DO NOT HINDER CONSTRUCTION. IF NECESSARY A 15' GAP IN STRAW BALE BARRIERS SHALL BE PROVIDED AS NEEDED TO ACCOMMODATE TRAFFIC ON TEMPORARY CONSTRUCTION ROADS. THE GAP SHALL BE CLOSED AT THE END OF EACH WORK DAY, USING STRAW BALE BARRIERS, OR A DRIVABLE EARTH BERM TIED INTO ADJACENT STRAW BALES. THE BALES USED TO CLOSE THE GAP SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE BARRIER, THE END BALES OF THE GAP SEGMENT SHALL OVERLAP A MINIMUM OF 12".
7. MONITOR FOR UNDERMINING OR FLOW-AROUND. INSPECT BALE POSITION TO ASSURE THAT THEY REMAIN CLOSE TOGETHER. MAINTAIN STRAW BALE BARRIERS BY REPLACING DAMAGED BALES AND REMOVING SEDIMENT LOAD. WHEN SEDIMENT LOAD IS GREATER THAN 60% BEHIND THE BARRIER, SEDIMENT SHALL BE REMOVED AND PLACED IN AN AREA WHERE IT SHALL NOT REENTER THE BARRIER OR A WATERWAY. IF SEDIMENT BEHIND STRAW BALE BARRIERS CANNOT BE REMOVED, A SECOND ROW OF BALES SHALL BE INSTALLED UPSLOPE OF THE BARRIER.
8. WHERE STRAW BALES AND SILT FENCE ARE INSTALLED AS A UNIT, THE STRAW BALES SHALL BE INSTALLED ON THE DOWN SLOPE SIDE OF THE SILT FENCE.
9. EROSION CONTROL STRUCTURES SHALL BE INSPECTED DAILY IN AREAS OF ACTIVE CONSTRUCTION. STRUCTURES SHALL BE INSPECTED WEEKLY AT INACTIVE CONSTRUCTION AREAS AND WITHIN 24 HOURS OF EACH 0.5 INCH RAINFALL EVENT. STRUCTURES SHALL BE REPAIRED AS NECESSARY.
10. STRAW BALE BARRIERS SHALL BE REMOVED ONLY AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.



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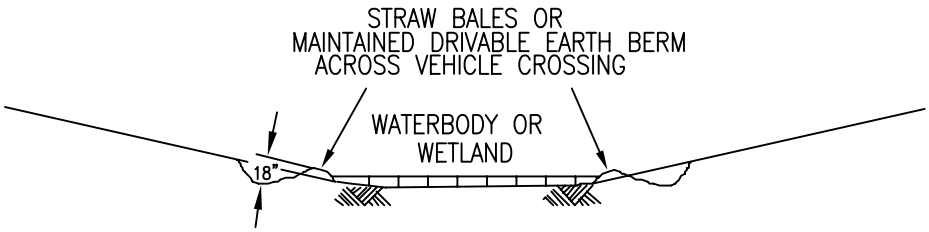

PROFILE

DRIVABLE BERM NOTES:

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2. BERM MUST BE TIED INTO STRAW BALES.
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TYPICAL STRAW BALE SEDIMENT BARRIER EROSION CONTROL

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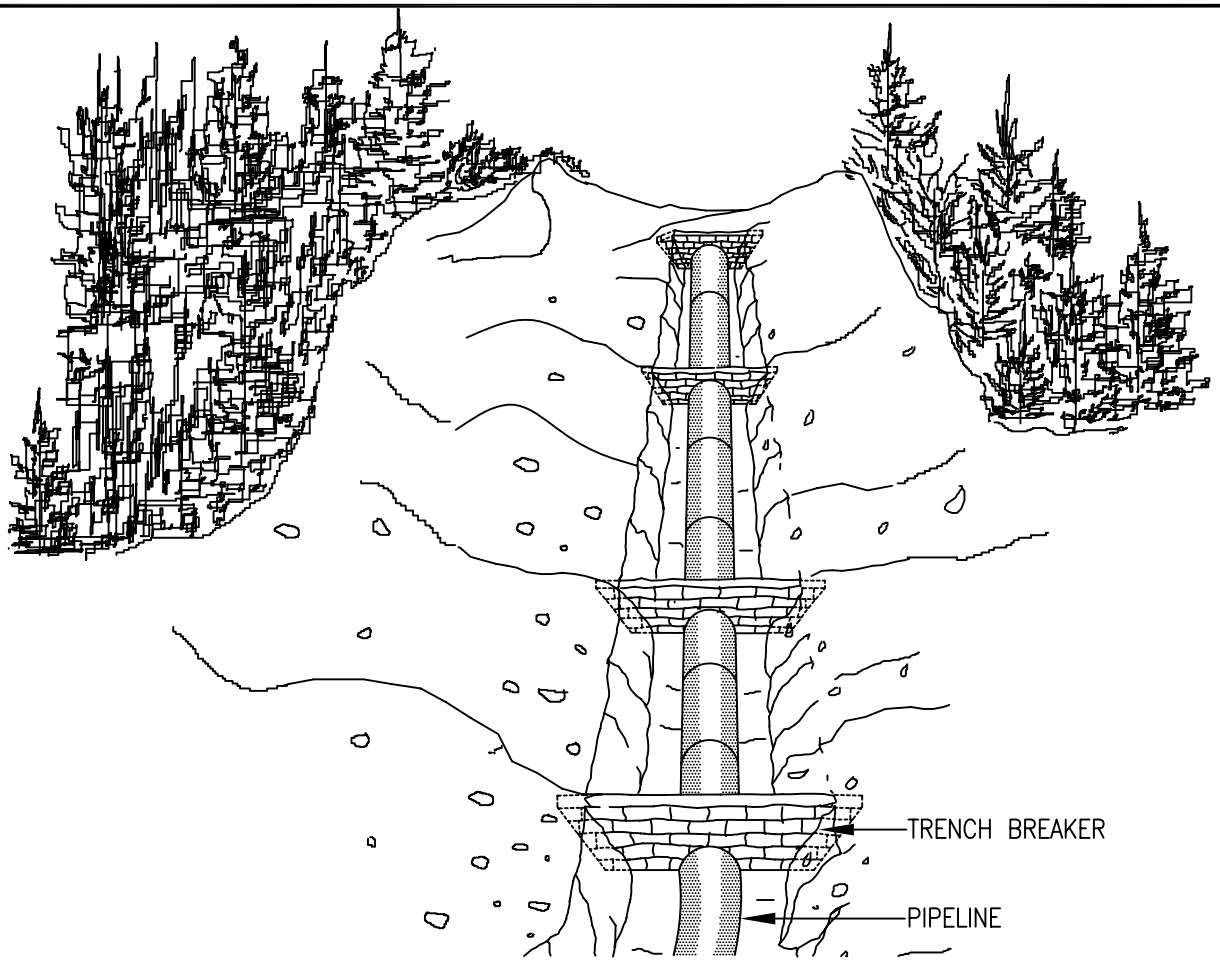

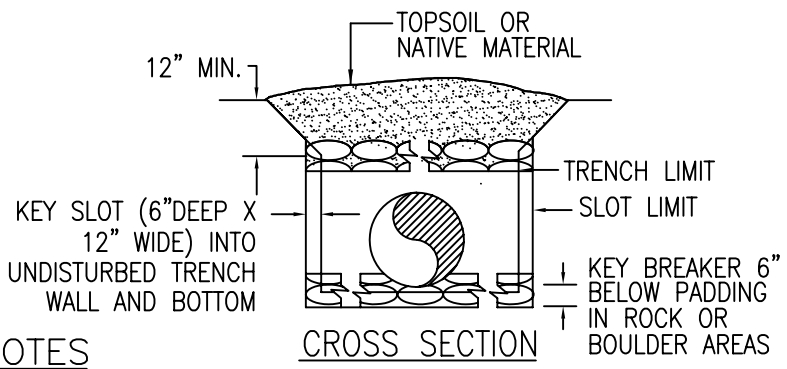

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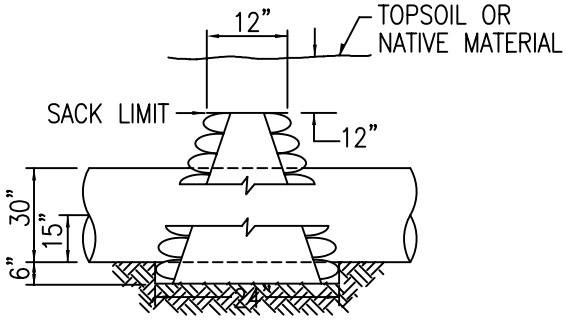

SIDE VIEW

NOTES

1. TRENCH BREAKERS SHALL BE INSTALLED:
   - ON SLOPES ALONG THE TRENCH LINE WHERE THE NATURAL DRAINAGE PATTERN, PROFILE, AND TYPE OF BACKFILL MATERIAL MAY RESULT IN LOSS OF BACKFILL MATERIAL OR ALTERATION OF THE NATURAL PATTERN;
   - AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS;
   - WHERE NEEDED TO AVOID DRAINING A WETLAND;
   - ON UPLAND SLOPES, AT THE SAME SPACING AS SLOPE BREAKERS AND UP SLOPE OF SLOPE BREAKERS;
   - IN CULTIVATED LAND AND RESIDENTIAL AREAS WHERE PERMANENT SLOPE BREAKERS ARE NOT TYPICALLY INSTALLED, AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WHERE REQUIRED.
2. BREAKERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION C1100 OF THE CONSTRUCTION STANDARDS AND AS DIRECTED
   - BY COMPANY'S INSPECTOR. SACK BREAKS SHALL UTILIZE OPEN WEAVE HEMP OR JUTE SACKS FILLED TO A MINIMUM OF 55 LBS. OF SUBSOIL, SAND OR A MIXTURE OF 1 PART CEMENT TO 6 PARTS SAND OR SUBSOIL AS DETERMINED BY COMPANY'S INSPECTOR.
   - POLYURETHANE FOAM BREAKERS MAY BE USED IN-LIEU-OF SACK BREAKERS, WHEN APPROVED BY COMPANY'S REPRESENTATIVE.
3. BREAKER SPACING AND CONFIGURATION MAY BE CHANGED AS DIRECTED BY COMPANY. DEPTH OF DITCH MAY VARY WITH SITE CONDITIONS.
4. ALL MATERIALS SHALL BE SUPPLIED BY CONTRACTOR.

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KINDER MORGAN INC

TYPICAL TRENCH BREAKER

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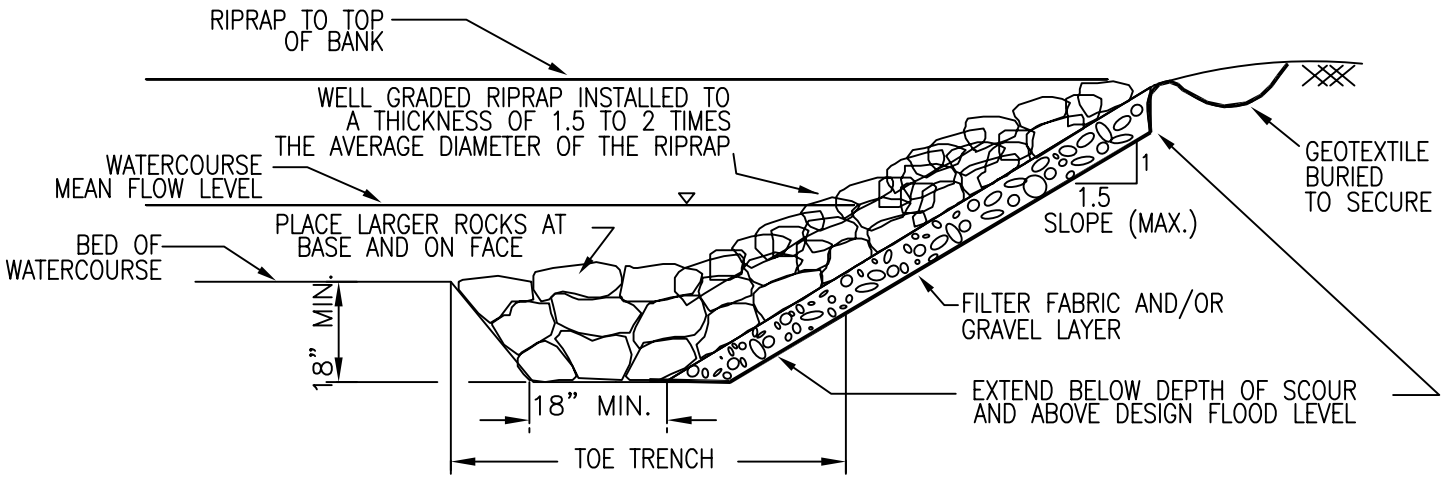

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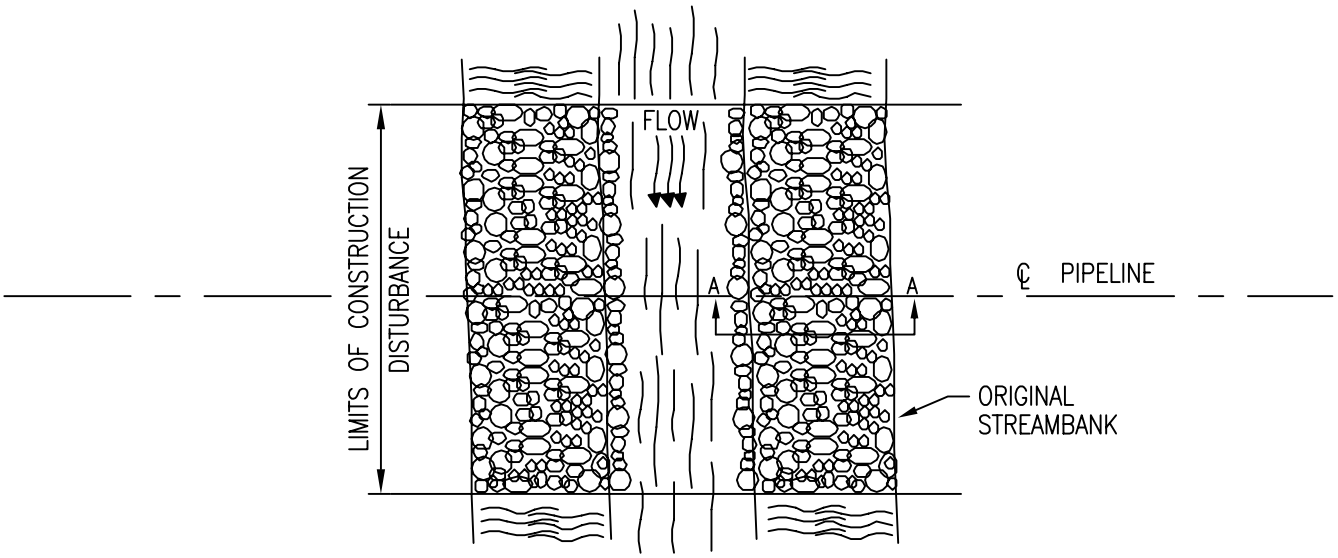

PLAN VIEW

NOTES:

1. STREAM BANK RIPRAP STRUCTURES SHALL CONSIST OF A LAYER OF STONE UNDERLAIN WITH APPROVED GEOTEXTILE FILTER FABRIC OR A GRAVEL FILTER BLANKET, DESIGNED TO PROTECT AND STABILIZE AREAS PRONE TO EROSION.
2. GRAVEL FILTER BLANKET SHALL MEET THE FOLLOWING SPECIFICATIONS:
   - HAVE A PERMEABILITY GREATER THAN THAT OF THE SUBGRADE SOIL.
   - IF A WELL–GRADED GRAVEL OR SAND–GRAVEL LAYER IS USED, THE LAYER SHALL BE A MINIMUM OF 6" THICK AND SPREAD IN A UNIFORM LAYER OVER THE SUBGRADE.
   - IF WATER TURBULENCE COULD RESULT IN EROSION OF BANK MATERIAL BETWEEN LARGE ROCKS (AS DETERMINED BY THE COMPANY'S INSPECTOR), A GEOTEXTILE FILTER FABRIC SHALL BE USED BETWEEN THE GRAVEL LAYER AND THE RIPRAP.
3. THE GEOTEXTILE FILTER FABRIC SHALL BE PERMATEX 4000 SERIES OR AN APPROVED EQUIVALENT MEETING THE FOLLOWING SPECIFICATIONS:
   (A) BE COMMERCIAL QUALITY NONWOVEN FABRIC DESIGNED FOR RIPRAP UNDERLAYMENT;
   (B) BE A MINIMUM OF 20 MILS IN THICKNESS;
   (C) HAVE A GRAB STRENGTH BETWEEN 90 TO 120 POUNDS;
   (D) HAVE A GREATER THAN 4% OPEN AREA (U.S. STANDARD SIEVE NUMBER 100 (0.15MM.)
   (E) HAVE A DENSITY OF 8oz PER SQUARE YARD.
4. THE USE OF RIPRAP SHALL BE LIMITED TO AREAS WHERE FLOWING CONDITIONS PREVENT EFFECTIVE VEGETATIVE STABILIZATION TECHNIQUES. PLACEMENT OF RIPRAP MAY BE IMITED BY PERMITTING OR GOVERNING AUTHORITY.

   * SEE DWG. #CST–P–1260–A205.2 FOR ADDITIONAL INFORMATION.

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KINDER MORGAN INC

TYPICAL STREAM BANK/WATERBODY RIPRAP EROSION CONTROL

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NOTES:

5. RIPRAP (ROCK) SHALL HAVE THE FOLLOWING SPECIFICATIONS:
   - RIPRAP SHALL BE DENSE, DURABLE, EQUIDIMENSIONAL (NOT FLAT OR THIN), ANGULAR AND CLEAN.
   - SIZE OF RIPRAP USED SHALL BE DEPENDENT UPON BANK SLOPE AND WATER VELOCITY. THE ROCK WILL GENERALLY BE APPROXIMATELY 12" TO 18" IN DIAMETER.
   - WHERE PRACTICABLE, NATIVE ROCK SIMILAR IN APPEARANCE TO ADJACENT ROCK OR SOIL SHALL BE UTILIZED AS RIPRAP.
6. WATERCOURSE RIPRAP SHALL BE CONSTRUCTED AS FOLLOWS:
   - CONSTRUCT RIPRAP BOUNDARIES IN A MANNER SUCH THAT THEY SHALL NOT BE UNDERMINED FROM THE SIDE.
   - REMOVE ALL STUMPS, ORGANIC MATTER AND WORK MATERIAL.
   - GRADE THE BANK TO A MAXIMUM SLOPE OF 1.5:1.
   - CUT THE SUBGRADE SUFFICIENTLY DEEP FOR THE FINISHED GRADE OF THE RIPRAP TO BE AT THE SAME ELEVATION AS SURROUNDING AREA.
   - COMPACT THE SUBGRADE TO A DENSITY APPROXIMATELY EQUAL TO THE SURROUNDING SOILS.
   - CONSTRUCT TOE OF TRENCH TO "KEY" IN BOTTOM OF ARMOR PROTECTION. THE TRENCH SHALL BE A MINIMUM OF 18" WIDE AND 18" DEEP.
   - PLACE THE FILTER BLANKET (GRAVEL, GRAVEL–SAND OR GEOTEXTILE) AND RIPRAP (ROCK) IMMEDIATELY FOLLOWING GRADING AND SUBGRADE COMPACTION.
   - PLACE ANY FILTER FABRIC USED DIRECTLY ON THE PREPARED SUBGRADE UNLESS EXCESSIVE TURBULENCE EXISTS (SEE NOTE 2 ABOVE). EDGES OF ADJOINING FABRIC PIECES SHALL BE OVERLAPPED A MINIMUM OF 12" (UPSTREAM FABRIC OVER TOP OF DOWNSTREAM FABRIC) AND ANCHOR PINS SHALL BE SPACED A MAXIMUM OF 36" ALONG THE OVERLAP. BURY THE OUTSIDE EDGES OF THE CLOTH A MINIMUM OF 12" BELOW GROUND AROUND THE RIPRAP PERIMETER.
   - PLACE RIPRAP ON SLOPE TO BE PROTECTED. INSTALL RIPRAP TO A DEPTH APPROXIMATELY 1.5 TO 2 TIMES THE DIAMETER OF THE ROCK OR AT LEAST 12" THICK ON THE SLOPE AND THICKER AT BASE. LARGER ROCK WILL BE PLACED AT THE BASE AND FACE OF THE SLOPE.
7. BECAUSE RIPRAP SHALL BE PLACED BY EQUIPMENT, SUFFICIENT PRECAUTIONS MUST BE TAKEN TO AVOID DAMAGING THE FILTER FABRIC OR CAUSING EXCESSIVE GRAVEL MOVEMENT THAT EXPOSES SUBGRADE MATERIAL TO HYDRAULIC FORCES. SHOULD DAMAGE TO THE FILTER FABRIC OCCUR DURING RIPRAP PLACEMENT, THE RIPRAP SHALL BE REMOVED AND THE SHEET SHALL BE REPAIRED BY ADDING ANOTHER LAYER OF FILTER MATERIAL WITH A MINIMUM OVERLAP OF 12" OVER ORIGINAL MATERIAL.
8. THE RIPRAP STRUCTURE SHALL BE INSPECTED DURING GENERAL RIGHT–OF–WAY MONITORING FOR UNDERMINING AND ROCK LOSS. PRIOR TO COMPLETION OF CONSTRUCTION REPAIRS TO THE RIPRAP SHALL BE CARRIED OUT AS NECESSARY.

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STRAW MULCH

1. STRAW MULCH SHALL BE INSTALLED AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWING AND/OR AS DIRECTED BY THE COMPANY'S INSPECTOR TO PROTECT SOIL FROM EROSION. AREAS TARGETED FOR STRAW MULCH INCLUDE THE FOLLOWING:
   - 10–40% SLOPES.
   - 0–10% SLOPES WITH SOILS RATED BY APPLICABLE COUNTY AS HIGH IN WIND ERODIBILITY AND LESS THAN 40% SURFACE COVER AND IF DIRECTED BY COMPANY'S INSPECTOR.

2. WHEAT, OAT, BARLEY, RYE OR FLAX STRAW WILL BE USED, WHERE APPROPRIATE, DEPENDING UPON AVAILABILITY.

3. ONLY CERTIFIED "NOXIOUS WEED–FREE" STRAW MULCH SHALL BE APPLIED UNIFORMLY OVER THE AREA TO COVER AT LEAST 75% OF THE GROUND SURFACE AT A RATE OF 2 TONS/ACRE OF STRAW, UNLESS THE LOCAL SOIL CONSERVATION AUTHORITY, LANDOWNER, OR LAND MANAGING AGENCY APPROVES OTHERWISE IN WRITING.

4. AREAS WHERE RESPREAD TOPSOIL EXHIBITS AN ADEQUATE COVER FROM RESPREAD OF PLANT DEBRIS AND COARSE FRAGMENTS, MULCH RATES MAY BE REDUCED OR ELIMINATED BY THE COMPANY'S INSPECTOR.

5. OR BONDING FIBER BLANKETS ARE ACCEPTED ALTERNATIVES PER COMPANY REPRESENTATIVES. COARSE FRAGMENTS, MULCH RATES MAY BE REDUCED OR ELIMINATED BY THE COMPANY'S INSPECTOR.

STRAW CRIMPING

1. STRAW CRIMPING WILL BE UTILIZED ON NONCULTIVATED, WIND EROSION PRONE SOILS, AND ON CULTIVATED, WATER EROSION PRONE SOILS AS IDENTIFIED ON THE ALIGNMENT SHEETS, UNLESS OTHERWISE DIRECTED BY THE COMPANY'S INSPECTOR. STRAW CRIMPING AT ADDITIONAL LOCATIONS IDENTIFIED BY THE COMPANY'S INSPECTOR MAY BE REQUIRED.

2. EQUIPMENT SPECIFICALLY DESIGNED TO CRIMP STRAW (SUCH AS A STRAW MULCH CRIMPER MANUFACTURED BY FINN CORPORATION OR AN APPROVED EQUIVALENT) SHALL BE USED TO CRIMP STRAW FIBERS TO A DEPTH OF TWO TO THREE INCHES. STEEP SLOPES INACCESSIBLE WITH A CRIMPER SHALL BE CRIMPED BY TRACKING WITH A CRAWLER RUNNING PERPENDICULAR TO THE SLOPE. DISCS SHALL NOT BE ALLOWED FOR CRIMPING EXCEPT AS STATED IN NOTE 3.

3. WHERE EXCESSIVE ROCK IS ENCOUNTERED TO THE EXTENT THAT THE SPECIALIZED CRIMPING EQUIPMENT IS NOT USEABLE, ATTEMPT TO ANCHOR THE STRAW BY INCORPORATION WITH AN AGRICULTURAL DISC OR CULTIVATOR. WHERE FROZEN GROUND CONDITIONS ARE ENCOUNTERED TO THE EXTENT THAT THE CRIMPING OPERATION IS NOT FEASIBLE, SPREAD STRAW AT DOUBLE THE NORMAL RATE.

4. CRIMP OR ANCHOR STRAW INTO THE SOIL TO AN APPROXIMATE DEPTH OF 2".

5. IN HIGHLY ERODIBLE SANDY LOCATIONS, WHERE DIRECTED BY THE COMPANY'S INSPECTOR, DOUBLE THE STRAW APPLICATION RATE AND MAKE TWO PASSES TO ANCHOR THE STRAW, ONE PASS PERPENDICULAR TO THE OTHER OR CRISS–CROSSED.

6. STRAW FOR CRIMPING WILL BE APPROVED BY COMPANY AND THE LANDOWNERS AND OCCUPANTS OR APPROPRIATE REGULATORY AUTHORITIES WHERE APPLICABLE. CRITERIA FOR THE SELECTION OF STRAW IS AS FOLLOWS:
   - THE STRAW MUST HAVE A MINIMUM FIBER LENGTH OF 8".
   - THE STRAW MUST BE FREE OF NOXIOUS OR RESTRICTED WEEDS AND UNDESIRABLE SPECIES WHICH WOULD HAMPER RECLAMATION EFFORTS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

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1	03/12/04	ISSUED FOR REVIEW	RB	CM	
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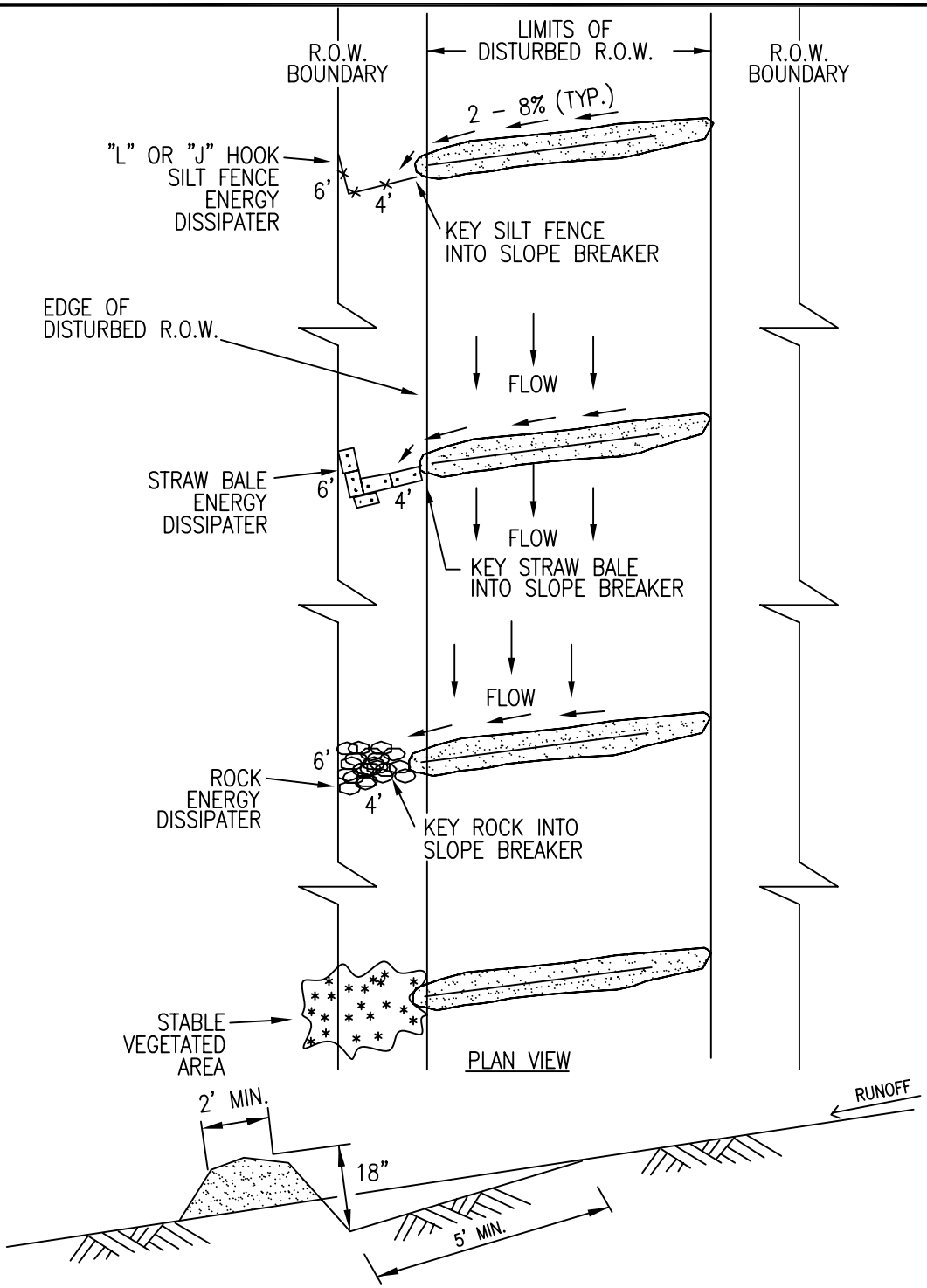
KINDER MORGAN INC

TYPICAL STRAW MULCH EROSION CONTROL

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST–P–1260–A215	SH. 1 OF 1



SLOPE BREAKER CROSS SECTION DETAIL

NOTES:

1. SLOPE BREAKERS SHALL BE CONSTRUCTED OF COMPACTED NATIVE SOIL AND INSTALLED AT LOCATIONS AS REQUIRED BY SECTION C1260 OF CONSTRUCTION STANDARDS OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. SLOPE BREAKERS SHALL BE ORIENTED AS SHOWN OR OTHER PATTERN AS DIRECTED BY THE COMPANY'S REPRESENTATIVE TO DIRECT THE WATER OFF THE R.O.W.
3. SLOPE BREAKERS SHALL BE CONSTRUCTED AT A 2-8% GRADIENT ACROSS THE SLOPE.
4. THE SLOPE BREAKERS SHALL BE 18" DEEP (AS MEASURED FROM THE TROUGH TO THE TOP OF THE SLOPE BREAKER). THE THROUGH WILL BE A MINIMUM OF 5' WIDE ACROSS THE WIDTH OF THE RIGHT-OF-WAY.

*SEE DWG. #CST-P-1260-A220.2 FOR ADDITIONAL INFORMATION.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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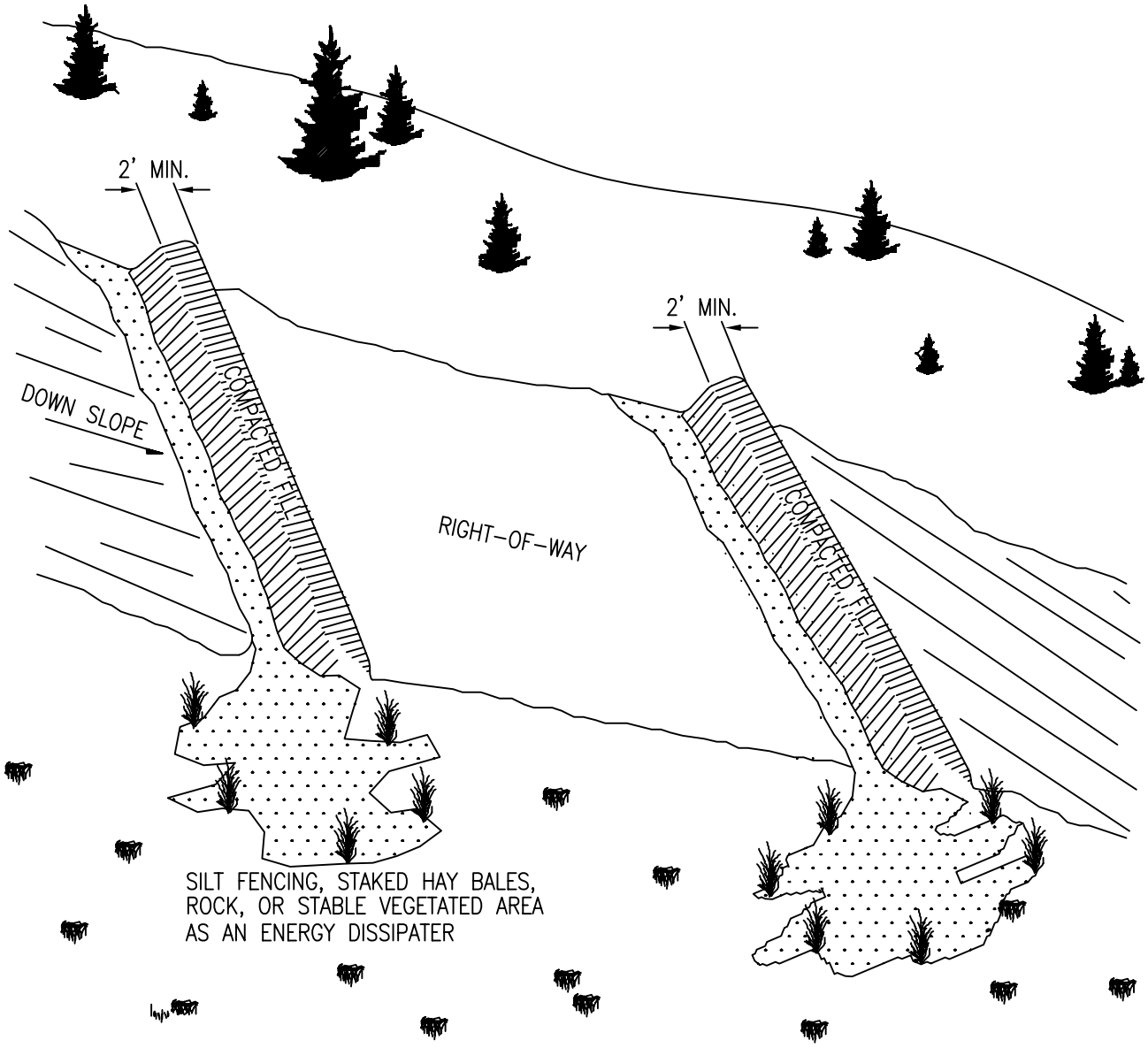
KINDER MORGAN INC

TYPICAL SLOPE BREAKER

DATE: 07/01/05 | APPROVED BY:

SCALE: N.T.S. | CST-P-1260-A220.1 | SH. 1 OF 2



NOTES: (CONTINUED)

5. THE OUTLET OF THE SLOPE BREAKER MUST FREELY DISCHARGE ALL RUNOFF OFF THE DISTURBED RIGHT-OF-WAY INTO A STABLE, WELL VEGETATED AREA OR INTO AN ENERGY DISSIPATER.

6. WHERE SLOPE BREAKERS EXTEND BEYOND THE EDGE OF THE CONSTRUCTION R.O.W. TO DIRECT RUNOFF INTO STABLE, WELL VEGETATED AREAS, THESE LOCATIONS MUST BE APPROVED BY THE COMPANY'S REPRESENTATIVE.

FLOW ENERGY DISSIPATER NOTES:

1. THE OUTLET SHALL CONTAIN AN ENERGY DISSIPATER IF THE COMPANY'S INSPECTOR DETERMINES EXISTING VEGETATION IS NOT SUFFICIENTLY STABLE TO PREVENT EROSION. THE ENERGY DISSIPATER SHALL BE CONSTRUCTED AS FOLLOWS:

   - OUTFALL END OF DISSIPATER SHOULD BE LOWER THAN SLOPE BREAKER END.
   - SILT FENCE, STRAW BALE OR ROCK DISSIPATERS SHOULD BE KEYED INTO THE END OF THE SLOPE BREAKER.
   - PROVIDE ENOUGH AREA INSIDE "L" TO CAPTURE AND HOLD SEDIMENT.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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KINDER MORGAN INC

TYPICAL SLOPE BREAKER

DATE: 07/01/05		APPROVED BY:
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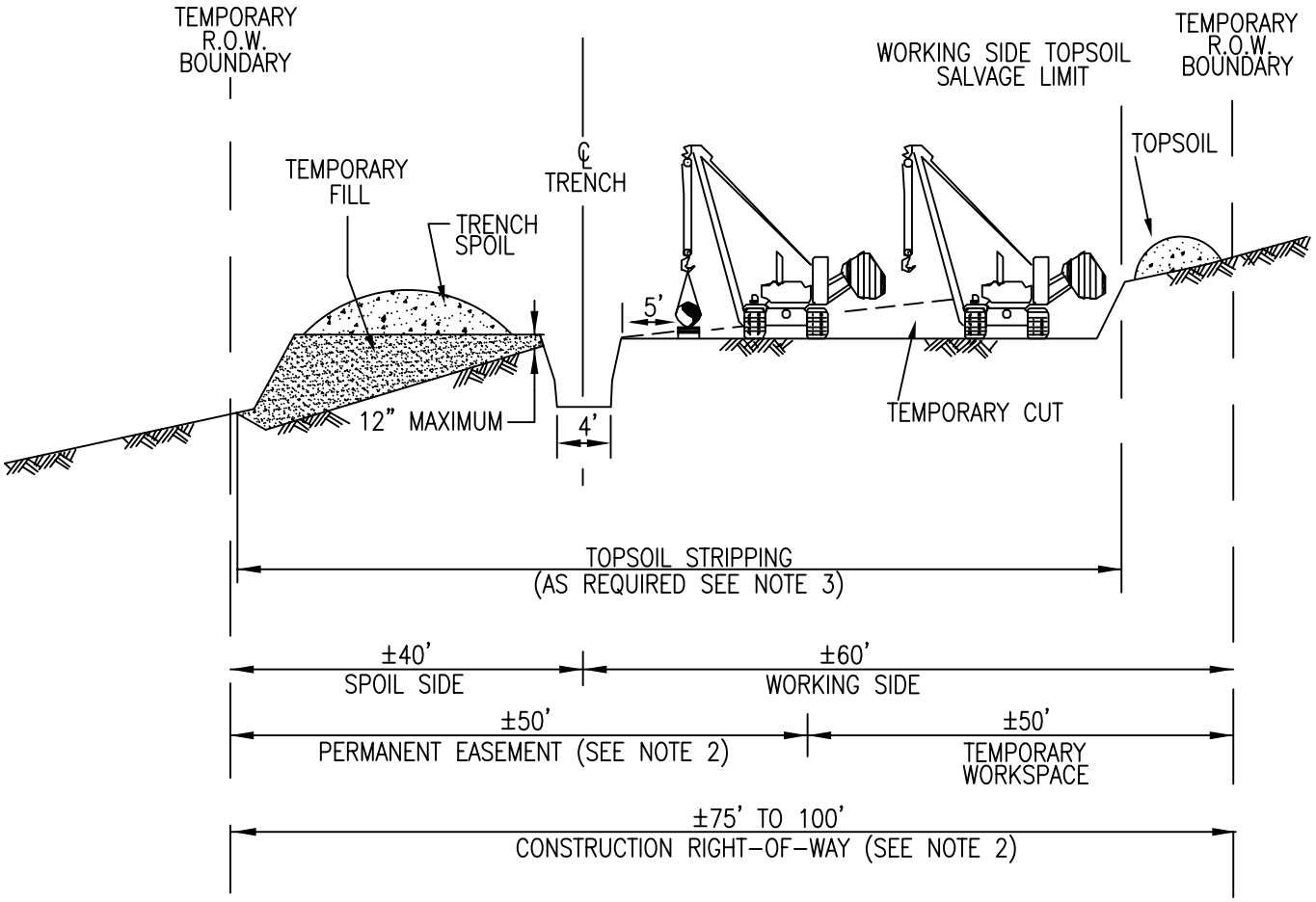

PROFILE

NOTES:

1. SIDE HILL CONSTRUCTION CUT AND FILL SHALL BE ALLOWED WHENEVER, IN THE OPINION OF THE CONTRACTOR, STEEP SIDE HILL CONSTRUCTION IS WARRANTED FOR PERSONNEL AND/OR EQUIPMENT SAFETY CONSIDERATIONS.
2. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 50 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
3. THIS DRAWING REFLECTS "TRENCH, SPOIL, AND WORKING SIDE" TOPSOIL STRIPPING PROCEDURE AS NEEDED FOR HILL SIDE LEVELING. SALVAGE TOPSOIL OVER TRENCH UNDER THE SPOIL PILE AND FROM TEMPORARY CUT AND FILL AREAS AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION ALIGNMENT SHEETS OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
4. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S REPRESENTATIVE. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
5. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL PILE.
6. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
7. SEE DETAILS CST-P-1260-A180.1& .2, CST-P-1260-A190.1& .2 FOR SEDIMENT BARRIER DETAIL DURING CONSTRUCTION.
8. FOR STORM WATER RUNOFF CONTROL ON HILL/SLOPE CONSTRUCTION, SEE TEMPORARY EROSION AND SEDIMENTATION CONTROL PROCEDURES IN SECTION C1260 OF THE CONSTRUCTION STANDARDS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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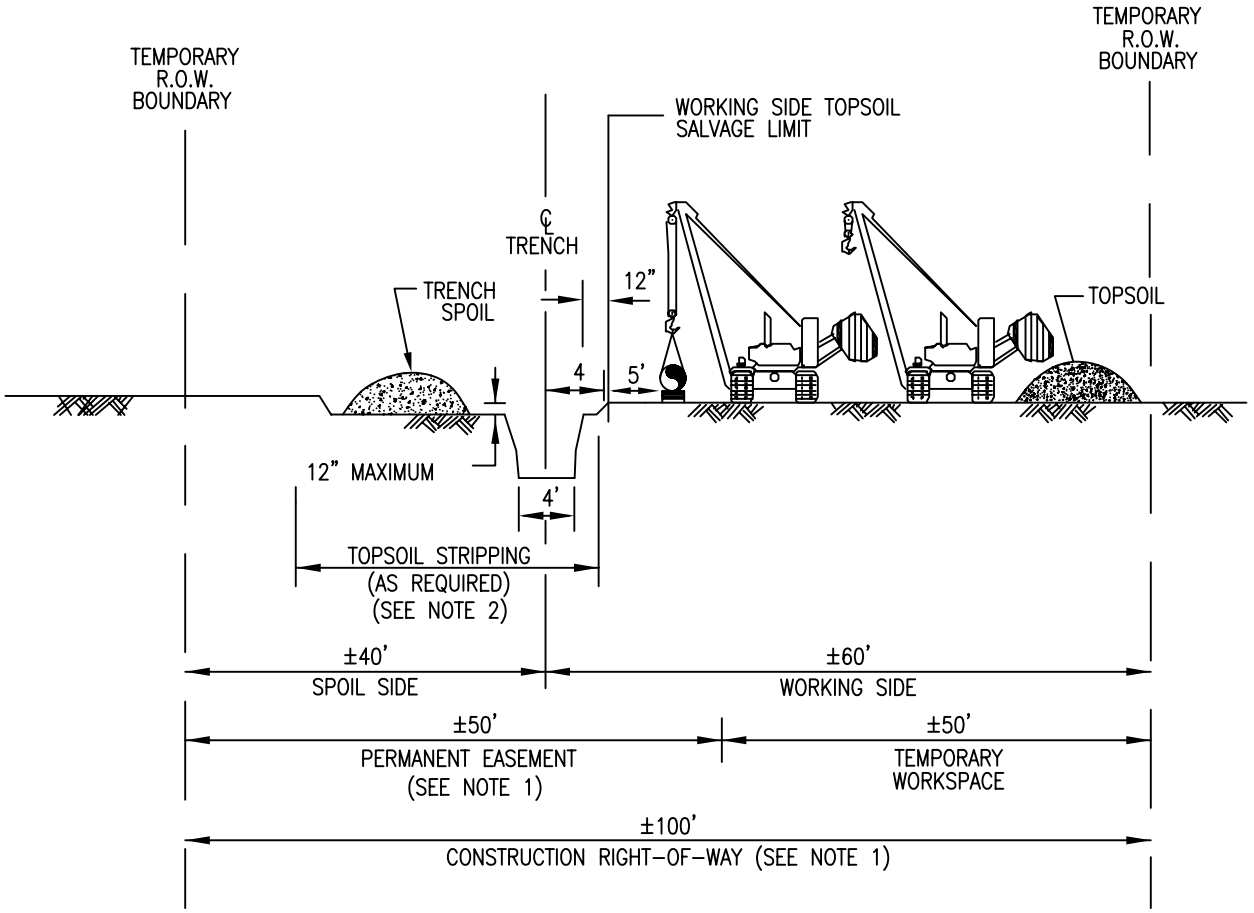
KINDER MORGAN INC

TYPICAL FULL TOPSOIL
SEPARATION SIDE HILL CONSTRUCTION

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A250	SH. 1 OF 1



TYPICAL PROFILE

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 50 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. THIS DRAWING REFLECTS "TRENCH AND SPOIL SIDE" TOPSOIL STRIPPING PROCEDURE. SALVAGE TOPSOIL OVER TRENCH AND UNDER THE SPOIL PILE AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION ALIGNMENT SHEETS, OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE. MINIMUM WIDTH OF TOPSOIL STRIPPING ON THE WORKING SIDE OF TRENCH IS 12 INCHES.
3. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S INSPECTOR. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
4. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL PILE.
5. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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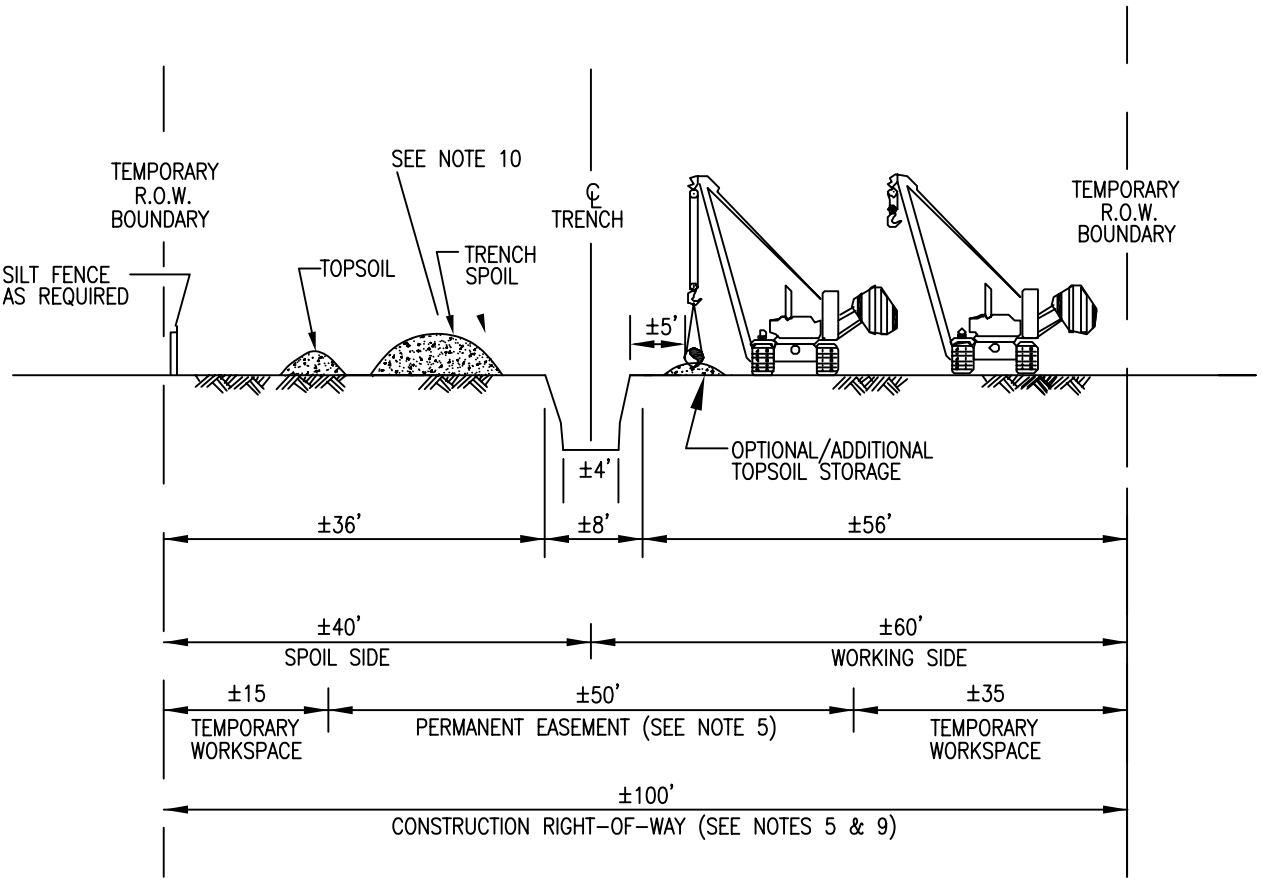
KINDER MORGAN INC

TYPICAL TOPSOIL SEPARATION
TRENCH & SPOILSIDE METHOD

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A255	SH. 1 OF 1



TYPICAL PROFILE

NOTES:

1. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. THE TRENCH ONLY METHOD IS NOT TO BE USED ON AGRICULTURAL LAND EXCEPT AS DIRECTED BY THE KM INSPECTOR (PER LANDOWNER REQUEST).
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
4. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 50 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S INSPECTOR. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
6. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. SAME LAYOUT APPLIES WHERE CONSTRUCTION R.O.W. DOES NOT ABUT EXISTING R.O.W.
9. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
10. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

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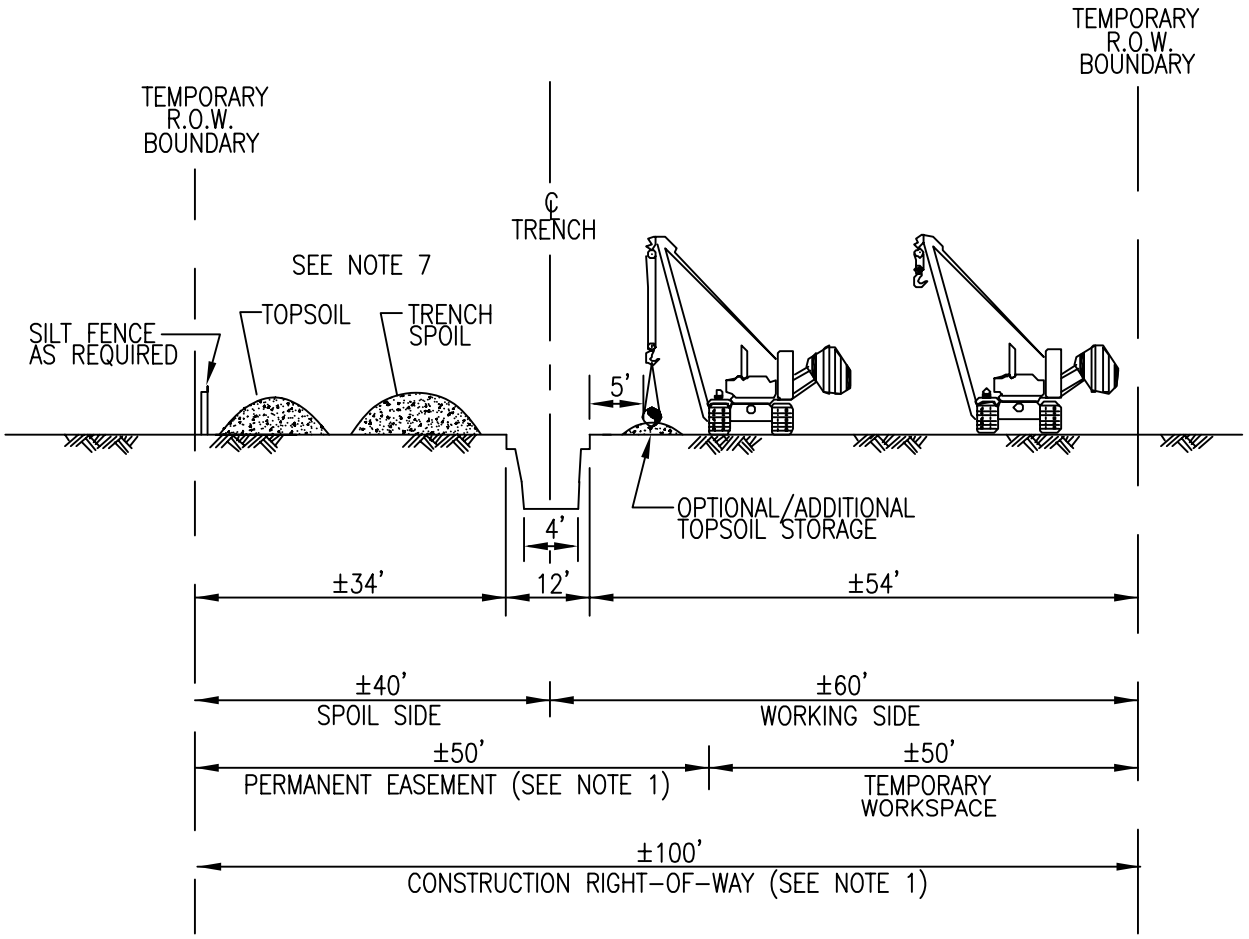
KINDER MORGAN INC

TYPICAL TOPSOIL SEPARATION
TRENCH PLUS 4' METHOD

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A260	SH. 1 OF 1



TYPICAL PROFILE

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 50 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. UTILIZE THE "BLADE WIDTH" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLANDS, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE COMPANY'S INSPECTOR. THE BLADE WIDTH METHOD IS NOT TO BE USED IN AGRICULTURAL LANDS, EXCEPT AS DIRECTED BY THE COMPANY'S INSPECTOR (PER LANDOWNER REQUEST.) FOR BLADE WIDTH STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT.
3. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S INSPECTOR. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS. MAINTAIN SEPARATION BETWEEN TOPSOIL AND SUBSOIL PILES.
4. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
5. TEMPORARILY SUSPEND TOPSOIL HANDLING DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
6. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
7. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S REPRESENTATIVE, BE REVERSED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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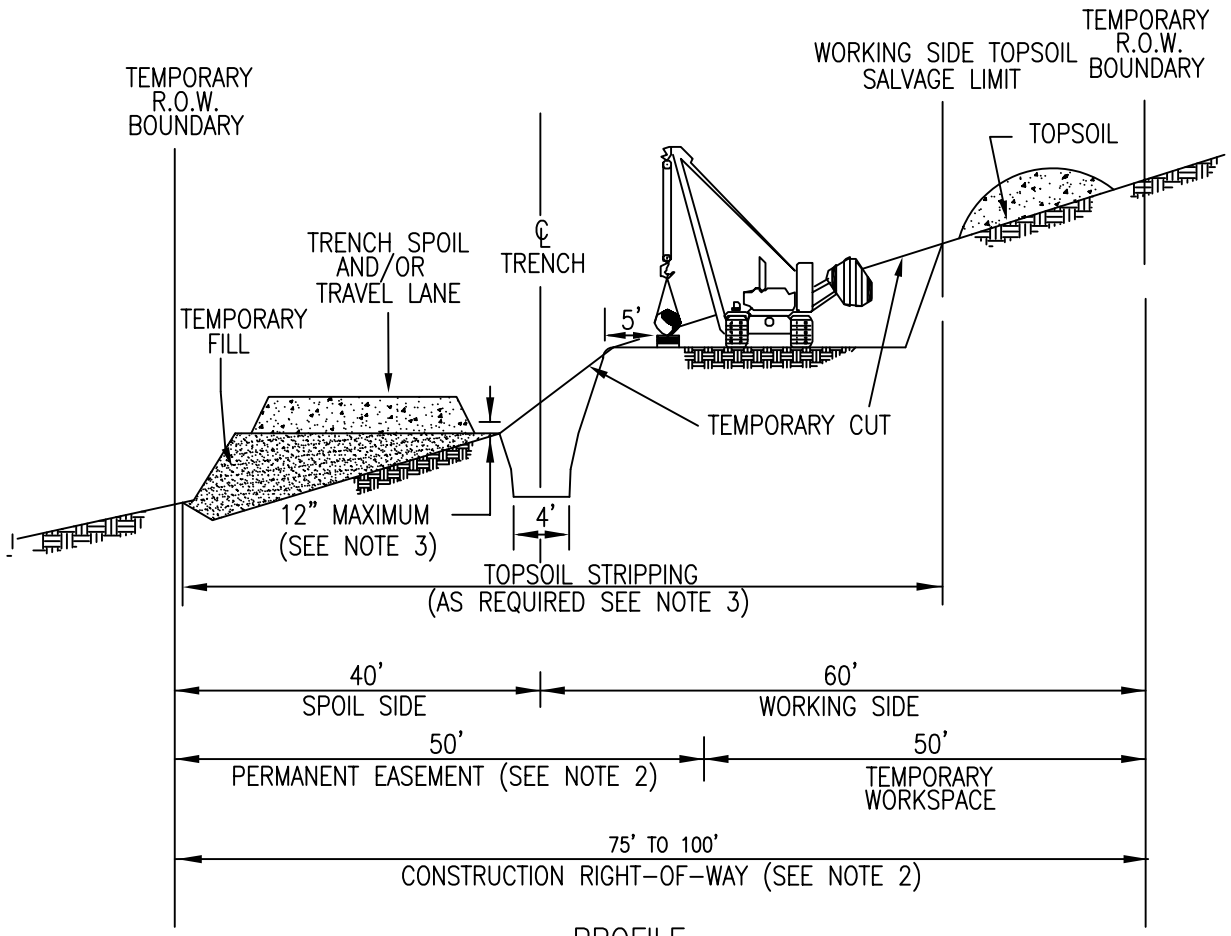
KINDER MORGAN INC

TYPICAL TOPSOIL
SEPARATION BLADE WIDTH

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A265	SH. 1 OF 1



PROFILE

NOTES:

1. SIDE HILL CONSTRUCTION CUT AND FILL SHALL BE ALLOWED WHENEVER, IN THE OPINION OF THE CONTRACTOR, STEEP SIDE HILL CONSTRUCTION IS WARRANTED FOR PERSONNEL AND/OR EQUIPMENT SAFETY CONSIDERATIONS.
2. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 50 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
3. THIS DRAWING REFLECTS "TRENCH, SPOIL, AND WORKING SIDE" TOPSOIL STRIPPING PROCEDURE AS NEEDED FOR HILL SIDE LEVELING. SALVAGE TOPSOIL OVER TRENCH UNDER THE SPOIL PILE AND FROM TEMPORARY CUT AND FILL AREAS AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION ALIGNMENT SHEETS OR AS DIRECTED BY THE COMPANY'S INSPECTOR.
4. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S REPRESENTATIVE. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
5. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL PILE.
6. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
7. SEE CST-P-1260-A180.1 & .2, CST-P-1260-A190.1 & .2. FOR SEDIMENT BARRIER DETAIL DURING CONSTRUCTION.
8. FOR STORM WATER RUNOFF CONTROL ON HILL/SLOPE CONSTRUCTION, SEE TEMPORARY EROSION AND SEDIMENTATION CONTROL PROCEDURES IN SECTION C1260 OF THE CONSTRUCTION STANDARDS.
9. ALL DIMENSIONS INDICATED SHALL BE DETERMINED BY ACTUAL CONSTRUCTION CONDITIONS.

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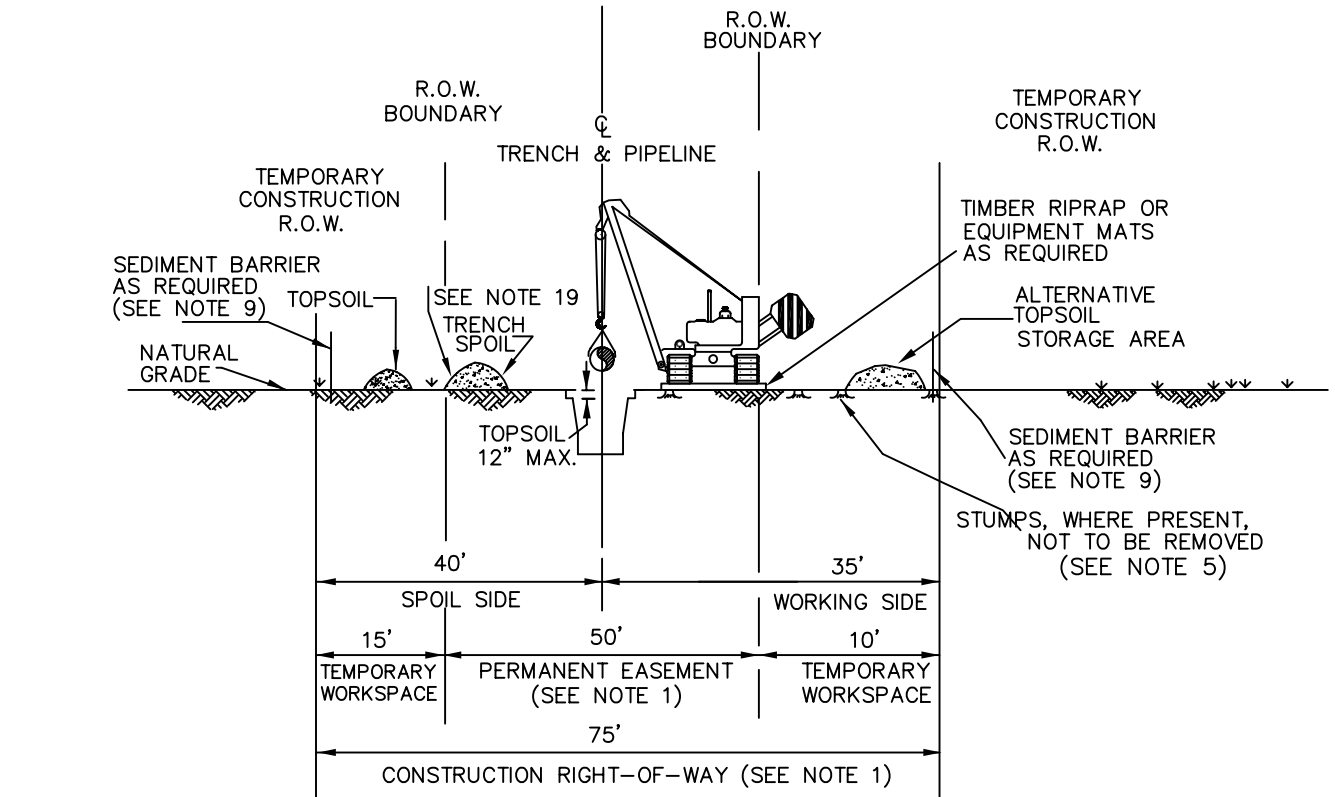
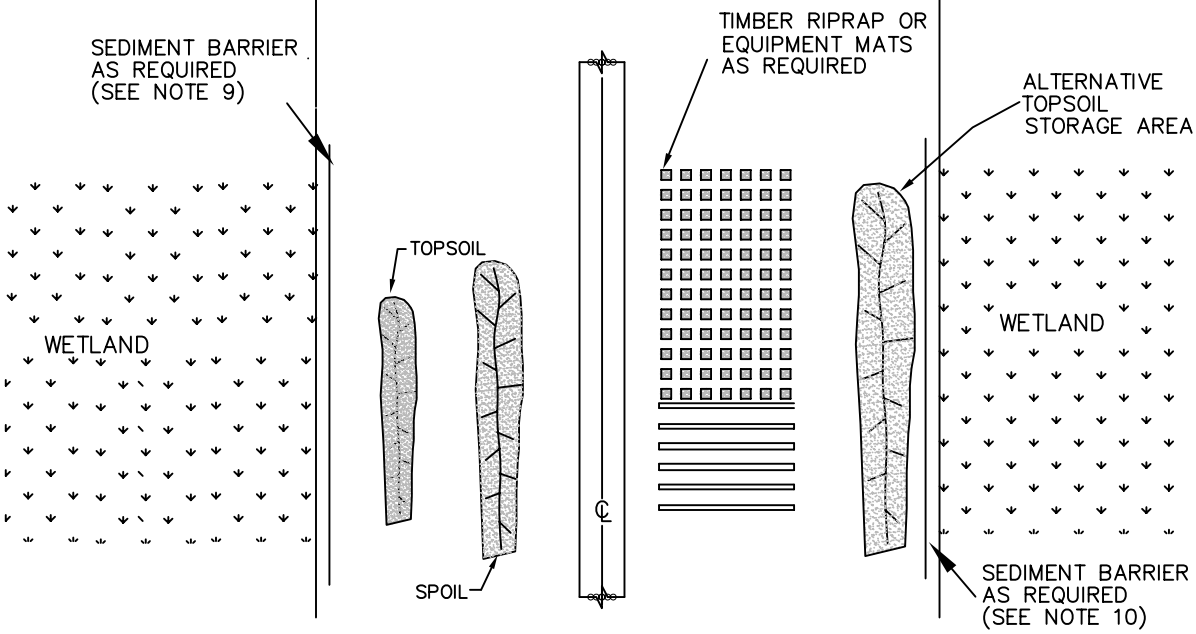
KINDER MORGAN INC

TYPICAL FULL
TOPSOIL SEPARATION SIDE HILL
CONSTRUCTION SPOILSIDE TRAVEL LANE

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A270	SH. 1 OF 1



PROFILE



PLAN VIEW

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KINDER MORGAN INC

TYPICAL WETLAND CROSSING

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NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND UP TO 25 FEET OF TEMPORARY WORKSPACE.
2. THE SAME LAYOUT APPLIES WHETHER CONSTRUCTION R.O.W. DOES OR DOES NOT ABUT A FOREIGN R.O.W.
3. LOCATE ANY EXTRA TEMPORARY WORK SPACE AREAS AT LEAST 25 FEET FROM EDGE OF WETLAND AND WITHIN THE APPLICABLE FULL WIDTH CONSTRUCTION R.O.W.
4. CLEARING OF VEGETATION AND TREES IS PROHIBITED BETWEEN TEMPORARY EXTRA WORK SPACE AND THE EDGE OF THE WETLAND.
5. CUT VEGETATION AND TREES OFF AT GROUND LEVEL, LEAVING EXISTING ROOT SYSTEMS IN PLACE WHEREVER PRACTICABLE, AND REMOVE CUTTINGS FROM THE WETLAND FOR DISPOSAL.
6. LIMIT CONSTRUCTION EQUIPMENT TO ONE PASS THROUGH WETLANDS TO THE EXTENT PRACTICABLE.
7. NO REFUELING OF EQUIPMENT WITHIN 100 FEET OF WETLAND EXCEPT IN ACCORDANCE WITH THE SPCC PLAN.
8. IF SATURATED AT TIME OF CONSTRUCTION, REDUCE SOIL COMPACTION BY UTILIZING WIDE-TRACK OR BALLOON TIRE CONSTRUCTION EQUIPMENT OR NORMAL EQUIPMENT OPERATED ON TIMBER RIPRAP OR EQUIPMENT MATS.
9. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS IMMEDIATELY AFTER INITIAL GROUND DISTURBANCE AND AT THE EDGE OF THE CONSTRUCTION R.O.W. ALONG THE WETLAND AS DIRECTED BY THE COMPANY'S INSPECTOR.
10. THIS DRAWING REFLECTS "TRENCH ONLY" TOPSOIL STRIPPING PROCEDURE FOR AREAS WHERE STANDING WATER OR SATURATED SOIL ARE NOT PRESENT.
11. SALVAGE UP TO 12" OF TOPSOIL OVER TRENCH AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR. MAINTAIN SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL.
12. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILE.
13. IN UNSATURATED CONDITIONS, SPOIL MAY BE USED TO STABILIZE THE WORKING SIDE.
14. IF SATURATED AT TIME OF CONSTRUCTION, LEAVE HARD PLUGS AT THE EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
15. TRENCH THROUGH WETLANDS.
16. LOWER-IN PIPE, INSTALL TRENCH BREAKERS AT WETLAND EDGES AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT DRAINAGE. BACKFILL UPON COMPLETION OF CONSTRUCTION.
17. REMOVE ALL TIMBER, RIPRAP OR EQUIPMENT MATS FROM WETLANDS UPON COMPLETION OF CONSTRUCTION.
18. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND REPLACE TOPSOIL, WHERE SALVAGED, WITHOUT A CROWN OVER THE TRENCH.
19. IF STANDING WATER IS NOT PRESENT, SEED AS SPECIFIED.
20. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

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KINDER MORGAN INC

TYPICAL WETLAND CROSSING

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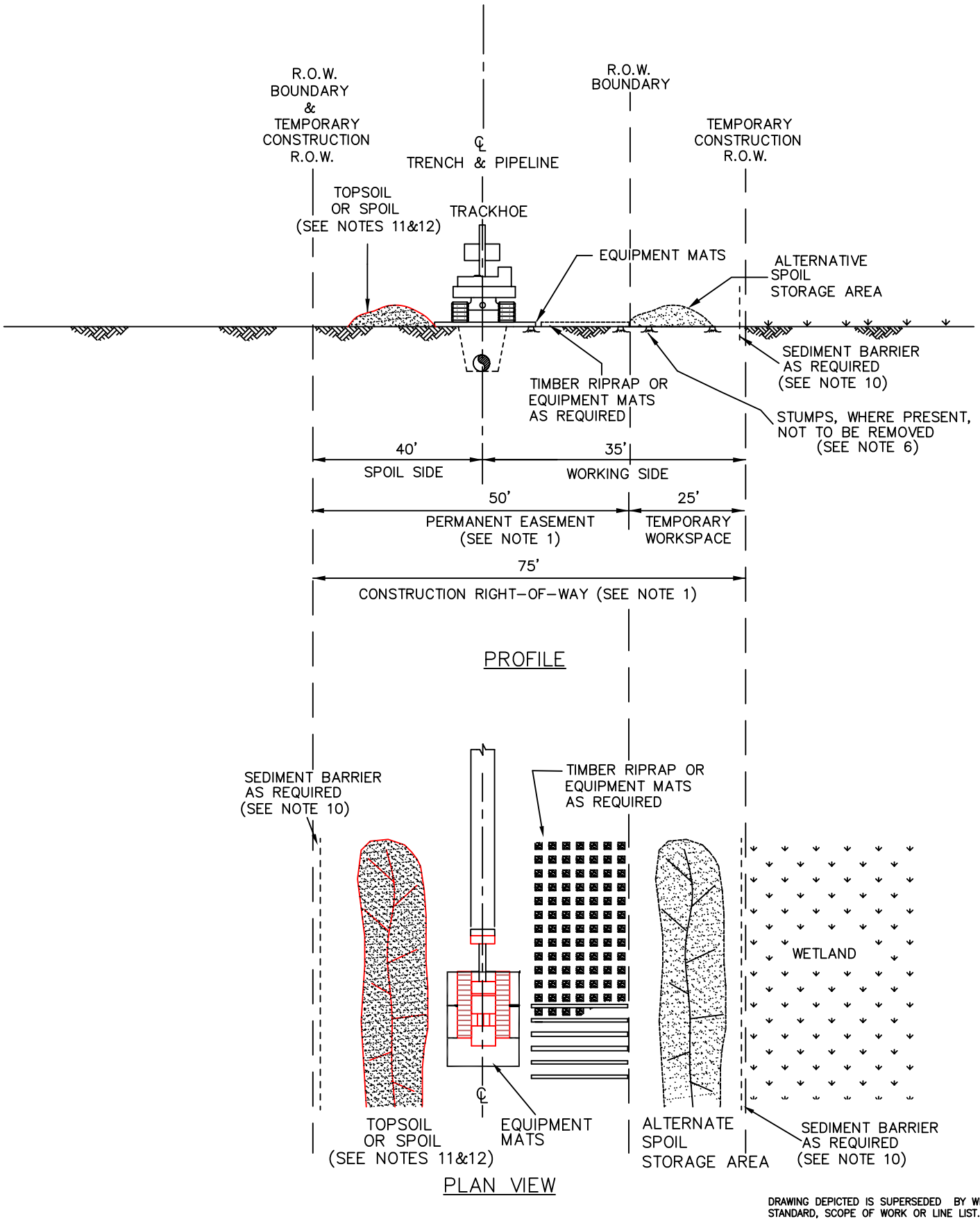

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KINDER MORGAN INC

TYPICAL PUSH PULL WETLAND CROSSING

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A390.1	SH. 1 OF 2

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 75 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND UP TO 25 FEET OF TEMPORARY WORKSPACE.
2. THE SAME LAYOUT APPLIES WHETHER CONSTRUCTION R.O.W. DOES OR DOES NOT ABUT A FOREIGN R.O.W.
3. LOCATE ANY EXTRA TEMPORARY WORK SPACE AREAS AT LEAST 25 FEET FROM EDGE OF WETLAND AND WITHIN THE APPLICABLE FULL WIDTH CONSTRUCTION R.O.W.
4. CLEARING OF VEGETATION AND TREES IS PROHIBITED BETWEEN EXTRA TEMPORARY WORK SPACE AND THE EDGE OF THE WETLAND.
5. CUT VEGETATION AND TREES OFF AT GROUND LEVEL, LEAVING EXISTING ROOT SYSTEMS IN PLACE WHEREVER PRACTICABLE, AND REMOVE CUTTINGS FROM THE WETLAND FOR DISPOSAL.
6. LIMIT CONSTRUCTION EQUIPMENT TO ONE PASS THROUGH WETLANDS TO THE EXTENT PRACTICABLE.
7. NO REFUELING OF EQUIPMENT WITHIN 100 FEET OF WETLAND EXCEPT IN ACCORDANCE WITH THE SPCC PLAN.
8. IF SATURATED AT TIME OF CONSTRUCTION, REDUCE SOIL COMPACTION BY UTILIZING WIDE-TRACK OR BALLOON TIRE CONSTRUCTION EQUIPMENT OR NORMAL EQUIPMENT OPERATED ON TIMBER RIPRAP OR EQUIPMENT MATS.
9. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS IMMEDIATELY AFTER INITIAL GROUND DISTURBANCE AND AT THE EDGE OF THE CONSTRUCTION R.O.W. ALONG THE WETLAND AS DIRECTED BY THE COMPANY'S INSPECTOR.
10. THIS DRAWING REFLECTS A PUSH/PULL SECTION WHERE GROUND CONDITIONS ARE OFTEN TOO WET TO SALVAGE TOPSOIL.
11. IF CONDITIONS ALLOW AT TIME OF CONSTRUCTION, SALVAGE UP TO 12" OF TOPSOIL OVER TRENCH AS DIRECTED BY THE COMPANY'S INSPECTOR. MAINTAIN SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL.
12. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILE.
13. IN UNSATURATED CONDITIONS, SPOIL MAY BE USED TO STABILIZE THE WORKING SIDE.
14. IF SATURATED AT TIME OF CONSTRUCTION, LEAVE HARD PLUGS AT THE EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
15. TRENCH THROUGH WETLANDS.
16. FABRICATE PIPE AT A STAGING AREA OUTSIDE OF THE WETLAND. ALL FLOATATION DEVICES AND BANDS USED TO SECURE DEVICES TO PIPE WILL BE INSPECTED AND APPROVED BY THE COMPANY'S INSPECTOR.
17. LOWER-IN PIPE, RECOVER AND REMOVE ALL FLOATATION DEVICES AND BANDS FROM WETLAND, INSTALL TRENCH BREAKERS AT WETLAND EDGES AND BACKFILL IMMEDIATELY ON COMPLETION OF CONSTRUCTION.
18. REMOVE ALL TIMBER RIPRAP OR EQUIPMENT MATS FROM WETLANDS UPON COMPLETION OF CONSTRUCTION.
19. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND REPLACE TOPSOIL, WHERE SALVAGED, WITHOUT A CROWN OVER THE TRENCH.
20. WETLANDS CROSSED USING THE PUSH/PULL METHOD TEND TO BE TOO WET FOR EFFECTIVE SEEDING. IF STANDING WATER IS NOT PRESENT, SEED AS SPECIFIED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

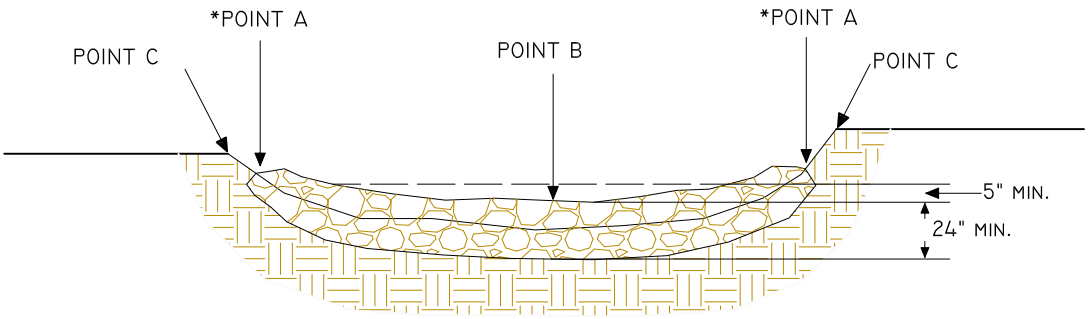
REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	07/08/04	ISSUED FOR REVIEW	RB	CM	
2	07/13/04	REVISED PER CLIENT COMMENT	RB	CM	
3	07/01/05	ENG REWRITE RELEASE	WS		

KINDER MORGAN INC

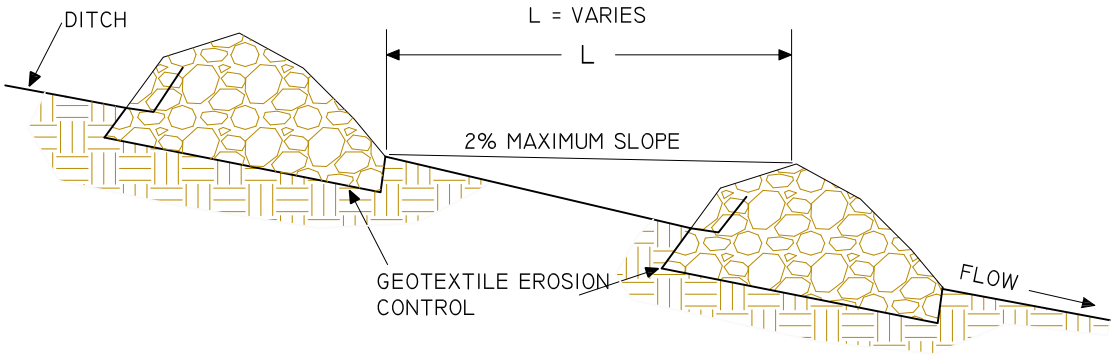
TYPICAL PUSH PULL
WETLAND CROSSING

DATE: 07/01/05		APPROVED BY:
SCALE: N.T.S.	CST-P-1260-A390.2	SH. 2 OF 2

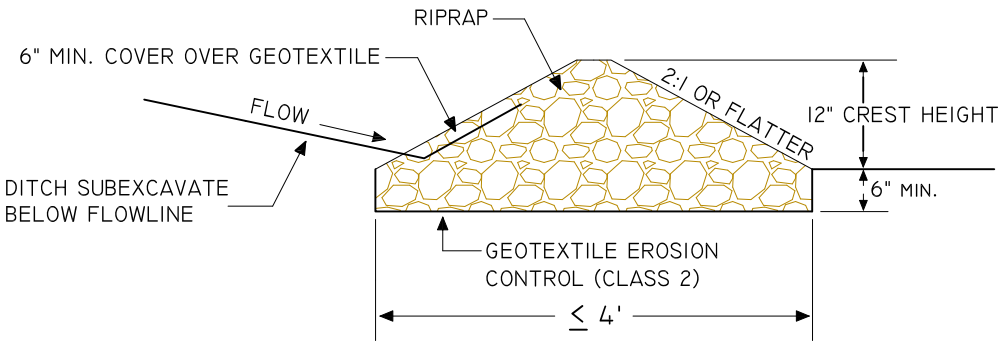


TYPICAL SECTION VIEW

*POINTS "A" SHALL BE HIGHER THAN POINT "B" AND BELOW POINTS "C".



SECTION VIEW ALONG DITCH FLOWLINE



SECTION DETAIL

NOTES:

1. RIPRAP SIZE D30 = 5" AS SHOWN ON THE PLANS.
2. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

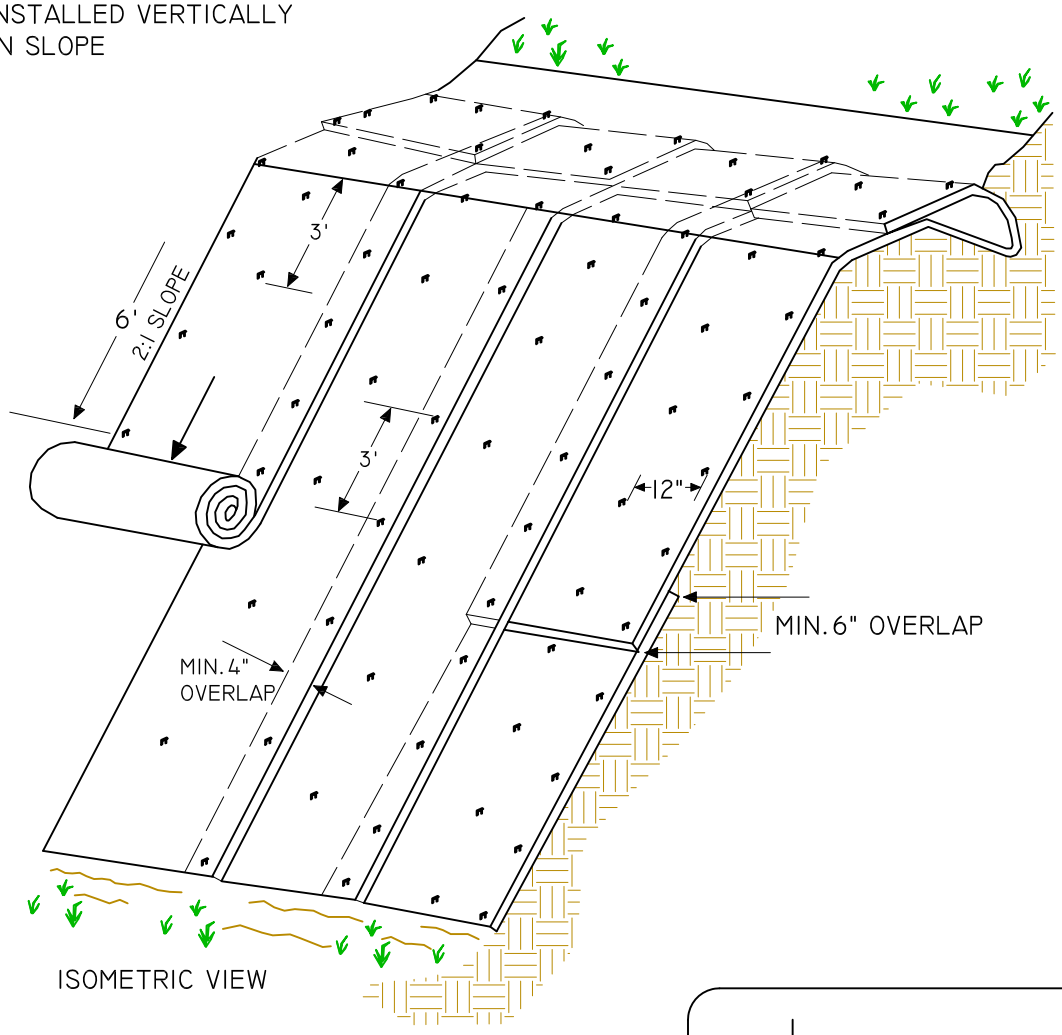
NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	12/04/15	ISSUED FOR REVIEW	HKH		

KINDER MORGAN

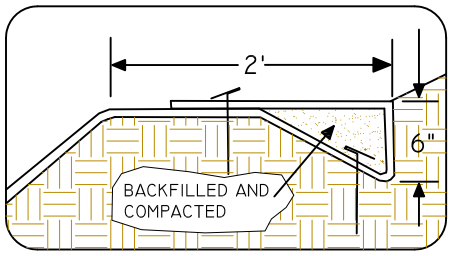
TYPICAL CHECK DAMS

DATE: 12/04/15		APPROVED BY:
SCALE: N.T.S.		SH. 1 OF 1

MATS/BLANKETS SHOULD
BE INSTALLED VERTICALLY
DOWN SLOPE



ISOMETRIC VIEW



NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

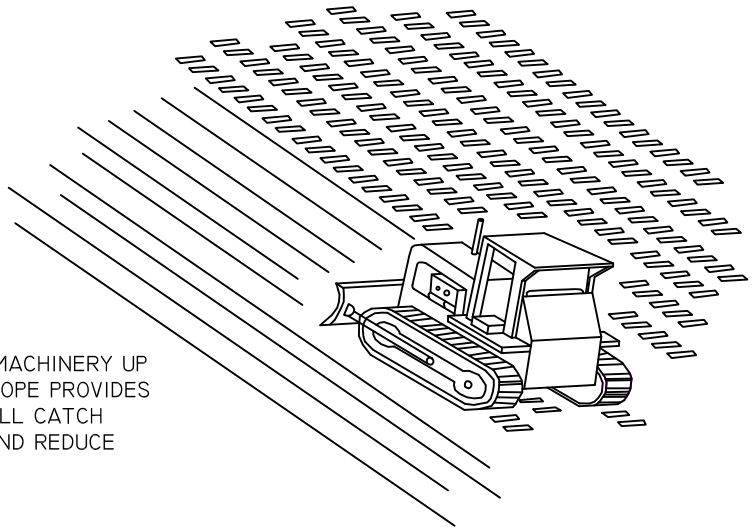
REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	12/03/15	ISSUED FOR REVIEW	HKH		

KINDER MORGAN

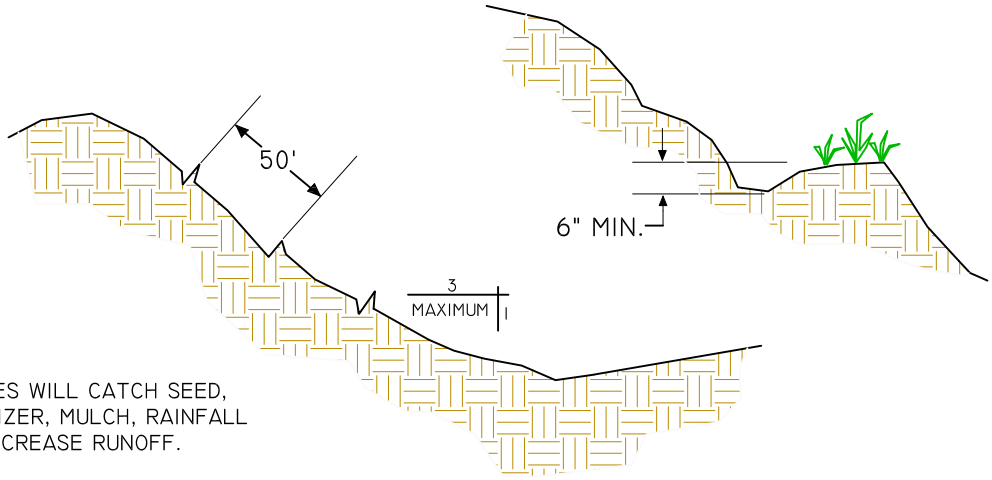
TYPICAL EROSION CONTROL BLANKETS

DATE: 12/03/15		APPROVED BY:
SCALE: N.T.S.		SH. 1 OF 1



'TRACKING' WITH MACHINERY UP AND DOWN THE SLOPE PROVIDES GROOVES THAT WILL CATCH SEED, RAINFALL AND REDUCE RUNOFF.

TRACKING-WALKING



GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF.

CONTOUR FURROWING

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

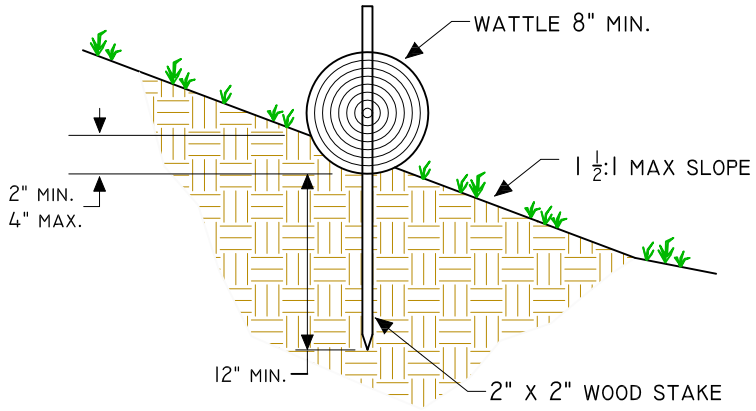
REVISIONS

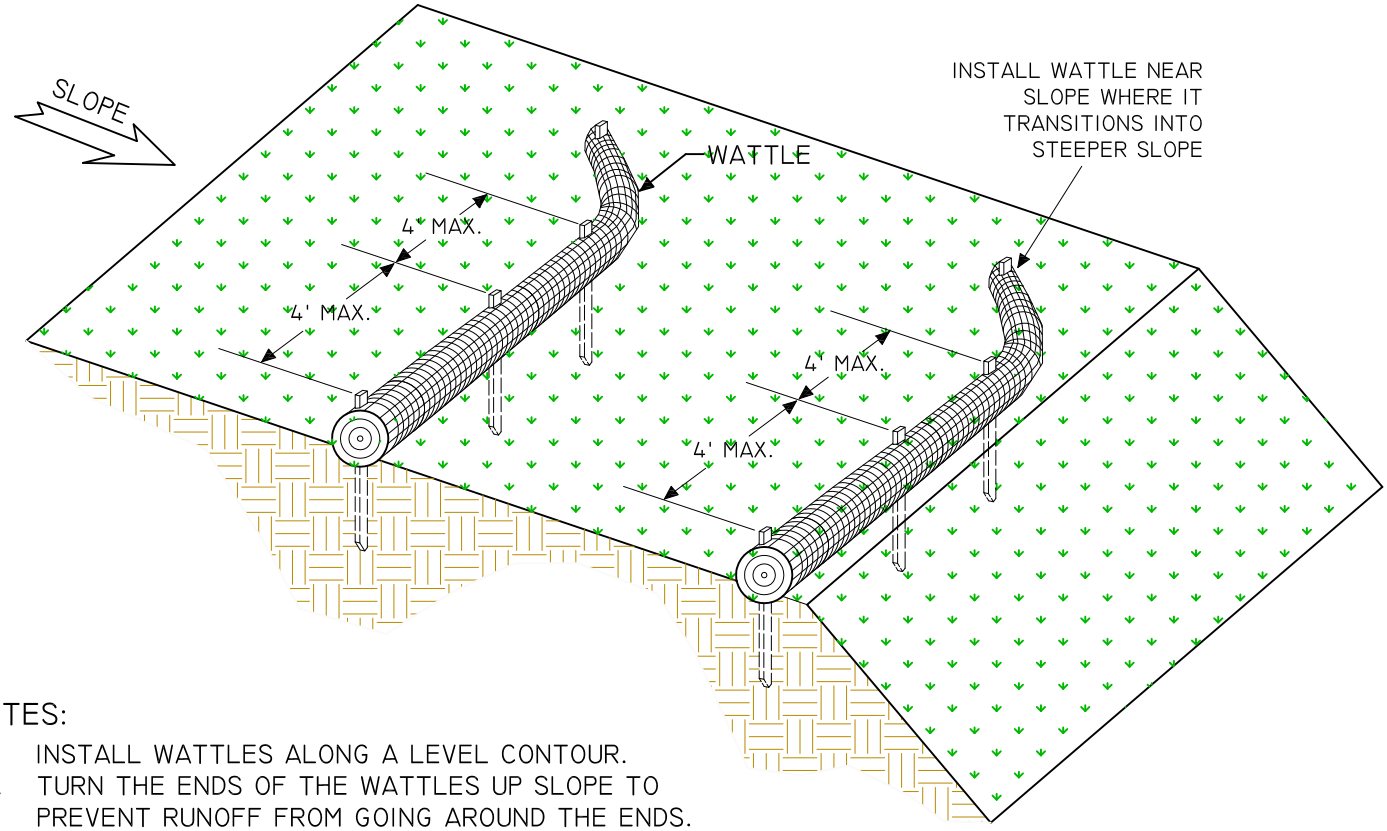
NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	12/07/15	ISSUED FOR REVIEW	HKH		

KINDER MORGAN

TYPICAL SURFACE ROUGHENING

DATE: 12/07/15		APPROVED BY:	
SCALE: N.T.S.			SH. 1 OF 1





NOTES:

1. INSTALL WATTLES ALONG A LEVEL CONTOUR.
2. TURN THE ENDS OF THE WATTLES UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ENDS.
3. STAKE WATTLES INTO A 2 TO 4 INCH DEEP TRENCH.
4. IF MORE THAN ONE WATTLE IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED, NOT ABUTTED.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	12/07/15	ISSUED FOR REVIEW	HKH		

KINDER MORGAN

TYPICAL WATTLES

DATE: 12/07/15

APPROVED BY:

SCALE: N.T.S.

SH. 1 OF 1

APPENDIX D

Stormwater Pollution Prevention Plan Training Log

Roosevelt Gas Plant

Date:_____
Trainer:_____

Topics Covered:

- □ Storm Water Regulations
- □ Purpose of the Storm Water Permit
- □ Requirements of the Storm Water Permit
- □ Components of the SWPPP
- □ Good Housekeeping Procedures
- □ Best Management Practices
- □ Inspections
- □ Record Keeping/Reporting
- □ Storm Water Discharges
- □ Non-Storm Water Discharges
- □ Changes to the SWPPP
- □ Other: _____

	Printed Name	Company	Signature	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

APPENDIX E

Stormwater Field Inspection – Roosevelt Gas Plant

Location Description: _____

Inspection Date: _____

Inspection Type (circle one): Bi-Weekly Monthly Precipitation Event (>0.5")

Outfalls: Evidence of sediment or pollutants transported offsite as a reported release? (circle): Yes No

If yes, describe location: _____

BMP	Check if Present	Condition: Good/ Satisfactory/Requires Maintenance	Description BMP preventative maintenance, corrective action, repairs, and locations
Berms			
Check Dams			
Culverts			
Diversion Ditches			
Drainage Dip			
Erosion Control Blanket			
Filter Berms			
Gabions			
Gravel Surfacing			
Land Grading			
Level Spreader			
Mulching			
Revegetation			
Rip Rap			
Sediment Trap			

Stormwater Field Inspection – Roosevelt Gas Plant

BMP	Check if Present	Condition: Good/ Satisfactory/Requires Maintenance	Description BMP preventative maintenance, corrective action, repairs, and locations
Silt Fence			
Stabilized Construction Entrance			
Straw Bale Barrier			
Straw Wattles			
Surface Roughening			
Terracing			
Vegetative Buffer			
Water Bar			

Description of actions to correct deficiencies or improve site conditions since last inspection:

Notes:

Based upon my visual inspection of site conditions, this inspection report does <u>not</u> identify incidents of non-compliance and I certify that this site is in compliance with the SWPPP (circle): Yes No

Inspector Printed Name: _____

Inspector Signature: _____

Inspection Report Sent To: _____ Date: _____

APPENDIX F