

# Appendix 8: A15 Pit – Engineering Drawings

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File Path: S:\ActiveProjects\Encana\West Fork A15 Well Pad\20 - CAD\CAD\18675-520-SIT-32202.dwg  
 Saved by: MICHAEL COOK on: Aug. 29, 12 - 3:37 PM  
 Plotted by: michael cook on: Aug. 29, 12 - 3:43 PM

PARCEL ID: 213527300015  
 ENCANA OIL & GAS USA, INC.  
 370 17th STREET, SUITE 1700  
 DENVER, CO 80202

### LOCATION SCHEDULE

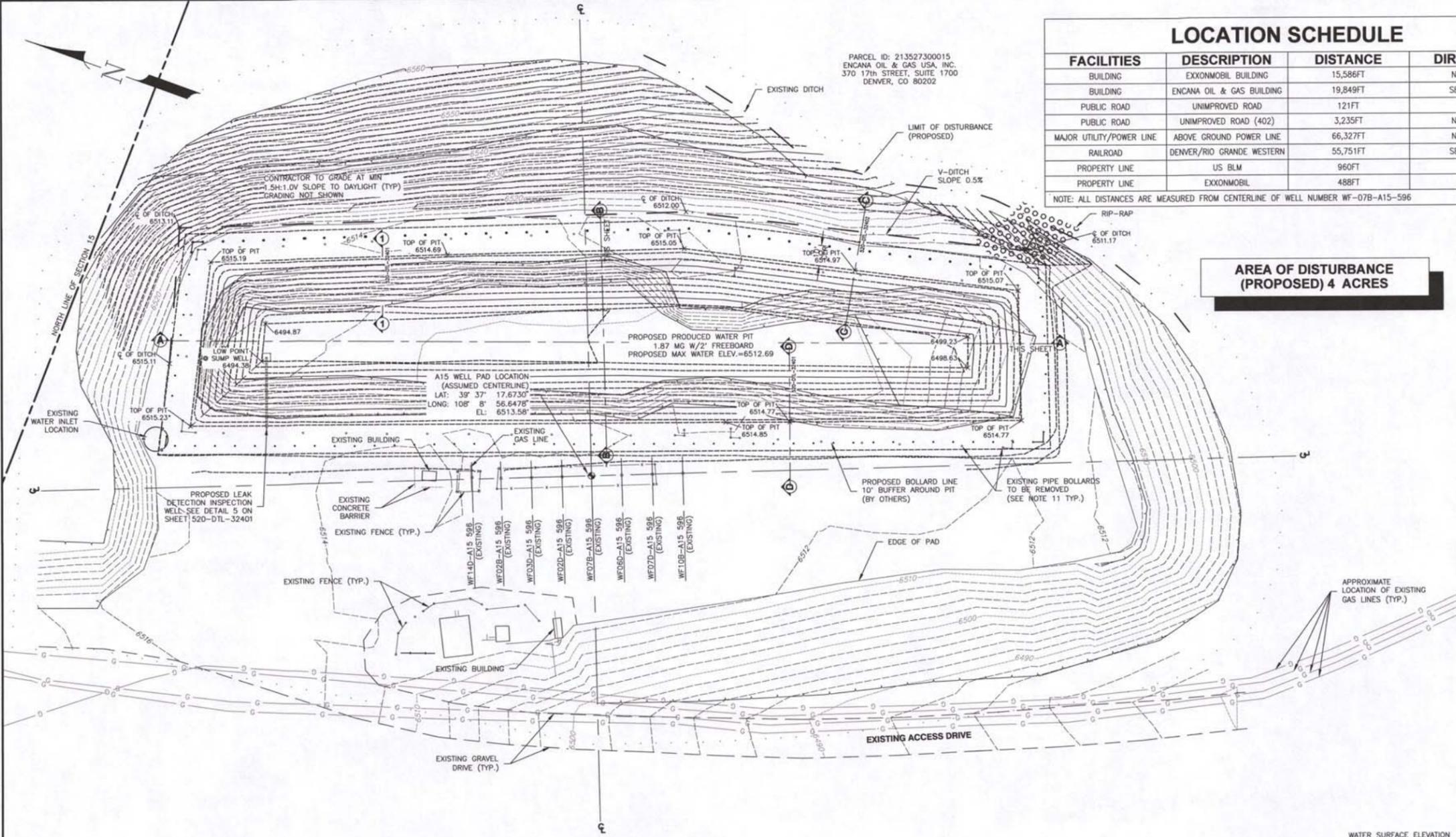
FACILITIES	DESCRIPTION	DISTANCE	DIRECTION
BUILDING	EXXONMOBIL BUILDING	15,586FT	NE 45.9'
BUILDING	ENCANA OIL & GAS BUILDING	19,849FT	SE 142.1'
PUBLIC ROAD	UNIMPROVED ROAD	121FT	W
PUBLIC ROAD	UNIMPROVED ROAD (402)	3,235FT	NE 62.5'
MAJOR UTILITY/POWER LINE	ABOVE GROUND POWER LINE	66,327FT	NE 68.4'
RAILROAD	DENVER/RIO GRANDE WESTERN	55,751FT	SE 165.2'
PROPERTY LINE	US BLM	960FT	S
PROPERTY LINE	EXXONMOBIL	488FT	E

NOTE: ALL DISTANCES ARE MEASURED FROM CENTERLINE OF WELL NUMBER WF-07B-A15-596

### LEGEND

- EXISTING SECTION LINE
- EXISTING MUNICIPAL BOUNDARY
- EXISTING UNPAVED ROAD
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING TOP OF SLOPE
- EXISTING BOTTOM OF SLOPE
- EXISTING GAS PIPELINE
- EXISTING GAS WELL
- EXISTING PIPE BOLLARD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING CENTERLINE OF DITCH
- WELL PAD CENTERLINE LOCATION
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED PIPE BOLLARD LINE
- PROPOSED TOP OF SLOPE
- PROPOSED BOTTOM OF SLOPE
- PROPOSED WATER SURFACE
- PROPOSED CENTERLINE OF DITCH
- PROPOSED RIP-RAP

**AREA OF DISTURBANCE (PROPOSED) 4 ACRES**



### NOTES:

- EXISTING (PRE-CONSTRUCTION) SITE FEATURES AND TOPOGRAPHY WERE SURVEYED BY UNIVERSALPEGASUS INTERNATIONAL ON 7/21/11. AS-BUILT SURVEY OF PRODUCED WATER PIT WAS PERFORMED BY UNIVERSALPEGASUS INTERNATIONAL ON 7/16/12, PRIOR TO INSTALLATION OF LINER.
- SURVEY BENCHMARK AND SURVEY CONTROL SHOULD BE ESTABLISHED BY THE CONTRACTOR FOR PIT LOCATION, DEPTH AND SLOPE LIMITS, PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
- WHERE WATERLINE RISER INTERFERES WITH PROPOSED PRODUCED WATER PIT, RISER SHALL BE RELOCATED BY OTHERS, PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
- PRIOR TO ANY EXCAVATION WORK ON A PAD THAT HAS PIPELINES, THE PIPELINE SHALL BE PREPPED FOR CONSTRUCTION. PIPELINE SHALL BE LOCKED-OUT/TAGGED OUT, PURGED, WATER TESTED AND OPEN TO ATMOSPHERE.
- ONE-CALL SHALL BE MADE IN ACCORDANCE WITH COLORADO STATE LAW. AFTER ALL PIPES HAVE BEEN HORIZONTAL LOCATED, DEPTH OF PIPES MUST BE DETERMINED WHEN PIPELINES ARE WITHIN TWO FEET OF EXCAVATION. THIS SHALL BE DONE BY DIGGING 6" DOWN ON EITHER SIDE OF THE PIPE AND SLOUGHING OFF THE MATERIAL BY HAND TO LOCATE THE PIPE. WHERE SPACE IS CONFINED, POT-HOLING SHALL BE USED TO LOCATE THE PIPE.
- PIPE BOLLARD, FENCING, SWING GATE, EMERGENCY EGRESS PERSONNEL GATES AND BIRD NETTING TO BE DESIGNED AND LOCATED BY OTHERS. PIPE BOLLARDS SHOWN ON PLAN ARE FOR INFORMATION ONLY. ALL PIPE BOLLARD PLACEMENT SHOULD AVOID EXISTING GAS AND WATER LINE INTERFERENCE.
- HORIZONTAL DATUM=NAD 83  
HORIZONTAL PROJECTION=COLORADO CENTRAL ZONE  
VERTICAL DATUM=NAVD83 (GEOID 03)  
U.S. SURVEY FEET (GRID)  
COMBINED SCALE FACTOR=0.99966821  
PDP=1.28.
- WARNING SIGNS & ENTRY REGULATORY SIGNAGE TO BE PROVIDED & INSTALLED BY OWNER.
- PIT VOLUME SHOWN ON PLANS IS MEASURED FROM WATER SURFACE ELEVATION TO BOTTOM OF BIT AND EXCLUDES THE 2' FREEBOARD VOLUME.
- REMOVE EXISTING LINERS AND FILL IN EXISTING PIT WITH SPOILS FROM NEW PIT EXCAVATION. SPOILS SHOULD BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- EXISTING STEEL PIPE BOLLARDS IN CONSTRUCTION AREA SHALL BE REMOVED AND SET ASIDE FOR RE-USE. HOLES SHALL BE FILLED WITH ONSITE FILL MATERIAL AND THOROUGHLY COMPACTED.
- PRODUCED WATER PIT LINER SYSTEM SHALL CONSIST OF A PRIMARY AND SECONDARY LINER, A GEOTEXTILE CUSHION (GCL) LAYER, AND INTERSTITIAL DRAINAGE LAYER WITH LEAK DETECTION WELL FOR LINER SYSTEM DETAILS SEE DWG. 520-DTL-32401
- THE FOLLOWING PROJECT SPECIFICATIONS SHALL BE INCORPORATED BY REFERENCE:  
-18675-520-SPC-001 EARTHWORK AND PIT CONSTRUCTION  
-18675-520-SPC-002 GEOSYNTHETIC CLAY LINER  
-18675-520-SPC-003 GEOCOMPOSITE DRAINAGE LAYER  
-18675-520-SPC-004 GEOMEMBRANE LINER
- CONTRACTOR TO INSTALL RIP-RAP (2" + MATERIAL) AT DITCH OUTFALL SHOWN.
- EXISTING DITCHES SHALL BE RETURNED TO FUNCTIONAL CONDITION ONCE WORK IS COMPLETE.
- THE HILLSIDE NORTH AND EAST OF PIT SHALL BE STABILIZED AND SEEDED IMMEDIATELY AFTER COMPLETION OF FINISHED GRADING. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL MEASURES AS REQUIRED.

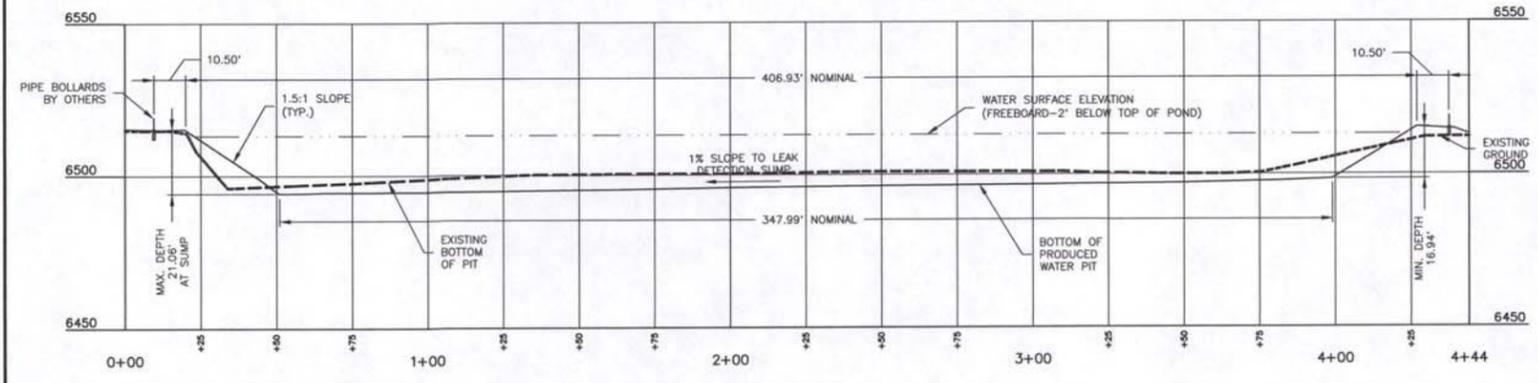
PRELIMINARY EARTHWORK CALCULATIONS:  
 2944 CYDS CUT  
 869 CYDS FILL  
 2075 CYDS NET CUT



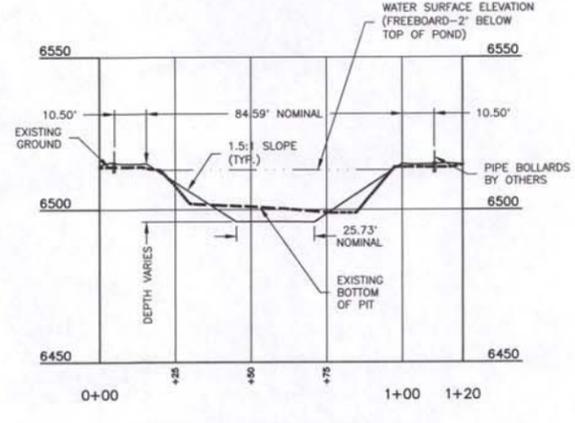
Know what's below. Call before you dig.



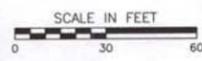
**AS-BUILT**  
08/29/12



**DETAIL A-A**  
SCALE: H:1"=30'; V:1"=30'



**DETAIL B-B**  
SCALE: H:1"=30'; V:1"=30'



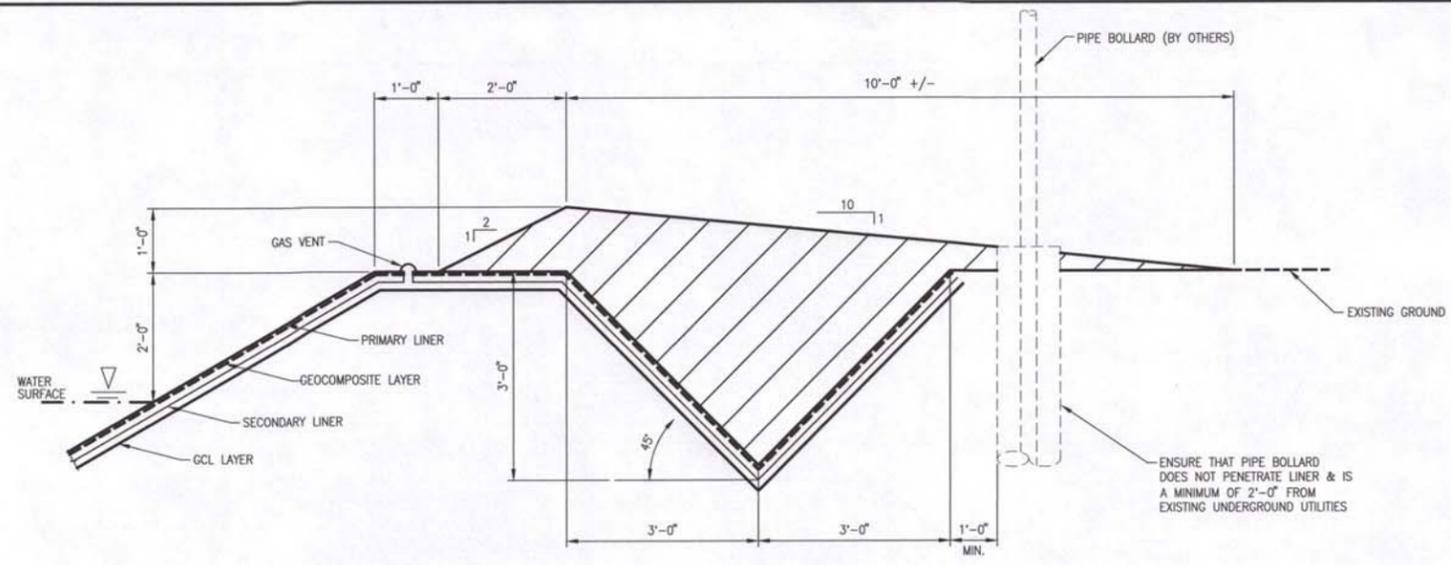
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		0	ISSUED FOR CONSTRUCTION	01/05/12	CLL	GDB	

DRAWN	SWH	DATE	08/05/11
CHECKED	GDB	DATE	11/15/11
APPROVED	GDB	DATE	11/18/11
SCALE	1"=30'-0"	SHEET	2 OF 2
JOB NO.	18675		
CLIENT	ENCANA NATURAL GAS		
CLIENT JOB NO.	-		

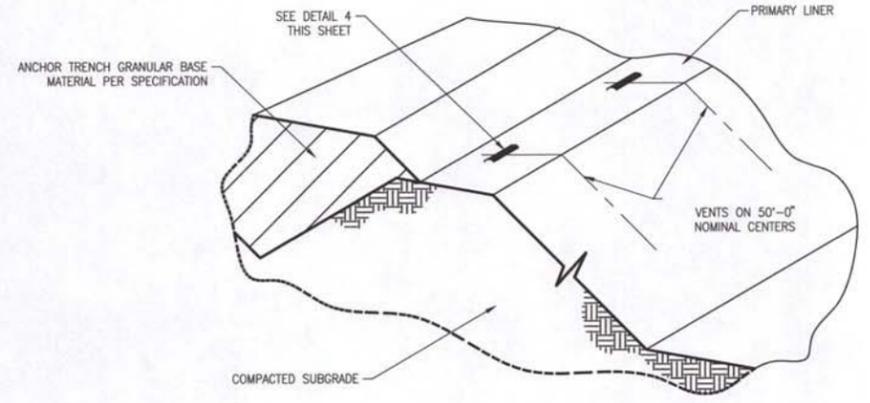
CIVIL/STRUCTURAL  
**WEST FORK PARACHUTE CREEK - A15 WELL PAD**  
**PRODUCED WATER PIT**  
**LOCATION & GRADING PLAN**  
 GARFIELD COUNTY, COLORADO  
 T55 R96W

**encana.**  
 natural gas  
 DRAWING NO. 18675-520-SIT-32202  
 REV. 1

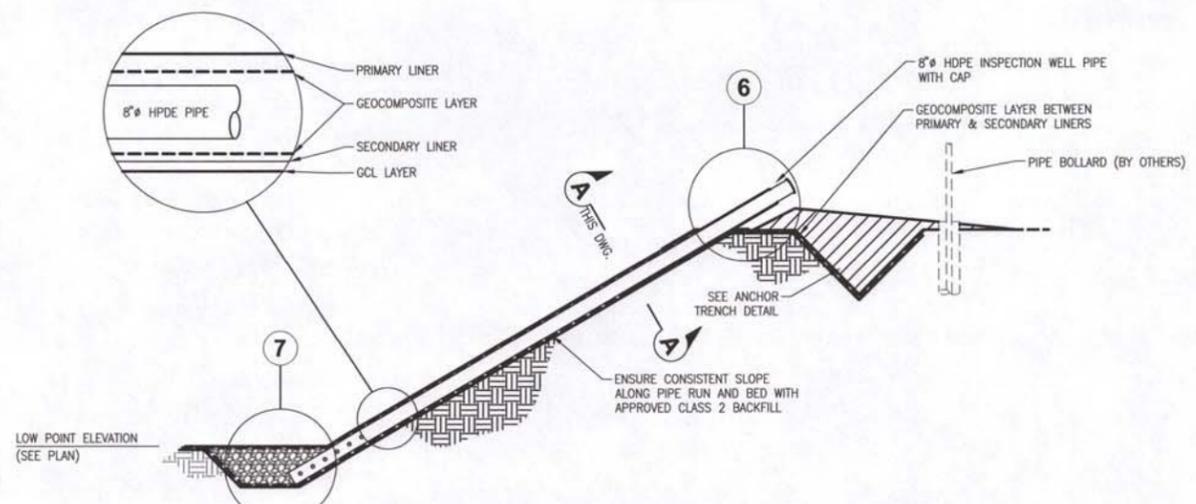
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 Plotted by: michael cook on: Aug. 29, 12 - 3:57 PM



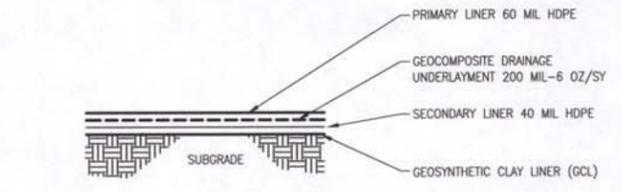
**ANCHOR TRENCH DETAIL 1**  
SCALE : N.T.S. 520-SIT-32202



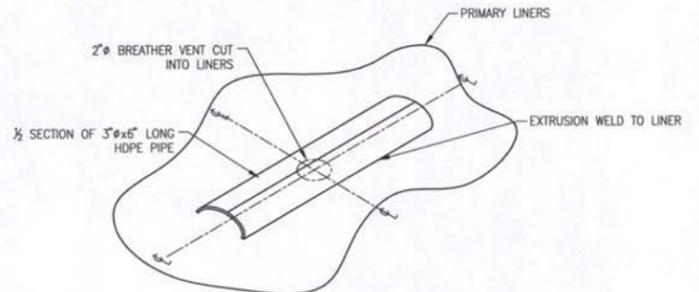
**GAS VENT LOCATION DETAIL 3**  
SCALE : N.T.S. 520-SIT-32202



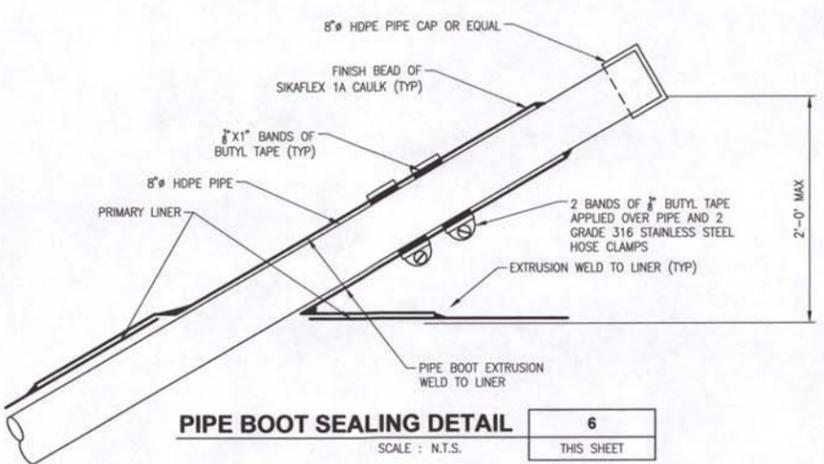
**LEAK DETECTION WELL DETAIL W/ PIPE RESTING ON SLOPE GRADE 5**  
SCALE : N.T.S. 520-SIT-32202



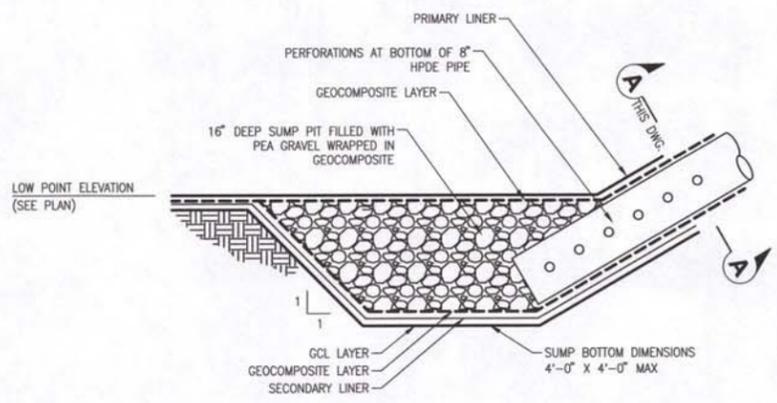
**TYPICAL POND LINING SYSTEM DETAIL 2**  
SCALE : N.T.S. 520-SIT-32202



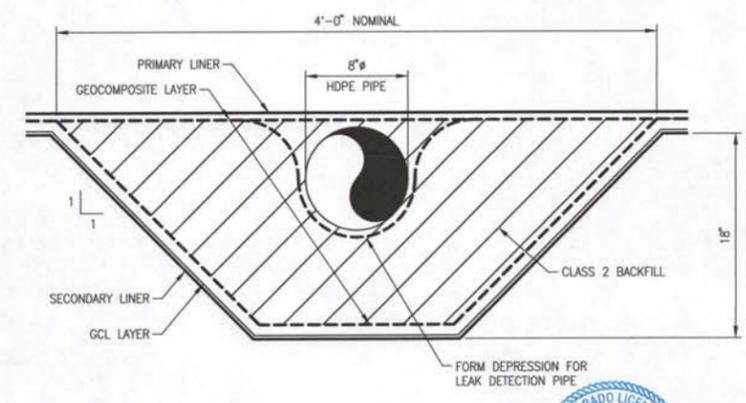
**AIR/GAS VENT DETAIL 4**  
SCALE : N.T.S. THIS SHEET



**PIPE BOOT SEALING DETAIL 6**  
SCALE : N.T.S. THIS SHEET



**SUMP PIT FILLED WITH GRAVEL 7**  
SCALE : N.T.S. THIS SHEET



**SECTION A-A**  
SCALE : N.T.S. THIS SHEET



**AS-BUILT**  
08/29/12

REF. DWG. NO.	REFERENCE TITLE	NO	REVISION	DATE	DRAWN	CHKD	NO	REVISION	DATE	DRAWN	CHKD
		1	AS-BUILT	08/29/12	MWC	GDB					
		0	ISSUED FOR CONSTRUCTION	01/05/12	CLL	GDB					

DRAWN	CLL	DATE	11/10/11
CHECKED	GDB	DATE	11/15/11
APPROVED	GDB	DATE	11/18/11
SCALE	N.T.S.	SHEET	1
JOB NO.	18675		
CLIENT	ENCANA NATURAL GAS		
CLIENT JOB NO.			

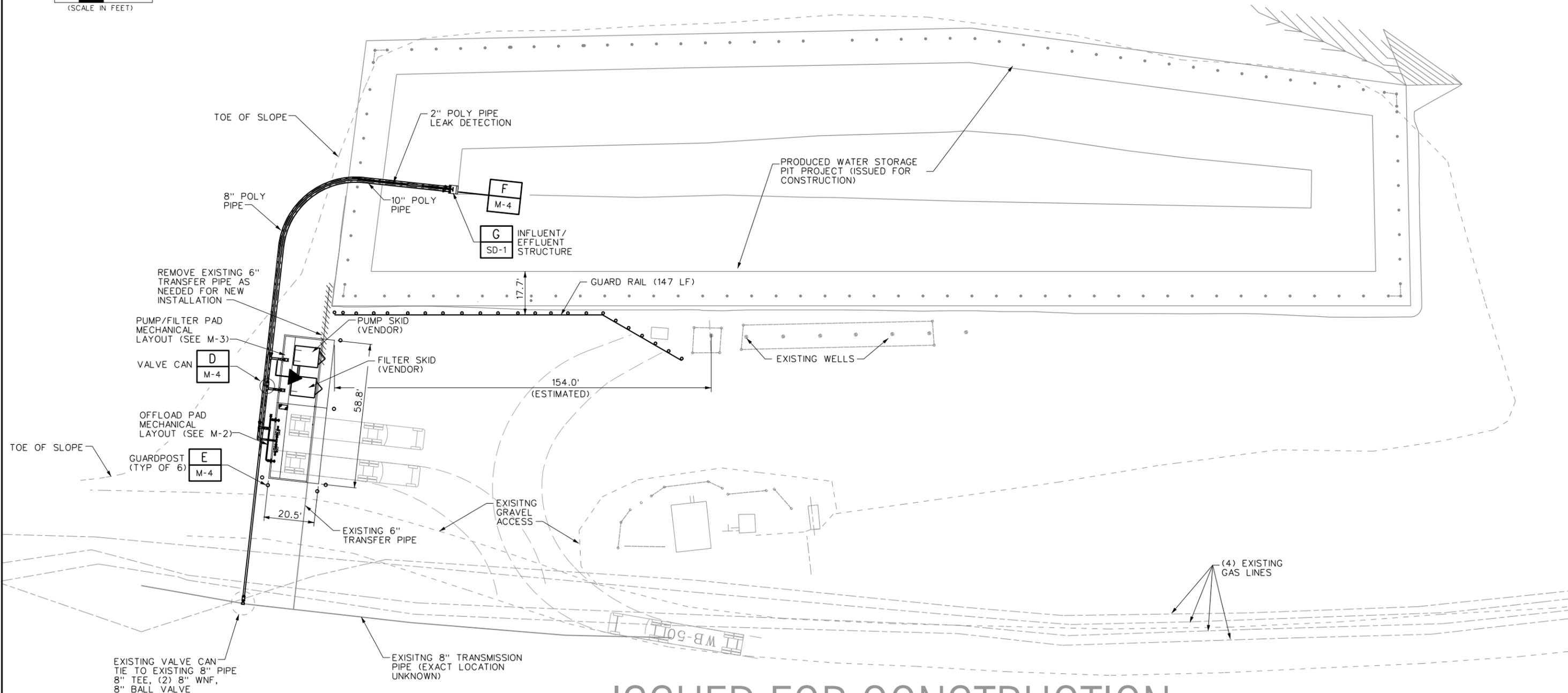
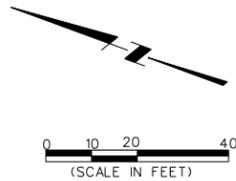
CIVIL/STRUCTURAL  
**WEST FORK PARACHUTE CREEK - A15 WELL PAD  
 PRODUCED WATER PIT  
 CIVIL DETAILS**  
 TSS R96W GARFIELD COUNTY, COLORADO

**encana.**  
 natural gas  
 DRAWING NO. 18675-520-DTL-32401  
 REV. 1



Plot Date: 6/13/2012 8:26:24 AM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)



# ISSUED FOR CONSTRUCTION

06-07-12

Plot Date: 6/13/2012 8:26:24 AM

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																

EPCM Co.	TITLE	AREA	CLASS	FILE NO.	EPCM No.
	PIPING MODIFICATIONS SITE LAYOUT	A15 PRODUCED WATER PIT			A15-M-1

T:\DRAWING (ENCANA) \S... The Block) v4

Plot Date: 6/13/2012 8:29:25 AM

T:\WORKING (ENR) 3 See The Block) 14

①

8" PIPE, 0.250 WALL, CARBON STEEL, LINED AND EPOXY COATED.

1" THREAD-O-LET  
1" NIPPLE (MPT)  
1" BALL VALVE (FPT)  
1" GOOSE NECK (MPT)  
4" LR ELBOW  
4" WAFER CHECK VALVE  
4" THREADED FLANGE  
ON BOTTOM OF PIPE  
1" THREAD-O-LET  
1" NIPPLE (MPT)  
1" BALL VALVE (FPT)  
1" NIPPLE (MPT)

4" PVC NIPPLE (MPTxMPT)  
4" STN STL 45° (FPTxFPT)  
4" STN STL NIPPLE (MPTxMPT)

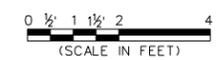
4" FEMALE QUICK-CONNECT W/PLUG

DOUBLE 8" ELBOW (SET VERTICALLY)  
8" TEE, 8" ELBOW (SET VERTICALLY)  
8" STN STL PIPE  
8" TRANSITION FLANGE  
8" POLY PIPE  
1'-4"

8"x6" REDUCER  
6" WNF  
6" BALL VALVE  
6"x4" REDUCER  
4" BLIND FLANGE  
4" BALL VALVE  
4" WNF

6" STN STL PIPE  
4" TEE  
4" BASKET STRAINER  
4" BALL VALVE  
4" WAFER CHECK VALVE  
4" FEMALE QUICK-CONNECT W/PLUG  
4" STN STL NIPPLE (MPTxMPT)  
4" THREADED COUPLING (FPTxFPT)  
4" PVC NIPPLE (MPTxMPT)  
4" THREADED FLANGE

ON BOTTOM OF PIPE  
1" THREAD-O-LET  
1" NIPPLE (MPT)  
1" BALL VALVE (FPT)  
1" NIPPLE (MPT)



FOR CONTINUATION SEE M-3

- NOTES:
- ① PIPE: 0.250 WALL, CARBON STEEL, LINED AND EPOXY COATED
  - ② VALVES/FITTINGS/FLANGES: 600 LB RATING
  - ③ VALVES/FLANGES/FITTINGS: 150 LB RATING
  - ④ PIPE: SCH 10 STAINLESS STEEL
  - ⑤ VALVES/FLANGES/FITTINGS: STAINLESS STEEL
  - ⑥ ALL EXPOSED PIPE, VALVES, FITTINGS AND EQUIPMENT SHALL HAVE 2" THICK INSULATION WITH ALUMINUM WRAP.

EXISTING 6" BURIED TRANSFER PIPE

EDGE OF ACCESS ROAD

ISSUED FOR CONSTRUCTION

06-07-12

Plot Date: 6/13/2012 8:29:25 AM

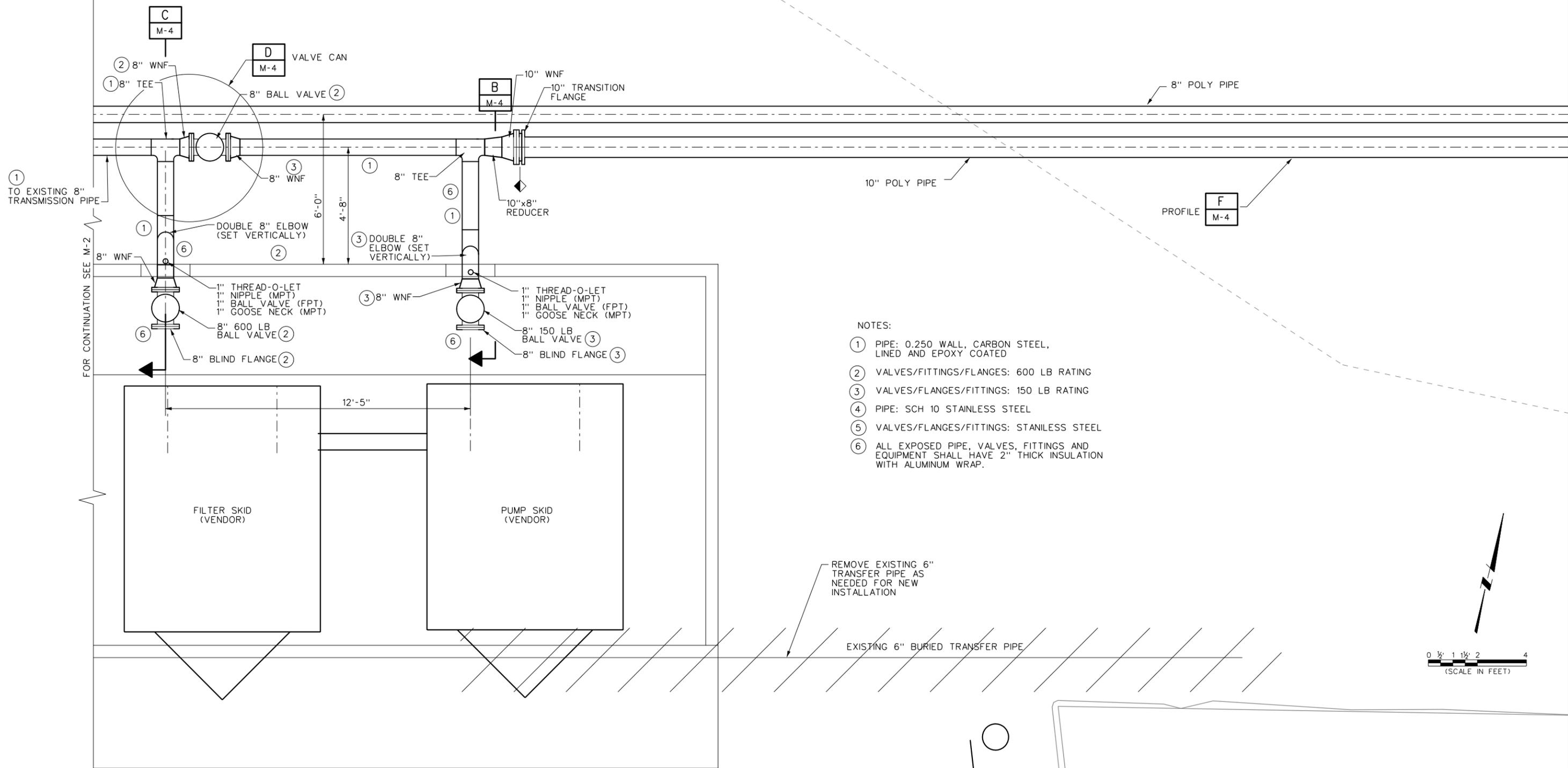
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<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																
<p>PERMIT STAMP AND PROFESSIONAL STAMP AFFIXED ABOVE SHALL APPLY ONLY TO REV(S)</p>																

EPCM Co.	MAIN FAC.
TITLE	OFFLOAD PAD MECHANICAL LAYOUT
AREA	A15 PRODUCED WATER PIT
CLASS	FILE NO.
	A15-M-2

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)

Plot Date: 6/7/2012 3:36:47 PM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)



- NOTES:
- ① PIPE: 0.250 WALL, CARBON STEEL, LINED AND EPOXY COATED
  - ② VALVES/FITTINGS/FLANGES: 600 LB RATING
  - ③ VALVES/FLANGES/FITTINGS: 150 LB RATING
  - ④ PIPE: SCH 10 STAINLESS STEEL
  - ⑤ VALVES/FLANGES/FITTINGS: STAINLESS STEEL
  - ⑥ ALL EXPOSED PIPE, VALVES, FITTINGS AND EQUIPMENT SHALL HAVE 2" THICK INSULATION WITH ALUMINUM WRAP.

ISSUED FOR CONSTRUCTION

06-07-12

Plot Date: 6/7/2012 3:36:47 PM

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																

MAIN FAC.	
MAIN LSD.	
FAC. TYPE	
SITE LSD.	
SCALE	
EPCM No.	

TITLE: PUMP/FILTER PAD MECHANICAL LAYOUT

AREA: A15 PRODUCED WATER PIT CLASS: FILE NO. A15-M-3

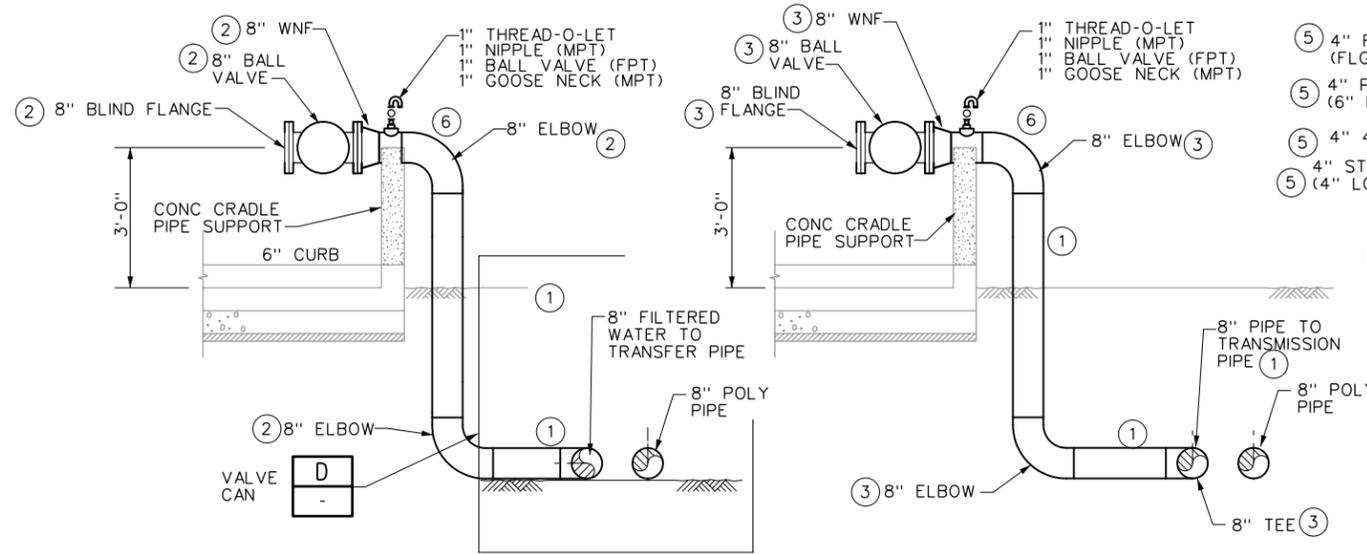
T:\A060000 (ENCANA) \S04 The Block\ 4

# ISSUED FOR CONSTRUCTION

06-07-12

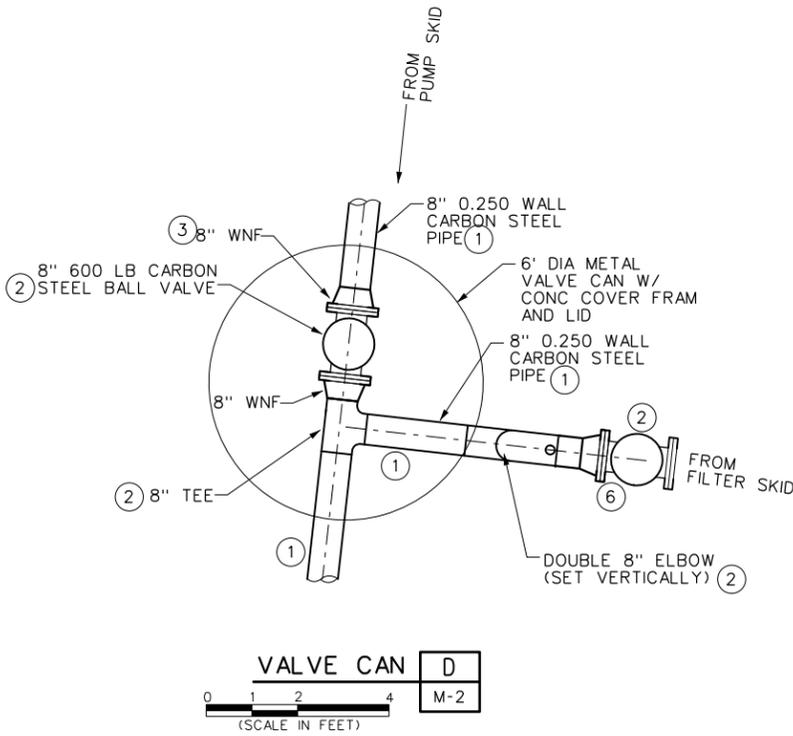
Plot Date: 6/13/2012 8:33:21 AM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)

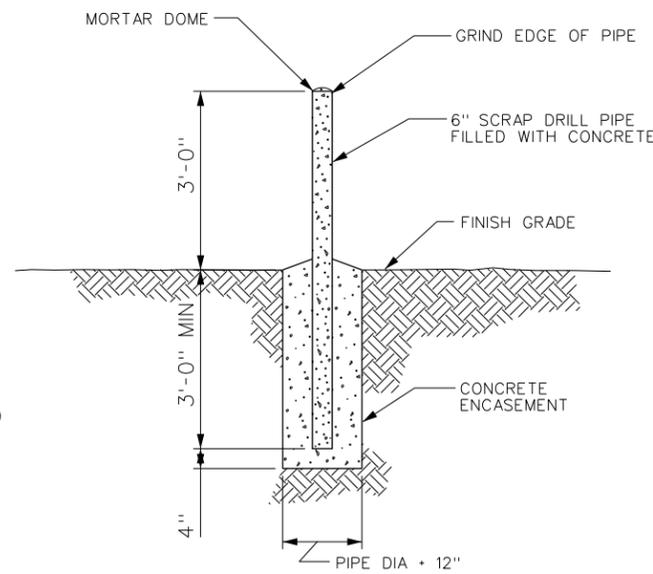


**SECTION C**  
M-2  
0 1 2 4  
(SCALE IN FEET)

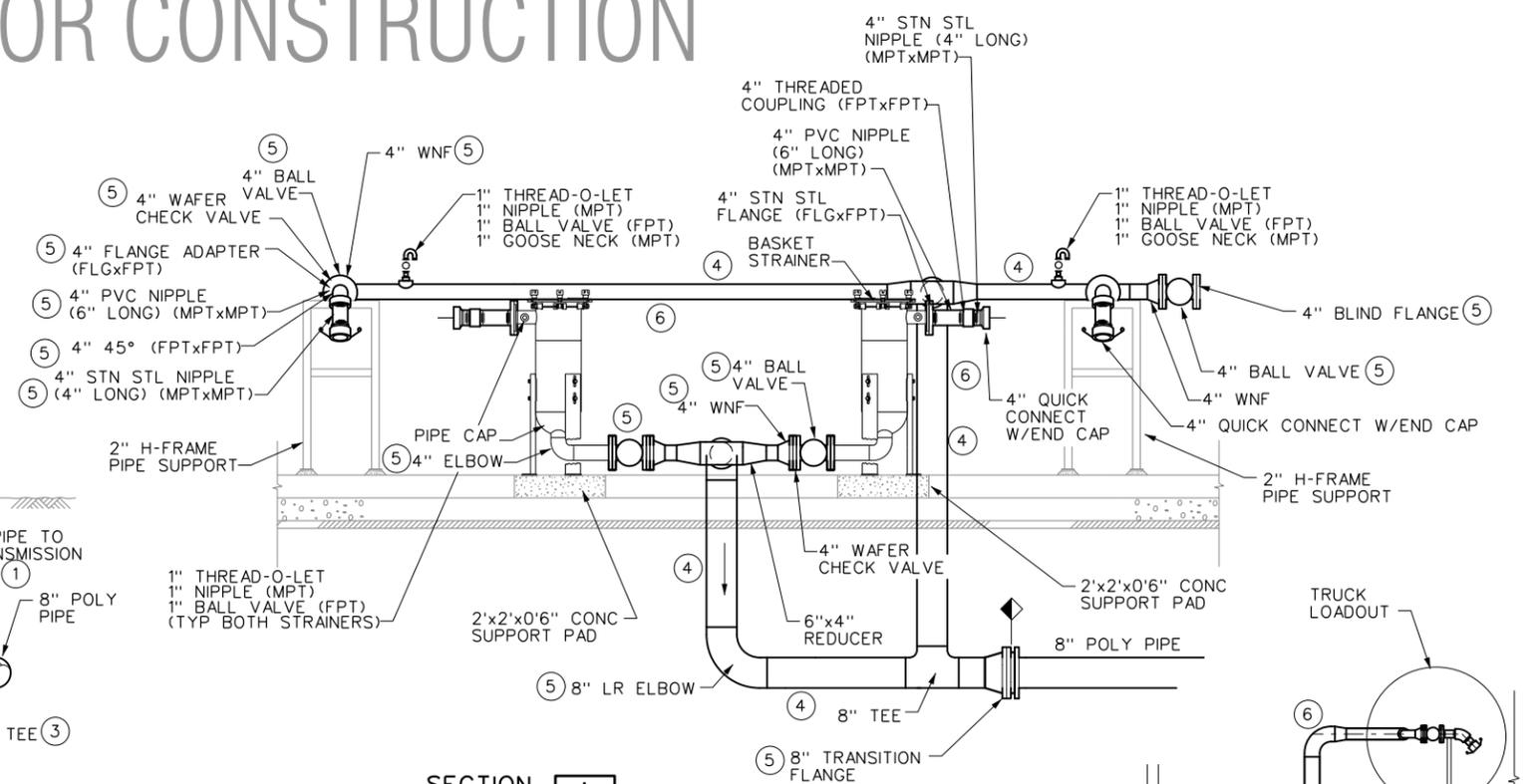
**SECTION B**  
M-2  
0 1 2 4  
(SCALE IN FEET)



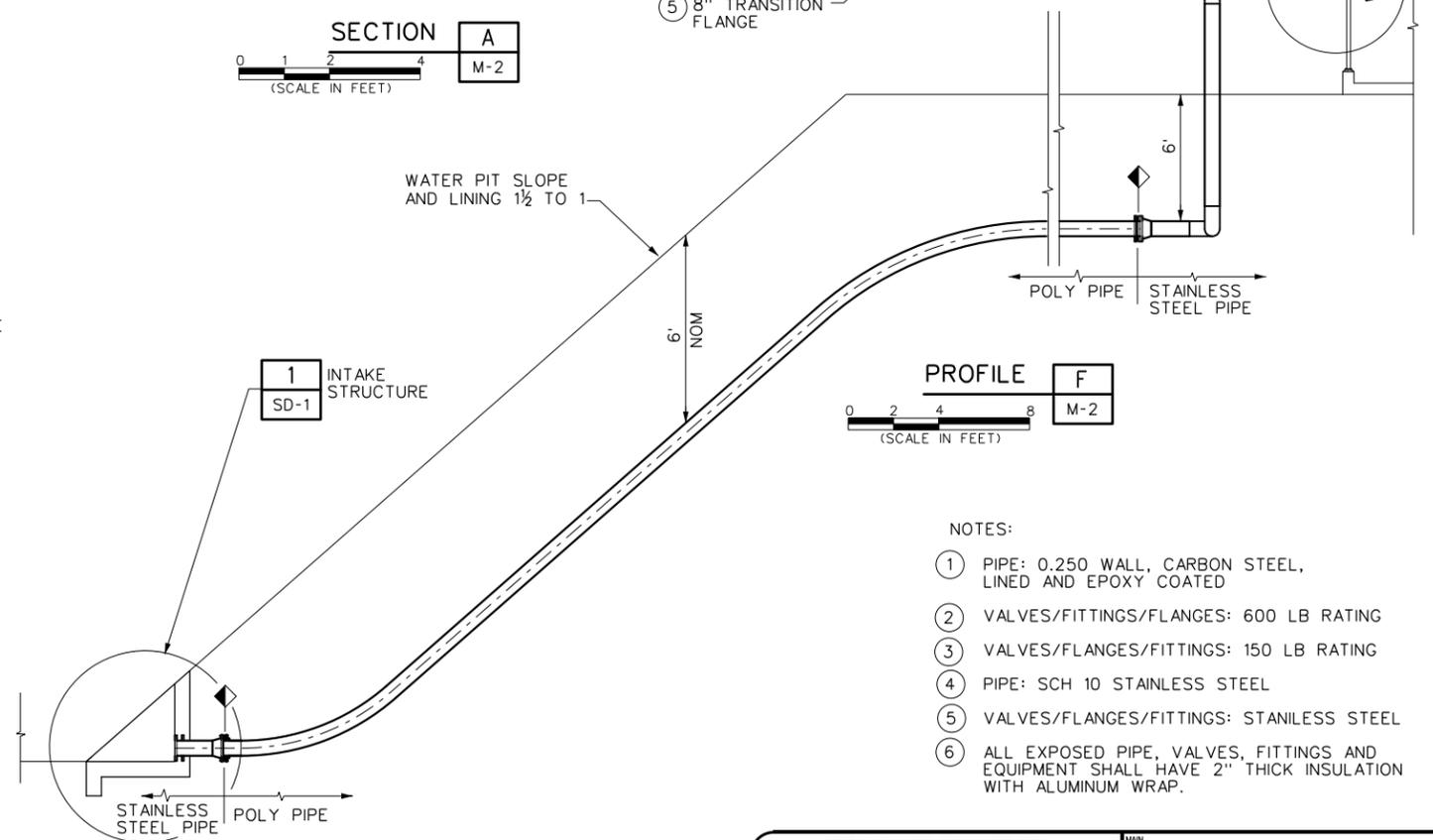
**VALVE CAN D**  
M-2  
0 1 2 4  
(SCALE IN FEET)



**GUARD POST E**  
M-1  
M-2  
NO SCALE



**SECTION A**  
M-2  
0 1 2 4  
(SCALE IN FEET)



**PROFILE F**  
M-2  
0 2 4 8  
(SCALE IN FEET)

- NOTES:
- ① PIPE: 0.250 WALL, CARBON STEEL, LINED AND EPOXY COATED
  - ② VALVES/FITTINGS/FLANGES: 600 LB RATING
  - ③ VALVES/FLANGES/FITTINGS: 150 LB RATING
  - ④ PIPE: SCH 10 STAINLESS STEEL
  - ⑤ VALVES/FLANGES/FITTINGS: STAINLESS STEEL
  - ⑥ ALL EXPOSED PIPE, VALVES, FITTINGS AND EQUIPMENT SHALL HAVE 2" THICK INSULATION WITH ALUMINUM WRAP.

Plot Date: 6/13/2012 8:33:21 AM

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																
<p>PERMIT STAMP AND PROFESSIONAL STAMP AFFIXED ABOVE SHALL APPLY ONLY TO REV(S)</p>																

MAIN FAC.	
MAIN L.S.D.	
FAC. TYPE	
SITE L.S.D.	
SCALE	
EPCM No.	

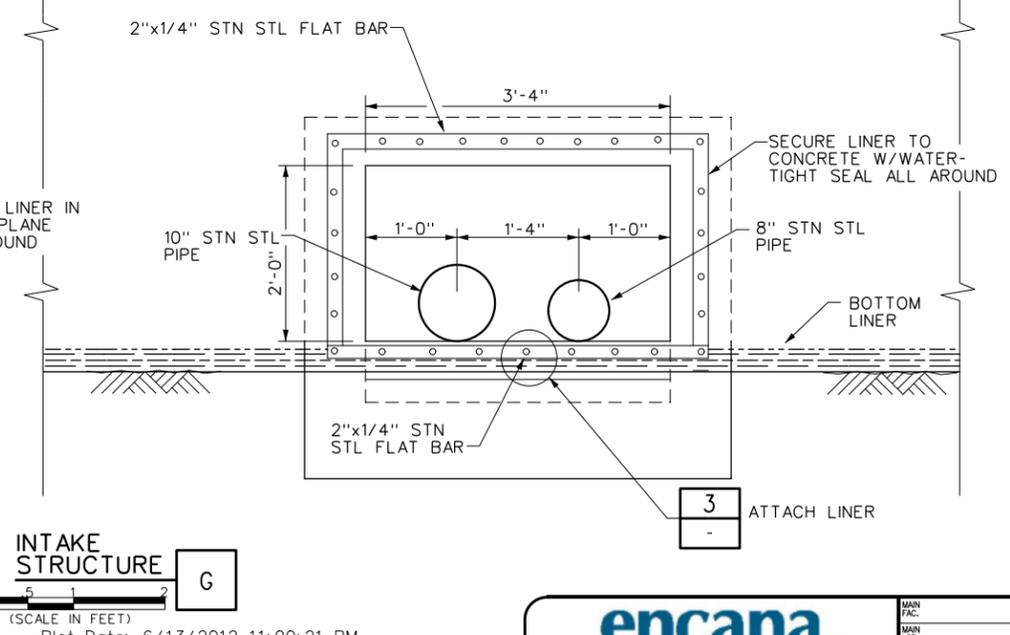
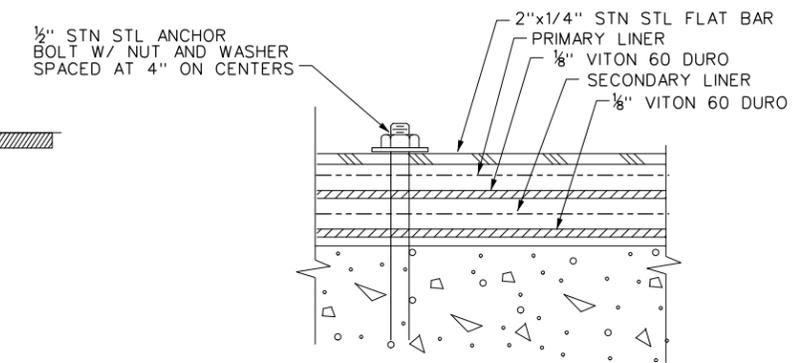
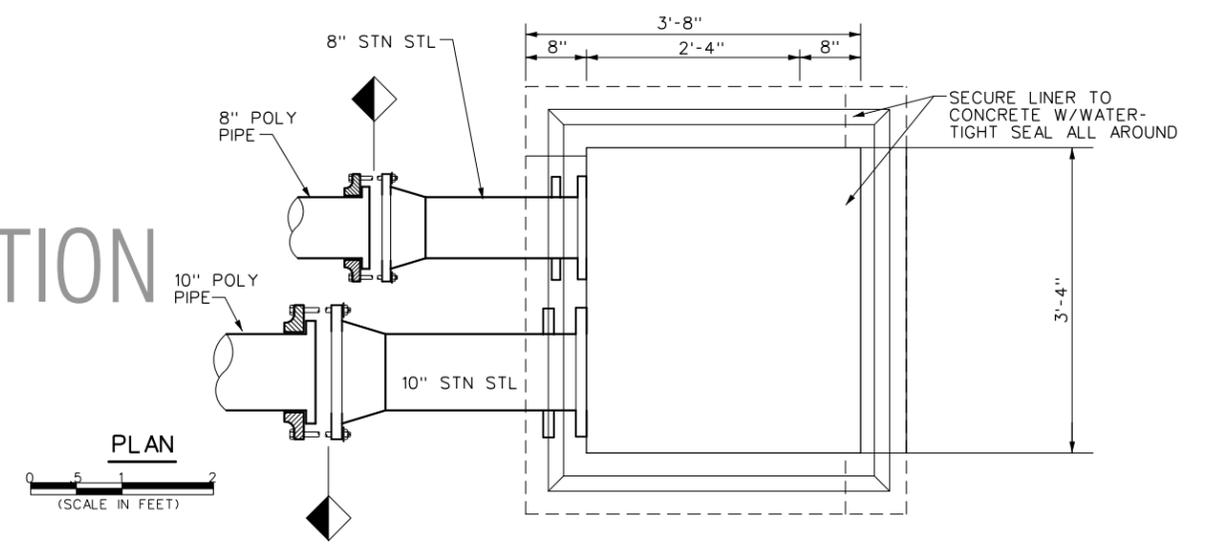
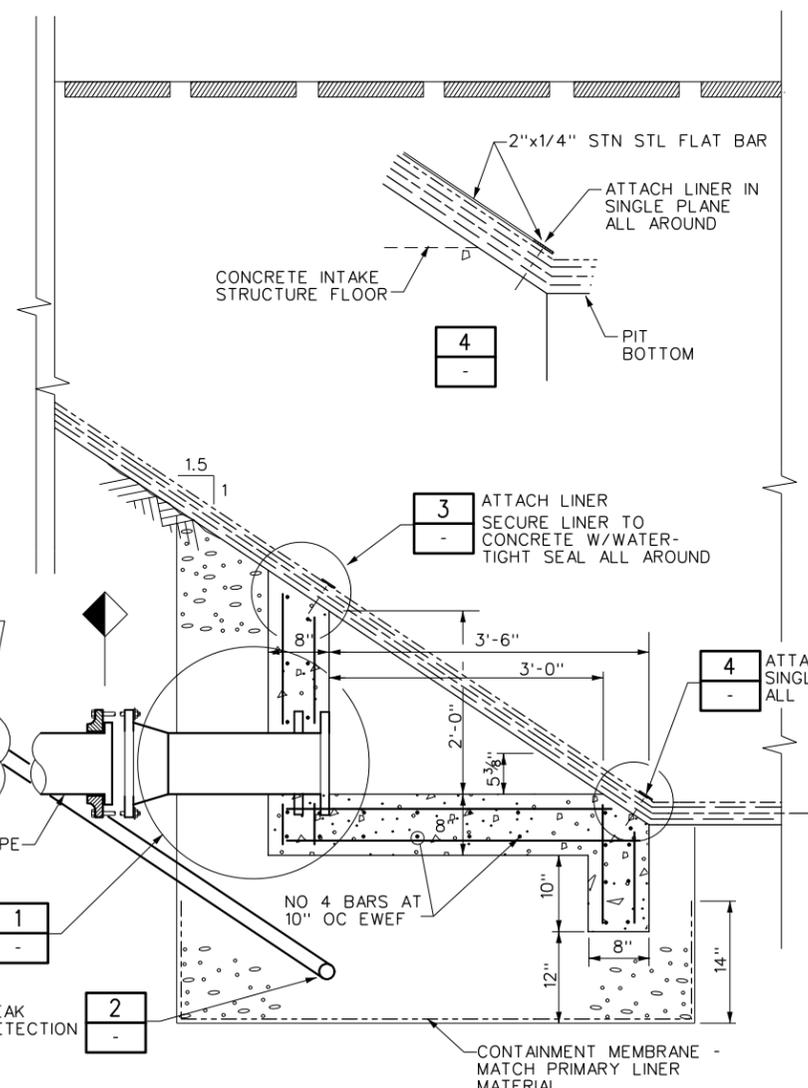
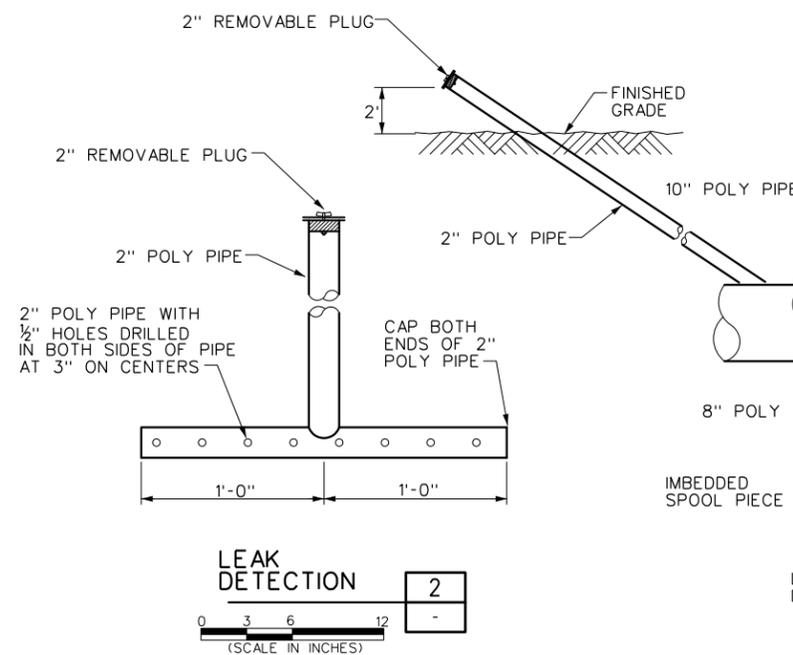
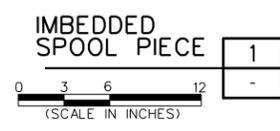
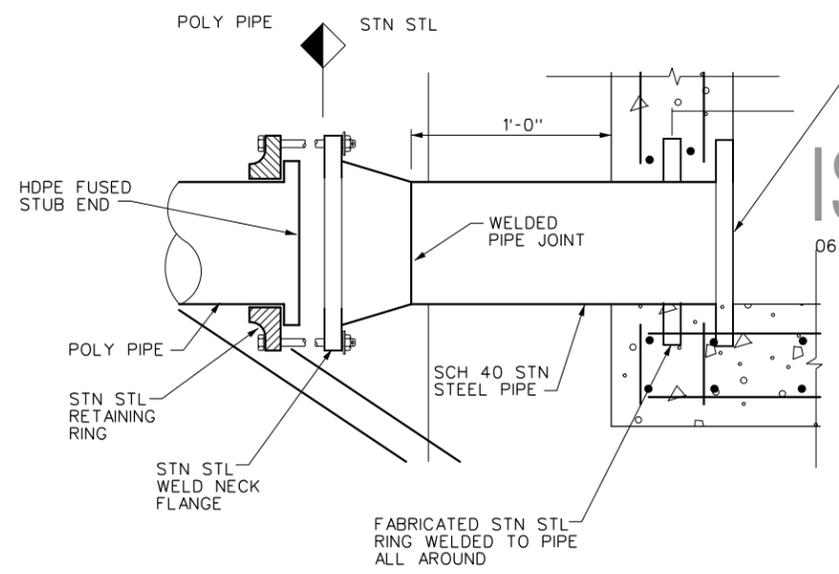
**MECHANICAL SECTIONS AND DETAILS**

AREA: A15 PRODUCED WATER PIT      CLASS FILE NO.: A15-M-4

Plot Date: 6/13/2012 11:00:21 PM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)

# ISSUED FOR CONSTRUCTION



T:\PROJ\ENR\15 SD-1\15 SD-1.dwg

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
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<p style="text-align: center;">PERMIT STAMP AND PROFESSIONAL STAMP AFFIXED ABOVE SHALL APPLY ONLY TO REV(S)</p>																

MAIN FAC. \_\_\_\_\_

MAIN L.S.D. \_\_\_\_\_

DATE \_\_\_\_\_

SITE L.S.D. \_\_\_\_\_

SCALE \_\_\_\_\_

EPCM No. \_\_\_\_\_

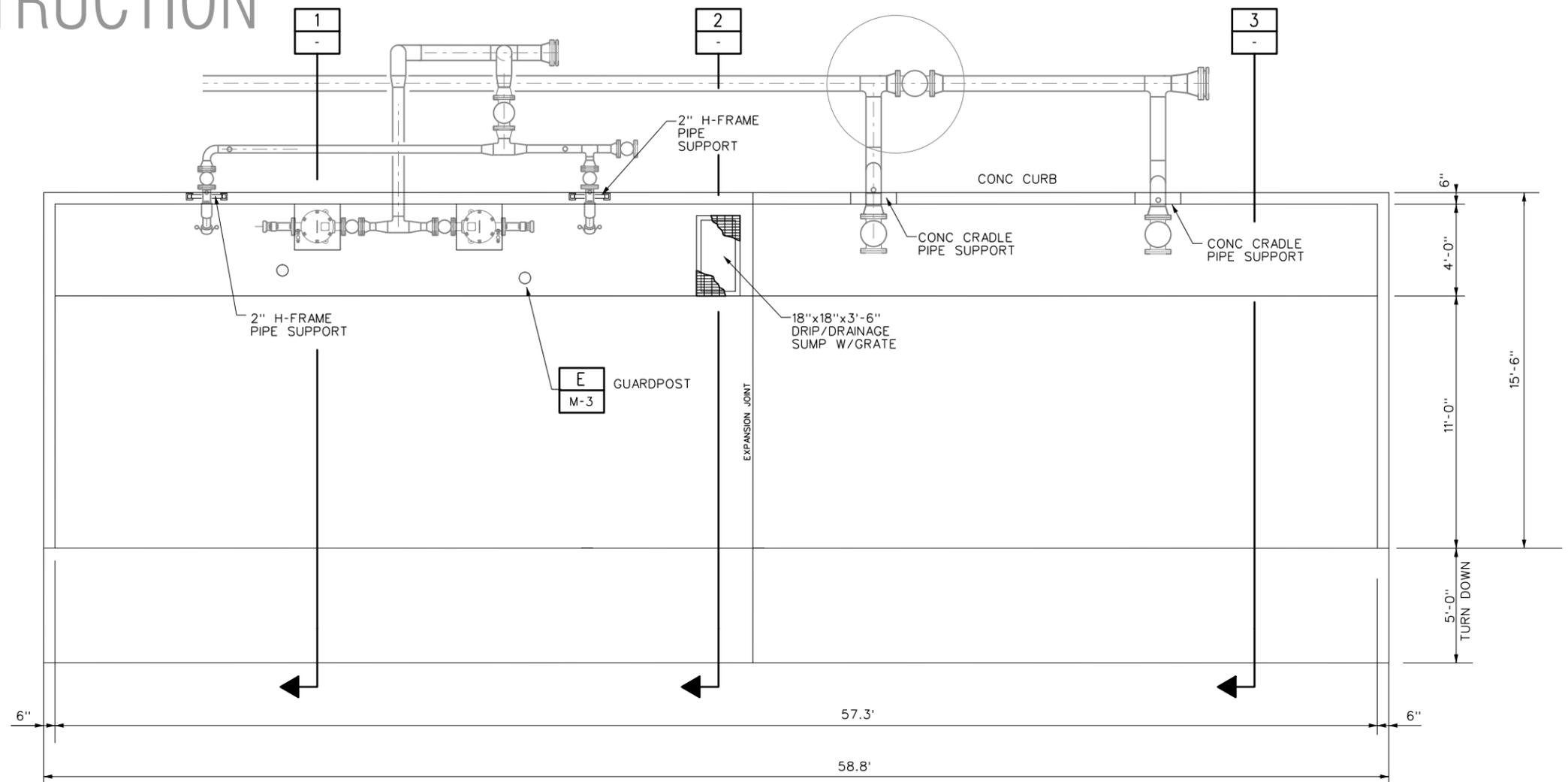
**INFLUENT/EFFLUENT STRUCTURE**

AREA: **A15 PRODUCED WATER PIT**

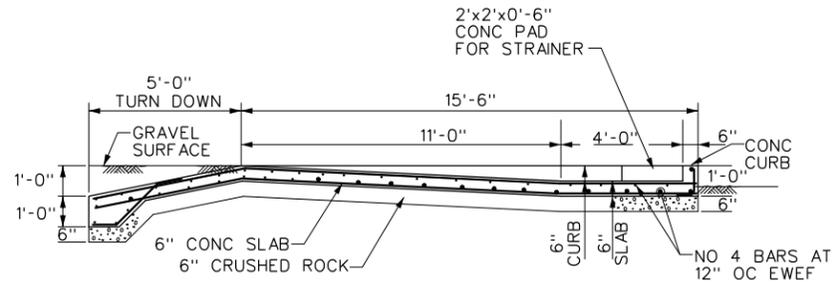
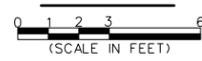
CLASS: **A15-SD-1**

# ISSUED FOR CONSTRUCTION

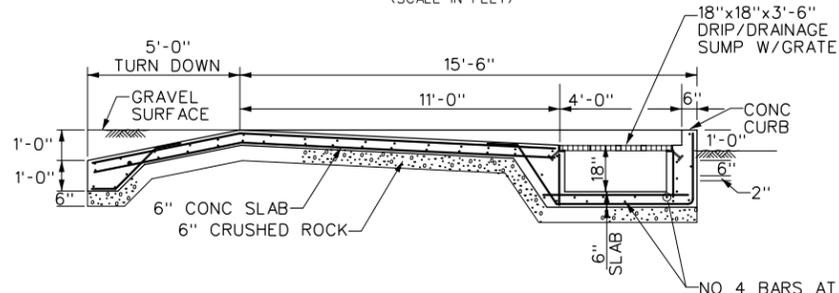
06-07-12



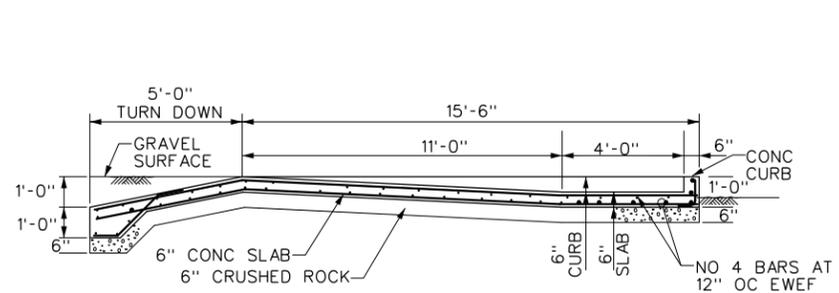
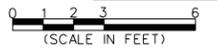
PLAN



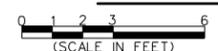
SECTION 1



SECTION 2



SECTION 3



Plot Date: 6/13/2012 8:34:33 AM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)

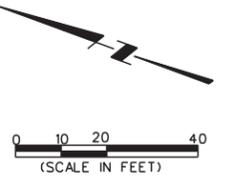
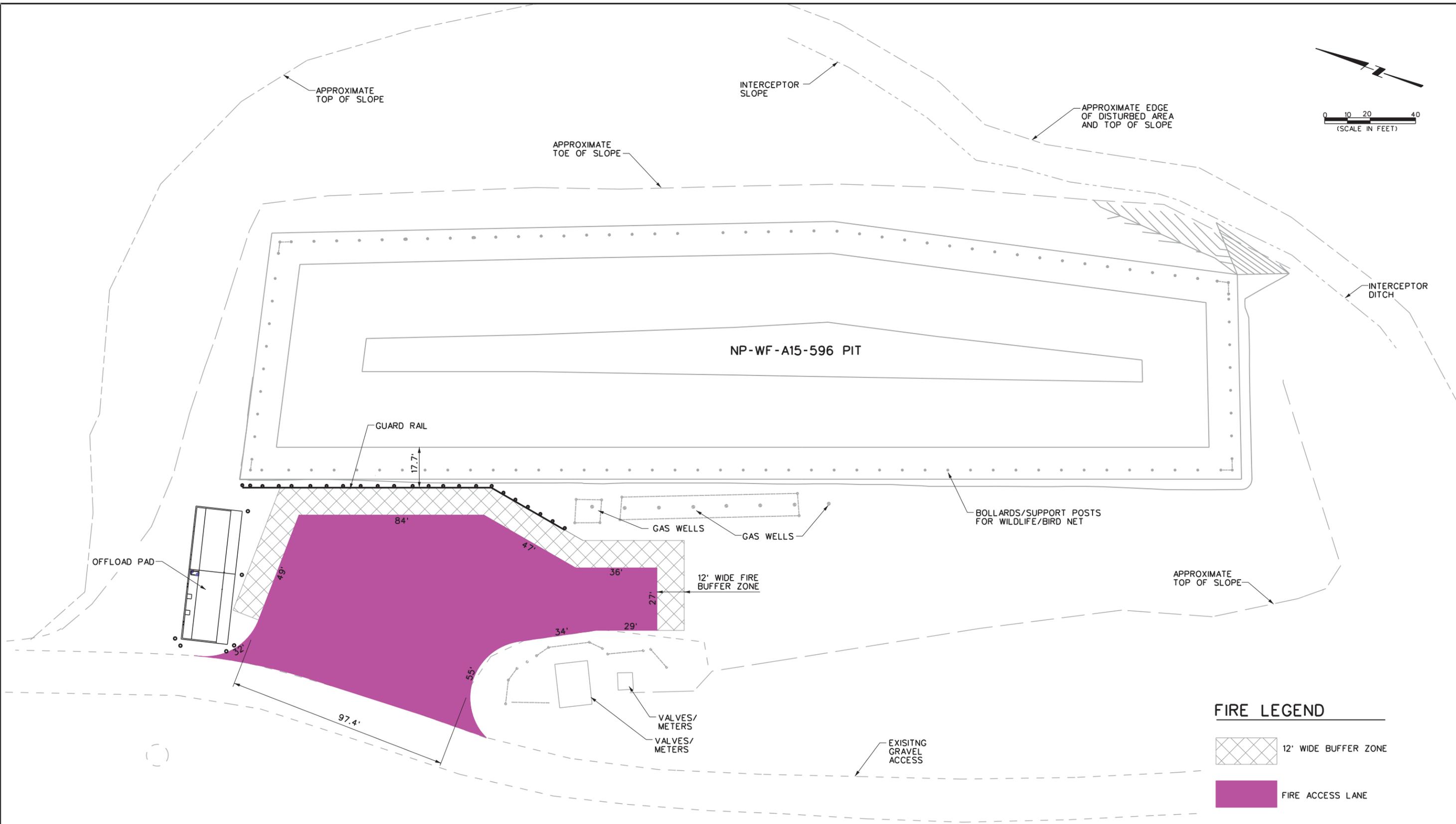
Plot Date: 6/13/2012 8:34:33 AM

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																
										REV. NUMBER						

EPCM Co.	SCALE	EPCM No.
<p><b>STRUCTURAL SECTIONS AND DETAILS</b></p>		
TITLE	AREA	CLASS FILE NO.
<p>A15 PRODUCED WATER PIT</p>		<p>A15-S-1</p>

Plot Date: 8/4/2014 7:15:53 AM

Drawings Must Comply with Encana Drafting Standards (ECA-A-1)



**FIRE LEGEND**

- 12' WIDE BUFFER ZONE
- FIRE ACCESS LANE

Plot Date: 8/4/2014 7:15:53 AM

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPCM Co.	EPCM No.	APPD.	ISSUE STAGE	DATE	BY	CHKD.	APPD.	PERMIT STAMP	ENGINEER'S STAMP
<p>CAUTION : READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER "ENCANA'S GROUND DISTURBANCE PRACTICE"</p>																

PROJ. NO.	NP-WF-A15-596 PIT
LOC.	T5S,R96W,6th PM, GARFIELD, CO
TYPE	FRAC PIT
COUNTY	GARFIELD COUNTY, COLORADO
SCALE	AS SHOWN

**FIRE ACCESS PLAN**  
NP-WF-A15-596 PIT

NORTH PICEANCE
CLASS. PLAN NO. **NP-A15-P-100**

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