HILCORP ALASKA, LLC

LIBERTY DEVELOPMENT
ONSHORE/OFFSHORE PIPELINES
CIVIL/STRUCTURAL/MECHANICAL
ISSUED FOR ROW APPLICATION
REV A

EPT NUMBER	45Ø5Ø6Ø1
SAP NUMBER	–
PARENT W.O.	–

HILCORP PROJECT MANAGER		JENNIFER GARDNER 9Ø7–777–8321
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MICHAEL BAKER MECHANICAL ENGINEER	7/28/17	JOSH GREENHILL 9Ø7–273–1636
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Michael Baker
INTERNATIONAL

CHANGES TO THE SEALED DRAWINGS NOT AUTHORIZED IN WRITING BY THE STAMPING ENGINEER SHALL VOID THE SEAL ON THE ENTIRE DRAWING.

PROJECT SCOPE OF WORK (SOW)

THE FOLLOWING IS A SUMMARY OF THE OVERALL SCOPE OF WORK RELATED TO THE CONSTRUCTION OF LIBERTY ONSHORE AND OFFSHORE PIPELINES, SUPPORTING FACILITIES, AND STRUCTURES. THE INTENT OF THIS PRELIMINARY DESIGN PACKAGE (APPROXIMATELY 30%) IS TO SUPPORT THE COST ESTIMATE AND PLANNING FOR SUBSEQUENT DETAILED DESIGN PHASES. THE PACKAGE REPRESENTS ALL ASPECTS OF PIPELINE CONSTRUCTION WORK FROM THE LIBERTY DRILLING AND PRODUCTION ISLAND (LDPI) TO THE PROPOSED TIE-IN POINT ON THE BADAMI SALES OIL PIPELINE (BSOP) AND HAS NOT BEEN SUBDIVIDED INTO SPECIFIC CONTRACTOR WORK SCOPES.

A LAUNCHER MODULE AND METERING MODULE WILL BE INCLUDED IN THE FINAL SYSTEM DESIGN, BUT HAS NOT BEEN ADVANCED AT THIS TIME. FOR CLARITY, ESTIMATED MODULE FOOTPRINTS AND APPROXIMATE LOCATIONS ARE INDICATED IN THE DRAWINGS.

BY DISCIPLINE, THE LIBERTY PIPELINE SCOPE OF WORK IS SUMMARIZED BELOW.

CIVIL SCOPE OF WORK

TWO GRAVEL PADS WILL BE CONSTRUCTED; AN ICE ROAD ACCESS PAD TO MAINTAIN EAST/WEST ACCESS ALONG THE EXISTING ICE ROAD CORRIDOR, AND A TIE-IN PAD AT THE BSOP. IT IS ASSUMED THE GRAVEL PADS WILL BE INSTALLED PRIOR TO PIPELINE INSTALLATION WORK.

GRAVEL REMOVAL AND PLACEMENT WILL BE REQUIRED AT THE SHORE TRANSITION. THIS WORK WILL SUPPORT THE OFFSHORE PIPELINE INSTALLATION AND WILL TAKE PLACE IN THE SAME SEASON.

CIVIL WORKS WILL INCLUDE INSTALLATION OF THE FOLLOWING:

1. APPROXIMATELY 3,500 CY OF GRAVEL FOR THE BSOP TIE-IN PAD.
2. APPROXIMATELY 950 CY OF GRAVEL FOR THE ICE ROAD CROSSING.
3. NPS 24 X 0.500" WT AND NPS 16 X 0.500" WT CASING PIPE WITHIN THE ICE ROAD CROSSING PAD.
4. FILL WILL BE REMOVED AND REPLACED WITH GRAVEL AT THE SHORE TRANSITION.
5. ISLAND APPROACH, INCLUDING TEMPORARY AND PERMANENT SHEET PILING WILL BE DESIGNED AND INSTALLED BY OTHERS AND IS NOT INCLUDED IN THIS SCOPE OF WORK.
6. INSULATION BENEATH GRAVEL WILL BE INSTALLED PER THE CONSTRUCTION DRAWINGS.

ONSHORE PIPELINE WORK

ONSHORE PIPELINE CONSTRUCTION IS EXPECTED TO BE INDEPENDENT OF OFFSHORE PIPELINE CONSTRUCTION AND CAN COMMENCE ANY TIME AFTER THE GRAVEL PADS ARE IN PLACE. ONSHORE PIPELINE CONSTRUCTION WILL INCLUDE THE FOLLOWING:

1. APPROXIMATELY 1.5 MILES OF NPS 12 X 0.438" WT AND NPS 4 X 0.300" WT PIPELINE AND ASSOCIATED SUPPORT STRUCTURES (VSM AND CROSSBEAM) WILL BE INSTALLED BETWEEN THE BSOP TIE-IN PAD AND THE SHORE TRANSITION. ONE ICE ROAD CROSSING EXISTS ALONG THIS ROUTE.
2. ANCHOR, GUIDE, AND SLIDE SADDLES WILL BE INSTALLED FOR EACH NEW PIPELINE.
3. TUNED VIBRATION ABSORBERS (TVA) WILL BE INSTALLED ALONG PIPELINES REQUIRING WIND INDUCED VIBRATION (WIV) MITIGATION AS INDICATED IN THE DESIGN DRAWINGS.
4. MESSENGER CABLE ATTACHMENTS, MESSENGER CABLE, AND FIBER OPTIC CABLES (FOC) WILL BE INSTALLED FROM SHORE TRANSITION TO THE BSOP TIE-IN PAD AS SHOWN IN THE DESIGN DRAWINGS.
5. EACH PIPELINE WILL BE HYDROSTATICALLY TESTED PER CLIENT SPECIFICATION AND BOTH PIPELINES WILL BE BLINDED AT EACH END WITH A 3/4-INCH BLEED PENDING FINAL TIE-IN TO THE OFFSHORE PIPELINE SEGMENT AND EQUIPMENT AT THE BSOP TIE-IN PAD.

OFFSHORE PIPELINE WORK

1. APPROXIMATELY 5.6 MILES OF NEW OFFSHORE PIPELINES WILL BE INSTALLED BETWEEN THE SHORE TRANSITION AND THE LDPI. PIPELINES WILL BE CONSOLIDATED IN A BUNDLE WHICH INCLUDES A NPS 12 X 0.500" WT INNER PIPE INSIDE AN NPS 16 X 0.625" WT OUTER PIPE, FIBER OPTIC CABLE, AND A NPS 4 UTILITY PIPELINE.
2. BULKHEAD FITTINGS CONNECTING THE NPS 16 OUTER PIPE TO THE NPS 12 INNER PIPE WILL BE INSTALLED ABOVEGROUND AT THE SHORE AND LDPI TRANSITIONS.
3. THERMOSYPHONS WILL BE INSTALLED AT THE SHORE CROSSING. QUANTITIES TBD.

GENERAL

1. THE ONSHORE AND OFFSHORE SEGMENTS OF THE NPS 4 UTILITY PIPELINE WILL BE WELDED TOGETHER AT THE TRANSITION, AND BLIND FLANGED AT BOTH THE BSOP TIE-IN PAD AND LDPI. THE PIPELINE WILL BE DRIED AND LEFT WITH A NITROGEN SEAL UPON COMPLETION OF HYDROSTATIC TESTING.
2. THE ONSHORE AND OFFSHORE SEGMENTS OF THE NPS 12 EXPORT PIPELINE WILL BE WELDED TOGETHER AT THE TRANSITION AND WILL TIE IN TO THE METERING SKID AT THE BSOP AND THE LSOP LAUNCHER AT THE LDPI.
3. FOC WILL BE CONNECTED AT THE ONSHORE/OFFSHORE TRANSITION POINT AND TIED IN TO THE METERING SKID ON THE BSOP TIE-IN PAD AND TO FACILITIES AT THE LDPI.

TRUCKABLE MODULES

TRUCKABLE MODULE SCOPE OF WORK WILL INCLUDE THE FOLLOWING:

1. MODULE PILE INSTALLATION FOR EACH SKID (QUANTITIES TBD)
2. LAUNCHER MODULE INSTALLATION FOR THE LSOP AT THE LDPI
3. METERING SKID INSTALLATION AT THE BSOP TIE-IN PAD

TIE-IN ACTIVITIES

1. BYPASS PIPING AND PIGGABLE WYE INSTALLATION TO THE BSOP (BY OTHERS)
2. TIE-IN PIPING INSTALLATION TO THE BSOP (BY OTHERS)

PROVISIONS FOR NPS 4 PIPELINE INSPECTION AND CLEANING WILL BE FUTURE WORK AND ARE NOT INCLUDED IN THIS SCOPE OF WORK.

CODES AND STANDARDS

ALASKA GENERAL SAFETY CODE (AGSC)	OCCUPATIONAL SAFETY AND HEALTH STANDARDS
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIVE REGULATIONS
2014 ASH	ALASKA SAFETY HANDBOOK
FEBRUARY 2005 NSEFH	NORTH SLOPE ENVIRONMENTAL FIELD HANDBOOK
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)	B31.4, 2012, PIPELINE TRANSPORTATION SYSTEMS FOR LIQUIDS AND SLURRIES B31.8, 2010, GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS

GENERAL NOTES

1. KNOWN UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. PRIOR TO WORK THE CONTRACTOR SHALL VERIFY SIZE, DEPTH, AND LOCATIONS OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL PROTECT UTILITIES AND STRUCTURES FROM DAMAGE AND SHALL NOT DISTURB UNDERGROUND UTILITIES/STRUCTURES THAT ARE TO REMAIN.

ABBREVIATIONS

ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASP	ALASKA STATE PLANE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
API	AMERICAN PETROLEUM INSTITUTE
BPMSL	BP MEAN SEA LEVEL
BPXA	BP EXPLORATION ALASKA
BSOP	BADAMI SALES OIL PIPELINE
℄	CENTERLINE
CVN	CHARPY V-NOTCH
CY	CUBIC YARDS
DIA	DIAMETER
E	EASTING
EA	EACH
EG	EXISTING GRADE
EL	ELEVATION
FBE	FUSION BONDED EPOXY
FG	FINISH GRADE
FT	FEET
FOC	FIBER OPTIC CABLE
HDPE	HIGH DENSITY POLYETHYLENE
HSM	HORIZONTAL SUPPORT MEMBER
ID	INSIDE DIAMETER
ILI	IN-LINE INSPECTION
IN	INCHES
LBS	POUNDS
LDPI	LIBERTY DRILLING AND PRODUCTION ISLAND
LPS	LOW PRESSURE SERVICE
LSOP	LIBERTY SALES OIL PIPELINE
LTCS	LOW TEMPERATURE CARBON STEEL
MAX	MAXIMUM
MIN	MINIMUM
N	NORTHING
NACE	NATIONAL ASSOCIATION OF CORROSION ENGINEERS
NAD	NORTH AMERICAN DATUM
NPS	NOMINAL PIPE SIZE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PI	POINT OF INTERSECTION
PIP	PIPE-IN-PIPE
ℙ	PLATE
R	RADIUS
REV	REVISION
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SOW	SCOPE OF WORK
STA	STATION
TBD	TO BE DETERMINED
THK	THICK
TOS	TOP OF STEEL
TVA	TUNED VIBRATION ABSORBER
TYP	TYPICAL
UHMW-PE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
VPI	VERTICAL POINT OF INTERSECTION
VSM	VERTICAL SUPPORT MEMBER
WIV	WIND INDUCED VIBRATION
WT	WALL THICKNESS

LEGEND

CENTER LINE

LETTER INDICATES SECTION OR ELEVATION
ARROW INDICATES DIRECTION OF CUTTING PLANE

INDICATES DRAWING NUMBER WHERE SECTION IS DRAWN
" – " INDICATES DRAWN ON SAME SHEET

NUMBER INDICATES DETAIL

INDICATES DRAWING NUMBER WHERE DETAIL IS DRAWN
" – " INDICATES DRAWN ON SAME SHEET

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

ENGINEERING RECORD		DATE
DRN:	R. HOBBS	01/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	NONE	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
PROJECT NOTES, ABBREVIATIONS & LEGEND
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
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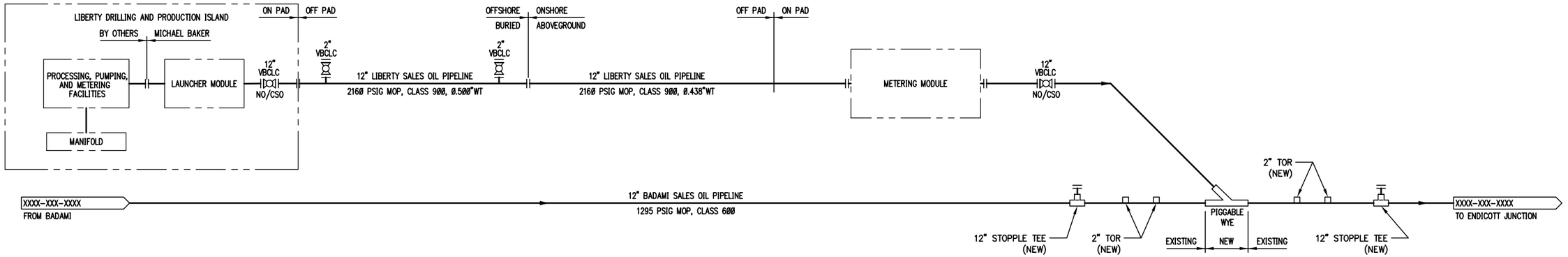
MODULE:			OF –



NOTES:
1. FINAL CONFIGURATION SHOWN IN THIS DRAWING.
2. INTERMEDIATE CONFIGURATION INCLUDES A TEMPORARY RECEIVER PRIOR TO METERING MODULE.
3. CLASS 900 REFERS TO ASME B16.5 PRESSURE-TEMPERATURE RATING CLASS 900 FOR GROUP 1.1 MATERIALS.
4. CLASS 600 REFERS TO ASME B16.5 PRESSURE-TEMPERATURE RATING CLASS 600 FOR GROUP 1.1 MATERIALS.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

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DRN:	E. FRANK	01/16
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CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
SYSTEM OVERVIEW FLOWSHEET
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
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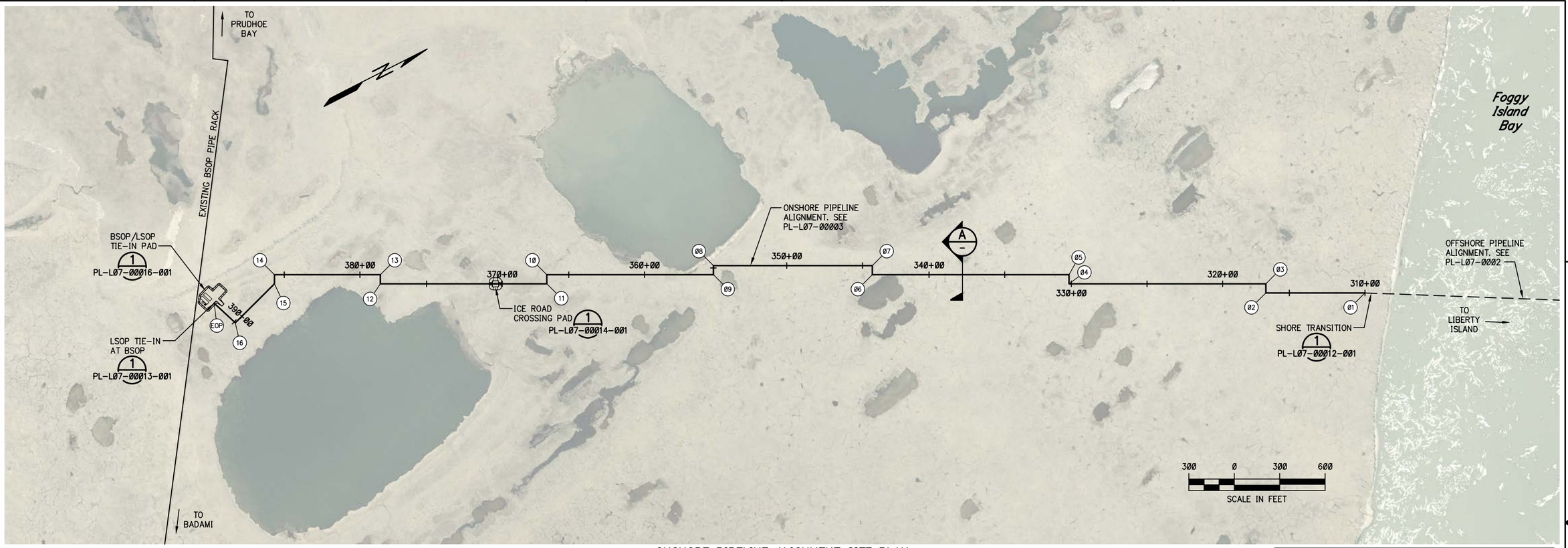
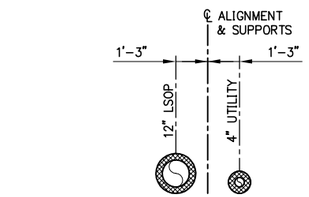
MODULE:			OF -



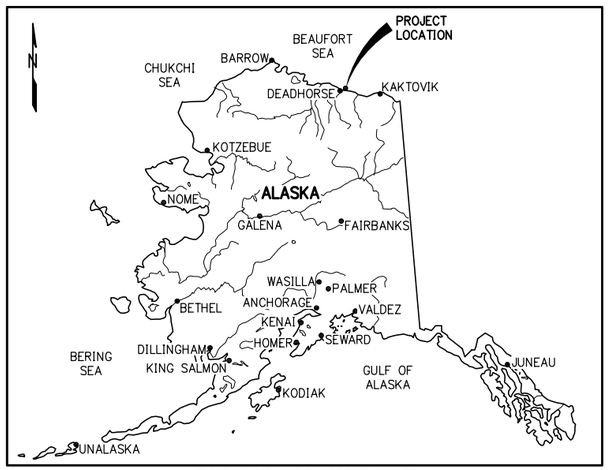
ONSHORE PIPELINE ALIGNMENT SITE PLAN

ONSHORE PIPELINE ALIGNMENT COORDINATE TABLE					
POINT (#)	DESCRIPTION	STATION	NORTHING	EASTING	ANGLE
01	BEGIN	310+00.00	5926478.22	1429890.04	–
02	PI	316+55.00	5925894.61	1429592.68	90.0°
03	PI	317+15.00	5925921.85	1429539.22	90.0°
04	PI	330+15.00	5924763.54	1428949.03	90.0°
05	PI	330+75.00	5924790.78	1428895.57	90.0°
06	PI	343+75.00	5923632.47	1428305.38	90.0°
07	PI	344+35.00	5923659.71	1428251.92	90.0°
08	PI	354+85.00	5922724.16	1427775.23	90.0°
09	PI	355+45.00	5922696.92	1427828.69	90.0°
10	PI	366+45.00	5921716.81	1427329.30	90.0°
11	PI	367+05.00	5921689.57	1427382.76	90.0°
12	PI	378+05.00	5920709.46	1426883.37	90.0°
13	PI	378+65.00	5920736.70	1426829.91	90.0°
14	PI	385+65.00	5920113.00	1426512.12	90.0°
15	PI	386+25.00	5920085.76	1426565.58	45.0°
16	PI	389+90.00	5919738.62	1426678.37	88.0°
EOP	END	391+81.00	5919673.30	1426498.89	–

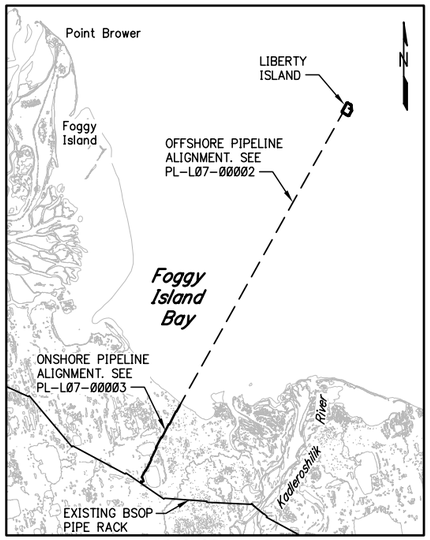
NOTES
1. ALIGNMENT STATIONING REFLECTS HORIZONTAL DISTANCE.
2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
3. VERTICAL DATUM IS BP MEAN SEA LEVEL (BPMSL), US FEET.



A – TYPICAL PIPELINE SPACING DETAIL
SCALE: 3/8" = 1'-0"



PROJECT LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

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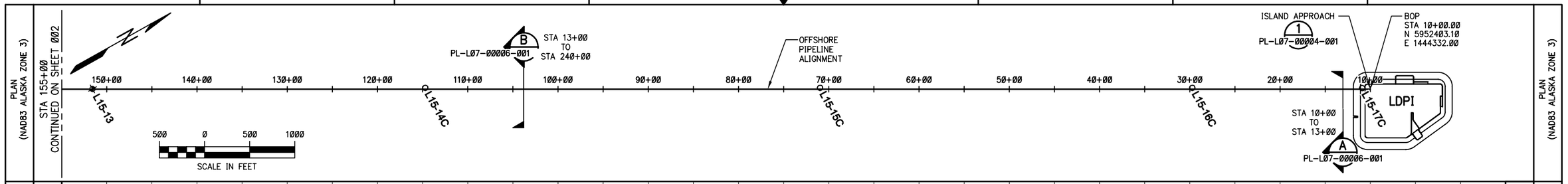
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

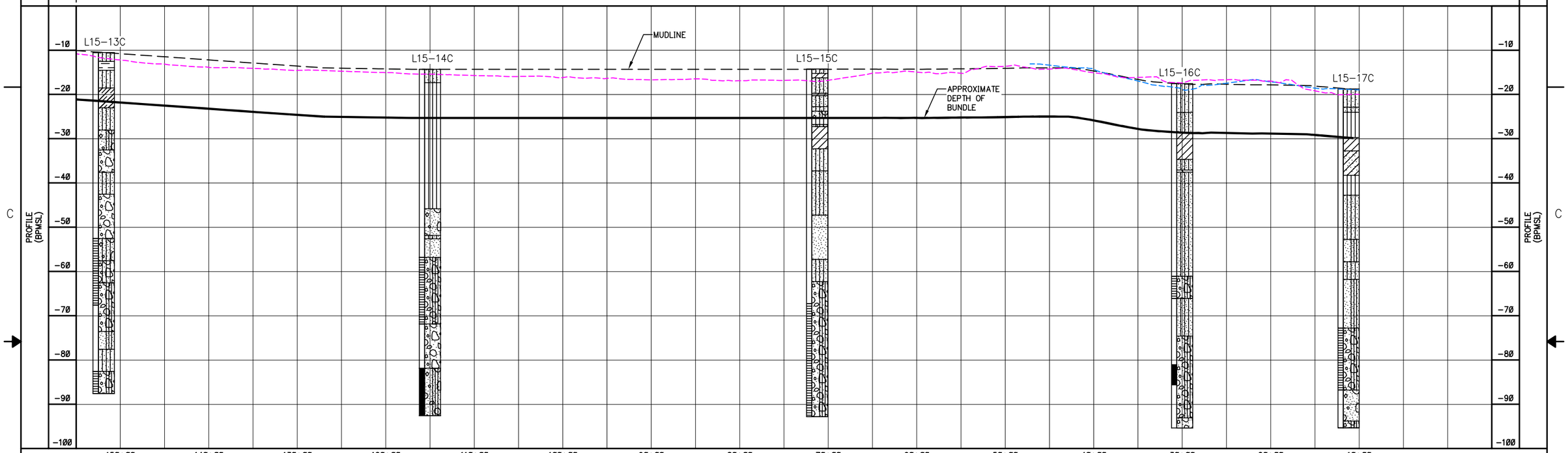
HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
PROJECT LOCATION PLAN
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-0001	A	001
MODULE:			OF –





PIPELINES SIZE AND GRADE	PIPE-IN-PIPE CONFIGURATION: X52 NPS 12 x 0.500" WT INNER PIPE, X52 NPS 16 x 0.625" WT OUTER PIPE UTILITY PIPELINE: X65 NPS 4 x 0.300" WT
COATINGS	16 MILS FBE, BOTH INNER AND OUTER PIPES 60 MILS 3 LAYER POLYETHYLENE FOR UTILITY PIPELINE
BUNDLE SUBMERGED WEIGHT (EMPTY)	85.4 LBS/FT (NOTE 5)
ANODE AND SPACER BLOCK ASSEMBLY	NPS 16 OUTER PIPE ANODE – 169 LBS (SEE DRAWING PL-L07-00010-001) EVERY 400 FEET (NOTE 6); 1 SPACER BLOCK EVERY 20 FEET; 1 BUNDLE STRAP EVERY 10 FEET NPS 4 UTILITY PIPELINE ANODE– 46 LBS (SEE DRAWING PL-L07-00010-001) EVERY 400 FEET
DEPTH OF COVER (SEABED TO TOP)	MINIMUM 9 FEET
CABLE	1" DIAMETER FIBER OPTIC CABLE

LEGEND

---------- SEABED – 2013 BATHYMETRY DATA

---------- SEABED – 1997 BATHYMETRY DATA

NOTES
1. ALIGNMENT STATIONING REFLECTS HORIZONTAL DISTANCE.
2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
3. VERTICAL DATUM IS BP MEAN SEA LEVEL (BPMSL), US FEET.
4. GEOTECHNICAL DATA PROVIDED BY GOLDER ASSOCIATES, JULY 2015.
5. BUNDLE WEIGHT (EMPTY) IS 182 LBS/FT IN AIR, WITH NO CONSIDERATION OF BUNDLE STRAPS, ISOLATORS, EXTERNAL COATINGS, OR ANODES.
6. ANODES TO BE STAGGERED IN FIELD TO AVOID INTERFERENCE.

SOIL GROUP NAMES & LEGENDS

GRAVEL, SAND, CLAY, SILT, ORGANIC SILT, ELASTIC SILT, ORGANIC CLAY, PEAT, ICE AND SOIL

ICE BONDING TYPE

WELL BONDED, POORLY BONDED, UNBONDED / UNFROZEN

BOREHOLE TYPES

2015 GOLDER BOREHOLE & CONE PENETRATION TEST (CPT)
2015 GOLDER BOREHOLE
2015 GOLDER CONE PENETRATION TEST

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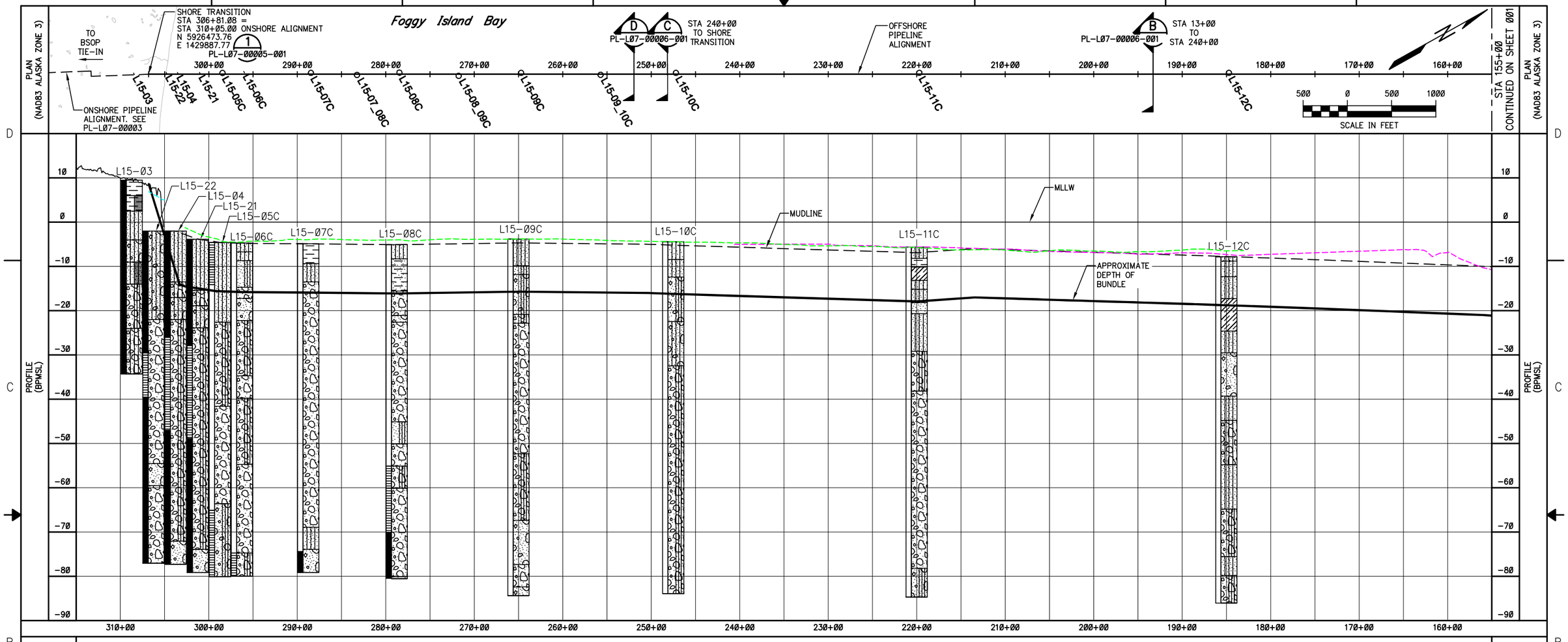
HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:

L07 PIPELINE
OFFSHORE PLAN & PROFILE
BOP TO STA 155+00

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00002	A	001
MODULE:			OF 2



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DEPTH OF COVER (SEABED TO TOP)	MINIMUM 9 FEET
CABLE	1" DIAMETER FIBER OPTIC CABLE

LEGEND

- SEABED – 1997 BATHYMETRY DATA
- SEABED – 1998 BATHYMETRY DATA
- GROUND – 2001 AERIAL PHOTO MAPPING

NOTES
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2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
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6. ANODES TO BE STAGGERED IN FIELD TO AVOID INTERFERENCE.

SOIL GROUP NAMES & LEGENDS
- GRAVEL
- SAND
- CLAY
- SILT
- ORGANIC SILT
- ELASTIC SILT
- ORGANIC CLAY
- PEAT
- ICE AND SOIL

ICE BONDING TYPE
- WELL BONDED
- POORLY BONDED
- UNBONDED / UNFROZEN

BOREHOLE TYPES
- 2015 GOLDER BOREHOLE & CONE PENETRATION TEST (CPT)
- 2015 GOLDER BOREHOLE
- 2015 GOLDER CONE PENETRATION TEST

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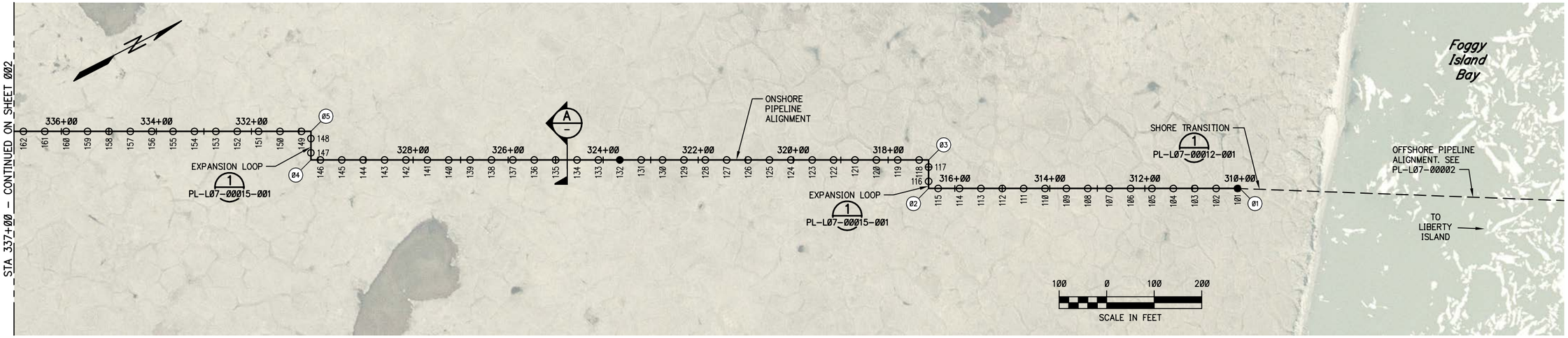
SCALE:	AS SHOWN	

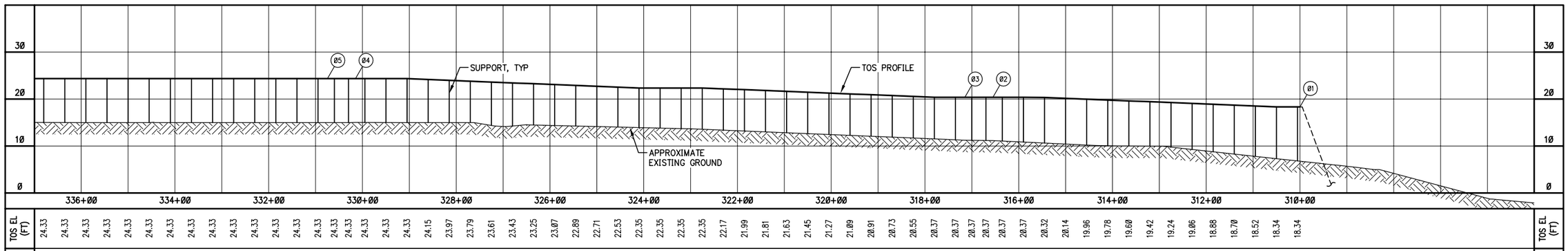
HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
OFFSHORE PLAN & PROFILE
STA 155+00 TO STA 310+00

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00002	A	002
MODULE:			OF 2





STATION ℄ SUPPORT	SUPPORT NUMBER	SUPPORT TYPE	TOS EL (FT)	GROUND EL (FT)
336+80.00	162	G1-10-30-18	24.33	15.0
336+35.00	161	G1-10-30-18	24.33	15.0
335+90.00	160	G1-10-30-18	24.33	15.0
335+45.00	159	G1-10-30-18	24.33	15.0
335+00.00	158	G1-10-30-18	24.33	15.0
334+55.00	157	G1-10-30-18	24.33	15.0
334+10.00	156	G1-10-30-18	24.33	15.0
333+65.00	155	G1-10-30-18	24.33	15.0
333+20.00	154	G1-10-30-18	24.33	15.0
332+75.00	153	G1-10-30-18	24.33	15.0
332+30.00	152	G1-10-30-18	24.33	15.0
331+85.00	151	G1-10-30-18	24.33	15.0
331+40.00	150	G1-10-30-18	24.33	15.0
330+95.00	149	C2-18-30-18	24.33	15.0
330+60.00	148	S1-18-30-18	24.33	15.0
330+30.00	147	C2-18-30-18	24.33	15.0
329+95.00	146	G1-10-30-18	24.33	15.0
329+50.00	145	G1-10-30-18	24.33	15.0
329+05.00	144	G1-10-30-18	24.33	15.0
328+60.00	143	G1-10-30-18	24.33	15.0
328+15.00	142	G1-10-30-18	24.15	15.0
327+70.00	141	G1-10-30-18	23.97	15.0
327+25.00	140	G1-10-30-18	23.79	14.4
326+80.00	139	G1-10-30-18	23.61	14.3
326+35.00	138	G1-10-30-18	23.43	14.5
325+90.00	137	G1-10-30-18	23.25	14.4
325+45.00	136	G1-10-30-18	23.07	14.3
325+00.00	135	G1-10-30-18	22.89	14.2
324+55.00	134	G1-10-30-18	22.71	14.1
324+10.00	133	G1-10-30-18	22.53	14.0
323+65.00	132	A1-18-35-23	22.35	13.8
323+20.00	131	G1-10-30-18	22.35	13.7
322+75.00	130	G1-10-30-18	22.35	13.6
322+30.00	129	G1-10-30-18	22.17	13.4
321+85.00	128	G1-10-30-18	21.99	13.2
321+40.00	127	G1-10-30-18	21.81	13.0
320+95.00	126	G1-10-30-18	21.63	12.8
320+50.00	125	G1-10-30-18	21.45	12.6
320+05.00	124	G1-10-30-18	21.27	12.5
319+60.00	123	G1-10-30-18	21.09	12.3
319+15.00	122	G1-10-30-18	20.91	12.1
318+70.00	121	G1-10-30-18	20.73	11.9
318+25.00	120	G1-10-30-18	20.55	11.7
317+80.00	119	G1-10-30-18	20.37	11.5
317+35.00	118	C2-18-30-18	20.37	11.3
317+00.00	117	S1-18-30-18	20.37	11.2
316+70.00	116	C2-18-30-18	20.37	11.2
316+35.00	115	G1-10-30-18	20.37	11.1
315+90.00	114	G1-10-30-18	20.32	10.9
315+45.00	113	G1-10-30-18	20.14	10.7
315+00.00	112	G1-10-30-18	19.96	10.4
314+55.00	111	G1-10-30-18	19.78	10.2
314+10.00	110	G1-10-30-18	19.60	10.1
313+65.00	109	G1-10-30-18	19.42	10.0
313+20.00	108	G1-10-30-18	19.24	10.0
312+75.00	107	G1-10-30-18	19.06	9.8
312+30.00	106	G1-10-30-18	18.88	9.3
311+85.00	105	G1-10-30-18	18.70	8.8
311+40.00	104	G1-10-30-18	18.52	8.3
310+95.00	103	G1-10-30-18	18.34	7.8
310+50.00	102	G1-10-30-18	18.34	7.3
310+05.00	101	A1-18-35-23		6.8

PIPELINE DATA TABLE

PIPELINE	MATERIAL	WALL THK (IN)	FBE COATING (MIL)	INSULATION (IN)
12" LSOP	12.75" DIA API 5L X65	0.438	12-30	3.0
4" UTILITY	4.50" DIA API 5L X65	0.300	12-30	3.0

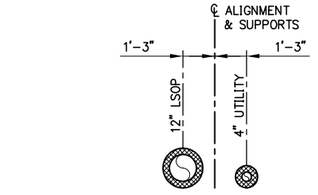
SUPPORT TYPE NOMENCLATURE

XX-XX-XX-XX

- GUIDE = G, SLIDE = S, ANCHOR = A
- NOMINAL VSM DIAMETER (IN)
- VSM LENGTH (FT)
- MINIMUM EMBEDMENT (FT)

LEGEND

- ○ GUIDED OR SLIDING SUPPORT
- ● ANCHORED SUPPORT
- (#) PI OR VPI LOCATION



A – TYPICAL PIPELINE SPACING DETAIL

SCALE: 3/8" = 1'-0"

COORDINATE TABLE

POINT (#)	DESCRIPTION	STATION	NORTHING	EASTING	ANGLE
Ø1	BEGIN	310+00.00	5926478.22	1429890.04	–
Ø2	PI	316+55.00	5925894.61	1429592.68	90.0°
Ø3	PI	317+15.00	5925921.85	1429539.22	90.0°
Ø4	PI	330+15.00	5924763.54	1428949.03	90.0°
Ø5	PI	330+75.00	5924790.78	1428895.57	90.0°

NOTES

1. ALIGNMENT STATIONING REFLECTS HORIZONTAL DISTANCE.
2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
3. VERTICAL DATUM IS BP MEAN SEA LEVEL (BPMSL), US FEET.
4. FOR TYPES G1, G2, S1, AND A1 SUPPORT DETAILS, SEE DRAWING SS-L07-00001-001.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

ENGINEERING RECORD		DATE
DRN:	R. HOBBS	Ø1/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

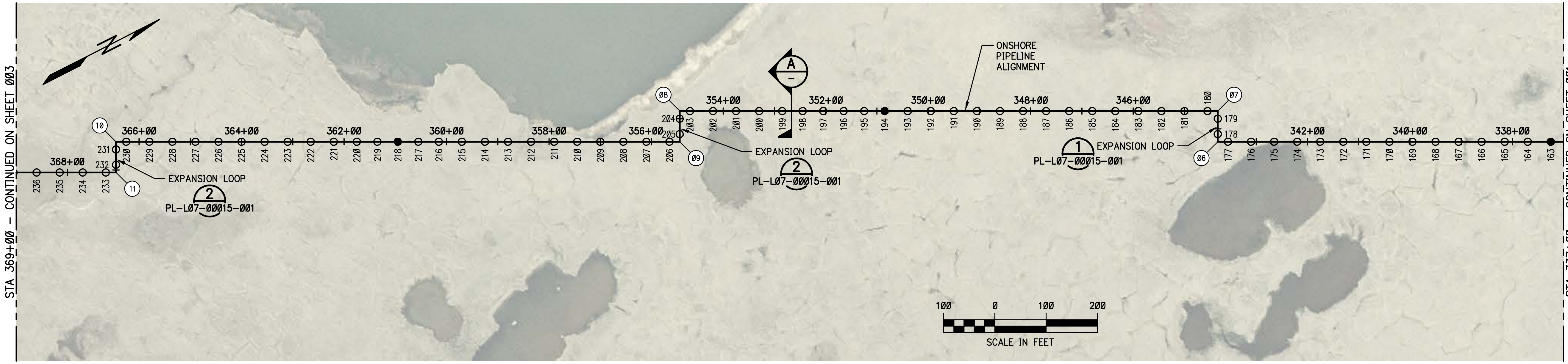
HILCORP ALASKA, LLC

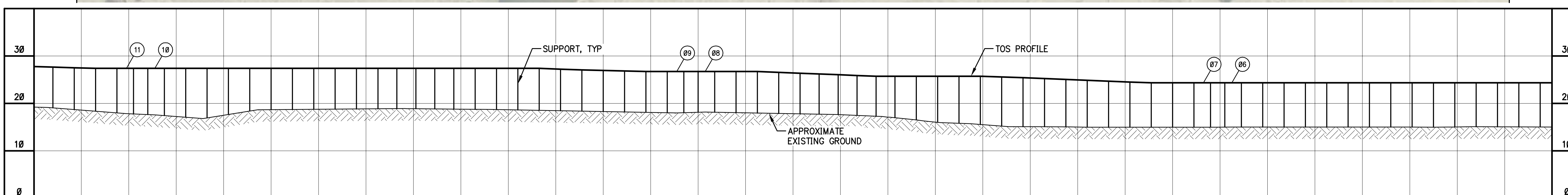
Michael Baker INTERNATIONAL

TITLE OF DRAWING:

L07 PIPELINE
ONSHORE PLAN & PROFILE
STA 310+00 TO STA 337+00

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00003	A	001
MODULE:			OF 3





SUPPORT NUMBER	STATION ℄ SUPOORT	SUPPORT TYPE	TOS EL (FT)	GROUND EL (FT)
236	368+60.00	G1-10-30-18	27.65	19.1
235	368+15.00	G1-10-30-18	27.51	18.7
234	367+70.00	G1-10-30-18	27.40	18.4
233	367+25.00	G2-18-30-18	27.40	18.0
232	366+90.00	S1-18-30-18	27.40	17.8
231	366+60.00	S1-18-30-18	27.40	17.7
230	366+25.00	G2-18-30-18	27.40	17.4
229	365+80.00	G1-10-30-18	27.40	17.1
228	365+35.00	G1-10-30-18	27.40	16.9
227	364+90.00	G1-10-30-18	27.40	17.7
226	364+45.00	G1-10-30-18	27.40	18.4
225	364+00.00	G1-10-30-18	27.40	18.7
224	363+55.00	G1-10-30-18	27.40	18.7
223	363+10.00	G1-10-30-18	27.40	18.8
222	362+65.00	G1-10-30-18	27.40	18.8
221	362+20.00	G1-10-30-18	27.40	18.8
220	361+75.00	G1-10-30-18	27.40	18.9
219	361+35.00	G1-10-30-18	27.40	18.9
218	360+95.00	A1-18-35-23	27.40	18.9
217	360+55.00	G1-10-30-18	27.40	18.8
216	360+15.00	G1-10-30-18	27.40	18.8
215	359+70.00	G1-10-30-18	27.40	18.8
214	359+25.00	G1-10-30-18	27.40	18.7
213	358+80.00	G1-10-30-18	27.40	18.6
212	358+35.00	G1-10-30-18	27.40	18.5
211	357+90.00	G1-10-30-18	27.22	18.5
210	357+45.00	G1-10-30-18	27.06	18.4
209	357+00.00	G1-10-30-18	26.93	18.3
208	356+55.00	G1-10-30-18	26.81	18.2
207	356+10.00	G1-10-30-18	26.72	18.1
206	355+65.00	G2-18-30-18	26.72	18.1
205	355+30.00	S1-18-30-18	26.72	18.1
204	355+00.00	S1-18-30-18	26.72	18.1
203	354+65.00	G2-18-30-18	26.72	18.1
202	354+20.00	G1-10-30-18	26.72	18.1
201	353+75.00	G1-10-30-18	26.72	18.0
200	353+30.00	G1-10-30-18	26.54	17.9
199	352+85.00	G1-10-30-18	26.36	17.8
198	352+45.00	G1-10-30-18	26.20	17.7
197	352+05.00	G1-10-30-18	26.04	17.7
196	351+65.00	G1-10-30-18	25.88	17.5
195	351+25.00	G1-10-30-18	25.72	17.3
194	350+85.00	A1-18-35-23	25.72	17.0
193	350+40.00	G1-10-30-18	25.72	16.5
192	349+95.00	G1-10-30-18	25.72	16.0
191	349+50.00	G1-10-30-18	25.72	15.8
190	349+05.00	G1-10-30-18	25.72	15.6
189	348+60.00	G1-10-30-18	25.57	15.2
188	348+15.00	G1-10-30-18	25.41	15.1
187	347+70.00	G1-10-30-18	25.23	15.1
186	347+25.00	G1-10-30-18	25.05	15.1
185	346+80.00	G1-10-30-18	24.87	15.0
184	346+35.00	G1-10-30-18	24.69	15.0
183	345+90.00	G1-10-30-18	24.51	15.0
182	345+45.00	G1-10-30-18	24.33	15.0
181	345+00.00	G1-10-30-18	24.33	15.0
180	344+55.00	G2-18-30-18	24.33	15.0
179	344+20.00	S1-18-30-18	24.33	15.0
178	343+90.00	S1-18-30-18	24.33	15.0
177	343+55.00	G2-18-30-18	24.33	15.0
176	343+10.00	G1-10-30-18	24.33	15.0
175	342+65.00	G1-10-30-18	24.33	15.0
174	342+20.00	G1-10-30-18	24.33	15.0
173	341+75.00	G1-10-30-18	24.33	15.0
172	341+30.00	G1-10-30-18	24.33	15.0
171	340+85.00	G1-10-30-18	24.33	15.0
170	340+40.00	G1-10-30-18	24.33	15.0
169	339+95.00	G1-10-30-18	24.33	15.0
168	339+50.00	G1-10-30-18	24.33	15.0
167	339+05.00	G1-10-30-18	24.33	15.0
166	338+60.00	G1-10-30-18	24.33	15.1
165	338+15.00	G1-10-30-18	24.33	15.1
164	337+70.00	G1-10-30-18	24.33	15.1
163	337+25.00	A1-18-35-23	24.33	15.0

PIPELINE DATA TABLE

PIPELINE	MATERIAL	WALL THK (IN)	FBE COATING (MIL)	INSULATION (IN)
12" LSOP	12.75" DIA API 5L X65	0.438	12-30	3.0
4" UTILITY	4.50" DIA API 5L X65	0.300	12-30	3.0

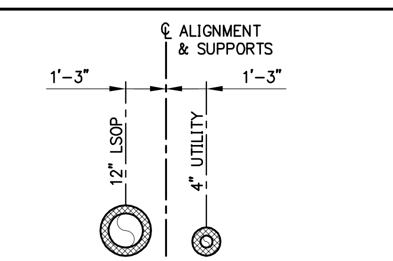
SUPPORT TYPE NOMENCLATURE

XX-XX-XX-XX

- GUIDE = G / SLIDE = S / ANCHOR = A
- NOMINAL VSM DIAMETER (IN)
- VSM LENGTH (FT)
- MINIMUM EMBEDMENT (FT)

LEGEND

- ○ GUIDED OR SLIDING SUPPORT
- ● ANCHORED SUPPORT
- (#) PI OR VPI LOCATION



A – TYPICAL PIPELINE SPACING DETAIL
SCALE: 3/8" = 1'-0"

COORDINATE TABLE

POINT (#)	DESCRIPTION	STATION	NORTHING	EASTING	ANGLE
06	PI	343+75.00	5923632.47	1428305.38	90.0°
07	PI	344+35.00	5923659.71	1428251.92	90.0°
08	PI	354+85.00	5922724.16	1427775.23	90.0°
09	PI	355+45.00	5922696.92	1427828.69	90.0°
10	PI	366+45.00	5921716.81	1427329.30	90.0°
11	PI	367+05.00	5921689.57	1427382.76	90.0°

NOTES

1. ALIGNMENT STATIONING REFLECTS HORIZONTAL DISTANCE.
2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
3. VERTICAL DATUM IS BP MEAN SEA LEVEL (BPMSL), US FEET.
4. FOR TYPES G1, G2, S1, AND A1 SUPPORT DETAILS, SEE DRAWING SS-L07-00001-001.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

ENGINEERING RECORD		DATE
DRN:	R. HOBBS	01/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

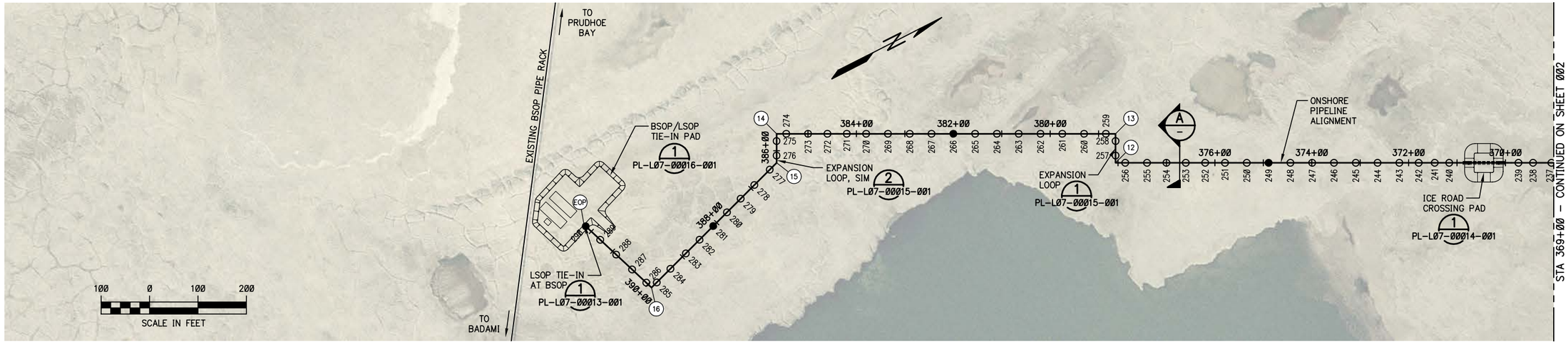
HILCORP ALASKA, LLC

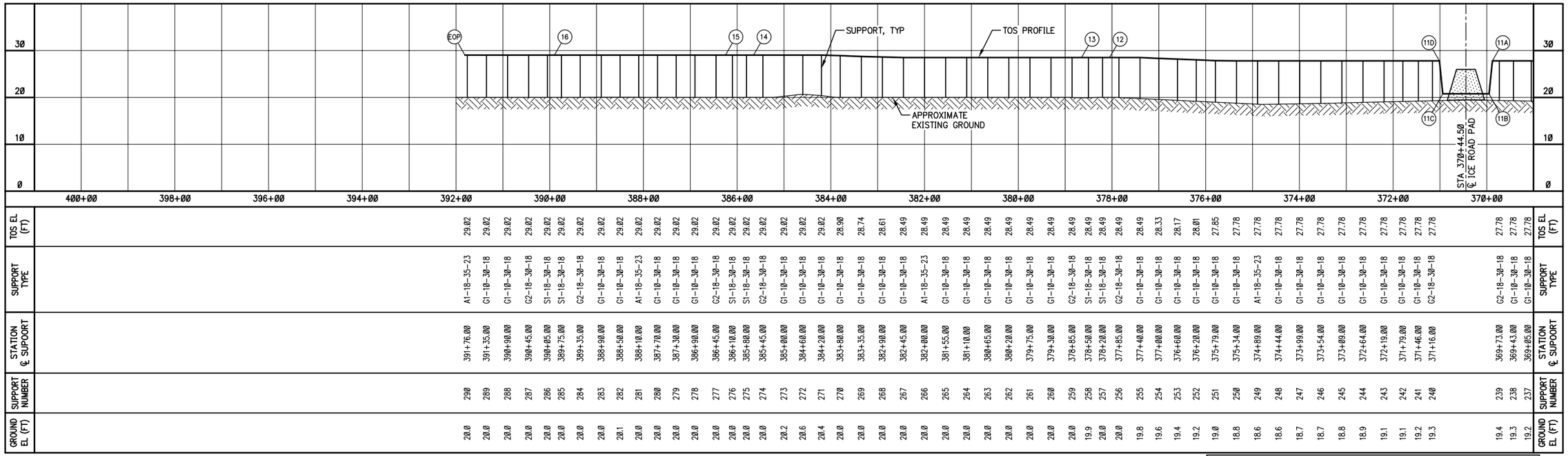
Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
ONSHORE PLAN & PROFILE
STA 337+00 TO STA 369+00

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00003	A	002 OF 3

MODULE:





	400+00	398+00	396+00	394+00	392+00	390+00	388+00	386+00	384+00	382+00	380+00	378+00	376+00	374+00	372+00	370+00
TOS EL (FT)					29.02	29.02	29.02	29.02	29.02	28.90	28.74	28.61	28.49	28.33	28.17	28.01	27.85	27.78
SUPPORT TYPE					A1-18-35-23	G1-10-30-18	G2-18-30-18	S1-18-30-18	A1-18-35-23	G1-10-30-18	G1-10-30-18	G1-10-30-18	G2-18-30-18	S1-18-30-18	G1-10-30-18	G1-10-30-18	G1-10-30-18	C2-18-30-18
STATION ℄ SUPOORT					391+76.00	391+35.00	390+90.00	390+45.00	390+05.00	389+75.00	389+35.00	388+90.00	388+50.00	388+10.00	387+70.00	387+30.00	386+90.00	386+45.00
SUPPORT NUMBER					290	289	288	287	286	285	284	283	282	281	280	279	278	277
GROUND EL (FT)					28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.1	28.0	28.0	28.0	28.0	28.0

	380+00	378+00	376+00	374+00	372+00	370+00
TOS EL (FT)	27.78	27.78	27.78	27.78	27.78	27.78
SUPPORT TYPE	G1-10-30-18	A1-18-35-23	G1-10-30-18	G1-10-30-18	G1-10-30-18	C2-18-30-18
STATION ℄ SUPOORT	380+20.00	379+75.00	379+30.00	378+85.00	378+50.00	378+20.00
SUPPORT NUMBER	262	261	260	259	258	257
GROUND EL (FT)	20.0	20.0	20.0	20.0	19.9	20.0

	384+00	382+00	380+00	378+00	376+00	374+00	372+00	370+00
TOS EL (FT)	29.02	29.02	28.49	28.49	28.49	28.49	28.49	27.78
SUPPORT TYPE	C2-18-30-18	S1-18-30-18	G1-10-30-18	G1-10-30-18	G1-10-30-18	G1-10-30-18	G1-10-30-18	C2-18-30-18
STATION ℄ SUPOORT	384+20.00	383+80.00	383+35.00	382+90.00	382+45.00	382+00.00	381+55.00	381+10.00
SUPPORT NUMBER	271	270	269	268	267	266	265	264
GROUND EL (FT)	20.4	20.0	20.0	20.0	20.0	20.0	20.0	20.0

	370+00
TOS EL (FT)	27.78
SUPPORT TYPE	C2-18-30-18
STATION ℄ SUPOORT	369+73.00
SUPPORT NUMBER	239
GROUND EL (FT)	19.4

	372+00
TOS EL (FT)	27.78
SUPPORT TYPE	G1-10-30-18
STATION ℄ SUPOORT	369+43.00
SUPPORT NUMBER	238
GROUND EL (FT)	19.3

	374+00
TOS EL (FT)	27.78
SUPPORT TYPE	A1-18-35-23
STATION ℄ SUPOORT	369+05.00
SUPPORT NUMBER	237
GROUND EL (FT)	19.2

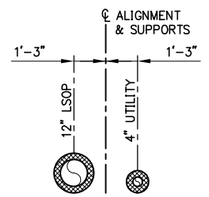
PIPELINE DATA TABLE

PIPELINE	MATERIAL	WALL THK (IN)	FBE COATING (MIL)	INSULATION (IN)
12" LSOP	12.75" DIA API 5L X65	0.438	12-30	3.0
4" UTILITY	4.50" DIA API 5L X65	0.300	12-30	3.0

SUPPORT TYPE NOMENCLATURE

XX-XX-XX-XX
- GUIDE = G, SLIDE = S, ANCHOR = A
- NOMINAL VSM DIAMETER (IN)
- VSM LENGTH (FT)
- MINIMUM EMBEDMENT (FT)

LEGEND
- ○ GUIDED OR SLIDING SUPPORT
- ● ANCHORED SUPPORT
- (#) PI OR VPI LOCATION



A – TYPICAL PIPELINE SPACING DETAIL
SCALE: 3/8" = 1'-0"

COORDINATE TABLE

POINT (#)	DESCRIPTION	STATION	NORTHING	EASTING	ANGLE
11A	VPI	369+88.00	5921437.41	1427254.28	45.0° ROLLED
11B	VPI	369+95.00	5921431.18	1427251.10	45.0° ROLLED
11C	VPI	370+94.00	5921342.97	1427206.16	45.0° ROLLED
11D	VPI	371+01.00	5921336.73	1427202.98	45.0° ROLLED
12	PI	378+05.00	5920709.46	1426883.37	90.0°
13	PI	378+65.00	5920736.70	1426829.91	90.0°
14	PI	385+65.00	5920113.00	1426512.12	90.0°
15	PI	386+25.00	5920085.76	1426565.58	45.0°
16	PI	389+90.00	5919738.62	1426678.37	88.0°
EOP	END	391+81.00	5919673.30	1426498.89	–

NOTES
1. ALIGNMENT STATIONING REFLECTS HORIZONTAL DISTANCE.
2. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
3. VERTICAL DATUM IS BP MEAN SEA LEVEL (BPMSL), US FEET.
4. FOR TYPES G1, G2, S1, AND A1 SUPPORT DETAILS, SEE DRAWING SS-L07-00001-001.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD

NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

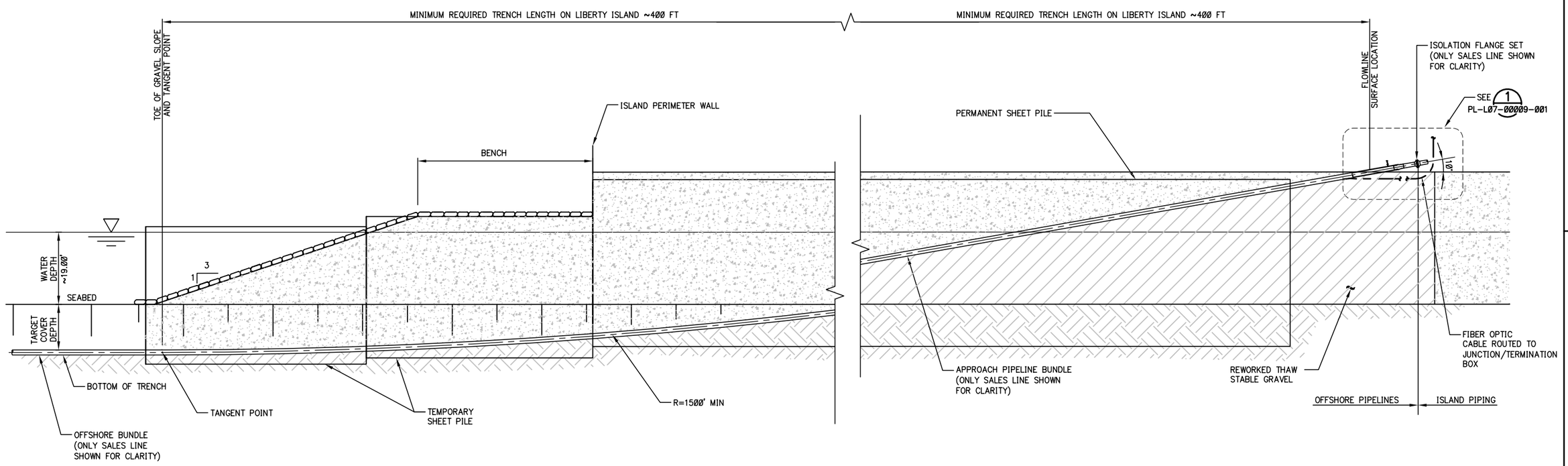
ENGINEERING RECORD		DATE
DRN:	R. HOBBS	01/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
ONSHORE PLAN & PROFILE
STA 369+00 TO EOP

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00003	A	003
MODULE:			OF 3



1 LIBERTY ISLAND APPROACH DETAIL – CONCEPT
PL-L07-00002-001
NOT TO SCALE

NOTES
1. THIS DETAIL IS FOR CONCEPTUAL PURPOSES ONLY.
2. ISLAND SETTLEMENT = ~8 YEARS.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

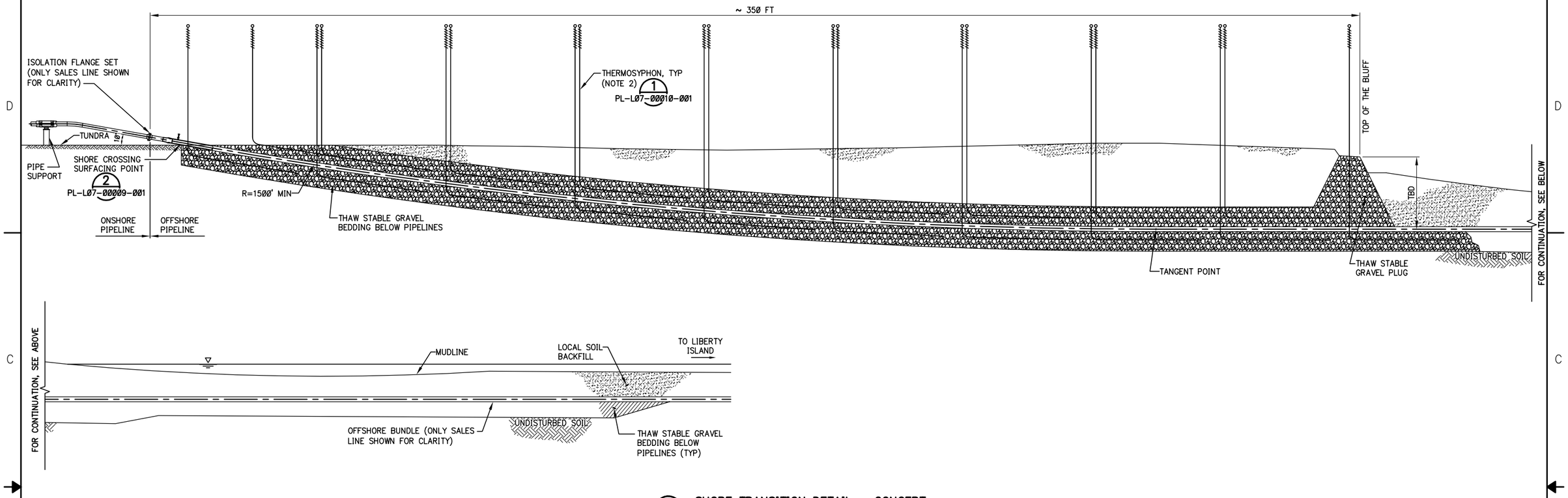
ENGINEERING RECORD		DATE
DRN:	J. MONROY	01/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
ISLAND APPROACH DETAIL – CONCEPT
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00004	A	001
MODULE:			OF –



1 SHORE TRANSITION DETAIL – CONCEPT
PL-L07-00002-002 NOT TO SCALE

NOTES
1. THIS DETAIL IS FOR CONCEPTUAL PURPOSES ONLY.
2. QUANTITY OF THERMOSYPHONS = TBD.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

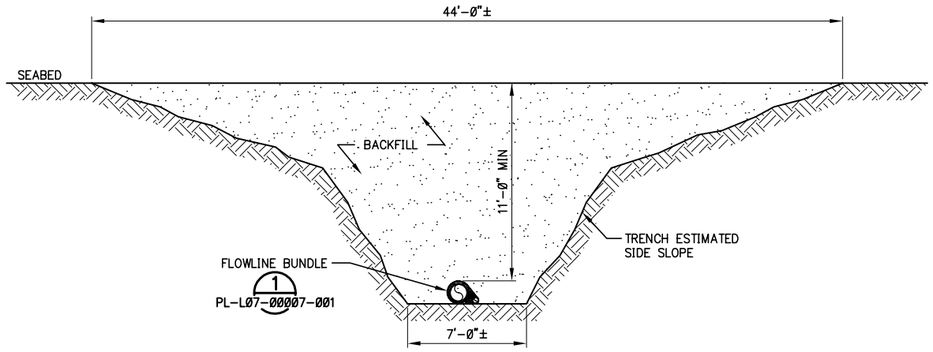
ENGINEERING RECORD		DATE
DRN:	J. MONROY	Ø1/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

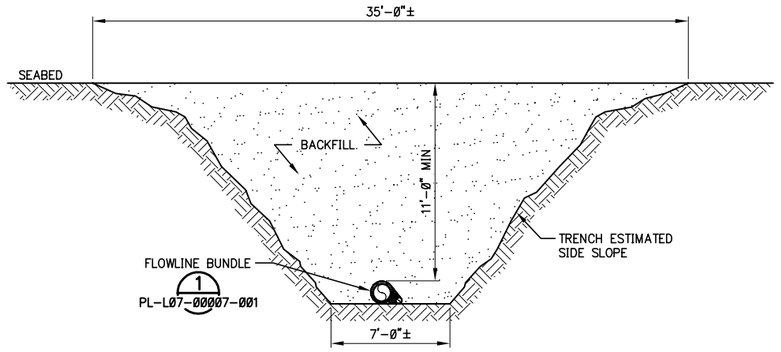
TITLE OF DRAWING:
LØ7 PIPELINE
SHORE TRANSITION DETAIL – CONCEPT
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL–LØ7–ØØØØ5	A	ØØ1
MODULE:			OF –



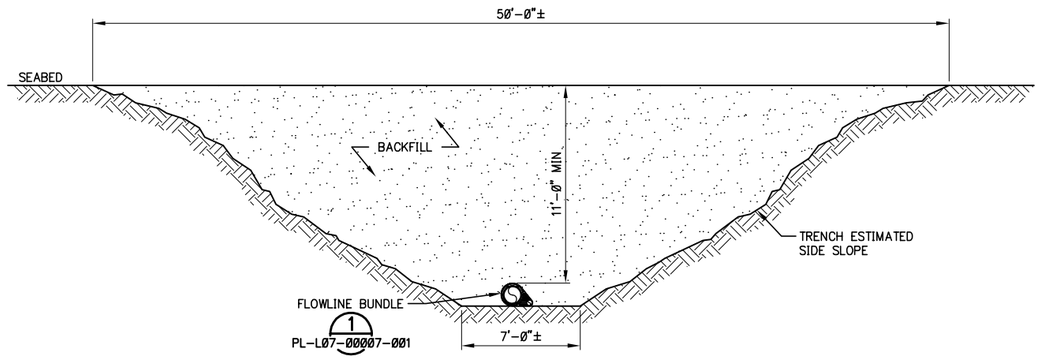
ISLAND ZONE
STA 10+00 TO STA 13+00
9.2 CY PER FOOT
TYPICAL TRENCH SECTION

A
PL-L07-00002-001
SCALE: 1/4" = 1'-0"



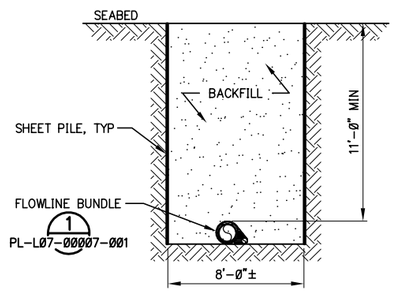
OFFSHORE ZONE
STA 13+00 TO STA 240+00
8.5 CY PER FOOT
TYPICAL TRENCH SECTION

B
PL-L07-00002-001
PL-L07-00002-002
SCALE: 1/4" = 1'-0"



NEARSHORE ZONE – TYPE 1
STA 240+00 TO SHORE TRANSITION
13.5 CY PER FOOT
TYPICAL TRENCH SECTION

C
PL-L07-00002-002
SCALE: 1/4" = 1'-0"



NEARSHORE ZONE – TYPE 2
STA 240+00 TO SHORE TRANSITION
3.9 CY PER FOOT
TYPICAL TRENCH SECTION

D
PL-L07-00002-002
SCALE: 1/4" = 1'-0"

NOTES

1. OFFSHORE TRENCH WORK AND PIPE LAYING PERFORMED FROM SEA ICE SURFACE IN WINTER. SEE DRAWING PL-L07-00002-001/002 FOR WATER DEPTHS ALONG ALIGNMENT.
2. OFFSHORE CONTRACTOR SHOULD EXPECT THAT SEA ICE WILL REQUIRE ARTIFICIAL THICKENING TO SUPPORT TRENCH CONSTRUCTION AND PIPE LAYING OPERATIONS.
3. TRENCH SIDE SLOPES AND ASSOCIATED QUANTITY ESTIMATES BASED ON SOIL PROPERTIES TAKEN FROM GOLDER REPORT "GEOTECHNICAL EXPLORATION REPORT LIBERTY RESOURCE DEVELOPMENT", NOVEMBER 2015. DEPICTED SLOPE GEOMETRY ASSUMES SHORT-TERM OPEN TRENCH, APPROXIMATELY ONE WEEK OR LESS WITHOUT DISTURBANCE FROM REPETITIVE SURFACE ACTIVITY OR NATURAL SEAWATER MOVEMENT SUCH AS STORM SURGE.
4. BACKFILL MATERIAL IS ORIGINAL EXCAVATED SEAFLOOR MATERIAL.
5. NEARSHORE ZONE TYPE 1 AND 2 TRENCH PROFILES ARE ALTERNATIVES.
6. SEAFLOOR SOIL UNDER FLOATING ICE SHOULD BE UNFROZEN. WHERE ICE IS GROUNDED IN THE NEARSHORE ZONE, THE SEAFLOOR SOIL MAY BE FROZEN. IN THE SHORE CROSSING (PL-L07-00005-001) SEGMENT, THE GROUND WILL BE PERMAFROST.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

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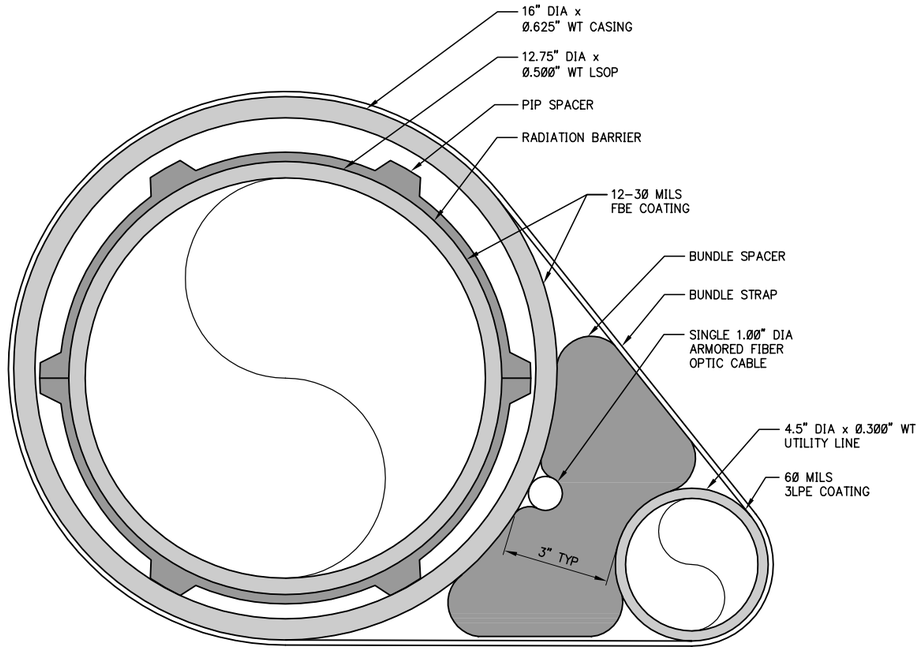
ENGINEERING RECORD		DATE
DRN:	R. HOBBS	01/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
L07 PIPELINE
TRENCHING AND BACKFILLING DETAILS
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-L07-00006	A	001
MODULE:			OF -



1 BUNDLE CONFIGURATION DETAIL
PL–LØ7–ØØØØ6–ØØ1 SCALE: 6" = 1'–Ø"

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

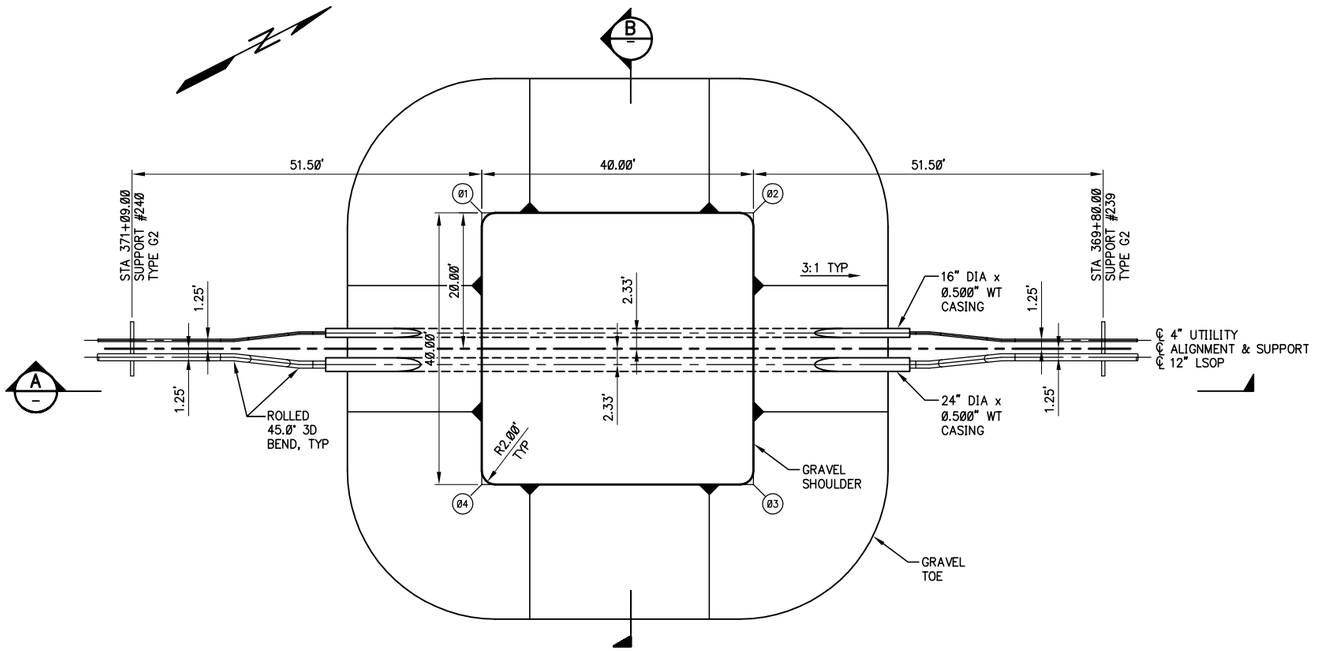
ENGINEERING RECORD		DATE
DRN:	R. HOBBS	Ø1/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
LØ7 PIPELINE
BUNDLE CONFIGURATION DETAIL
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL–LØ7–ØØØØ7	A	ØØ1
MODULE:			OF –



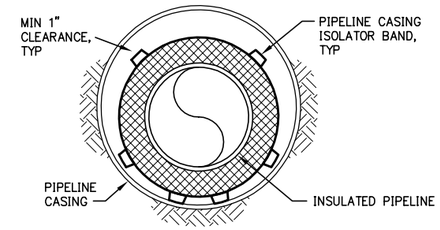
1 — ICE ROAD CROSSING PAD – PLAN

SCALE: 1" = 1Ø'

PL-LØ7-ØØØØ1-ØØ1
PL-LØ7-ØØØØ3-ØØ3

PAD CORNER COORDINATE TABLE			
POINT (#)	NORTHING	EASTING	FINISH EL
Ø1	5921378.33	1427201.73	26.ØØ
Ø2	5921413.97	1427219.89	26.ØØ
Ø3	5921395.81	1427255.53	26.ØØ
Ø4	5921360.17	1427237.37	26.ØØ

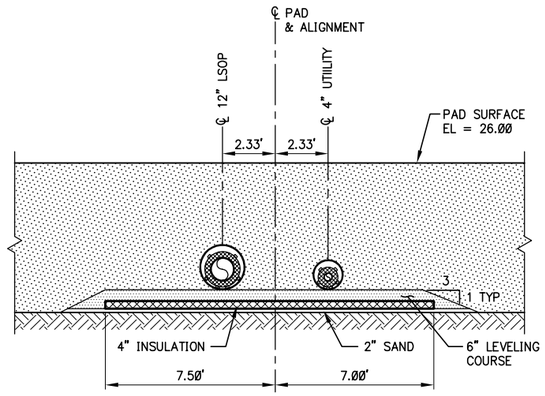
NOTES
1. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
2. VERTICAL DATUM IS BPMSL, US FOOT.
3. GRAVEL PAD SIDE SLOPES SHALL BE 3:1 TYP.
4. GRAVEL QUANTITY = 95Ø CY.
5. TUNDRA AREA IMPACTED = 6,ØØØ SF.



INSTALL MALONEY MODEL 6Ø ISOLATORS, OR APPROVED EQUAL, ON THE PIPE AT A MAXIMUM SPACING OF 8-FEET WITHIN CASING. INSTALL THREE (3) ISOLATOR BANDS AT 1-FOOT SPACING WITHIN THE FIRST 3-FEET FROM THE ENDS OF THE CASING.

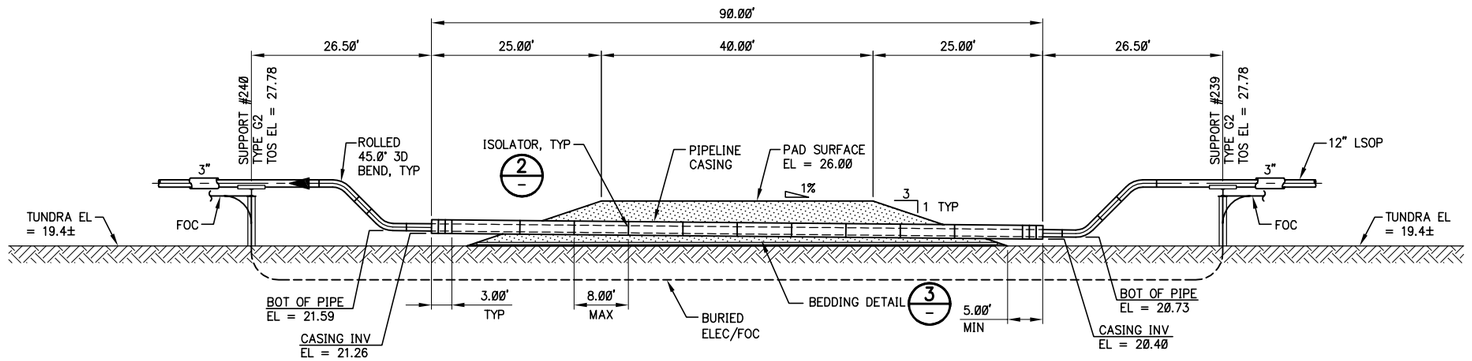
2 — PIPELINE CASING ISOLATORS DETAIL

NOT TO SCALE



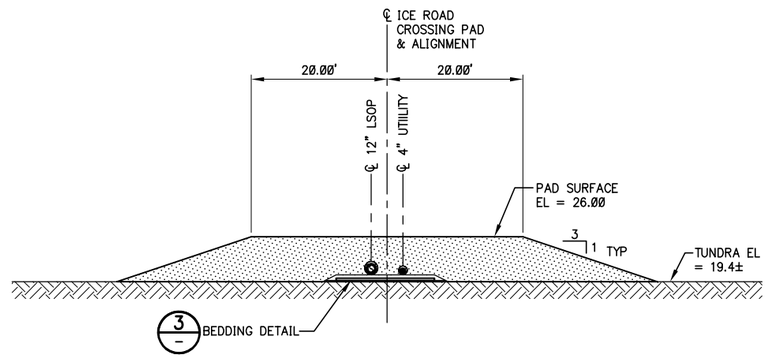
3 — BEDDING DETAIL

SCALE: 1" = 3'



A — ICE ROAD CROSSING PAD – SECTION

SCALE: 1" = 1Ø'



B — ICE ROAD CROSSING PAD – SECTION

SCALE: 1" = 1Ø'

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

PRELIMINARY NOT FOR CONSTRUCTION

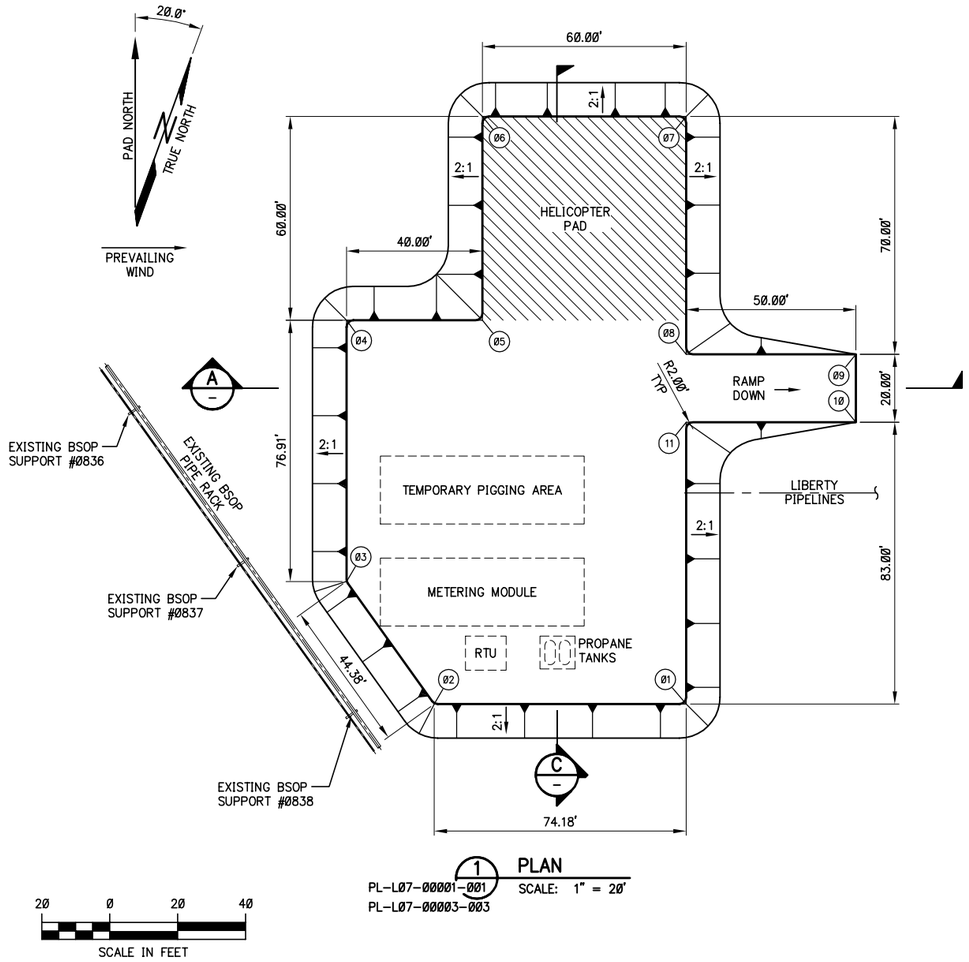
ENGINEERING RECORD		DATE
DRN:	R. HOBBS	Ø1/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

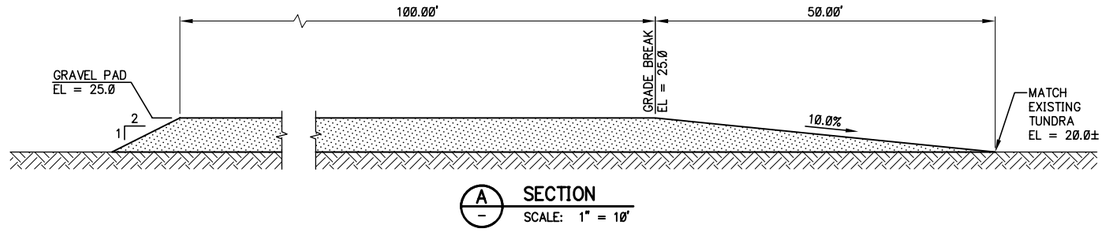
Michael Baker INTERNATIONAL

TITLE OF DRAWING:
LØ7 PIPELINE
ICE ROAD CROSSING PAD PLAN & ELEVATIONS
LIBERTY DEVELOPMENT

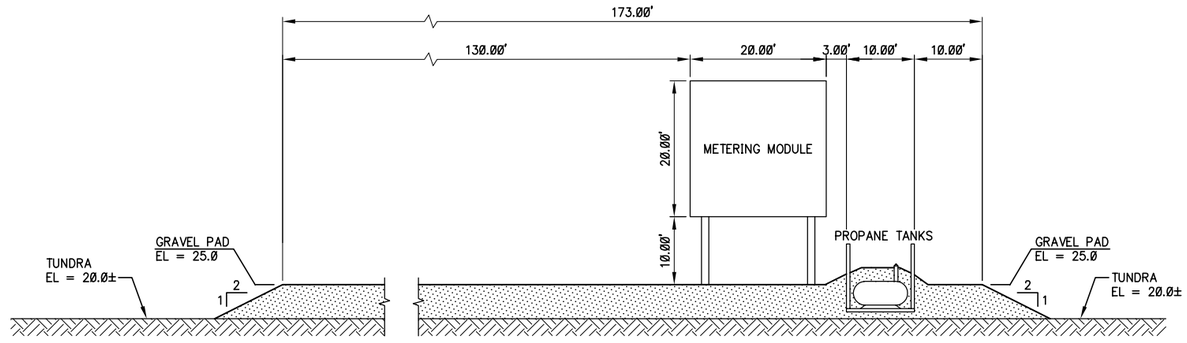
WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-LØ7-ØØØ14	A	ØØ1
MODULE:			OF –



1 PLAN
SCALE: 1" = 20'
PL-LØ7-ØØØØ1-ØØ1
PL-LØ7-ØØØØ3-ØØ3



A SECTION
SCALE: 1" = 10'



B SECTION
SCALE: 1" = 10'

PAD CORNER COORDINATE TABLE			
POINT (#)	NORTHING	EASTING	FINISH EL
Ø1	5919615.Ø3	1426520.54	25.Ø
Ø2	5919589.66	1426450.83	25.Ø
Ø3	5919614.74	1426414.22	25.Ø
Ø4	5919687.Ø1	1426387.92	25.Ø
Ø5	5919700.69	1426425.50	25.Ø
Ø6	5919757.Ø7	1426404.98	25.Ø
Ø7	5919777.59	1426461.36	25.Ø
Ø8	5919711.82	1426485.31	25.Ø
Ø9	5919728.92	1426532.29	20.Ø±
1Ø	5919710.12	1426539.13	20.Ø±
11	5919693.Ø2	1426492.15	25.Ø

NOTES
1. HORIZONTAL DATUM IS ALASKA STATE PLANE ZONE 3, NAD83.
2. VERTICAL DATUM IS BPMSL, US FOOT.
3. GRAVEL PAD SIDE SLOPES SHALL BE 2:1 MAX.
4. GRAVEL QUANTITY = 3,5ØØ CY.
5. TUNDRA AREA IMPACTED = 21,125 SF.

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD

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DRN:	R. HOBBS	Ø1/16
DSGN:		
CHK:		
APP:		
APP:		
SCALE:	AS SHOWN	

HILCORP ALASKA, LLC

Michael Baker INTERNATIONAL

TITLE OF DRAWING:
LØ7 PIPELINE
BSOP/LSOP TIE-IN PAD PLAN & ELEVATIONS
LIBERTY DEVELOPMENT

WORK ORDER	DRAWING NUMBER	REV	SHEET
	PL-LØ7-ØØØ16	A	ØØ1
MODULE:			OF –