Kodiak Airport
Runway Safety Area Extension

Quantity Calculations

Project No. 53587
AIP No. 3-02-0158-017 -2014

Prepared for:
State of Alaska
Department of Transportation and Public Facilities
Central Region

Prepared by:
HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, Alaska 99503-2569

March, 2014

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**D-701a(1)** **D-701a(2)**
Pay Item Description:	**PE PIPE, 18"** **PE PIPE, 24"**
Location:	Service road at south end of Runway 18-36. Vicinity of existing segmented circle north of Runway 7-25 and east of Runway 18-36.
Unit:	Linear Foot
Quantity:	50 (18") 54 (24")
Note:	

Computed: DG.	Date: 3/15/14
Checked: CS	Date: 3/28/14

Kodiak Airport RSA Extension Earthwork
Culverts
For Final PS&E
3/7/2014

Culvert: RW-25 RSA

Outlet Approx. Sta =	175+26	
Outlet Approx offset =	238	left
Diameter =	18	in

Culvert requires extension through the underlayer stone

18" elbow	1	ea
18" pipe Length =	50	ft

Culvert: RW-36 RSA

Middle of culvert Approx Sta =	3+96	at service road centerline
Middle of culvert Approx Offset=	329	left
Diameter =	24	in
Pipe Length =	54	ft

Runway station 3+96

Pay Item Number:	**G-100a**
Pay Item Description:	**Mobilization and Demobilization**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JSW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-115a**
Pay Item Description:	**Worker Meals and Lodging, or Per Diem**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	Estimate of personnel on project. Superintendent 1 Foremen 3 Office Engineer 1 Environmental 1 Surveyors 2 Equipment Operators 6 Truck Drivers 12 Mechanics 3 Painters 2 Electricians 3 Laborers 4 Flaggers 2 Total – 40 Assume 40% local hire Days - 2014 - 180 days 2015 - 180 days

Computed: JGW	Date: 3/24/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-130a**
Pay Item Description:	**Field Office**
Location:	Project Wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-130b**
Pay Item Description:	**Field Laboratory**
Location:	**Project wide**
Unit:	**Lump Sum**
Quantity:	**All Required**
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-130g**
Pay Item Description:	**Nuclear Testing Equipment Storage Shed**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-130h**
Pay Item Description:	**Storage Container**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JKW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-130j**
Pay Item Description:	**Engineering Communication**
Location:	Project wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed:	Date: 3/21/19
Checked: CS	Date: 3/26/19

Pay Item Number:	**G-131a**
Pay Item Description:	**Engineering Transportation (Truck)**
Location:	Project wide
Unit:	Each
Quantity:	6
Note:	Number of vehicles requested by Construction.

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-135a**
Pay Item Description:	**Construction Surveying by the Contractor**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Pay Item Number:	**G-135b**
Pay Item Description:	**Extra Three Person Surveying Party**
Location:	Project wide
Unit:	Hour
Quantity:	50
Note:	

Computed: JBW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-150a**
Pay Item Description:	**Equipment Rental – Dozer (70hp min.)**
Location:	Project wide
Unit:	Hour
Quantity:	50
Note:	At request of Construction. Will use Dozer, 70 hp minimum

Computed: JGJ	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-200a**
Pay Item Description:	**Contractor Quality Control Program**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-300a**
Pay Item Description:	**CPM Scheduling**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-700a**
Pay Item Description:	**Airport Flagger**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: 3/2 JGr	Date: 3/24/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-710a**
Pay Item Description:	**Highway Traffic Maintenance**
Location:	Project Wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JCW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-710b**
Pay Item Description:	**Highway Flagger**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-710c**
Pay Item Description:	**Highway Traffic Price Adjustment**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: JCW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-710d**
Pay Item Description:	**Highway Traffic Control**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**G-715a**
Pay Item Description:	**Wildlife Monitoring**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: JGW
Checked: 4/16/14

Pay Item Number:	**L-100c(1)** **L-100c(2)**
Pay Item Description:	**HIGH INTENSITY RUNWAY EDGE AND THRESHOLD LIGHT, L-862 and L-862E** **HIGH INTENSITY RUNWAY EDGE AND THRESHOLD LIGHT LENS, L-862 and L-862E**
Location:	Thresholds of Runways 18 and 36. Existing yellow/white lenses for will be reused. Additional lenses will be provided .
Unit:	Each
Quantity:	21 (L-100c(1)) 3 (L-100c(2))
Note:	

Computed: DH	Date: 3/18/14
Checked: CS	Date: 3/26/14

Kodaik Edge Light Schedule

ADJUST BY MAK

Number	Lens Color	Type	Wattage Lamp	Wattage Xfmr	STATION	OFFSET	Location	Circuit #	Remarks	
T 1	Blue	L-861T	12	10/15	RW 18/36 STA: 8+53.64	90.00 L	T/W A			C/W
T 2	Blue	L-861T	12	10/15	RW 18/36 STA: 8+53.64	85.00 L	T/W A			C/W
T 3	Blue	L-861T	12	10/15	RW 18/36 STA: 8+27.40	92.03 L	T/W A			C/W
T 4	Blue	L-861T	12	10/15	RW 18/36 STA: 8+08.18	111.25 L	T/W A			C/W
T 5	Blue	L-861T	12	10/15	RW 18/36 STA: 8+01.15	137.50 L	T/W A			C/W
T 6	Blue	L-861T	12	10/15	RW 18/36 STA: 8+01.15	185.07 L	T/W A			C/W
T 7	Blue	L-861T	12	10/15	RW 18/36 STA: 8+01.15	232.64 L	T/W A			C/W
T 8	Blue	L-861T	12	10/15	RW 18/36 STA: 8+08.18	258.89 L	T/W A			C/W
T 9	Blue	L-861T	12	10/15	RW 18/36 STA: 8+27.40	278.10 L	T/W A			C/W
T 10	Blue	L-861T	12	10/15	RW 18/36 STA: 8+53.66	285.13 L	T/W A			C/W
T 11	Blue	L-861T	12	10/15	RW 18/36 STA: 9+05.01	285.13 L	T/W A			C/W
T 12	Blue	L-861T	12	10/15	RW 18/36 STA: 9+56.37	288.12 L	T/W A			C/W
T 13	Blue	L-861T	12	10/15	RW 18/36 STA: 10+07.73	288.11 L	T/W A			C/W
T 14	Blue	L-861T	12	10/15	RW 18/36 STA: 10+59.09	288.11 L	T/W A			C/W
T 15	Blue	L-861T	12	10/15	RW 18/36 STA: 11+10.45	288.10 L	T/W A			C/W
T 16	Blue	L-861T	12	10/15	RW 18/36 STA: 11+61.79	288.09 L	T/W A			C/W
T 17	Blue	L-861T	12	10/15	RW 18/36 STA: 7+06.14	137.50 L	T/W A			C/W
T 18	Blue	L-861T	12	10/15	RW 18/36 STA: 7+06.14	176.44 L	T/W A			C/W
T 19	Blue	L-861T	12	10/15	RW 18/36 STA: 7+06.14	215.37 L	T/W A			C/W
T 20	Blue	L-861T	12	10/15	RW 18/36 STA: 6+97.35	246.64 L	T/W A			C/W
T 21	Blue	L-861T	12	10/15	RW 18/36 STA: 6+73.56	268.75 L	T/W A			C/W
T 22	Blue	L-861T	12	10/15	RW 18/36 STA: 6+30.16	290.94 L	T/W A			C/W
R 1	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	85.00 L	R/W 36			C/W
R 2	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	75.00 L	R/W 36			C/W
R 3	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	65.00 L	R/W 36			C/W
R 4	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	55.00 L	R/W 36			C/W
R 5	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	55.00 R	R/W 36			C/W
R 6	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	65.00 R	R/W 36			C/W
R 7	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	75.00 R	R/W 36			C/W
R 8	R/G	L-862E	200	200	RW 18/36 STA: 7+06.14	85.00 R	R/W 36			C/W
R 9	Y/W	L-862	120	100	RW 18/36 STA: 7+52.68	85.00 R	R/W 36			C/W
R 10	Y/W	L-862	120	100	RW 18/36 STA: 9+46.10	85.00 R	R/W 36			C/W
R 11	Y/W	L-862	120	100	RW 18/36 STA: 11+39.60	85.00 R	R/W 36			C/W
R 12	Y/W	L-862	120	100	RW 18/36 STA: 9+46.14	85.00 L	R/W 36			C/W
R 13	Y/W	L-862	120	100	RW 18/36 STA: 11+39.60	85.00 L	R/W 36			C/W
R 14	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	85.00 L	R/W 18			C/W
R 15	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	75.00 L	R/W 18			C/W
R 16	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	65.00 L	R/W 18			C/W
R 17	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	55.00 L	R/W 18			C/W
R 18	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	55.00 R	R/W 18			C/W
R 19	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	65.00 R	R/W 18			C/W
R 20	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	75.00 R	R/W 18			C/W
R 21	R/G	L-862E	200	200	RW 18/36 STA: 57+36.26	85.00 R	R/W 18			C/W

L-100e

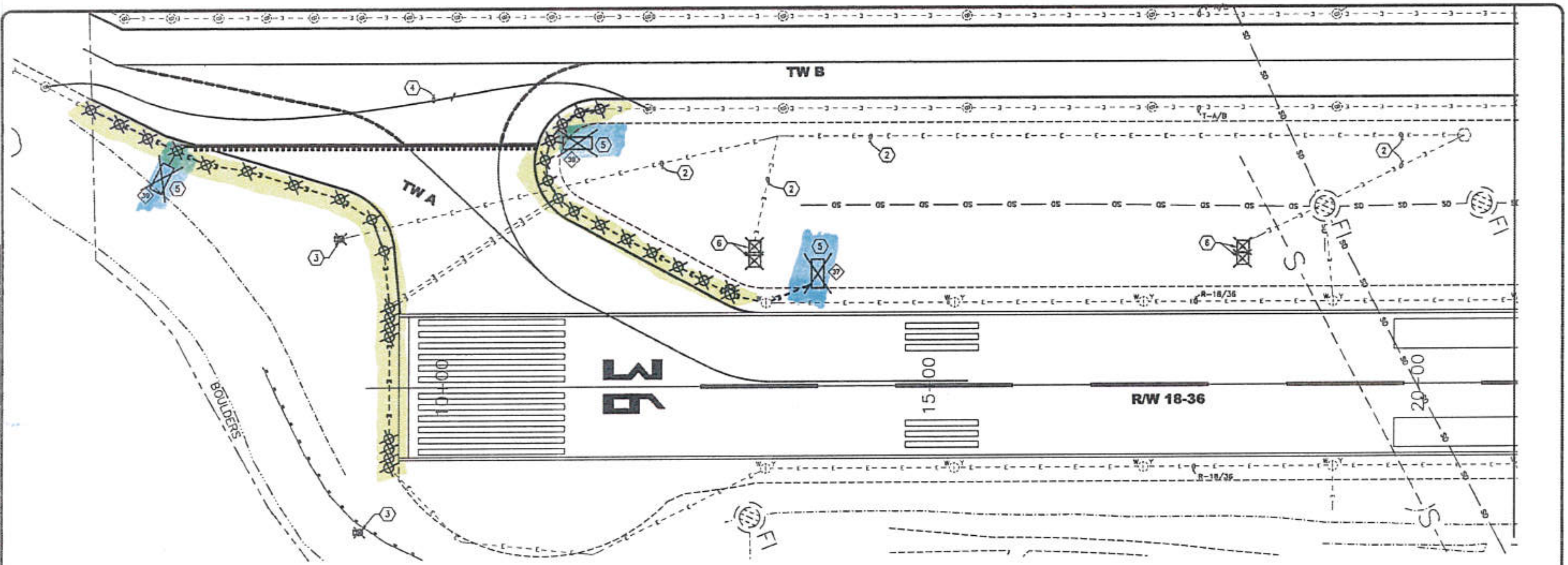
L-100c(1)

Pay Item Number:	**L-100e**
Pay Item Description:	**Taxiway Edge Lights, L-861T**
Location:	Taxiway A, Taxiway B and Runway reconfiguration
Unit:	22
Quantity:	Each
Note:	

Computed:	DH	Date: 3/18/14
Checked:	CS	Date: 3/26/14

Pay Item Number:	**L-100h**
Pay Item Description:	**Remove Runway and Taxiway Light**
Location:	Thresholds of Runways 18 and 36. Taxiway A and Taxiway B
Unit:	Each
Quantity:	41
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14



1 / D2 R/W 36 AND T/W 'A' LIGHTING DEMOLITION PLAN

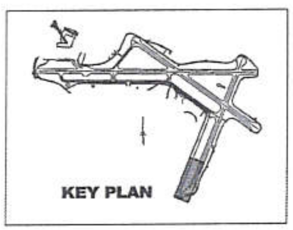
DEMOLITION LEGEND:

R/W – RUNWAY
XFMR – TRANSFORMER
T/W – TAXIWAY
LFMC – LIQUIDTIGHT FLEXIBLE METAL CONDUIT
SDCB – STORM DRAIN CATCH BASIN

- EXISTING RUNWAY OR TAXIWAY LIGHT AND (1) METAL BASE (TO BE REMOVED)
- EXISTING TAXIWAY LIGHT (TO REMAIN)
- EXISTING RUNWAY EDGE LIGHT (TO REMAIN)
- EXISTING RUNWAY THRESHOLD LIGHT (TO REMAIN)
- EXISTING ELECTRIC MANHOLE (TO REMAIN)
- EXISTING WIND CONE (TO REMAIN)
- EXISTING HANDHOLE (TO REMAIN)
- EXISTING CONCRETE ENCASE DUCT BANK (TO REMAIN)
- EXISTING AIRPORT SIGN (TO REMAIN)
- EXISTING AIRPORT SIGN AND BASE (TO BE REMOVED)
- EXISTING UNDERGROUND CONDUIT (TO REMAIN)
- ---E--- EXISTING UNDERGROUND ELECTRIC (TO REMAIN)
- ---C--- EXISTING UNDERGROUND COMMUNICATION (TO REMAIN)
- ---UGE--- EXISTING UNDERGROUND ELECTRIC UTILITY (TO REMAIN)
- ---UGTel--- EXISTING UNDERGROUND TELEPHONE UTILITY (TO REMAIN)

MAG DEC 14°18' 2013

50 0 50 100
SCALE IN FEET



KEY PLAN

DEMOLITION NOTES:

((X) INDICATES REFERENCE NOTE)

1. REMOVE EXISTING EDGE LIGHTS. LIGHT FIXTURES AND TRANSFORMERS ARE TO BE SALVAGED AND OFFERED TO THE STATE. THIS WORK SHALL BE PAID UNDER L-100h.
2. EXISTING TO BE MAINTAINED AND WORKED AROUND.
3. EXISTING REIL LIGHT TO BE RELOCATED (BY OTHERS). CONTRACTOR TO REMOVE EXISTING FOUNDATIONS AND PROVIDE NEW FOUNDATIONS, CONDUIT AND WIRING, SEE SHEETS E1, E7, E8 AND E9. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.
4. INSTALL AND MAINTAIN #8, 5 KV, TYPE C AIRPORT CABLE IN HDPE CONDUIT FOR TEMPORARY JUMPERS TO EDGE LIGHTS AS REQUIRED. SAND BAG, 50lb MINIMUM, AT INTERVAL NOT TO EXCEED 10 FEET ON CENTER. UPON REMOVAL AND DISPOSAL OF TEMPORARY JUMPERS THE CONTRACTOR SHALL RESTORE CIRCUITS AND LIGHTING. THIS WORK SHALL BE SUBSIDIARY TO L-100r AND NO SEPARATE PAYMENT WILL BE MADE.
5. REMOVE EXISTING SIGNS. REMOVE SIGN BASES. REMOVE TRANSFORMERS AND SECONDARY CONDUCTORS. ABANDON CONDUIT IN PLACE. SIGNS AND TRANSFORMERS SHALL BE SALVAGED AND OFFERED TO DOT FIELD MAINTENANCE. THIS WORK SHALL BE SUBSIDIARY TO THE PAY ITEM L-100n AND NO SEPARATE PAYMENT WILL BE MADE.
6. REMOVE EXISTING VASI BOXES AND FOUNDATIONS. EXISTING CONDUIT AND CONDUCTORS TO BE MAINTAINED AND WORKED AROUND. VASI BOXES SHALL BE SALVAGED AND OFFERED TO THE FAA. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.
7. REMOVE EXISTING WIND CONE. DISPOSE OF EXISTING FOUNDATION AND RESTORE FINISH GRADE. REMOVE EXISTING CIRCUITRY BACK TO HANDHOLE HH-1. EXISTING WIND CONE AND POLE SHALL BE SALVAGED AND OFFERED TO THE STATE. THIS WORK SHALL BE SUBSIDIARY TO PAY ITEM L-107e AND NO SEPARATE PAYMENT WILL BE MADE.

DEMOLITION NOTES CONT:

8. THE CONTRACTOR SHALL DISPOSE OF CONCRETE BASES AND RESTORE GRADE AND FINISH SURFACES DISTURBED BY THE REMOVAL OF THESE STRUCTURES. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE.
9. ABANDONED CONDUCTORS AND GROUND WIRES IN RACEWAY SHALL BE REMOVED. CONDUIT AND DIRECT BURIED WIRING SHALL BE ABANDONED IN PLACE.
10. ABANDONED CONDUIT RUNS EXPOSED DURING EXCAVATION SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THIS WORK SHALL BE SUBSIDIARY TO EXCAVATION AND NO SEPARATE PAYMENT WILL BE MADE.
11. CONTRACTOR SHALL RESTORE LIGHTING CONTROL AND POWER CIRCUITS TO THE SATISFACTION OF THE AIRPORT MANAGER.

STATE OF ALASKA · 49TH · MICHAEL J. LOVE · 3/18/2014 · REGISTERED PROFESSIONAL ENGINEER

BY	DATE	REVISION

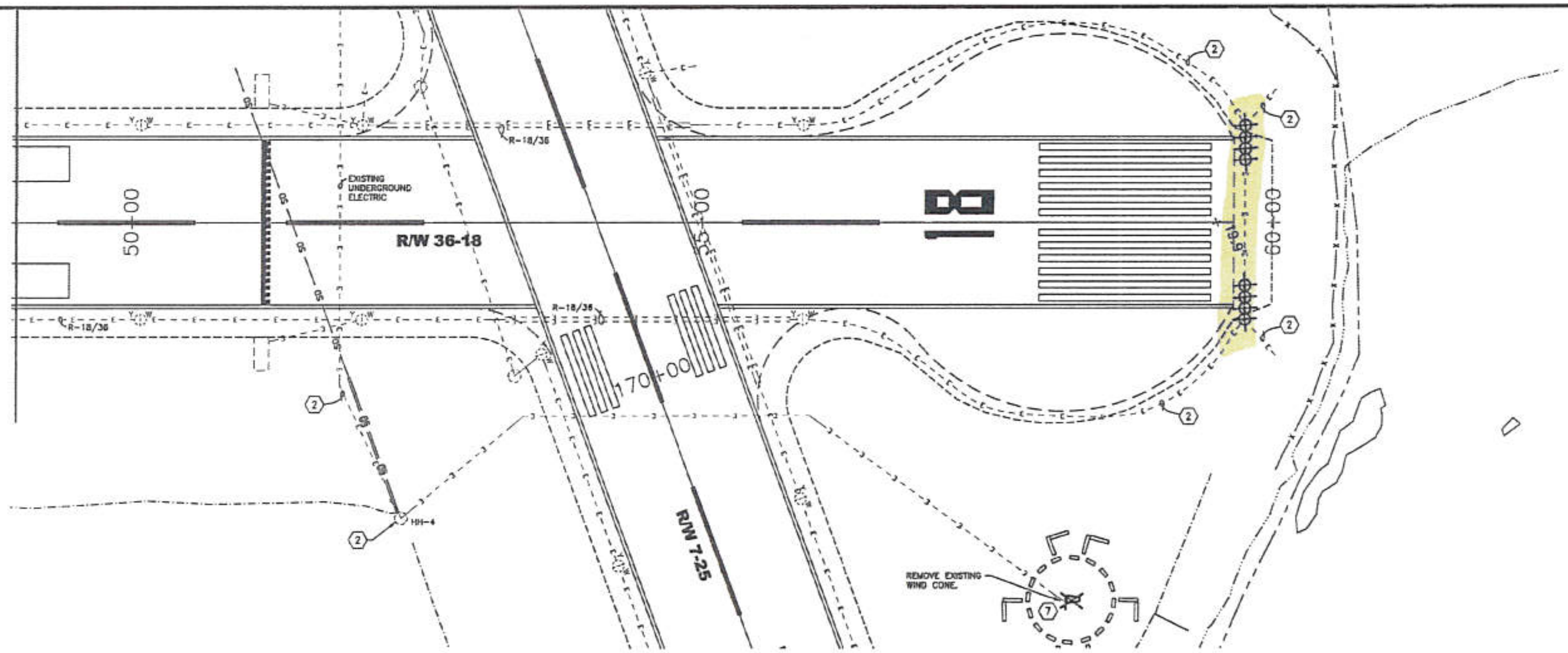
PREPARED BY: MBA Consulting Engineers, Inc.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
RUNWAY SAFETY AREA EXTENSION
PROJECT No. 53587
AIP No. 3-02-0158-01X-201_
R/W 36 AND T/W 'A'
LIGHTING DEMOLITION PLAN

DATE: 3/18/2014
SHEET: D2 OF D3
AS-BUILT SHEET:

Date Revised: 3/18/2014, 2:36 PM | Designed By: DH
Layout Name: D2 | Drawn By: MK
File Path and Name: Z:\13004RSA - Kodiak Airport Runway 1836 and 85AT-Working\Drawings - RSA\13004_D2-D3.dwg | Checked By: ML



1 / D3 R/W 18 LIGHTING DEMOLITION PLAN

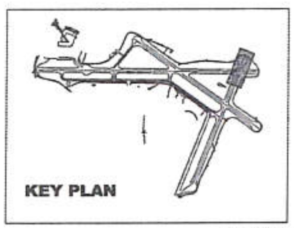
MAG DEC 18°16' 2013

50 0 50 100
SCALE IN FEET

DEMOLITION LEGEND:

R/W – RUNWAY
XFMR – TRANSFORMER
T/W – TAXIWAY
LFMC – LIQUIDTIGHT FLEXIBLE METAL CONDUIT
SDCB – STORM DRAIN CATCH BASIN

- EXISTING RUNWAY OR TAXIWAY LIGHT AND METAL BASE (TO BE REMOVED) (1)
- EXISTING TAXIWAY LIGHT (TO REMAIN)
- EXISTING RUNWAY EDGE LIGHT (TO REMAIN)
- EXISTING RUNWAY THRESHOLD LIGHT (TO REMAIN)
- EXISTING ELECTRIC MANHOLE (TO REMAIN)
- EXISTING WIND CONE (TO BE REMOVED)
- EXISTING HANDHOLE (TO REMAIN)
- EXISTING CONCRETE ENCASE DUCT BANK (TO REMAIN)
- EXISTING AIRPORT SIGN (TO REMAIN)
- EXISTING AIRPORT SIGN AND BASE (TO BE RELOCATED) SHALL BE SUBSIDIARY TO PAY ITEM L100n
- EXISTING UNDERGROUND CONDUIT (TO REMAIN)
- ---E--- EXISTING UNDERGROUND ELECTRIC (TO REMAIN)
- —C— EXISTING UNDERGROUND COMMUNICATION (TO REMAIN)
- ---UGE--- EXISTING UNDERGROUND ELECTRIC UTILITY (TO REMAIN)
- ---UGTel--- EXISTING UNDERGROUND TELEPHONE UTILITY (TO REMAIN)



KEY PLAN

DEMOLITION NOTES:

((X) INDICATES REFERENCE NOTE)

(1) REMOVE EXISTING EDGE LIGHTS. LIGHT FIXTURES AND TRANSFORMERS ARE TO BE SALVAGED AND OFFERED TO THE STATE. THIS WORK SHALL BE PAID UNDER L-100h.

(2) EXISTING TO BE MAINTAINED AND WORKED AROUND.

(3) EXISTING REIL LIGHT TO BE RELOCATED (BY OTHERS). CONTRACTOR TO REMOVE EXISTING FOUNDATIONS AND PROVIDE NEW FOUNDATIONS, CONDUIT AND WIRING, SEE SHEETS E1, E7, E8 AND E9. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.

(4) INSTALL AND MAINTAIN #8, 5 KV, TYPE C AIRPORT CABLE IN HDPE CONDUIT FOR TEMPORARY JUMPERS TO EDGE LIGHTS AS REQUIRED. SAND BAG, 50lb MINIMUM, AT INTERVAL NOT TO EXCEED 10 FEET ON CENTER. UPON REMOVAL AND DISPOSAL OF TEMPORARY JUMPERS THE CONTRACTOR SHALL RESTORE CIRCUITS AND LIGHTING. THIS WORK SHALL BE SUBSIDIARY TO L-100r AND NO SEPARATE PAYMENT WILL BE MADE.

(5) REMOVE EXISTING SIGNS. REMOVE SIGN BASES. REMOVE TRANSFORMERS AND SECONDARY CONDUCTORS. ABANDON CONDUIT IN PLACE. SIGNS AND TRANSFORMERS SHALL BE SALVAGED AND OFFERED TO DOT FIELD MAINTENANCE. THIS WORK SHALL BE SUBSIDIARY TO THE PAY ITEM L-100n AND NO SEPARATE PAYMENT WILL BE MADE.

(6) REMOVE EXISTING VASI BOXES AND FOUNDATIONS. EXISTING CONDUIT AND CONDUCTORS TO BE MAINTAINED AND WORKED AROUND. VASI BOXES SHALL BE SALVAGED AND OFFERED TO THE FAA. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.

(7) REMOVE EXISTING WIND CONE. DISPOSE OF EXISTING FOUNDATION AND RESTORE FINISH GRADE. REMOVE EXISTING CIRCUITRY BACK TO HANDHOLE HH-1. EXISTING WIND CONE AND POLE SHALL BE SALVAGED AND OFFERED TO THE STATE. THIS WORK SHALL BE SUBSIDIARY TO PAY ITEM L-107a AND NO SEPARATE PAYMENT WILL BE MADE.

DEMOLITION NOTES CONT:

8. THE CONTRACTOR SHALL DISPOSE OF CONCRETE BASES AND RESTORE GRADE AND FINISH SURFACES DISTURBED BY THE REMOVAL OF THESE STRUCTURES. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE.
9. ABANDONED CONDUCTORS AND GROUND WIRES IN RACEWAY SHALL BE REMOVED. CONDUIT AND DIRECT BURIED WIRING SHALL BE ABANDONED IN PLACE.
10. ABANDONED CONDUIT RUNS EXPOSED DURING EXCAVATION SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THIS WORK SHALL BE SUBSIDIARY TO EXCAVATION AND NO SEPARATE PAYMENT WILL BE MADE.
11. CONTRACTOR SHALL RESTORE LIGHTING CONTROL AND POWER CIRCUITS TO THE SATISFACTION OF THE AIRPORT MANAGER.

PREPARED BY: MBA Consulting Engineers, Inc.

BY	DATE	REVISION

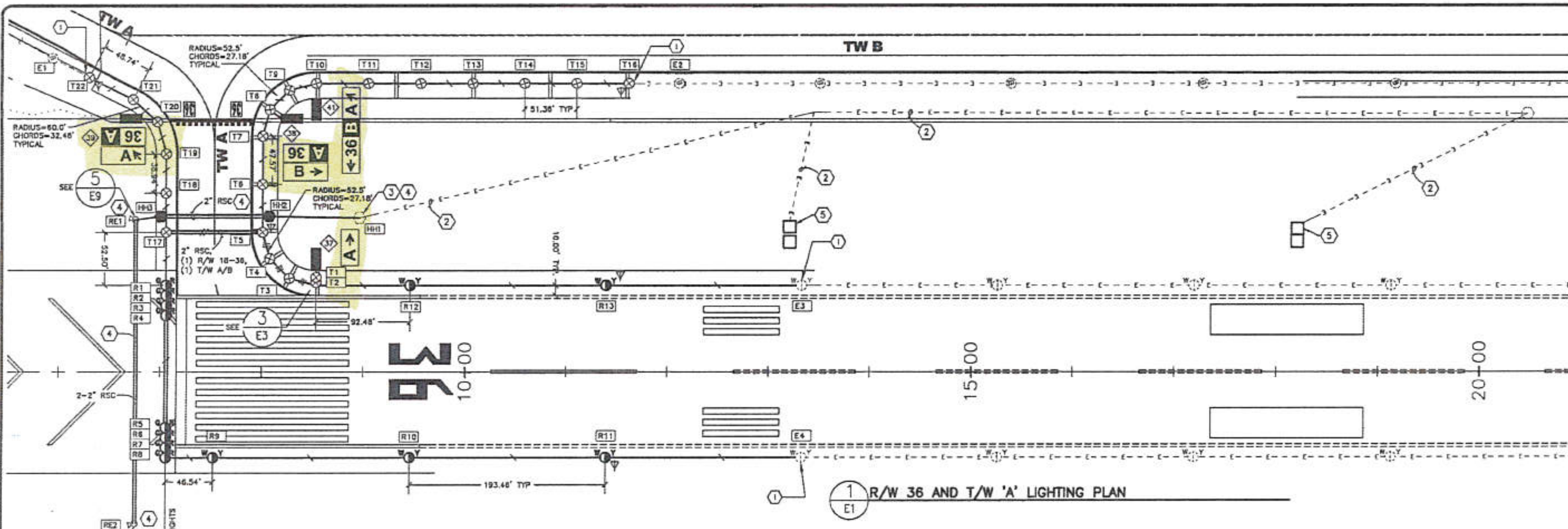
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
RUNWAY SAFETY AREA EXTENSION
PROJECT No. 53587
AIP No. 3-02-0158-01X-201_
R/W 18
LIGHTING DEMOLITION PLAN

DATE: 3/18/2014
SHEET: D3 of D3
AS-BUILT SHEET:

Pay Item Number:	**L-100n**
Pay Item Description:	**Airport Sign, Type L-858**
Location:	New signs to be placed at intersections of Taxiways A, B and Runway 36 threshold
Unit:	Each
Quantity:	4
Note:	

Computed:	Date: 3/26/14
Checked: CS	Date: 3/26/14



1 R/W 36 AND T/W 'A' LIGHTING PLAN
E1

LEGEND:

R/W – RUNWAY
XFMR – TRANSFORMER
T/W – TAXIWAY
LFMC – LIQUIDTIGHT FLEXIBLE METAL CONDUIT
SDCB – STORM DRAIN CATCH BASIN
--C-- EXISTING UNDERGROUND COMMUNICATION
--E-- EXISTING UNDERGROUND ELECTRIC
EXISTING CONCRETE ENCASE DUCT BANK
NEW 2" RIGID STEEL CONDUIT
NEW 2" HDPE CONDUIT. HASH MARKS INDICATE NUMBER OF #8 AWG. 5KV AIRPORT CABLES TYPE "C" PLUS ONE #6 BARE COPPER GROUND CONDUCTOR.
EXISTING HANDHOLE
EXISTING ELECTRIC MANHOLE
EXISTING RUNWAY EDGE LIGHT
EXISTING TAXIWAY EDGE LIGHT
NEW RUNWAY THRESHOLD LIGHT – HIGH INTENSITY
NEW RUNWAY EDGE LIGHT – HIGH INTENSITY
NEW TAXIWAY EDGE LIGHT
RELOCATED REIL LIGHT (BY OTHERS)
NEW 3/4" X 10' GROUND ROD
SIGN NUMBER – SEE SCHEDULE ON SHEET E6
EXISTING AIRPORT SIGN (TO REMAIN)
NEW SIGN, SEE SHEET E4
NEW HANDHOLE, L-867B
RELOCATED WIND CONE

ELECTRICAL NOTES:

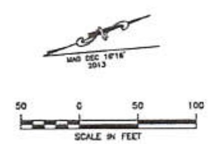
(⟨X⟩ INDICATES REFERENCE NOTE)

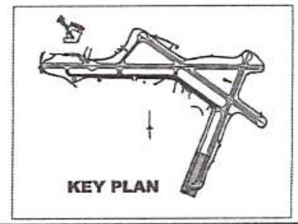
1. CONNECT NEW CONDUIT TO EXISTING LIGHT BASE, HANDHOLE OR CONDUIT. CONNECT NEW CONDUCTORS TO EXISTING FOR CONTINUATION OF CIRCUIT.
2. EXISTING TO BE MAINTAINED AND WORKED AROUND.
3. CONNECT NEW 2" HDPE CONDUIT TO EXISTING HANDHOLE, VERIFY LOCATION. PROVIDE 1/2" BLANK STEEL COVER.
4. EXTEND REIL CONDUIT TO NEW LOCATION SHOWN, SEE SHEET E7. CONSTRUCT NEW CONCRETE FOUNDATIONS AND PROVIDE CONDUIT, WIRING, AND J-BOX PER SHEETS E8 AND E9. CONCRETE AND SURFACE SEALER SHALL MEET THE SPECIFICATION P-610. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.
5. PROVIDE NEW VASI FOUNDATIONS PER SHEETS E10, E11, E12, AND E13 IN EXISTING LOCATION. CONCRETE AND SURFACE SEALER SHALL MEET THE SPECIFICATION P-610. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.
6. INSTALL NEW CONDUIT BEFORE RUNWAY, TAXIWAY OR SHOULDER IS PAVED.
7. WHEN INSTALLED IN THE SAME STRUCTURE, DUCT BANK OR CONDUIT CONDUCTORS OF SEPARATE CIRCUITS SHALL BE IDENTIFIED BY COLORABLE INSULATION. THE COLORS GREEN AND WHITE SHALL NOT BE USED TO IDENTIFY CIRCUITS.
8. SERIES CIRCUITS. VERIFY AND MATCH EXISTING COLOR, R/W 18-36: RED, T/W A/B: BLUE.
9. PROVIDE L867 LIGHT BASES AND HANDHOLES WITH ADDITIONAL THREADED HUBS TO ACCOMMODATE CONDUIT RUNS AND DRAINS SHOWN.
10. CONNECT NEW HDPE CONDUIT TO EXISTING DISSIMILAR CONDUIT USING ELECTROFUSION COUPLING OR POLYCAM ADAPTER.
11. CONTRACTOR SHALL RESTORE LIGHTING CONTROL AND POWER CIRCUITS, TO THE SATISFACTION OF THE AIRPORT MANAGER.
12. CIRCUITS PULLED THROUGH LIGHT BASES WITHOUT TRANSFORMER TERMINATIONS SHALL BE CONTINUOUS WITH NO SPLICES OR SLACK LOOPS. CIRCUITS CONNECTING TO TRANSFORMER SHALL HAVE SLACK LOOPS PER SPECIFICATION.
13. ADJUST CAUTION ZONE ON R/W 18-36 SOUTH 240 FEET. PROVIDE NEW LENSES FOR MODIFIED FIXTURES.

LIGHT SCHEDULE

NUMBER	SYMBOLS	LOCATION	LIGHT DETAILS				
			LIGHT COLOR	LAMP WATTAGE	F.A.A. NUMBER	TRANSFORMER WATTAGE	REMARKS
5	Y◐W	R/W 18-36 EDGE LIGHT	YELLOW/WHITE	120	L862	100	SHEET E1
16	R◐G	R/W 18-36 THRESHOLD LIGHT	RED/GREEN	200	L862E	200	SHEET E1 AND E2
22	⊗	T/W EDGE LIGHT	BLUE	12	L861T	10/15	SHEET E1
1	NOT SHOWN	R/W 18-36 EDGE LIGHT	YELLOW/WHITE	EXISTING	L862	EXISTING	LENS ONLY; SHEET E1, NOTE 13
2	NOT SHOWN	R/W 18-36 EDGE LIGHT	WHITE/WHITE	EXISTING	L862	EXISTING	LENS ONLY; SHEET E1, NOTE 13

ALL TRANSFORMERS 6.6A/6.6A





STATE OF ALASKA ★ 49 TH ★ Michael J. Love 3/18/2014 EE-6818 REGISTERED PROFESSIONAL ENGINEER

PREPARED BY: MBA Consulting Engineers, Inc.

BY	DATE	REVISION

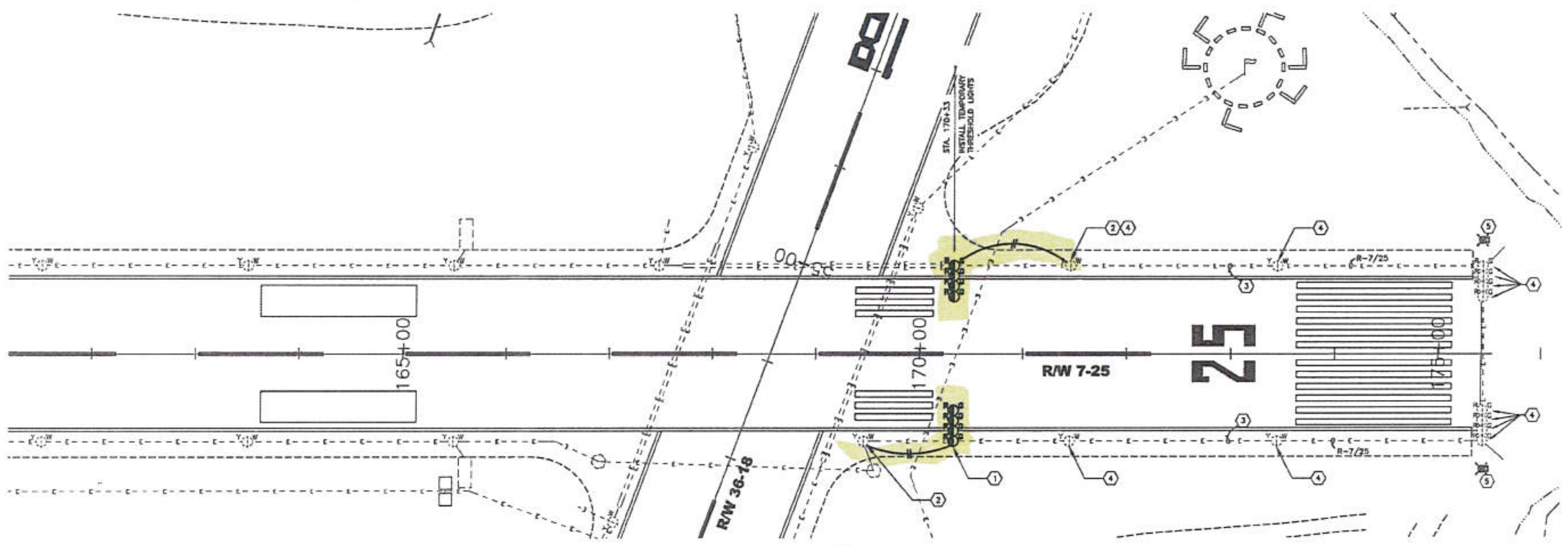
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
RUNWAY SAFETY AREA EXTENSION
PROJECT No. 53587
AIP No. 3-02-0158-01X-201_
RUNWAY 36
LIGHTING PLAN

DATE: 3/18/2014
SHEET: E1 OF E19
AS-BUILT SHEET:

Pay Item Number:	**L-100r**
Pay Item Description:	**Temporary Runway Lighting System**
Location:	Relocated threshold of Runway 25.
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed:	Date: 3/28/14
Checked: CS	Date: 3/28/14



(1/D1) R/W 25 TEMPORARY LIGHTING PLAN

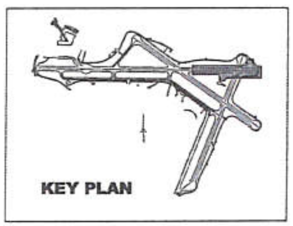
TEMPORARY LIGHTING LEGEND:

R/W – RUNWAY
XFMR – TRANSFORMER
T/W – TAXIWAY
LFMC – LIQUIDTIGHT FLEXIBLE METAL CONDUIT
SDCB – STORM DRAIN CATCH BASIN

- TEMPORARY RUNWAY THRESHOLD LIGHT – HIGH INTENSITY
- EXISTING TAXIWAY LIGHT (TO REMAIN)
- EXISTING RUNWAY EDGE LIGHT (TO REMAIN)
- EXISTING RUNWAY THRESHOLD LIGHT (TO REMAIN)
- EXISTING ELECTRIC MANHOLE (TO REMAIN)
- EXISTING HANDHOLE (TO REMAIN)
- EXISTING CONCRETE ENCASE DUCT BANK (TO REMAIN)
- EXISTING AIRPORT SIGN (TO REMAIN)
- EXISTING UNDERGROUND CONDUIT (TO REMAIN)
- ---E--- EXISTING UNDERGROUND ELECTRIC (TO REMAIN)
- —C— EXISTING UNDERGROUND COMMUNICATION (TO REMAIN)
- ---UGE--- EXISTING UNDERGROUND ELECTRIC UTILITY (TO REMAIN)
- ---UGTel--- EXISTING UNDERGROUND TELEPHONE UTILITY (TO REMAIN)

MAG DEC 16°16' 2013

50 0 50 100
SCALE IN FEET



KEY PLAN

TEMPORARY LIGHTING NOTES:

(X INDICATES REFERENCE NOTE)

1. CONSTRUCT TEMPORARY THRESHOLD PER DETAIL 1, SHEET E6. INSTALL AND MAINTAIN JUMPERS AND THRESHOLD AT THE LOCATIONS SHOWN ON THE PLANS IN ACCORDANCE WITH THE PHASING PLAN. EXTEND CAUTION ZONE WEST OF TEMPORARY THRESHOLD, RE-USE EXISTING LENSES AS PRACTICAL, PROVIDE NEW LENSES AS REQUIRED. UPON REMOVAL AND DISPOSAL OF TEMPORARY THRESHOLD THE CONTRACTOR SHALL RESTORE CIRCUITS AND CAUTION ZONE LIGHTING. THIS WORK SHALL BE SUBSIDIARY TO L-100r AND NO SEPARATE PAYMENT WILL BE MADE.
2. CONNECT TEMPORARY THRESHOLD LIGHTS TO EXISTING CIRCUIT IN NEAREST EDGE LIGHT BASE.
3. UTILIZE EXISTING CONDUIT AND CONDUCTORS FOR TEMPORARY LIGHTING.
4. EDGE LIGHTS BEYOND TEMPORARY THRESHOLD SHALL BE INOPERABLE WHEN TEMPORARY THRESHOLD IS IN SERVICE.
5. EXISTING REIL LIGHT TO BE REPLACED (BY OTHERS). CONTRACTOR TO REMOVE EXISTING REIL LIGHTS AND FOUNDATIONS AND PROVIDE NEW FOUNDATIONS, SEE SHEETS E7 AND E14–E19. EXISTING CONDUIT AND WIRING TO BE MAINTAINED AND REUSED. CONCRETE AND SURFACE SEALER SHALL MEET THE SPECIFICATION P-610. REIL LIGHTS SHALL BE INOPERABLE WHEN TEMPORARY THRESHOLD IS IN SERVICE. REIL LIGHTS SHALL BE SALVAGED AND OFFERED TO THE FAA. THIS WORK SHALL BE SUBSIDIARY TO L-135k AND NO SEPARATE PAYMENT WILL BE MADE.

STATE OF ALASKA 49TH Michael J. Love 3/18/2014 REGISTERED PROFESSIONAL ENGINEER

PREPARED BY: MBA Consulting Engineers, Inc.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
RUNWAY SAFETY AREA EXTENSION
PROJECT No. 53587
AIP No. 3-02-0158-01X-201_
RUNWAY 25 TEMPORARY LIGHTING PLAN

DATE: 3/18/2014
SHEET: D1 OF D3
AS-BUILT SHEET: ##

Pay Item Number:	**L-100ap**
Pay Item Description:	**Spare Parts**
Location:	
Unit:	Lump Sum
Quantity:	All Required
Note:	**100-3.8 SPARE PARTS.** Provide a quantity of spare light fixtures and transformers equal to 10 percent (rounded down) of the installed quantity of each type of fixture and size of transformer, but not less than one of each size or type. Deliver spare parts to airport maintenance as directed by the Engineer.

Computed: DH	Date: 3/18/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**L-107a**
Pay Item Description:	**8-Foot Lighted Wind Cone, In Place**
Location:	Southeast of the Runway 7-25 and 18-36 intersection
Unit:	Each
Quantity:	1
Note:	

Computed:	JW	Date: 3/24/14
Checked:	CS	Date: 3/26/14

Pay Item Number:	**L-108a**
Pay Item Description:	**Underground Cable, #8AWG, Copper, 4KV, FAA Type "C", L-824**
Location:	Runway 18 and 36 thresholds Runway 36 and Taxiway A/B Reconfiguration
Unit:	Linear Foot
Quantity:	3,250
Note:	

Computed: JMW	Date: 3/24/14
Checked: CS	Date: 3/26/14

Kodiak Airport RSA Extension
#8, 5 kV, Type C Airport Cable Quantity Summary

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

473	Total From RSC Tab
2583	Total From HDPE Tab
3057'	**Total #8, 5kV**

Pay Item Number:	**L-108c**
Pay Item Description:	**#6 Bare Copper Ground Conductor**
Location:	Runway 18 and 36 thresholds Runway 36 and Taxiway A/B intersections
Unit:	Linier Foot
Quantity:	2,850
Note:	

Computed:	Date: 3/26/14
Checked: CS	Date: 3/26/14

Kodiak Airport RSA Extension
#6 Bare Copper Ground Conductor Quantity Summary

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

276	Total From RSC Tab
2409	Total From HDPE Tab
2684'	**Total #6 Bare Cu**

Pay Item Number:	**L-109g**
Pay Item Description:	**Ground Rod**
Location:	Collocated with runway and taxiway lights R11 R21 T22 T16 T5
Unit:	Each
Quantity:	5
Note:	

Computed: DH	Date: 3/18/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**L-110a**
Pay Item Description:	**2-inch Rigid Steel Conduit**
Location:	
Unit:	Linear Foot
Quantity:	435
Note:	

Computed:	Date: 3/24/14
Checked: CS	Date: 3/28/14

Kodiak Airport RSA Extension
Rigid Steel Conduit Quantity Summary

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

~~265~~ 435	Total From RSC Tab
~~265~~ 435	**Total RSC**

Kodiak Airport RSA Extension
Rigid Steel Conduit and Conductor Quantity Table

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

FROM	TO	CONDUIT LENGTH	GROUND WIRE LENGTH	CONDUCTOR LENGTH	NUMBER OF CONDUCTORS	TOTAL CONDUCTOR LENGTH
T 5	T 17	95	95	95	3	285
R 1	R 2	10	10	10	1	10
R 2	R 3	10	10	10	1	10
R 3	R 4	10	10	10	1	10
R 4	R 5	110	110	110	1	110
R 5	R 6	10	10	10	1	10
R 6	R 7	10	10	10	1	10
R 7	R 8	10	10	10	1	10
R 14	R 15	10	10	10	1	10
R 15	R 16	10	10	10	1	10
R 16	R 17	10	10	10	1	10
R 17	R 18	110	110	110	1	110
R 18	R 19	10	10	10	1	10
R 19	R 20	10	10	10	1	10
R 20	R 21	10	10	10	1	10
		435' 2" RSC	435' x1.04 452' #6 Bare CU			625' x1.04 650' #8, 5kV

Pay Item Number:	**L-110g**
Pay Item Description:	**2-inch PE Conduit**
Location:	
Unit:	Linear Foot
Quantity:	2,250
Note:	

Computed:	Date: 3/26/14
Checked: CS	Date: 3/26/14

Kodiak Airport RSA Extension
HDPE Conduit Quantity Summary

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

2236	Total From HDPE Tab
2236'	**Total HDPE**

Kodiak Airport RSA Extension
HDPE Conduit and Conductor Quantity Table

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

FROM	TO	CONDUIT LENGTH	GROUND WIRE LENGTH	CONDUCTOR LENGTH	NUMBER OF CONDUCTORS	TOTAL CONDUCTOR LENGTH
E 3	R 13	193.46	193.46	193.46	1	193.46
R 13	R 12	193.46	193.46	193.46	1	193.46
R 12	T 2	92.49	92.49	92.49	1	92.49
T 2	T 1	5	5	5	2	10
T 2	T 3	27.17	27.17	27.17	3	81.51
T 3	T 4	27.18	27.18	27.18	3	81.54
T 4	T 5	27.18	27.18	27.18	3	81.54
T 5	T 6	47.57	47.57	47.57	1	47.57
T 6	T 7	47.57	47.57	47.57	1	47.57
T 7	T 8	27.18	27.18	27.18	1	27.18
T 8	T 9	27.18	27.18	27.18	1	27.18
T 9	T 10	27.18	27.18	27.18	1	27.18
T 10	T 11	51.36	56	56	1	56
T 11	T 12	51.36	56	56	1	56
T 12	T 13	51.36	51.36	51.36	1	51.36
T 13	T 14	51.36	51.36	51.36	1	51.36
T 14	T 15	51.36	51.36	51.36	1	51.36
T 15	T 16	51.34	51.34	51.34	1	51.34
T 16	E 2	10	50	50	1	50
E 1	T 22	10	40.65	40.65	1	40.65
T 22	T 21	48.74	48.74	48.74	1	48.74
T 21	T 20	32.48	32.48	32.48	1	32.48
T 20	T 19	32.48	32.48	32.48	1	32.48
T 19	T 18	38.94	38.94	38.94	1	38.94
T 18	T 17	38.94	38.94	38.94	1	38.94
T 17	R 1	52.5	52.5	52.5	1	52.5
R 8	T 9	46.54	46.54	46.54	1	46.54
T 9	T 10	193.46	193.46	193.46	1	193.46
T 10	T 11	193.46	193.46	193.46	1	193.46
T 11	E 4	193.46	193.46	193.46	1	193.46
E 5	R 14	147.13	147.13	147.13	1	147.13
R 21	E 6	147.12	147.12	147.12	1	147.12

Kodiak Airport RSA Extension
HDPE Conduit and Conductor Quantity Table

1. Wire lengths listed below are point to point values. Field verify actual length required. See pay item desriptions for basis of payment.
2. Quantities listed below are associated with Linear Foot Pay Items L-108a, L-108c, L-110a, and L-110g. Lump Sum Items and materials that are subsidiary to L-100n (Signs), L-107a (Wind Cone), and L-135k (FAA Foundations and Utilities) are not included.

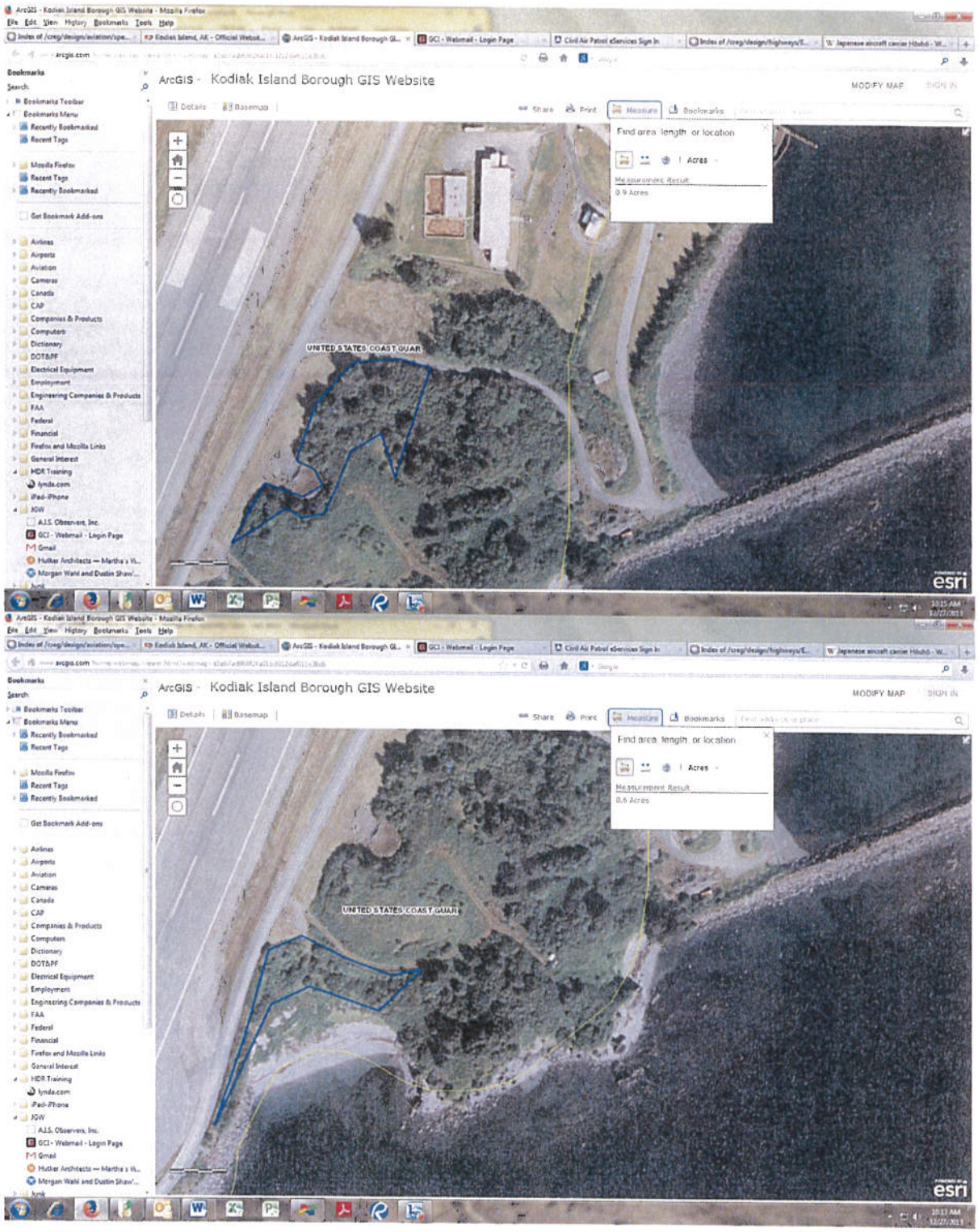
FROM	TO	CONDUIT LENGTH	GROUND WIRE LENGTH	CONDUCTOR LENGTH	NUMBER OF CONDUCTORS	TOTAL CONDUCTOR LENGTH
E 3	R 13	193.46	193.46	193.46	1	193.46
R 13	R 12	193.46	193.46	193.46	1	193.46
R 12	T 2	92.49	92.49	92.49	1	92.49
T 2	T 1	5	5	5	2	10
T 2	T 3	27.17	27.17	27.17	3	81.51
		2236' 2" HDPE	2316'			2484'
			x1.04			x1.04
			2409' #6 Bare CU			2583' #8, 5kV

Pay Item Number:	**L-135k**
Pay Item Description:	**Foundations and Utilities for FAA Equipment**
Location:	Temporary relocation of Runway 25 REIL Permanent relocation of Runway 36 REIL
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: DH	Date: 3/18/14
Checked: JOM	Date: 3/24/14

Pay Item Number:	**P-151b**
Pay Item Description:	**Clearing**
Location:	Clearing for safety area widening for at the south end of Runway 18-36 and on the east side of the runway to Sta. 23+00. Area difficult to quantify. Approximately 2 acres from aerial photos.
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed:	Date: 3/26/14
Checked: CS	Date: 3/26/14


ArcGIS - Kodiak Island Borough GIS Website
MODIFY MAP
SIGN IN
Details
Basemap
Share
Print
Measure
Bookmarks
Find area, length, or location
Acres
Measurement Result
0.9 Acres
UNITED STATES COAST GUAR
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Basemap
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Measure
Bookmarks
Find area, length, or location
Acres
Measurement Result
0.6 Acres
UNITED STATES COAST GUAR
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Pay Item Number:	**P-152ak**
Pay Item Description:	**Slope Lining**
Location:	Side slope stabilization of safety area extensions and widening on land side for Runways 7-25 and 18-36
Unit:	Ton
Quantity:	500
Note:	Slope lining will be used as a non-erodible cover for side slopes of safety area widening in areas not covered by shore protection The side slopes of the safety areas will be used for waste disposal for unusable material such as organics, silt. The normal slope is 2:1. After disposal, the surface will be graded and covered with 2" of slope lining material to stabilize the slope. The quantity cannot be determined with any accuracy. 500 tons will be used to provide Construction a pay item for this material.

Computed: KAW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-152i(1)** **P-152i(2)**
Pay Item Description:	**Borrow (<6% No. 200)** **Borrow (<10% No. 200)**
Location:	Safety area extensions for Runways 7-25 and 18-36
Unit:	Ton
Quantity:	507,500 (<6% No. 200) 697,000 (<10% No. 200)
Note:	Fill material to be placed below mean high water (MHW) (elevation 9') must have less than 6% passing the No. 200 screen. Material placed above MHW must have less than 10% passing the No. 200 screen. Volume quantities obtained from cross sections

<6% No. 200

R/W 25 – 119,185 c.y.
R/W 36 – 124,898 c.y.
(244,083 c.y. x 27 c.f./c.y. x140 lb./c.f.) x (1 ton/2,000 lb.) = 461,308 tons
Add 10% - 46,131 = 507,439
Use – 507,500 tons

<10% No. 200

R/W 25 – 126,890 c.y.
R/W 36 – 208,014 c.y.
(334,904 c.y. x 27 c.f./c.y. x140 lb./c.f.) x (1 ton/2,000 lb.) = 632,969 tons
Add 10% - 63,297 = 696,266
Use – 697,000 Tons

Computed: JGW
Checked: CS 4/16/14

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 36
4/14/2014

Asphalt =	1,303	cy
RAP =	2,242	cy
Subbase =	18,153	cy
Embankment <10% =	208,014	cy
Embankment <6% =	124,898	cy

RSA			
Embankment =	316,750.24	cy	total volume from Autocad section volume
End of RSA =	15,512.09	cy	total volume from Autocad section volume
Embankment <10% =	203,056.78	cy	is above the 9' elevation line
embankment <6% =	113,693.46	cy	total volume from Autocad section volume
	0.3138		amount of End RSA that is <10% based average section areas
	0.6862		amount of End RSA that is <6%
End RSA <10% =	4,868.20	cy	
End RSA <6% =	10,643.89	cy	

the one corner is based on the volume of one quarter of a cone			
total height of cone =	31	ft	RSA elev = 25.0'; seabed elev = -6'
base radius =	46.5	ft	
height of cone =	16	ft	Embankment <10%
base radius =	24	ft	calculated as a cone
volume =	9,651.00	cf	
	357.44	cy	
quarter of cone =	89.36	cy	
height of cone =	15	ft	Embankment <6%
upper radius =	24	ft	calculated as a frustum of a cone
lower radius =	46.5	ft	
volume =	60,542.56	cf	
	2,242.32	cy	
quarter of cone =	560.58	cy	
Total volume =	70,193.55	cf	
	2,599.76	cy	
quarter cone =	649.94	cy	

Asphalt for blast pad		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

Asphalt for runway extension		
Width =	200	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	240	ft
	16,000.00	cf
Volume =	592.59	cy

Asphalt for Taxiway		
Width =	115	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	221	ft
	8,471.67	cf
Volume =	313.77	cy

Asphalt for inner corner of Taxiway		
Area =	12161.2619	sf
Depth =	4	in
Depth =	0.333333333	ft
	4,053.75	cf
Volume =	150.14	cy

RAP for blast pad		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

RAP for runway extension		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	240	ft
	8,000.00	cf
Volume =	296.30	cy

RAP for Taxiway		
Width =	115	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	221	ft
	4,235.83	cf
Volume =	156.88	cy

RAP for inner corner of taxiway		
Area =	11206.4747	sf
Depth =	2	in
Depth =	0.166666667	ft
	1,867.75	cf
Volume =	69.18	cy

RAP for unpaved section of RSA		
total area =	238566.8178	sf
Depth =	2	in
Depth =	0.166666667	ft
	39,761.14	cf
Volume =	1,472.63	cy

Subbase for blast pad		
Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	200	ft
	40,000.00	cf
Volume =	1,481.48	cy

Subbase for runway extension		
Width =	200	ft
Depth =	30	in
Depth =	2.5	ft
Length =	240	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for Taxiway		
Width =	115	ft
Depth =	30	in
Depth =	2.5	ft
Length =	221	ft
	63,537.50	cf
Volume =	2,353.24	cy

Subbase for inner corner of Taxiway		
Area =	11206.4747	sf
Depth =	30	in
Depth =	2.5	ft
	28,016.19	cf
Volume =	1,037.64	cy

Subbase for unpaved section of RSA		
total area =	238566.8178	sf
Depth =	12	in
Depth =	1	ft
	238,566.82	cf
Volume =	8,835.81	cy

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 25
4/14/2014

Asphalt =	741	cy
Total RAP =	2,021	cy
Subbase =	12,127	cy
Embankment <10% =	126,890	cy
Embankment <6% =	119,185	cy

RSA			
Embankment =	236,114.14	cy	total volume from Autocad section volume
End of RSA =	9,206.79	cy	total volume from Autocad section volume
Embankment <10% =	123,706.40	cy	is above the 9' elevation line
embankment <6% =	112,407.74	cy	total volume from Autocad section volume
	0.3303	amount of End RSA that is <10%	based average section areas
	0.6697	amount of End RSA that is <6%	
End RSA <10% =	3,041.02	cy	
End RSA <6% =	6,165.77	cy	

Asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP under asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

Subbase under asphalt		
Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	600	ft
	120,000.00	cf
Volume =	4,444.44	cy

RAP for unpaved section of RSA		
Area =	207434.8063	sf
Depth =	2	in
Depth =	0.166666667	ft
	34,572.47	cf
Volume =	1,280.46	cy

Subbase for unpaved section of RSA		
Area =	207434.806	sf
Depth =	12	in
Depth =	1	ft
	207,434.81	cf
Volume =	7,682.77	cy

Pay Item Number:	**P-152r**
Pay Item Description:	**Subgrade Preparation**
Location:	Preparing the safety area extensions and widening on land side for Runways 7-25 and 18-36
Unit:	S.Y.
Quantity:	9,600
Note:	Subgrade preparation shall consist of preparing an existing surface for the placement of subbase, RAP, crushed aggregate surface course and pavement. This item will not include preparation of a newly constructed embankment area. Work will include: • Removal of organic material • Regrading and recompacting of the subgrade in preparation for placement of an overlaying material • Removal and disposal of excess material. • ~~Removal of material over Devils Creek culvert in areas shown on the plans~~ ~~Respreading and compacting of material over Devils Creek culvert in unpaved areas.~~

Sta. 9+50 to Sta. 15+25
575' x 150' x 1/9 = 9600 s.y.

Computed: JCW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-154b**
Pay Item Description:	**Subbase Course**
Location:	Subbase for newly constructed areas: • Blast pad and EMAS pad at east end of Runway 7-25. • Runway 7 extension unpaved areas. • Southern extension of Runway 36 including paved and unpaved areas. • Taxiway A from relocated threshold of Runway 36 to Taxiway A/B • Blast pad at south end of Runway 36. • Structural section for service road at east end of Runway 7 • Structural section for service road from south end of Runway 36 to the Sewage Treatment Plant
Unit:	Ton
Quantity:	73,500
Note:	

Runway 36	18,153 c.y.
Runway 25	12,127 c.y.
Runway 36 Service Road	3,163 c.y.
Runway 25 Service Road	692 c.y.
Total	34,135 c.y.

(34,135 c.y. x 27 c.f./c.y. x 145 lb./c.f.)/1 ton/2,000 lb. per ton = 66,819 tons

Add 10% - 73,500

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/28/14

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 25
3/6/2014

Asphalt =	741	cy
Total RAP =	2,021	cy
Subbase =	12,127	cy
Embankment <10% =	126,747	cy
Embankment <6% =	118,574	cy

RSA

Embankment =	236,114.14	cy	total volume from Autocad section volume
End of RSA =	9,206.79	cy	total volume from Autocad section volume
Embankment <10% =	123,706.40	cy	is above the 9' elevation line
embankment <6% =	112,407.74	cy	total volume from Autocad section volume
	0.6697		amount of End RSA that is <6% based average section areas
	0.3303		amount of End RSA that is <10%
End RSA <10% =	3,041.02	cy	
End RSA <6% =	6,165.77	cy	

the two corners are based on the volume of one quarter of a cone
Embankment

NORTH SIDE

height of cone =	27.64	ft
base radius =	41.62	ft
volume =	50,138.56	cf
	1,856.98	cy
quarter cone =	464.25	cy

SOUTH SIDE

height of cone =	23.75	ft
base radius =	35.63	ft
volume =	31,573.66	cf
	1,169.39	cy
quarter cone =	292.35	cy

Asphalt

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP under asphalt

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

Subbase under asphalt

Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	600	ft
	120,000.00	cf
Volume =	4,444.44	cy

RAP for unpaved section of RSA

Area =	207434.8063	sf
Depth =	2	in
Depth =	0.166666667	ft
	34,572.47	cf
Volume =	1,280.46	cy

Subbase for unpaved section of RSA

Area =	207434.806	sf
Depth =	12	in
Depth =	1	ft
	207,434.81	cf
Volume =	7,682.77	cy

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 36
3/6/2014

Asphalt =	1,303	cy
RAP =	2,242	cy
Subbase =	18,153	cy
Embankment <10% =	207,925	cy
Embankment <6% =	124,337	cy

RSA			
Embankment =	316,750.24	cy	total volume from Autocad section volume
End of RSA =	15,512.09	cy	total volume from Autocad section volume
Embankment <10% =	203,056.78	cy	is above the 9' elevation line
embankment <6% =	113,693.46	cy	total volume from Autocad section volume
	0.6862		amount of End RSA that is <6% based average section areas
	0.3138		amount of End RSA that is <10%
End RSA <10% =	4,868.20	cy	
End RSA <6% =	10,643.89	cy	

the one corner is based on the volume of one quarter of a cone

EAST SIDE		
height of cone =	30.95	ft
base radius =	86	ft
volume =	239,710.57	cf
	8,878.17	cy
quarter cone =	2,219.54	cy

Asphalt for blast pad		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

Asphalt for runway extension		
Width =	200	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	240	ft
	16,000.00	cf
Volume =	592.59	cy

Asphalt for Taxiway		
Width =	115	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	221	ft
	8,471.67	cf
Volume =	313.77	cy

Asphalt for inner corner of Taxiway		
Area =	12161.2619	sf
Depth =	4	in
Depth =	0.333333333	ft
	4,053.75	cf
Volume =	150.14	cy

RAP for blast pad		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

RAP for runway extension		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	240	ft
	8,000.00	cf
Volume =	296.30	cy

RAP for Taxiway		
Width =	115	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	221	ft
	4,235.83	cf
Volume =	156.88	cy

RAP for inner corner of taxiway		
Area =	11206.4747	sf
Depth =	2	in
Depth =	0.166666667	ft
	1,867.75	cf
Volume =	69.18	cy

RAP for unpaved section of RSA		
total area =	238566.8178	sf
Depth =	2	in
Depth =	0.166666667	ft
	39,761.14	cf
Volume =	1,472.63	cy

Subbase for blast pad		
Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	200	ft
	40,000.00	cf
Volume =	1,481.48	cy

Subbase for runway extension		
Width =	200	ft
Depth =	30	in
Depth =	2.5	ft
Length =	240	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for Taxiway		
Width =	115	ft
Depth =	30	in
Depth =	2.5	ft
Length =	221	ft
	63,537.50	cf
Volume =	2,353.24	cy

Subbase for inner corner of Taxiway		
Area =	11206.4747	sf
Depth =	30	in
Depth =	2.5	ft
	28,016.19	cf
Volume =	1,037.64	cy

Subbase for unpaved section of RSA		
total area =	238566.8178	sf
Depth =	12	in
Depth =	1	ft
	238,566.82	cf
Volume =	8,835.81	cy

Kodiak Airport RSA Extension Earthwork
Access Road
For Final PS&E
3/6/2014

Runway 25 Access Road

Length =	644	ft
Width =	16	ft
Length of full section =	524	ft
length of tapering section =	120	ft
Asphalt depth =	2.0	in
Area asphalt section =	2.7	sf
RAP depth =	2.0	in
Area RAP section =	2.7	sf
Subbase depth =	24.0	in
Area subbase section =	32.0	sf

Volume full section

Asphalt =	1,397.3	cf
RAP =	1,397.3	cf
Subbase =	16,768.0	cf

Volume tapering section

Asphalt =	320.0	cf
RAP =	320.0	cf
Subbase =	1,920.0	cf

=one half of full section due to vertical taper down to existing road

Total Volume

Asphalt =	63.6	cy
RAP =	63.6	cy
Subbase =	692.1	cy

Runway 36 Access Road

Begin road sta =	0	
End road sta =	18+37.0	
Length =	1,837.0	ft
Width =	24	ft
Length of full section =	1,721.0	ft
length of tapering section =	116	ft
Asphalt depth =	2.0	in
Area asphalt section =	4.0	sf
RAP depth =	2.0	in
Area RAP section =	4.0	sf
Subbase depth =	24.0	in
Area subbase section =	48.0	sf

Volume full section

Asphalt =	6,884.0	cf
RAP =	6,884.0	cf
Subbase =	82,608.0	cf

Volume tapering section

Asphalt =	464.0	cf
RAP =	464.0	cf
Subbase =	2,784.0	cf

=one half of full section due to taper

Total Volume

Asphalt =	272.1	cy
RAP =	272.1	cy
Subbase =	3,162.7	cy

Access road for RW-36 only exten
runway station 15+25 = access ro

Pay Item Number:	**P-157a**
Pay Item Description:	**ESCP Administration**
Location:	Project wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 1/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-157b**
Pay Item Description:	**Temporary Erosion, Sediment, and Pollution Control**
Location:	Project wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	

Computed: JAW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-157f**
Pay Item Description:	**Withholding**
Location:	Project Wide
Unit:	Contingent Sum
Quantity:	All Required
Note:	Generally set at $0.

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-157g**
Pay Item Description:	**SWPPP Manager**
Location:	Project Wide
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: [illegible]	Date: 3/26/18
Checked: CS	Date: 3/26/18

Pay Item Number:	**P-160a**
Pay Item Description:	**Excavation of Pavement**
Location:	T/W C between Taxiway B and Runway 18-36
Unit:	Square Yards
Quantity:	3,580
Note:	Haul of embankment and shore protection material will likely damage the existing HMA pavement. Pavement will be replaced after haul is complete.

Computed:	JGW
Checked:	CS 4/16/19

HDR | ONE COMPANY *Many Solutions*

Project: Kodiak RSA		Computed:	Date:
Subject: Taxiway C Intersection		Checked:	Date:
Task:		Page:	of:
Job #:		No:	

T/W C Reparing

Excavation of Pavement (AC)

Area - 32,215 s.f. = 3,580 s.y.

Pay Item Number:	**P-161b**
Pay Item Description:	**Recycled Asphalt Pavement**
Location:	Used as base course in paved areas.
Unit:	Cubic Yard
Quantity:	~~2,600~~ 4600
Note:	

Runway 25	2,021 c.y.
Runway 36	2,242 c.y.
Runway 25 Access Road	64 c.y.
Runway 36 Access Road	272 c.y.
	4,599 c.y. – Use 4,600 c.y.

Computed: JGW
Checked: CS 4/16/14

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 25
3/6/2014

Asphalt =	741	cy
Total RAP =	2,021	cy
Subbase =	12,127	cy
Embankment <10% =	126,747	cy
Embankment <6% =	118,574	cy

RSA			
Embankment =	236,114.14	cy	total volume from Autocad section volume
End of RSA =	9,206.79	cy	total volume from Autocad section volume
Embankment <10% =	123,706.40	cy	is above the 9' elevation line
embankment <6% =	112,407.74	cy	total volume from Autocad section volume
	0.6697		amount of End RSA that is <6% based average section areas
	0.3303		amount of End RSA that is <10%
End RSA <10% =	3,041.02	cy	
End RSA <6% =	6,165.77	cy	

the two corners are based on the volume of one quarter of a cone
Embankment

NORTH SIDE		
height of cone =	27.64	ft
base radius =	41.62	ft
volume =	50,138.56	cf
	1,856.98	cy
quarter cone =	464.25	cy

SOUTH SIDE		
height of cone =	23.75	ft
base radius =	35.63	ft
volume =	31,573.66	cf
	1,169.39	cy
quarter cone =	292.35	cy

Asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP under asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP for unpaved section of RSA		
Area =	207434.8063	sf
Depth =	2	in
Depth =	0.166666667	ft
	34,572.47	cf
Volume =	1,280.46	cy

Subbase under asphalt		
Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	600	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for unpaved section of RSA		
Area =	207434.806	sf
Depth =	12	in
Depth =	1	ft
	207,434.81	cf
Volume =	7,682.77	cy

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 36
3/6/2014

Asphalt =	1,303	cy
RAP =	2,242	cy
Subbase =	18,153	cy
Embankment <10% =	207,925	cy
Embankment <6% =	124,337	cy

RSA

Embankment =	316,750.24	cy	total volume from Autocad section volume
End of RSA =	15,512.09	cy	total volume from Autocad section volume
Embankment <10% =	203,056.78	cy	is above the 9' elevation line
embankment <6% =	113,693.46	cy	total volume from Autocad section volume
	0.6862		amount of End RSA that is <6% based average section areas
	0.3138		amount of End RSA that is <10%
End RSA <10% =	4,868.20	cy	
End RSA <6% =	10,643.89	cy	

the one corner is based on the volume of one quarter of a cone

EAST SIDE

height of cone =	30.95	ft
base radius =	86	ft
volume =	239,710.57	cf
	8,878.17	cy
quarter cone =	2,219.54	cy

Asphalt for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

Asphalt for runway extension

Width =	200	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	240	ft
	16,000.00	cf
Volume =	592.59	cy

Asphalt for Taxiway

Width =	115	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	221	ft
	8,471.67	cf
Volume =	313.77	cy

Asphalt for inner corner of Taxiway

Area =	12161.2619	sf
Depth =	4	in
Depth =	0.333333333	ft
	4,053.75	cf
Volume =	150.14	cy

RAP for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

RAP for runway extension

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	240	ft
	8,000.00	cf
Volume =	296.30	cy

RAP for Taxiway

Width =	115	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	221	ft
	4,235.83	cf
Volume =	156.88	cy

RAP for inner corner of taxiway

Area =	11206.4747	sf
Depth =	2	in
Depth =	0.166666667	ft
	1,867.75	cf
Volume =	69.18	cy

RAP for unpaved section of RSA

total area =	238566.8178	sf
Depth =	2	in
Depth =	0.166666667	ft
	39,761.14	cf
Volume =	1,472.63	cy

Subbase for blast pad

Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	200	ft
	40,000.00	cf
Volume =	1,481.48	cy

Subbase for runway extension

Width =	200	ft
Depth =	30	in
Depth =	2.5	ft
Length =	240	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for Taxiway

Width =	115	ft
Depth =	30	in
Depth =	2.5	ft
Length =	221	ft
	63,537.50	cf
Volume =	2,353.24	cy

Subbase for inner corner of Taxiway

Area =	11206.4747	sf
Depth =	30	in
Depth =	2.5	ft
	28,016.19	cf
Volume =	1,037.64	cy

Subbase for unpaved section of RSA

total area =	238566.8178	sf
Depth =	12	in
Depth =	1	ft
	238,566.82	cf
Volume =	8,835.81	cy

Kodiak Airport RSA Extension Earthwork
Access Road
For Final PS&E
3/6/2014

Runway 25 Access Road

Length =	644	ft
Width =	16	ft
Length of full section =	524	ft
length of tapering section =	120	ft
Asphalt depth =	2.0	in
Area asphalt section =	2.7	sf
RAP depth =	2.0	in
Area RAP section =	2.7	sf
Subbase depth =	24.0	in
Area subbase section =	32.0	sf

Volume full section

Asphalt =	1,397.3	cf
RAP =	1,397.3	cf
Subbase =	16,768.0	cf

Volume tapering section

Asphalt =	320.0	cf
RAP =	320.0	cf
Subbase =	1,920.0	cf

=one half of full section due to vertical taper down to existing road

Total Volume

Asphalt =	63.6	cy
RAP =	63.6	cy
Subbase =	692.1	cy

Runway 36 Access Road

Begin road sta =	0	
End road sta =	18+37.0	
Length =	1,837.0	ft
Width =	24	ft
Length of full section =	1,721.0	ft
length of tapering section =	116	ft
Asphalt depth =	2.0	in
Area asphalt section =	4.0	sf
RAP depth =	2.0	in
Area RAP section =	4.0	sf
Subbase depth =	24.0	in
Area subbase section =	48.0	sf

Access road for RW-36 only exten
runway station 15+25 = access ro

Volume full section

Asphalt =	6,884.0	cf
RAP =	6,884.0	cf
Subbase =	82,608.0	cf

Volume tapering section

Asphalt =	464.0	cf
RAP =	464.0	cf
Subbase =	2,784.0	cf

=one half of full section due to taper

Total Volume

Asphalt =	272.1	cy
RAP =	272.1	cy
Subbase =	3,162.7	cy

Pay Item Number:	**P-162a**
Pay Item Description:	**Pavement Cold Planing**
Location:	Taxiway A/B match
Unit:	Square Yard
Quantity:	3,200
Note:	Used to create a notch to taper into existing pavement for realigned Taxiway A.

Computed: JSW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Kodiak Airport RSA Extension Earthwork
Cold Planing
For Final PS&E
3/7/2014

Only location for cold planing is connecting the new taxiway to existing taxiway A and B

Area =	28,096.25	sf	from measure off autocad
Area =	**3,121.81**	**sy**	

use 3,200 s.y.

Pay Item Number:	**P-165a(1)**
Pay Item Description:	**Removal of Structures (RSA Extension)**
Location:	**Project wide**
Unit:	**Lump Sum**
Quantity:	**All Required**
Note:	Structures to be removed include: a. Remove catch basin and outfall line at approximately Sta. 13+00 to the right of the Runway 18-36 centerline. b. Remove concrete base of existing wind cone at approximately Sta. 173+25, 270' left of Runway 7-25 centerline. c. Remove two bases of existing Runway 36 REIL system. d. Remove concrete bases for Airport Signs that have been relocated. Removed Structures Designated for Salvage. a. Lighted wind cone at approximately Sta. 173+25, 270' left of Runway 7-25 centerline. b. Segmented circle at approximately Sta. 173+25, 270' left of Runway 7-25 centerline.

Computed: JGW
Checked: CS 4/16/19

Pay Item Number:	**P-181a**
Pay Item Description:	**Concrete Armor Units (2.65 ton)**
Location:	East end of the Runway 7-25 safety area extension. Protects the embankment end and 150' on the north and south side.
Unit:	Each
Quantity:	2,400
Note:	

Core-Lock Quantity – 2,154
Add 10% - 215
Total – 2,369
Use – 2,400

Computed: JGW
Checked: CS 4/14/14

Kodiak Airport RSA Extension Earthwork
Core Loc Volume calculation
Core-Loc only used on the outer half of the Runway 25 RSA embankment
For Final PS&E
4/16/2014

Concrete	150	lb/ft^3
Concrete	150	$lb/0.028317m^3$
Concrete	5,297	lb/m^3
Concrete	4,050	lb/yd^3

1 cubic foot =	0.028317	m^3
1 cubic meter =	35.314667	ft^3
1 cubic meter =	1.307951	yd^3
1 meter =	3.28084	ft
$1 m^2$ =	10.76391	ft^2
core loc factor =	0.2211	from the core-loc volume & height formula found at Row 1 & 2 in the second column in the Core-Loc Design Guide Table

2.65	ton	
5,297	lbs	
1.00000164	m^3	volume of concrete
1.65375304	m	length of dimension C
5.42569914	ft	length of dimension C

	A	B	C	D	E	F	G	J
2.65 Ton	0.971	1.953	5.426	3.472	1.346	0.949	2.713	1.736

0.64 core loc unit density per m^2 from the Core-Loc Design Guide Table

Runway 25

34,460.20 ft^2 1.5:1 RSA slope area

NORTH EAST CORNER				SOUTH EAST CORNER			
total height of cone =	27.6	ft		total height of cone =	23.75	ft	
base radius =	41.5	ft		base radius =	35.625	ft	
	5.0	ft	add 5' for underlayer stone		5.0	ft	add 5' for underlayer stone
new base radius =	46.5	ft		new base radius =	40.6	ft	
	23.2	ft	average radius		20.3	ft	average radius
	146	ft	average circumference		128	ft	average circumference
	36.5	ft	1/4 circumference		31.9	ft	1/4 circumference
	1,008.6	ft^2	height x circumference		757.8	ft^2	height x circumference

Total area =	36,226.6	ft^2	1.5:1 RSA slope area
	3,365.6	m^2	1.5:1 RSA slope area

2,154 **number of core locs needed**

2,817.28 yd^3 =total amount of concrete for all the core locs

concrete 150lbs per ft³

CORE-LOC™ Design Guide Table

Unit Volume (m³)	$V = 0.2211H^3$		1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	11.0
Unit Height (m)	$H = (V/0.2211)^{(1/3)}$		1.65	2.08	2.39	2.63	2.83	3.01	3.31	3.56	3.68
Equivalent Cube Size (m)	$Dn = V^{1/3}$		1.00	1.26	1.44	1.59	1.71	1.82	2.00	2.15	2.22
Armour Thickness (m)	T = 1.52 Dn		1.52	1.92	2.19	2.41	2.60	2.76	3.04	3.27	3.38
Armour concrete consumption and coverage	Packing density ϕ (-)		0.640	0.633	0.629	0.626	0.624	0.622	0.619	0.617	0.616
	Consumption (m³/m²)		0.640	0.798	0.907	0.994	1.067	1.130	1.238	1.329	1.370
	Number of units (u/m²)		0.640	0.399	0.302	0.248	0.213	0.188	0.155	0.133	0.125
	Porosity (%)		57.89	58.35	58.62	58.81	58.95	59.07	59.26	59.41	59.47
Filter stone underlayer - to meet the following requirement NUL/NLL < 3.0	NLL (tons)	Standard	0.17	0.34	0.50	0.67	0.84	1.01	1.34	1.68	1.85
		Min/Max*	0.1 / 0.2	0.2 / 0.4	0.4 / 0.7	0.5 / 0.9	0.6 / 1.1	0.7 / 1.3	0.9 / 1.7	1.2 / 2.2	1.3 / 2.4
	NUL (tons)	Standard	0.34	0.67	1.01	1.34	1.68	2.02	2.69	3.36	3.70
		Min/Max*	0.2 / 0.4	0.5 / 0.9	0.7 / 1.3	0.9 / 1.7	1.2 / 2.2	1.4 / 2.6	1.9 / 3.5	2.4 / 4.4	2.6 / 4.8
	Thickness (m)	Kt=1,15	1.06	1.33	1.52	1.68	1.81	1.92	2.11	2.28	2.35
		Kt=0.9*	0.83	1.04	1.19	1.31	1.41	1.50	1.65	1.78	1.84

This table is to be used together with the note "Additional essential information regarding the tables" here appended.

: Geometrical characteristics of unit

: Recommended values for use at preliminary design stage

: (*)The information in this section is to be used with a compulsory analysis by a experienced coastal engineer even at preliminary stage - Ratio NUL/NLL should be kept between 2 and 3

This proprietary information of CLI is provided for preliminary guidance only. Hence, it is not a substitute for analysis by an experienced coastal Engineer. CLI provides assistance to the owners, developers, designers and contractors at all stages of projects. CLI reserves the right to make changes to the guidelines for improvement of its products. The validity of this document is therefore limited, but CLI will maintain accurate the version available online.

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CLI

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Pay Item Number:	**P-185a**
Pay Item Description:	**Primary Armor Stone (P-12000)**
Location:	Safety area extensions of Runways 7-25 and 18-36
Unit:	Ton
Quantity:	84,500
Note:	Includes 10% contingency. 1 c.y. = 1.6 tons

Total – 76,830 tons
Add 10% - 7,683
Total – 84,513 tons
Use 84,500 tons

Computed: JGW
Checked: CS 4/16/14

Kodiak Airport RSA Extension Earthwork
Shore Protection Underlayer and Armor Stone Calculation
For Final PS&E
4/16/2014

Runway 36 RSA 1.5:1 face area = 93,406.58 sf

Runway 36 underlayer stone			Runway 36 Armor stone		
depth of stone =	3.00	ft	area of armor stone section =	494.566	sf
face area =	93,406.58	ft	length =	1628.88	ft
volume =	280,219.7365	cf	volume =	805,588.67	cf
			volume =	29,836.62	cy
underlayer toe					
depth =	3	ft			
length along seabed =	39.13	ft			
slope	1.5	:1	*area of underlayer stone section =*	*269.5579*	*sf*
toe section area =	103.89	sf	*length =*	*1628.88*	*ft*
length =	1628.88	ft	*volume =*	*439,077.47*	*cf*
volume =	169,224.34	cf	*volume =*	*16,262.13*	*cy*
			this is a check of the other underlayer stone calculation		
total volume =	449,444.08	cf			
total volume =	**16,646.08**	**cy**			

Runway 25 underlayer stone			Runway 25 Armor stone		
	North side of RSA			North side of RSA	
area of armor stone section =	190.2184	sf	area of armor stone section =	429.6866	sf
Begin sta =	174+68.0		Begin sta =	174+68.0	
End sta =	180+22.0		End sta =	180+22.0	
Length =	554.0	ft	Length =	554.0	ft
volume =	105,380.99	cf	volume =	238,046.38	cf
volume =	**3,903.00**	**cy**	**volume =**	**8,816.53**	**cy**
	South side of RSA			South side of RSA	
area of armor stone section =	190.2184	sf	area of armor stone section =	429.6866	sf
Begin sta =	175+33.5		Begin sta =	174+33.5	
End sta =	180+22.0		End sta =	180+22.0	
Length =	488.5	ft	Length =	588.5	ft
volume =	92,925.49	cf	volume =	252,879.16	cf
volume =	**3,441.68**	**cy**	**volume =**	**9,365.89**	**cy**
Runway 25 underlayer stone			Runway 25 Armor stone		
Total Volume =	**7,344.68**	**cy**	**Total Volume =**	**18,182.43**	**cy**

UNDERLAYER STONES			
armor stone unit weight =	700.00	lbs	
Stone specific gravity =	2.644		
water density =	62.40	lb/cf	
stone density =	164.99	lb/cf	
volume of stone =	4.24	cf	
diameter of stone =	2.01	ft	
From HDR Coastal group, use =	1.6	Ton/cy	density for inplace armor stone
estimated weight of bedding stone =	**38,385.22**	**tons**	

ARMOR STONES			
armor stone unit weight =	12,000.00	lbs	
Stone specific gravity =	2.644		
water density =	62.40	lb/cf	
stone density =	164.99	lb/cf	
volume of stone =	72.73	cf	
diameter of stone =	5.18	ft	
From HDR Coastal group, use =	1.6	Ton/cy	density for inplace armor stone
estimated weight of bedding stone =	**76,830.47**	**tons**	

average depth for RW 36 Armor section
27.4477
31
31
30
30.03
30.946
30.81
30.9998
31.0497
31.1334
30.982
28.531
20.865
13.9778
14.48
13.0598
10.864
25.71625 =average

average depth for RW 36 underlayer section
27.447
32.54
34.082
32.1596
31.0525
30.94663
32.91325
34.9305
36.8918
38.9459
38.79436
36.3435
28.739
22.176
22.92
21.718
19.612
30.71836 =average

0.655948	0.344052		1
0.647059	0.352941		
11	6	17	

average depth for RW 25 Armor section
14.456
19.97
23.148
24.733
25.979
22.199
22.1055
20.963
18.794
21.37194 =average

Pay Item Number:	**P-185b**
Pay Item Description:	**Underlayer Stone (U-700)**
Location:	Safety Area Extensions for Runways 7-25 and 18-36
Unit:	Ton
Quantity:	52,650
Note:	Approximate number of tons per cubic yard – 1.6 tons/c.y.

Underlayer Stone under Armor Stone 38,385 tons
Underlayer Stone under Concrete Units 9,477 tons
Total – 47,862 tons
Add 10% - 4,786 tons
Total – 52,648
Use 52,650 tons

Computed: JGW
Checked: CS 4/16/14

Kodiak Airport RSA Extension Earthwork
UnderLayer Stone for Core-Loc Calculation
Core Locs only used on Runway 25
For Final PS&E
4/16/2014

Runway 25 underlayer stone for core-loc

area of underlayer stone section =	194.7112	sf	
North side begin sta =	180+22.0		
North side end sta =	181+48.5		
length =	126.48	ft	
South side begin sta =	180+22.0		
South side end sta =	181+48.5		
length =	126.48	ft	
length along RSA end =	500	ft	
	36.49	ft	average circumference for NE corner cone
	31.91	ft	average circumference for SE corner cone
			see Coreloc tab
Total Length =	821.36	ft	
volume =	159,927.32	cf	
volume =	**5,923.23**	**cy**	

Transition Area, from armor stone to core-loc

Begin sta =	179+72.0		
End sta =	180+22.0		
length =	50.00	ft	
number of transition areas =	2.00	north side and south side	
Total length of transition area =	100.00	ft	
6' thick underlayer section area =	328.16	sf	calculation in border area not used in Addendum No. 1
3' thick underlayer section area =	194.7	sf	
average area =	261.43	sf	
Volume =	26,143.00	cf	
volume =	**968.26**	**cy**	

Total Volume =	**5,923.23**	**cy**	
From HDR Coastal group, use =	1.6	Ton/cy	density for inplace armor stone
estimated weight of bedding stone =	**9,477.17**	**tons**	

average depth for RW 25 core-loc section	
25.14	
27.648	
25.5	
23.754	
22.27	
24.8624	=average

Kodiak Airport RSA Extension Earthwork
Shore Protection Underlayer and Armor Stone Calculation
For Final PS&E
4/16/2014

Runway 36 RSA 1.5:1 face area = 93,406.58 sf

Runway 36 underlayer stone			Runway 36 Armor stone		
depth of stone =	3.00	ft	area of armor stone section =	494.566	sf
face area =	93,406.58	ft	length =	1628.88	ft
volume =	280,219.7365	cf	volume =	805,588.67	cf
			volume =	**29,836.62**	**cy**
underlayer toe					
depth =	3	ft			
length along seabed =	39.13	ft			
slope	1.5	:1	*area of underlayer stone section =*	*269.5579*	*sf*
toe section area =	103.89	sf	*length =*	*1628.88*	*ft*
length =	1628.88	ft	*volume =*	*439,077.47*	*cf*
volume =	169,224.34	cf	*volume =*	*16,262.13*	*cy*
			this is a check of the other underlayer stone calculation		
total volume =	449,444.08	cf			
total volume =	**16,646.08**	**cy**			

Runway 25 underlayer stone			Runway 25 Armor stone		
	North side of RSA			North side of RSA	
area of armor stone section =	190.2184	sf	area of armor stone section =	429.6866	sf
Begin sta =	174+68.0		Begin sta =	174+68.0	
End sta =	180+22.0		End sta =	180+22.0	
Length =	554.0	ft	Length =	554.0	ft
volume =	105,380.99	cf	volume =	238,046.38	cf
volume =	**3,903.00**	**cy**	**volume =**	**8,816.53**	**cy**
	South side of RSA			South side of RSA	
area of armor stone section =	190.2184	sf	area of armor stone section =	429.6866	sf
Begin sta =	175+33.5		Begin sta =	174+33.5	
End sta =	180+22.0		End sta =	180+22.0	
Length =	488.5	ft	Length =	588.5	ft
volume =	92,925.49	cf	volume =	252,879.16	cf
volume =	**3,441.68**	**cy**	**volume =**	**9,365.89**	**cy**
Runway 25 underlayer stone			Runway 25 Armor stone		
Total Volume =	**7,344.68**	**cy**	**Total Volume =**	**18,182.43**	**cy**

UNDERLAYER STONES			
armor stone unit weight =	700.00	lbs	
Stone specific gravity =	2.644		
water density =	62.40	lb/cf	
stone density =	164.99	lb/cf	
volume of stone =	4.24	cf	
diameter of stone =	2.01	ft	
From HDR Coastal group, use =	1.6	Ton/cy	density for inplace armor stone
estimated weight of bedding stone =	**38,385.22**	**tons**	

ARMOR STONES			
armor stone unit weight =	12,000.00	lbs	
Stone specific gravity =	2.644		
water density =	62.40	lb/cf	
stone density =	164.99	lb/cf	
volume of stone =	72.73	cf	
diameter of stone =	5.18	ft	
From HDR Coastal group, use =	1.6	Ton/cy	density for inplace armor stone
estimated weight of bedding stone =	**76,830.47**	**tons**	

average depth for RW 36 Armor section
27.4477
31
31
30
30.03
30.946
30.81
30.9998
31.0497
31.1334
30.982
28.531
20.865
13.9778
14.48
13.0598
10.864
25.71625 =average

average depth for RW 36 underlayer section				
27.447				
32.54				
34.082				
32.1596				
31.0525				
30.94663	0.655948	0.344052		1
32.91325	0.647059	0.352941		
34.9305				
36.8918	11	6	17	
38.9459				
38.79436				
36.3435				
28.739				
22.176				
22.92				
21.718				
19.612				
30.71836 =average				

average depth for RW 25 Armor section
14.456
19.97
23.148
24.733
25.979
22.199
22.1055
20.963
18.794
21.37194 =average

Pay Item Number:	**P-189b**
Pay Item Description:	**Gabion (Stainless Steel)**
Location:	Runway 7-25 extension
Unit:	Cubic Yards
Quantity:	1,050
Note:	

Computed: JGW
Checked: CS 4/17/14

Kodiak Airport RSA Extension Earthwork
Gabion Baskets
Final PS&E
4/16/2014

Runway 25			
	North side length		
	start station =	174+68.0	
	end station =	180+22.0	
		554.00	LF
	South side length		
	start station =	175+33.5	
	end station =	180+22.0	
		488.52	LF
	total length =	1,042.52	
	Area =	27.00	sf
	volume	28,148.04	cf
	Volume =	1,042.52	cy

Gabion wall is 3ea 3'x3' stacked 3 high

Pay Item Number:	**P-209b**
Pay Item Description:	**Crushed Aggregate Base Course**
Location:	**Unpaved areas of safety areas**
Unit:	**Ton**
Quantity:	**5,400**
Note:	Place 2" of CABC over unpaved areas of safety area as a non-erodible surface

Square footage is the area of unpaved safety area for each RSA extension.

Runway 25	207,435 s.f.
Runway 36	238,567 s.f.
	446,002 s.f.

446,002 s.f. x (2"/12") x (145 lb/c.f. / 2,000 lb/ton) = 5,389 tons
Use: 5,400 tons

Computed: JGJ	Date: 3/26/14
Checked: CS	Date: 3/26/14

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 25
3/6/2014

Asphalt =	741	cy
Total RAP =	2,021	cy
Subbase =	12,127	cy
Embankment <10% =	126,747	cy
Embankment <6% =	118,574	cy

RSA

Embankment =	236,114.14	cy	total volume from Autocad section volume
End of RSA =	9,206.79	cy	total volume from Autocad section volume
Embankment <10% =	123,706.40	cy	is above the 9' elevation line
embankment <6% =	112,407.74	cy	total volume from Autocad section volume
	0.6697		amount of End RSA that is <6% based average section areas
	0.3303		amount of End RSA that is <10%
End RSA <10% =	3,041.02	cy	
End RSA <6% =	6,165.77	cy	

the two corners are based on the volume of one quarter of a cone
Embankment

NORTH SIDE

height of cone =	27.64	ft
base radius =	41.62	ft
volume =	50,138.56	cf
	1,856.98	cy
quarter cone =	464.25	cy

SOUTH SIDE

height of cone =	23.75	ft
base radius =	35.63	ft
volume =	31,573.66	cf
	1,169.39	cy
quarter cone =	292.35	cy

Asphalt

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP under asphalt

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

Subbase under asphalt

Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	600	ft
	120,000.00	cf
Volume =	4,444.44	cy

RAP for unpaved section of RSA

Area =	207434.8063	sf
Depth =	2	in
Depth =	0.166666667	ft
	34,572.47	cf
Volume =	1,280.46	cy

Subbase for unpaved section of RSA

Area =	207434.806	sf
Depth =	12	in
Depth =	1	ft
	207,434.81	cf
Volume =	7,682.77	cy

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 36
3/6/2014

Asphalt =	1,303	cy
RAP =	2,242	cy
Subbase =	18,153	cy
Embankment <10% =	207,925	cy
Embankment <6% =	124,337	cy

RSA

Embankment =	316,750.24	cy	total volume from Autocad section volume
End of RSA =	15,512.09	cy	total volume from Autocad section volume
Embankment <10% =	203,056.78	cy	is above the 9' elevation line
embankment <6% =	113,693.46	cy	total volume from Autocad section volume
	0.6862		amount of End RSA that is <6% based average section areas
	0.3138		amount of End RSA that is <10%
End RSA <10% =	4,868.20	cy	
End RSA <6% =	10,643.89	cy	

the one corner is based on the volume of one quarter of a cone

EAST SIDE

height of cone =	30.95	ft
base radius =	86	ft
volume =	239,710.57	cf
	8,878.17	cy
quarter cone =	2,219.54	cy

Asphalt for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

Asphalt for runway extension

Width =	200	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	240	ft
	16,000.00	cf
Volume =	592.59	cy

Asphalt for Taxiway

Width =	115	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	221	ft
	8,471.67	cf
Volume =	313.77	cy

Asphalt for inner corner of Taxiway

Area =	12161.2619	sf
Depth =	4	in
Depth =	0.333333333	ft
	4,053.75	cf
Volume =	150.14	cy

RAP for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

RAP for runway extension

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	240	ft
	8,000.00	cf
Volume =	296.30	cy

RAP for Taxiway

Width =	115	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	221	ft
	4,235.83	cf
Volume =	156.88	cy

RAP for inner corner of taxiway

Area =	11206.4747	sf
Depth =	2	in
Depth =	0.166666667	ft
	1,867.75	cf
Volume =	69.18	cy

RAP for unpaved section of RSA

total area =	238566.8178	sf
Depth =	2	in
Depth =	0.166666667	ft
	39,761.14	cf
Volume =	1,472.63	cy

Subbase for blast pad

Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	200	ft
	40,000.00	cf
Volume =	1,481.48	cy

Subbase for runway extension

Width =	200	ft
Depth =	30	in
Depth =	2.5	ft
Length =	240	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for Taxiway

Width =	115	ft
Depth =	30	in
Depth =	2.5	ft
Length =	221	ft
	63,537.50	cf
Volume =	2,353.24	cy

Subbase for inner corner of Taxiway

Area =	11206.4747	sf
Depth =	30	in
Depth =	2.5	ft
	28,016.19	cf
Volume =	1,037.64	cy

Subbase for unpaved section of RSA

total area =	238566.8178	sf
Depth =	12	in
Depth =	1	ft
	238,566.82	cf
Volume =	8,835.81	cy

Pay Item Number:	**P-401a**
Pay Item Description:	**Hot Mix Asphalt, Type II, Class A**
Location:	R/W 18-36 Extension, Taxiway A, Blast Pad, Access Road Runway 7-25 Blast pad and EMAS pad Repave Taxiway C between Runway 18-36 and Taxiway B
Unit:	Ton
Quantity:	6,200
Note:	

Runway 25	741 c.y.
Runway 36	1,303 c.y.
Access Road, Runway 25	64 c.y.
Access Road, Runway 36	272 c.y.
Subtotal	2,380 c.y.
Taxiway C	805 tons

Subtotal – 2,380 c.y. x 27 x (150 lb/c.f. / 2,000 lbs./ton) = 4,820 tons
Taxiway C – add 805 tons = 5,625 tons
Add 10% - 563 tons = 6,188 tons
Use 6,200 tons

Computed: JGW
Checked: CS 4/16/14

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 25
3/6/2014

Asphalt =	741	cy
Total RAP =	2,021	cy
Subbase =	12,127	cy
Embankment <10% =	126,747	cy
Embankment <6% =	118,574	cy

RSA			
Embankment =	236,114.14	cy	total volume from Autocad section volume
End of RSA =	9,206.79	cy	total volume from Autocad section volume
Embankment <10% =	123,706.40	cy	is above the 9' elevation line
embankment <6% =	112,407.74	cy	total volume from Autocad section volume
	0.6697	amount of End RSA that is <6%	based average section areas
	0.3303	amount of End RSA that is <10%	
End RSA <10% =	3,041.02	cy	
End RSA <6% =	6,165.77	cy	

the two corners are based on the volume of one quarter of a cone
Embankment

NORTH SIDE		
height of cone =	27.64	ft
base radius =	41.62	ft
volume =	50,138.56	cf
	1,856.98	cy
quarter cone =	464.25	cy

SOUTH SIDE		
height of cone =	23.75	ft
base radius =	35.63	ft
volume =	31,573.66	cf
	1,169.39	cy
quarter cone =	292.35	cy

Asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

RAP under asphalt		
Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	600	ft
	20,000.00	cf
Volume =	740.74	cy

Subbase under asphalt		
Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	600	ft
	120,000.00	cf
Volume =	4,444.44	cy

RAP for unpaved section of RSA		
Area =	207434.8063	sf
Depth =	2	in
Depth =	0.166666667	ft
	34,572.47	cf
Volume =	1,280.46	cy

Subbase for unpaved section of RSA		
Area =	207434.806	sf
Depth =	12	in
Depth =	1	ft
	207,434.81	cf
Volume =	7,682.77	cy

Kodiak Airport RSA Extension Earthwork
Access Road
For Final PS&E
3/6/2014

Runway 25 Access Road

Length =	644	ft
Width =	16	ft
Length of full section =	524	ft
length of tapering section =	120	ft
Asphalt depth =	2.0	in
Area asphalt section =	2.7	sf
RAP depth =	2.0	in
Area RAP section =	2.7	sf
Subbase depth =	24.0	in
Area subbase section =	32.0	sf

Volume full section

Asphalt =	1,397.3	cf
RAP =	1,397.3	cf
Subbase =	16,768.0	cf

Volume tapering section

Asphalt =	320.0	cf
RAP =	320.0	cf
Subbase =	1,920.0	cf

=one half of full section due to vertical taper down to existing road

Total Volume

Asphalt =	63.6	cy
RAP =	63.6	cy
Subbase =	692.1	cy

Runway 36 Access Road

Begin road sta =	0	
End road sta =	18+37.0	
Length =	1,837.0	ft
Width =	24	ft
Length of full section =	1,721.0	ft
length of tapering section =	116	ft
Asphalt depth =	2.0	in
Area asphalt section =	4.0	sf
RAP depth =	2.0	in
Area RAP section =	4.0	sf
Subbase depth =	24.0	in
Area subbase section =	48.0	sf

Access road for RW-36 only exten
runway station 15+25 = access ro

Volume full section

Asphalt =	6,884.0	cf
RAP =	6,884.0	cf
Subbase =	82,608.0	cf

Volume tapering section

Asphalt =	464.0	cf
RAP =	464.0	cf
Subbase =	2,784.0	cf

=one half of full section due to taper

Total Volume

Asphalt =	272.1	cy
RAP =	272.1	cy
Subbase =	3,162.7	cy

Kodiak Airport RSA Extension Earthwork
For Final PS&E
Runway 36
3/6/2014

Asphalt =	1,303	cy
RAP =	2,242	cy
Subbase =	18,153	cy
Embankment <10% =	207,925	cy
Embankment <6% =	124,337	cy

RSA

Embankment =	316,750.24	cy	total volume from Autocad section volume
End of RSA =	15,512.09	cy	total volume from Autocad section volume
Embankment <10% =	203,056.78	cy	is above the 9' elevation line
embankment <6% =	113,693.46	cy	total volume from Autocad section volume
	0.6862		amount of End RSA that is <6% based average section areas
	0.3138		amount of End RSA that is <10%
End RSA <10% =	4,868.20	cy	
End RSA <6% =	10,643.89	cy	

the one corner is based on the volume of one quarter of a cone

EAST SIDE

height of cone =	30.95	ft
base radius =	86	ft
volume =	239,710.57	cf
	8,878.17	cy
quarter cone =	2,219.54	cy

Asphalt for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

Asphalt for runway extension

Width =	200	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	240	ft
	16,000.00	cf
Volume =	592.59	cy

Asphalt for Taxiway

Width =	115	ft
Depth =	4	in
Depth =	0.333333333	ft
Length =	221	ft
	8,471.67	cf
Volume =	313.77	cy

Asphalt for inner corner of Taxiway

Area =	12161.2619	sf
Depth =	4	in
Depth =	0.333333333	ft
	4,053.75	cf
Volume =	150.14	cy

RAP for blast pad

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	200	ft
	6,666.67	cf
Volume =	246.91	cy

RAP for runway extension

Width =	200	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	240	ft
	8,000.00	cf
Volume =	296.30	cy

RAP for Taxiway

Width =	115	ft
Depth =	2	in
Depth =	0.166666667	ft
Length =	221	ft
	4,235.83	cf
Volume =	156.88	cy

RAP for inner corner of taxiway

Area =	11206.4747	sf
Depth =	2	in
Depth =	0.166666667	ft
	1,867.75	cf
Volume =	69.18	cy

RAP for unpaved section of RSA

total area =	238566.8178	sf
Depth =	2	in
Depth =	0.166666667	ft
	39,761.14	cf
Volume =	1,472.63	cy

Subbase for blast pad

Width =	200	ft
Depth =	12	in
Depth =	1	ft
Length =	200	ft
	40,000.00	cf
Volume =	1,481.48	cy

Subbase for runway extension

Width =	200	ft
Depth =	30	in
Depth =	2.5	ft
Length =	240	ft
	120,000.00	cf
Volume =	4,444.44	cy

Subbase for Taxiway

Width =	115	ft
Depth =	30	in
Depth =	2.5	ft
Length =	221	ft
	63,537.50	cf
Volume =	2,353.24	cy

Subbase for inner corner of Taxiway

Area =	11206.4747	sf
Depth =	30	in
Depth =	2.5	ft
	28,016.19	cf
Volume =	1,037.64	cy

Subbase for unpaved section of RSA

total area =	238566.8178	sf
Depth =	12	in
Depth =	1	ft
	238,566.82	cf
Volume =	8,835.81	cy

HDR | ONE COMPANY *Many Solutions*

Project: Kodiak RSA		Computed:	Date:
Subject: Taxiway C Interlink		Checked:	Date:
Task:		Page:	of:
Job #:		No:	

T/W C Repaving

P-401a $32,215 \text{ s.f} \times \frac{4''}{12''} \times \frac{150 \text{ lb}}{2000 \text{ lb/ton}}$

$= 805 \text{ tons}$

P401c $805 \text{ tons} \times 0.055 = 42.3 \text{ tons}$ use 43 tons

Pay Item Number:	**P-401b**
Pay Item Description:	**Hot Mix Asphalt Price Adjustment**
Location:	R/W 18-36 Extension, Taxiway A, Blast Pad, Access Road Runway 7-25 Blast pad and EMAS pad
Unit:	Contingent Sum
Quantity:	
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-401c**
Pay Item Description:	**Asphalt Cement, PG 52-28**
Location:	Runway 18-36 extension, blast pads and EMAS pad
Unit:	Ton
Quantity:	341
Note:	Assume asphalt content of 5.5% 6,200 tons x 5.5% = 341 tons

Computed:	JGW
Checked:	CS 4/16/14

Pay Item Number:	**P-555a(1)**
Pay Item Description:	**Install EMAS Bed, Runway 7**
Location:	East end of Runway 7-25 safety area
Unit:	Lump Sum
Quantity:	All Required
Note:	Length of EMAS is ~~222'~~. 239

Computed: JGW	Date: 3/26/19
Checked: CS	Date: 3/26/19

Pay Item Number:	**P-555a(2)**
Pay Item Description:	**Install EAMS Bed, Runway 36**
Location:	North end of Runway 18-36
Unit:	Lump Sum
Quantity:	All Required
Note:	Length of EMAS is 222'.

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-556a**
Pay Item Description:	**EMAS Snow Removal Equipment**
Location:	Kodiak
Unit:	Each
Quantity:	1
Note:	

Computed:		Date:	3/26/14
Checked:	CS	Date:	3/26/14

Pay Item Number:	**P-603a**
Pay Item Description:	**Tack Coat, STE-1**
Location:	Runway 18-36 south extension, Taxiway A Interlink
Unit:	Ton
Quantity:	5
Note:	Taxiway A/B – 300' x 90' x 1/9 = 3,000 s.y. Taxiway C – 3,580 s.y. Runway 18-36 – 240' x 150' x 1/9 = 4,000 s.y. 10,580 s.y. x 0.1 gal./s.y. x 8.3 lbs./gal x 1/2,000 = 4.4 tons Use 5 tons

Computed: JKW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-620c**
Pay Item Description:	**Runway and Taxiway Painting**
Location:	
Unit:	Lump Sum
Quantity:	All Required
Note:	Approx. Totals (sf) 40592 White 9070 Yellow 864 Red

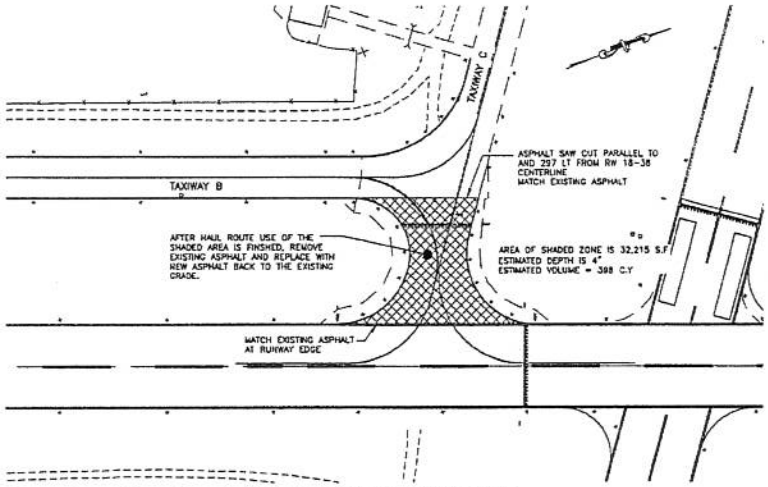
Computed: [illegible]	Date: 3/24/14
Checked: CS	Date: 4/16/14

P-620c Runway and Taxiway Painting

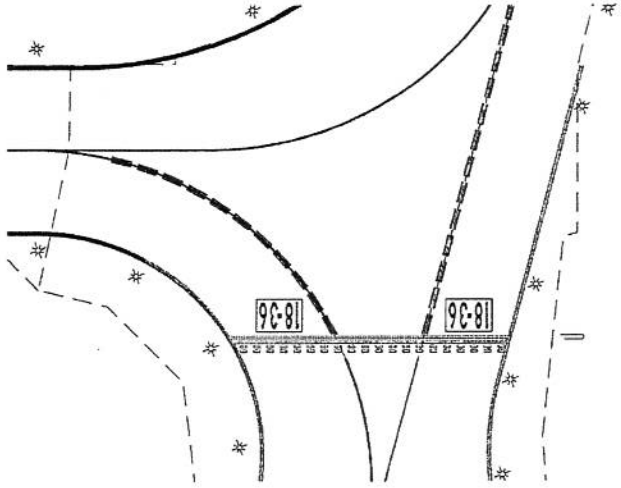
Item	Length (ft)	Width (ft)	Quantity Each	Area (sf)	Color
Runway 18					
Chevron	280	3	2	1680	Yellow
Threshold Bar	144	10	1	1440	White
Designation Marker - "1"			1	320	White
Designation Marker - "8"			1	850	White
Aiming Marker	150	30	2	9000	White
Runway 36					
Chevron	200	3	2	1200	Yellow
Threshold Bar	144	10	1	1440	White
Threshold Marker	150	5.75	12	10350	White
Runway Designation Marker - "3"				650	White
Runway Designation Marker - "6"				505	White
Touchdown Marker	75	6	6	2700	White
Aiming Point Marker	150	30	2	9000	White
Fixed Distance Marker	75	6	4	1800	White
Side Stripe	144	3	2	864	White
Runway 25					
Chevrons	200	3	3	1800	Yellow
Service Road)Centerline)	190	0.5	1	95	White
Service Road (Zipper Pattern)	190	0.5	2	190	White
Service Road Stop Line	18	2	2	72	White
Temporary Designation Markers - Two Applications)					
"2"			2	1170	
"5"			2	1500	
Taxiway A/B					
Shoulder Marking	25	3	25	1875	Yellow
Side Stripe	605	0.5	2	605	Yellow
Centerline Stripe	400	0.5	1	200	Yellow
Enhanced Centerline Stripe (75% w/brakes)	254	0.5	2	180	Yellow
Hold Line (2@6" width; 2@ 6" w/brakes)	80	0.5	2	240	Yellow
	80	0.5	2	120	Yellow
Surface painted holding position sign					
"3			2	54	White
"6"			2	62	White
Border Less Numerals					
"36"			2	204	Red

Taxiway C				
Side Stripe	500	0.5	2	500 Yellow
Centerline Stripe	340	0.5	1	170 Yellow
Enhanced Centerline Stripe (75% w/brakes)	350	0.5	2	350 Yellow
Hold Line (2@6" width; 2@ 6" w/brakes)	100	0.5	2	100 Yellow
	100	0.5	2	50 Yellow
Surface painted holding position sign				
"-"			2	8 White
"1"			2	32 White
"8"			2	54 White
"3			2	54 White
"6"			2	62 White
Border Less Numerals				
"18-36"			2	660 Red

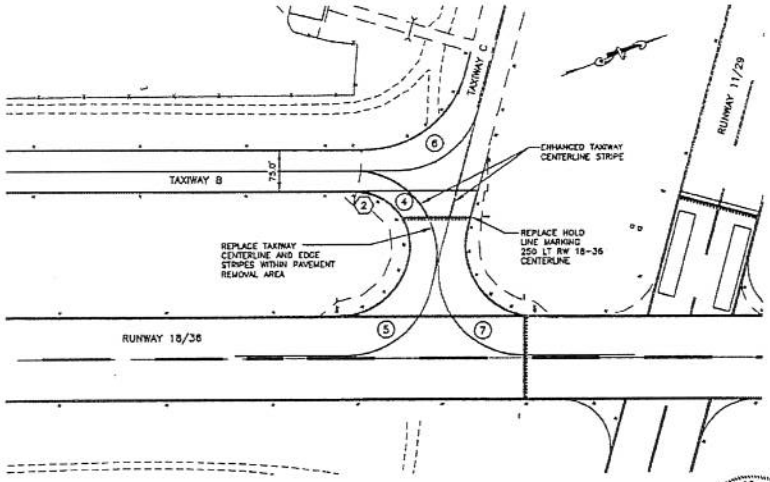
Approx. Totals
40592 White
9070 Yellow
864 Red



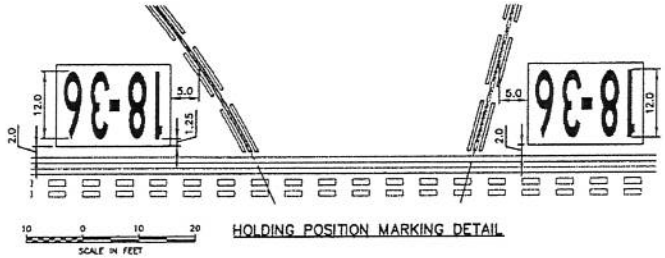
TAXIWAY C PAVEMENT REPAIR DETAIL



HOLDING POSITION DETAIL



TAXIWAY C PAVEMENT MARKING DETAIL



HOLDING POSITION MARKING DETAIL

TAXIWAY CENTERLINE STRIPE CURVE DATA								
I.D.	P.C.		P.T.		DELTA	RADIUS	TANGENT	LENGTH
	STATION	OFFSET	STATION	OFFSET				
4	36+15.75	332.25 LT	37+60.81	144.21 LT	104°41'00"	150.00	194.37	274.06
5	36+08.50	4.75 LT	37+33.61	71.99 LT	75°18'31"	150.00	115.74	197.16
6	36+15.73	332.25 LT	38+39.48	444.20 LT	75°18'54"	150.00	115.76	197.17
7	37+93.54	71.99 LT	39+18.64	4.75 LT	104°41'29"	150.00	194.4	274.08

TAXIWAY EDGE STRIPE CURVE DATA								
I.D.	P.C.		P.T.		DELTA	RADIUS	TANGENT	LENGTH
	STATION	OFFSET	STATION	OFFSET				
2	36+15.75	294.75 LT	36+64.41	282.97 LT	28°51'59"	100.43	25.85	50.6

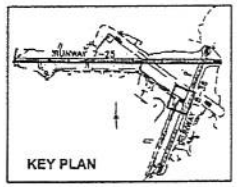
LEGEND

(2) TAXIWAY CENTERLINE STRIPE CURVE DATA I.D. NUMBER. SEE TAXIWAY CENTERLINE STRIPE CURVE DATA TABLE.

(3) TAXIWAY EDGE STRIPE CURVE DATA I.D. NUMBER. SEE TAXIWAY EDGE STRIPE CURVE DATA TABLE.

NOTE:

1. ALL STATIONS THIS SHEET ARE BASED ON RUNWAY 18-36 CENTERLINE STATIONING



PREPARED BY: HDR Alaska, Inc.

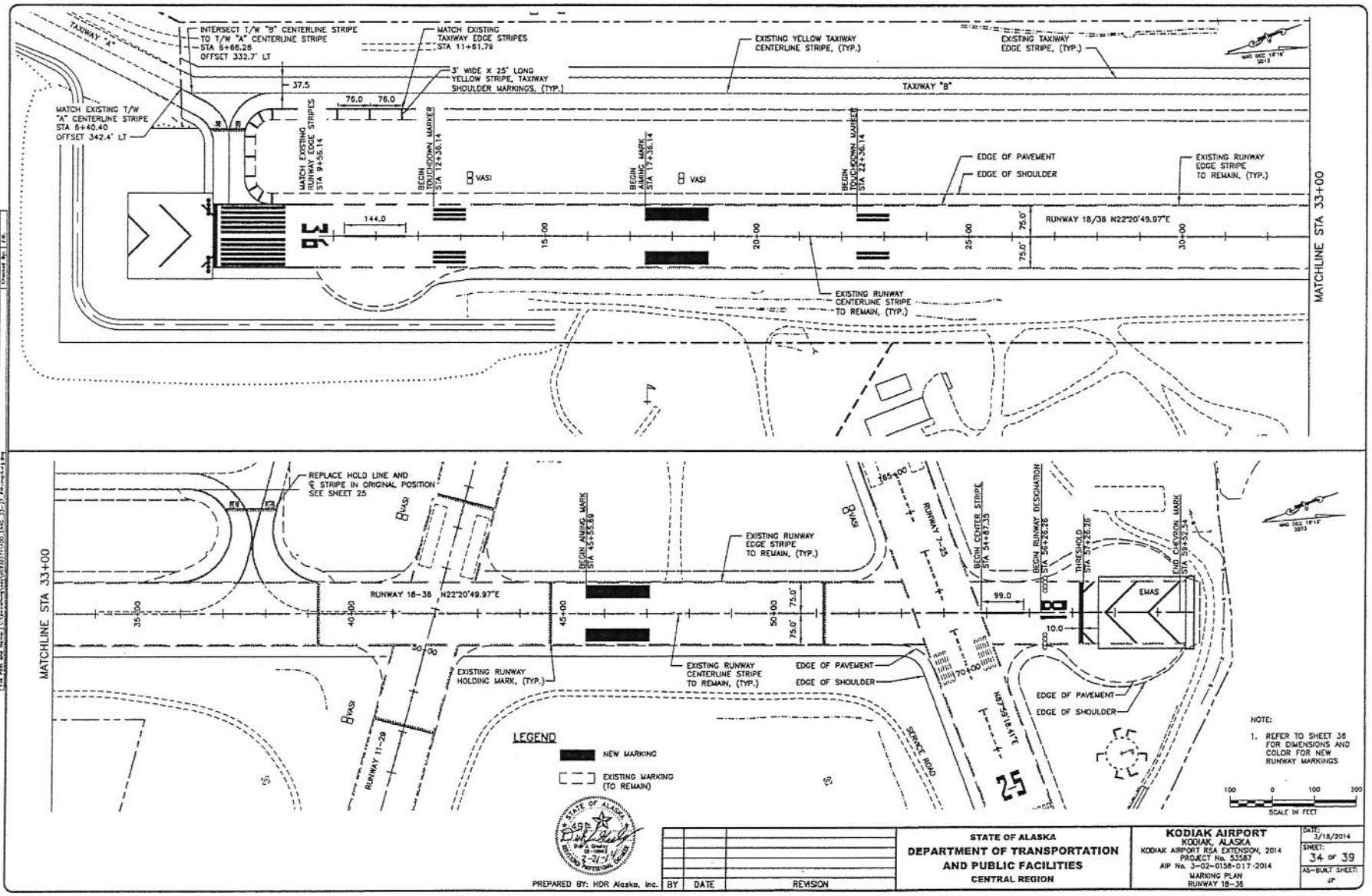
BY	DATE	REVISION

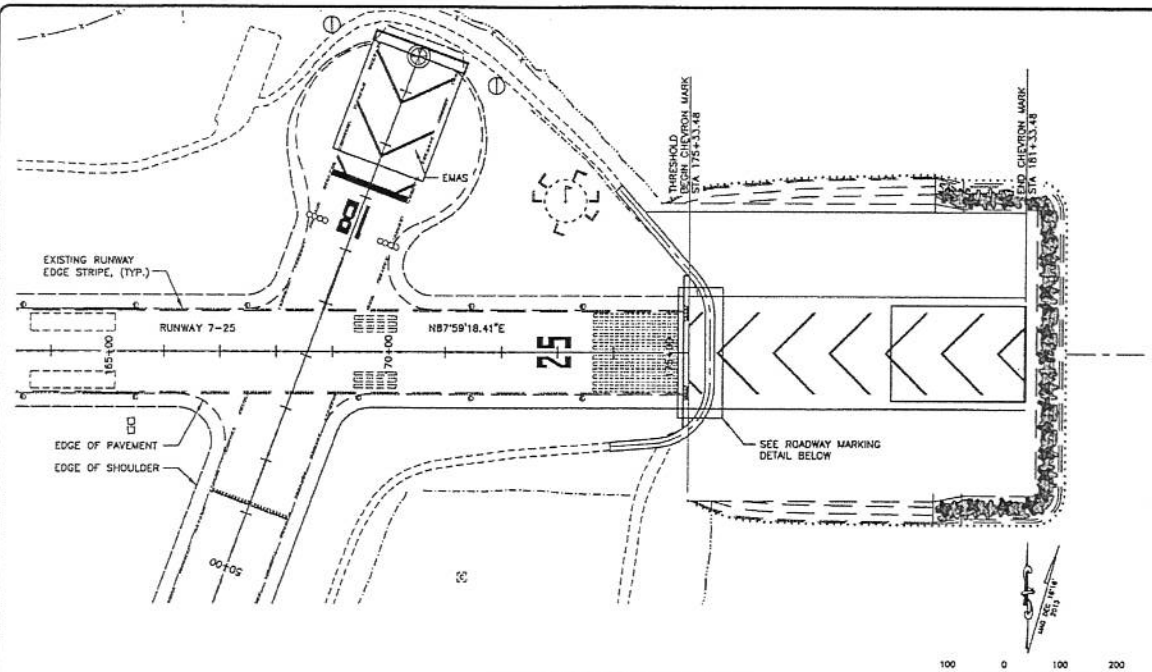
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014

TAXIWAY C PAVEMENT REPAIR

DATE: 3/18/2014
SHEET: 25 OF 39
AS-BUILT SHEET: OF


INTERSECT T/W "B" CENTERLINE STRIPE TO T/W "A" CENTERLINE STRIPE STA 6+66.26 OFFSET 332.7' LT
MATCH EXISTING TAXIWAY EDGE STRIPES STA 11+81.79
3' WIDE x 25' LONG YELLOW STRIPE, TAXIWAY SHOULDER MARKINGS, (TYP.)
EXISTING YELLOW TAXIWAY CENTERLINE STRIPE, (TYP.)
EXISTING TAXIWAY EDGE STRIPE, (TYP.)
TAXIWAY "A"
TAXIWAY "B"
MATCH EXISTING T/W "A" CENTERLINE STRIPE STA 6+40.40 OFFSET 342.4' LT
MATCH EXISTING RUNWAY EDGE STRIPES STA 9+56.14
BEGIN TOUCHDOWN MARKER STA 12+36.14
BEGIN AIMING MARK STA 17+36.14
BEGIN TOUCHDOWN MARKER STA 22+36.14
VASI
EDGE OF PAVEMENT
EDGE OF SHOULDER
EXISTING RUNWAY EDGE STRIPE TO REMAIN, (TYP.)
RUNWAY 18/36 N22°20'49.97"E
EXISTING RUNWAY CENTERLINE STRIPE TO REMAIN, (TYP.)
MATCHLINE STA 33+00
REPLACE HOLD LINE AND STRIPE IN ORIGINAL POSITION SEE SHEET 25
BEGIN AIMING MARK STA 46+55.86
EXISTING RUNWAY EDGE STRIPE TO REMAIN, (TYP.)
RUNWAY 7-25
BEGIN CENTER STRIPE STA 54+87.35
BEGIN RUNWAY DESIGNATION STA 56+26.26
THRESHOLD STA 57+26.26
END CENTERLINE MARK STA 59+52.24
EMAS
99.0
10.0
RUNWAY 18-36 N22°20'49.97"E
EXISTING RUNWAY HOLDING MARK, (TYP.)
EXISTING RUNWAY CENTERLINE STRIPE TO REMAIN, (TYP.)
EDGE OF PAVEMENT
EDGE OF SHOULDER
RUNWAY 11-29
SERVICE ROAD
N67°59'18.41"E
LEGEND
NEW MARKING
EXISTING MARKING (TO REMAIN)
NOTE:
1. REFER TO SHEET 38 FOR DIMENSIONS AND COLOR FOR NEW RUNWAY MARKINGS
SCALE IN FEET
PREPARED BY: HDR Alaska, Inc.
BY
DATE
REVISION
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION
KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014
MARKING PLAN
RUNWAY 18-35
DATE: 3/18/2014
SHEET: 34 OF 39
AS-BUILT SHEET: OF



RUNWAY END 25 MARKING PLAN

SCALE IN FEET

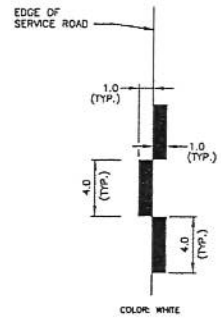
LEGEND

NEW MARKING

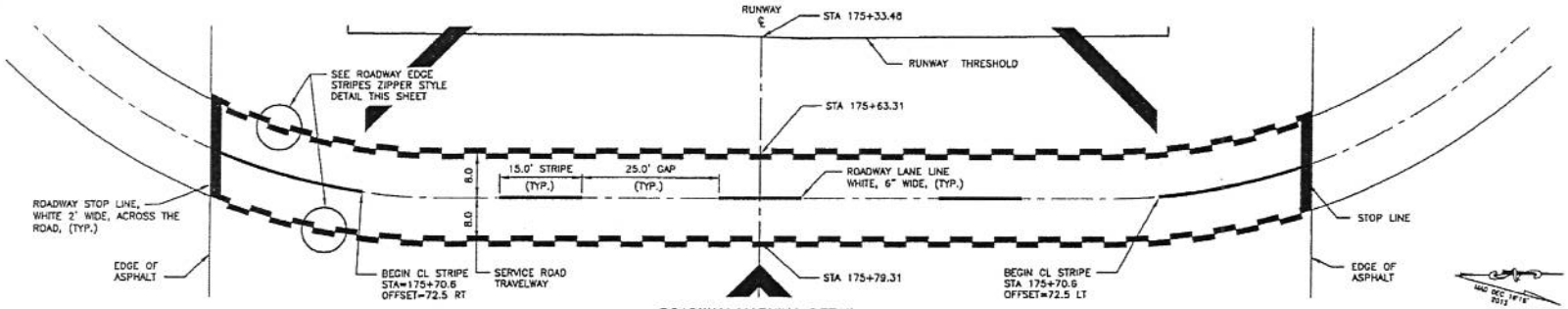
EXISTING MARKING (TO REMAIN)

NOTE:

1. REFER TO SHEET 36 FOR DIMENSIONS AND COLOR FOR NEW RUNWAY MARKINGS



ROADWAY EDGE STRIPES ZIPPER STYLE



ROADWAY MARKING DETAIL

SCALE IN FEET

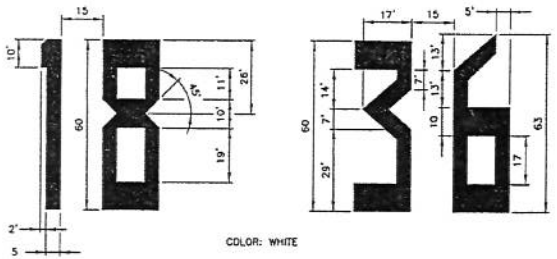
PREPARED BY: HDR Alaska, Inc.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014
MARKING PLAN
RUNWAY END 25

DATE: 3/18/2014
SHEET: 35 OF 39
AS-BUILT SHEET: OF

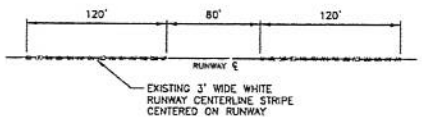


COLOR: WHITE

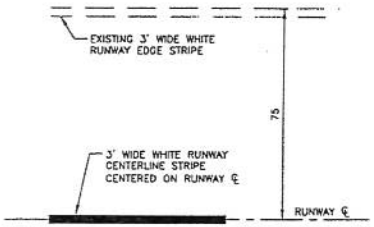
RUNWAY DESIGNATIONS
N.T.S.

NOTES:

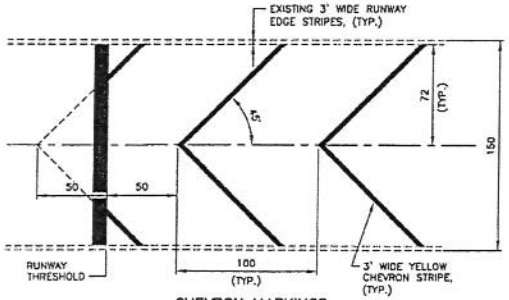
1. SINGLE DESIGNATIONS ARE CENTERED ON THE RUNWAY PAVEMENT CENTERLINE.
2. FOR DOUBLE DESIGNATIONS, THE CENTER OF THE OUTER EDGES OF THE TWO NUMERALS IS CENTERED ON THE RUNWAY PAVEMENT CENTERLINE.
3. DETAILS ON THIS SHEET NOT TO THE SAME SCALE.



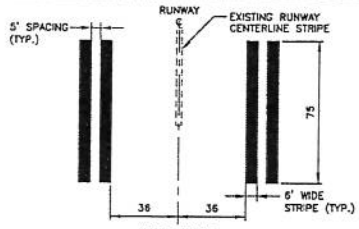
RUNWAY CENTERLINE STRIPE SPACING
N.T.S.



RUNWAY EDGE
TO RUNWAY CENTERLINE
N.T.S.

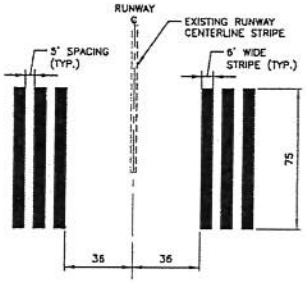


CHEVRON MARKINGS
N.T.S.



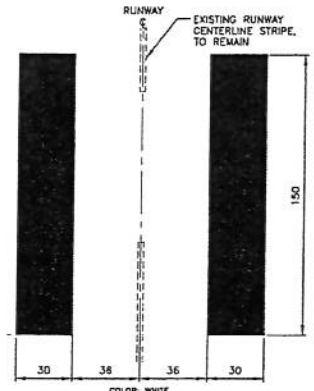
COLOR: WHITE

TOUCHDOWN ZONE MARKING
N.T.S.



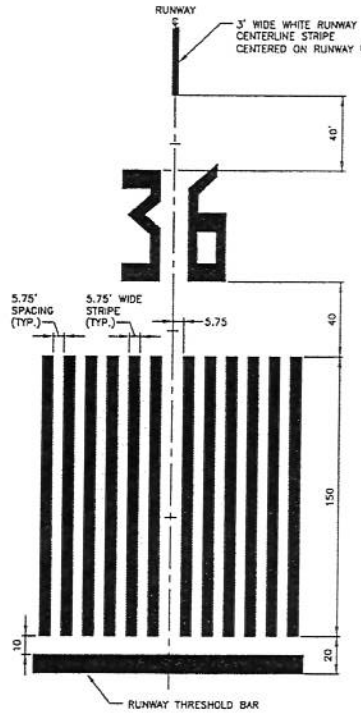
COLOR: WHITE

TOUCHDOWN ZONE MARKING
N.T.S.



COLOR: WHITE

AIMING POINT MARKING
N.T.S.



THRESHOLD STRIPES AND BAR
COLOR: WHITE

THRESHOLD STRIPES RW 36
N.T.S.

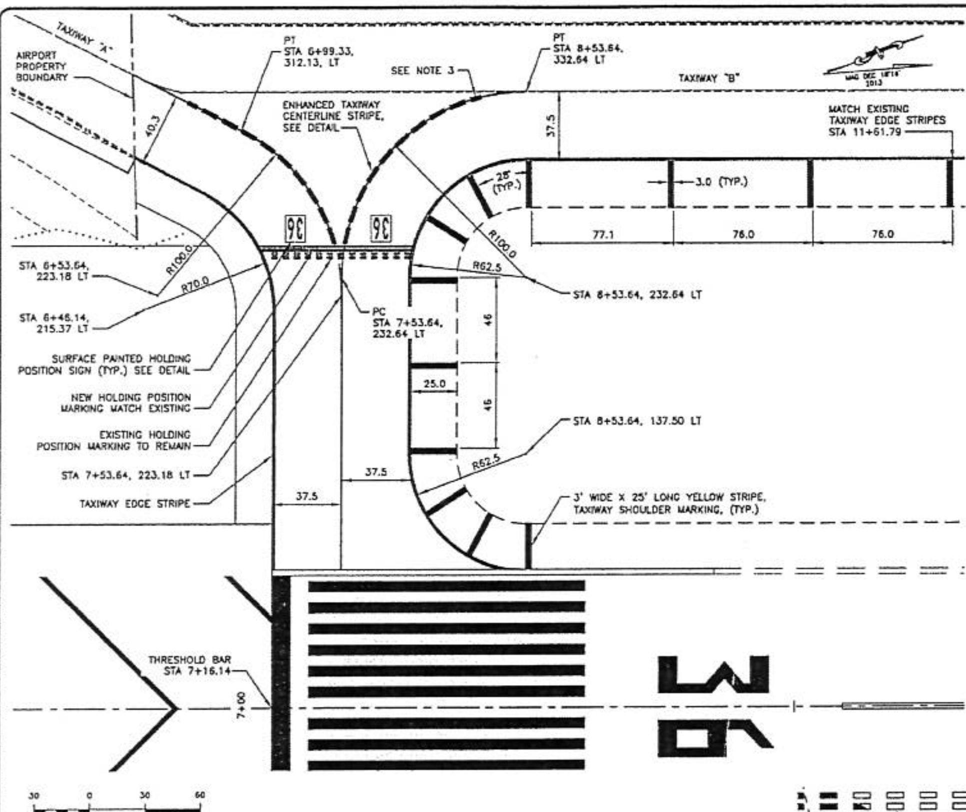
PREPARED BY: HDR Alaska, Inc.

BY	DATE	REVISION

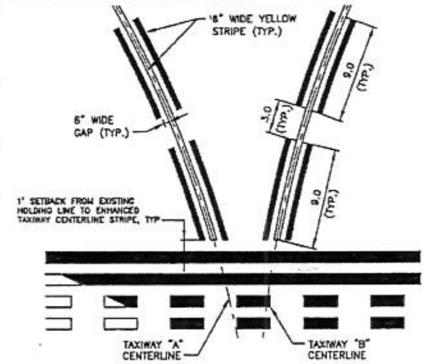
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014
RUNWAY MARKING DETAILS

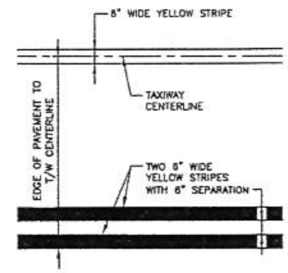
DATE: 3/18/2014
SHEET: 36 OF 39
AS-BUILT SHEET:



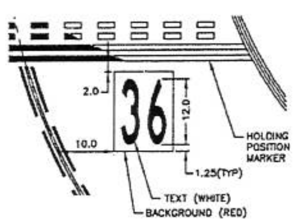
CONNECTING TAXIWAY STRIPING



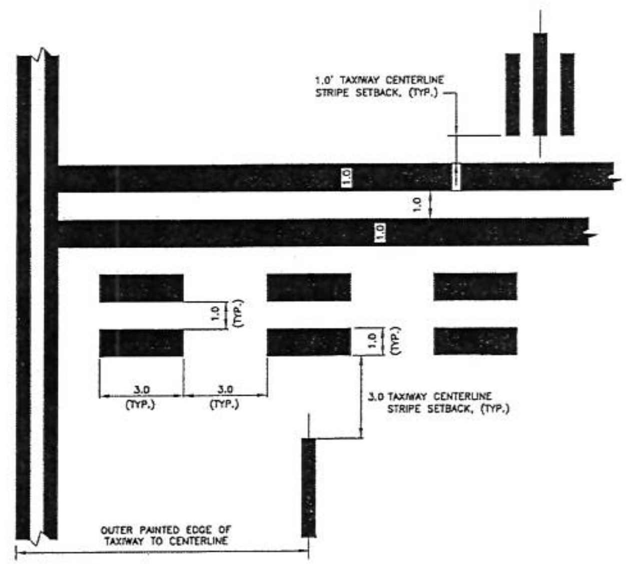
CURVED ENHANCED
TAXIWAY CENTERLINE STRIPE



TAXIWAY EDGE AND
TAXIWAY CENTERLINE STRIPE



SURFACE PAINTED
HOLDING POSITION SIGN



HOLDING POSITION MARKING

NOTES:

1. ALL MEASUREMENTS ARE TAKEN ALONG THE CENTER OF THE RUNWAY CENTERLINE.
2. THE TAXIWAY CENTERLINE MARKINGS MAY BE SHIFTED LEFT OR RIGHT TO AVOID INTERFERENCE WITH THE TAXIWAY CENTERLINE LIGHTS.
3. LAST ENHANCED CENTERLINE DASH IS 6 FEET LONG.
4. GLASS BEADS ARE APPLIED TO ALL ENHANCED MARKINGS.
5. REFER TO SHEET 36 FOR DIMENSIONS AND COLOR FOR NEW RUNWAY MARKINGS NOT DETAILED ON THIS SHEET.

LEGEND

NEW MARKING

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BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014
TAXIWAY MARKING DETAILS

DATE: 3/18/2014
SHEET: 37 OF 39
AS-BUILT SHEET:

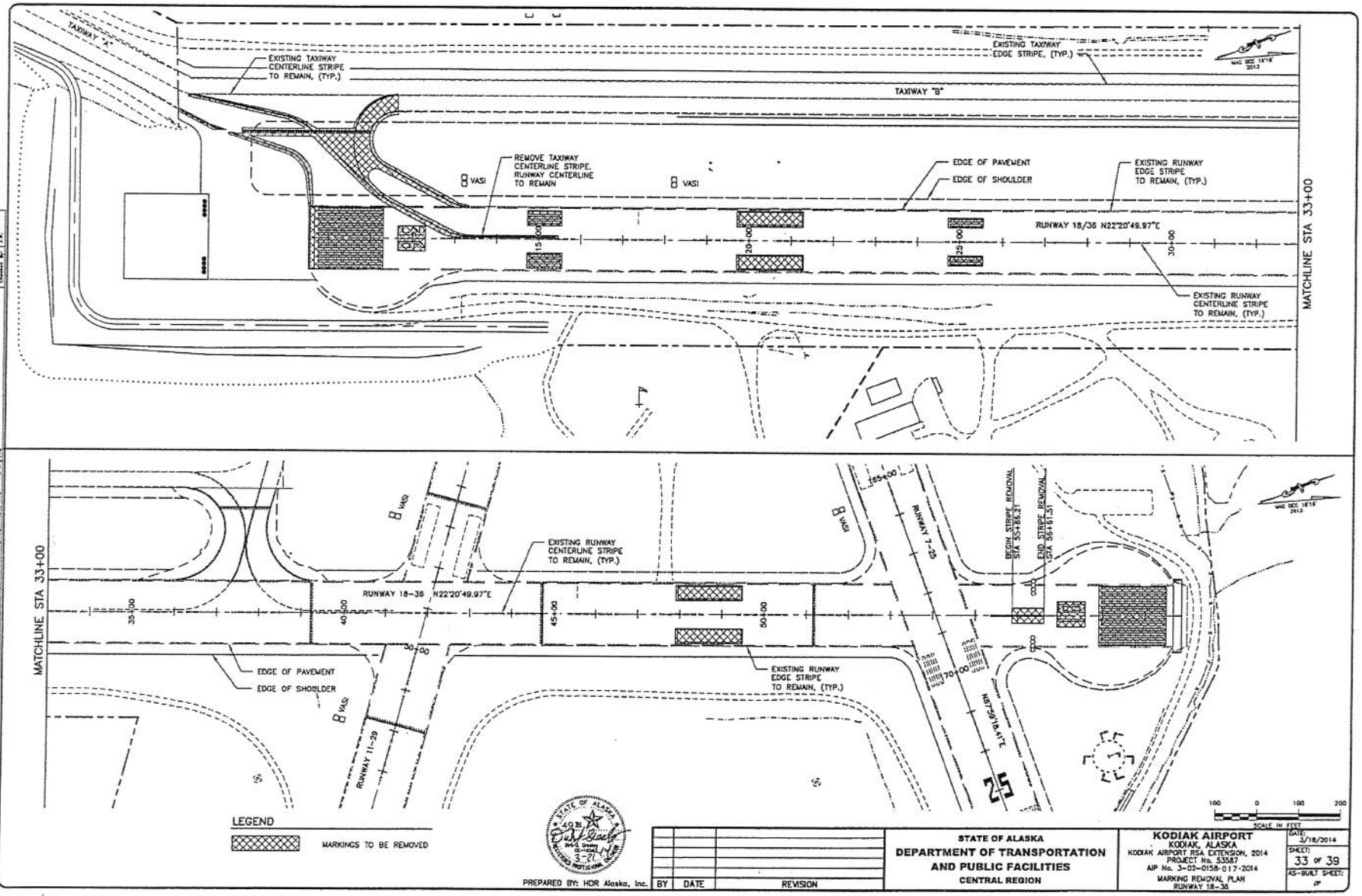
Pay Item Number:	**P-620f**
Pay Item Description:	**Painted Marking Removal**
Location:	
Unit:	**Lump Sum**
Quantity:	**All Required**
Note:	Approximate Area: 42635 sf

Computed: yml	Date: 3/26/14
Checked: CS	Date: 3/26/14

P-620f

Runway and Taxiway Painting

Item	Length (ft)	Width (ft)	Quantity Each	Area (sf)
Runway 18 End				
Designation Marker - "1"			1	320
Designation Marker - "8"			1	850
Side Stripe	35	3	2	210
Aiming Marker	150	30	2	9000
				10380
Runway 36 End				
Threshold Bar	144	10	1	1440
Threshold Marker	150	5.75	12	10350
Runway Designation Marker - "3"				650
Runway Designation Marker - "6"				505
Touchdown Marker	75	6	6	2700
Aiming Point Marker	150	30	2	9000
Fixed Distance Marker	75	6	4	1800
				26445
Runway 25				
Temporary Designation Markers - Two Applications)				
"2"			2	1170
"5"			2	1500
				2670
Taxiway A/B				
Shoulder Marking	25	3	25	1875
Side Stripe	545	0.5	2	545
Centerline Stripe	360	0.5	1	180
Enhanced Centerline Stripe (75% w/brakes)	230	0.5	2	180
Hold Line (2@6" width; 2@ 6" w/brakes)	370	0.5	2	240
	370	0.5	2	120
				3140
				42635



PREPARED BY: HDR Alaska, Inc.

BY	DATE	REVISION

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION

KODIAK AIRPORT
KODIAK, ALASKA
KODIAK AIRPORT RSA EXTENSION, 2014
PROJECT No. 53587
AIP No. 3-02-0158-017-2014
MARKING REMOVAL PLAN
RUNWAY 18-36

DATE: 3/18/2014
SHEET: 33 OF 39
AS-BUILT SHEET: OF

Pay Item Number:	**P-621b**
Pay Item Description:	**Saw-Cut Grooves**
Location:	Runway 36 south extension Blast pad-EMAS Pad for R/W 7
Unit:	Lump Sum
Quantity:	All Required
Note:	R/W 7 – 359' x 200' x 1/9 = 7,978' R/W 36 – 240' x 200' x 1/9 = 5,333' Total – 13,311 s.y.

Computed:	JGW
Checked:	CS 4/17/17

Pay Item Number:	**P-640b**
Pay Item Description:	**Segmented Circle (Panel Type)**
Location:	Southeast of the intersection of Runway 7-25 and Runway 18-36
Unit:	Lump Sum
Quantity:	All Required
Note:	

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-670b** **P-670c**
Pay Item Description:	**Flasher Unit for Timber Barrier** **Flag**
Location:	
Unit:	Each
Quantity:	75 Flashers 75 Flags
Note:	Replacement flashers and flags to be used on existing timber barriers.

Computed: JSW	Date: 3/26/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-671a(2)**
Pay Item Description:	**Illuminated Runway Closure Marker**
Location:	
Unit:	Each
Quantity:	2
Note:	

Computed: JGW	Date: 3/24/14
Checked: CS	Date: 3/26/14

Pay Item Number:	**P-684a**
Pay Item Description:	**Floating Silt Curtain**
Location:	Offshore of safety area extensions
Unit:	Linear Foot
Quantity:	4,100
Note:	Runway 7-25 - 800' + 750 + 650' = 2,200' Runway 18-36 – 1,150' + 750' = 1,900' Total – 4,100 l.f.

Computed: JGW	Date: 3/26/14
Checked: CS	Date: 3/26/14