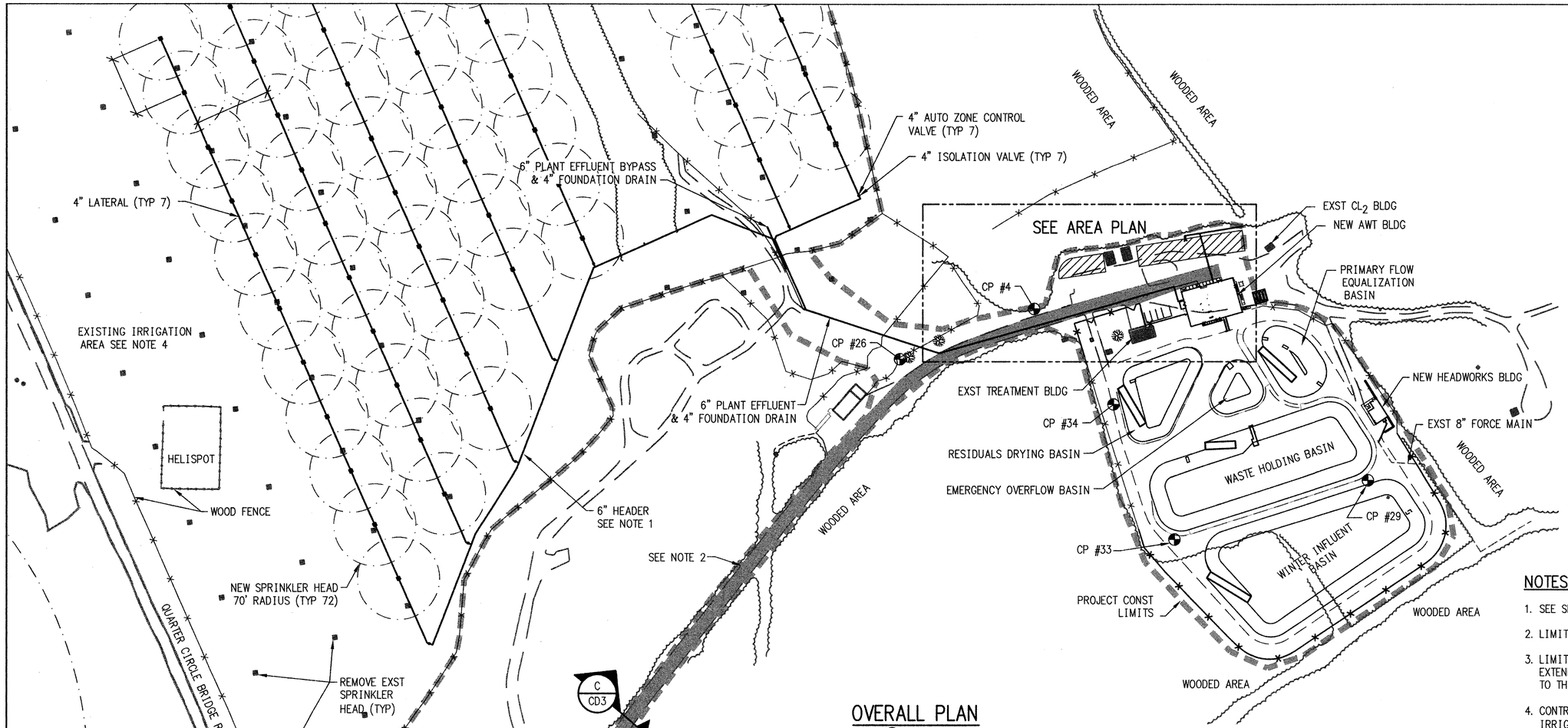
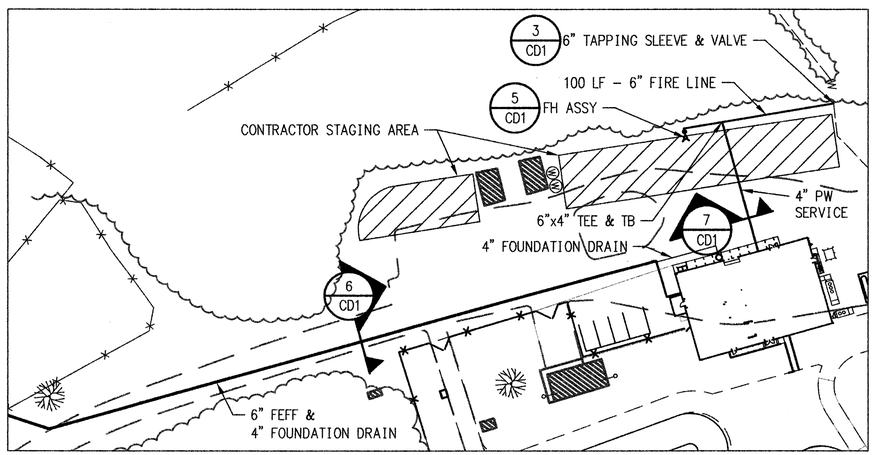


OVERALL PLAN
SCALE (A)



AREA PLAN
SCALE (B)

NOTES:

1. SEE SHT C8 FOR IRRIGATION SYSTEM PLAN
2. LIMITS OF ASPHALT PAVING FOR BID OPTION A
3. LIMITS OF ASPHALT PAVING FOR BID OPTION B EXTEND APPROXIMATELY 2300 FT SOUTH & EAST TO THE INTERSECTION WITH THE MAIN ACCESS ROAD
4. CONTRACTOR TO REMOVE ALL EXISTING SPRAY IRRIGATION HEADS AND PLUG EXISTING IRRIGATION LATERALS

SURVEY CONTROL POINT TABLE

PT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #4	11515.04	9259.47	3171.14	PIN & CAP "GNP # 1999"
CP #26	11276.54	9310.12	3171.77	PIN & CAP "GNP # 1999"
CP #29	12034.43	9629.58	3179.99	PIN & CAP "GNP # 1999"
CP #33	11693.77	9680.54	3179.99	PIN & CAP "GNP # 1999"
CP #34	11624.99	9438.66	3180.24	PIN & CAP "GNP # 1999"

SCALE (A) 100 0 100 200 SCALE OF FEET

SCALE (B) 50 0 50 100 SCALE OF FEET

DESIGNED: JAK / CADD KPR / TECH. REVIEW: RPO / DATE: 5/02	SUB SHEET NO. C1	TITLE OF SHEET: OVERALL SITE PLAN — LAKE McDONALD/HEADQUARTERS AREA GLACIER NATIONAL PARK	DRAWING NO. 117 41097A / PKG. NO. 417 / SHEET 15 OF 120

BCO1.DWG P:\GLAC\417\07\CIVIL\ MAY 02, 2002 @ 5:34:16 pm – (KELLY)

NOTES:

1. SEE SPECIFICATIONS FOR SEQUENCE OF WORK. EXISTING PONDS TO REMAIN OPERATIONAL UNTIL NEW TREATMENT FACILITIES ARE OPERATIONAL.
2. EXISTING FENCE TO REMAIN FOR LIMITS SHOWN.
3. CONSTRUCTION LIMITS ARE INSIDE EXST FENCE LINE.
4. BASIN LINER DETAILS ON SHEET CD5
5. CONSTRUCTION LIMITS ARE 30 FEET OUTSIDE OF AWT BUILDING
6. PROVIDE POSITIVE DRAINAGE AWAY FROM WEST SIDE OF AWT BUILDING TO THE WEST
7. INSTALL SILT FENCE AROUND PERIMETER OF GRADING WORK EAST OF AWT BUILDING. RE: DETAIL 4/CD3

LEGEND

- LIMITS OF 8" THK CRUSHED STONE PAVING
- LIMITS OF RIP RAP
- LIMITS OF ASPHALT PAVING

1/CD3 14' DOUBLE GATE
5/CD3 CHAIN LINK FENCE
SLUDGE LOADING STA
EXISTING CONTROL BUILDING
4/CD6 PARKING BUMPER TYP 4
NEW AWT BUILDING SEE SHT P4
5'-0"x5'-0" ASPH RAMP
4' PED GATE 2/CD3
LIMITS OF CONSTRUCTION, SEE NOTE 5
SEE NOTES 2 & 3
PRIMARY FLOW EQUALIZATION BASIN T-100 TOP OF LINER EL 80.00
5' WIDE CONC STAIRS 2/CD6
EXST GATE
TOP OF LINER EL 74.00
B/CD5 (TYP 3)
RESIDUALS DRYING BASIN BOT EL 3164.0 T-980
EMERGENCY OVERFLOW BASIN BOT EL 3163.0 T-950
BOT EL 63.0
EXST RAMP
EXISTING TOE OF BERM EL 3173.0
CONC RETAINING WALL RE: STRUCT
NEW HEADWORKS BLDG SEE SHT P1
SEE NOTE 6
SEE NOTE 2
SEE NOTE 3
5/CD3 CHAINLINK FENCE
LIMITS OF CONSTRUCTION
TOP OF LINER EL 76.00
WASTE HOLDING BASIN BOT EL 3163.0 T-900
12'W CONC RAMP (TYP)
WASTE DECANT FACILITY SEE SHT PD6
8/CD3
MATCH LINE SEE SHT C6

SCALE OF FEET: 20 0 20 40

DESIGNED: RPO, HWM DRAWN: RLH TECH. REVIEW: RPO DATE: 5/02	SUB SHEET NO. C5	TITLE OF SHEET: SITE GRADING PLAN LAKE McDONALD/HEADQUARTERS AREA GLACIER NATIONAL PARK	DRAWING NO. 117 41097A PKG. NO. 417 SHEET 19 OF 120

BCDS.DWG P:\GLAC\417\07\CIVIL APR 30, 2002 @ 11:15:53 am - (CHRISJ)

WASTE HOLDING BASIN

MATCH LINE SEE SHT C5

EXISTING FENCE

NEW FENCE

65

70

75

80

+ GB 80.00

TOP OF LINER EL 80.00
SEE NOTE 2

A
C6

65.80

WINTER INFLUENT BASIN
BOT EL 3167.0
T-001

12'W CONC RAMP (TYP)

14%

B
CD5

NEW FENCE

NEW
PERIMETER
FENCE
5
CD3

15'

2:1

3:1

LIMITS OF CONSTRUCTION
SEE NOTE 1

3173

3174

LEGEND

LIMITS OF 8" THICK CRUSHED STONE PAVING

LIMITS OF RIP RAP

LIMITS OF ASPHALT PAVING

20 0 20 40
SCALE OF FEET

NOTES:

1. CONSTRUCTION LIMITS ARE 15 FEET OUTSIDE OF NEW FENCE
2. BASIN LINER DETAILS ON SHEET CD5

DESIGNED: RPO, HWM DRAWN: RLH TECH. REVIEW: RPO DATE: 5/02	SUB SHEET NO. C6	TITLE OF SHEET SITE GRADING PLAN LAKE McDONALD/HEADQUARTERS AREA GLACIER NATIONAL PARK	DRAWING NO. 117 41097A PKG. NO. 417 SHEET 20 OF 120

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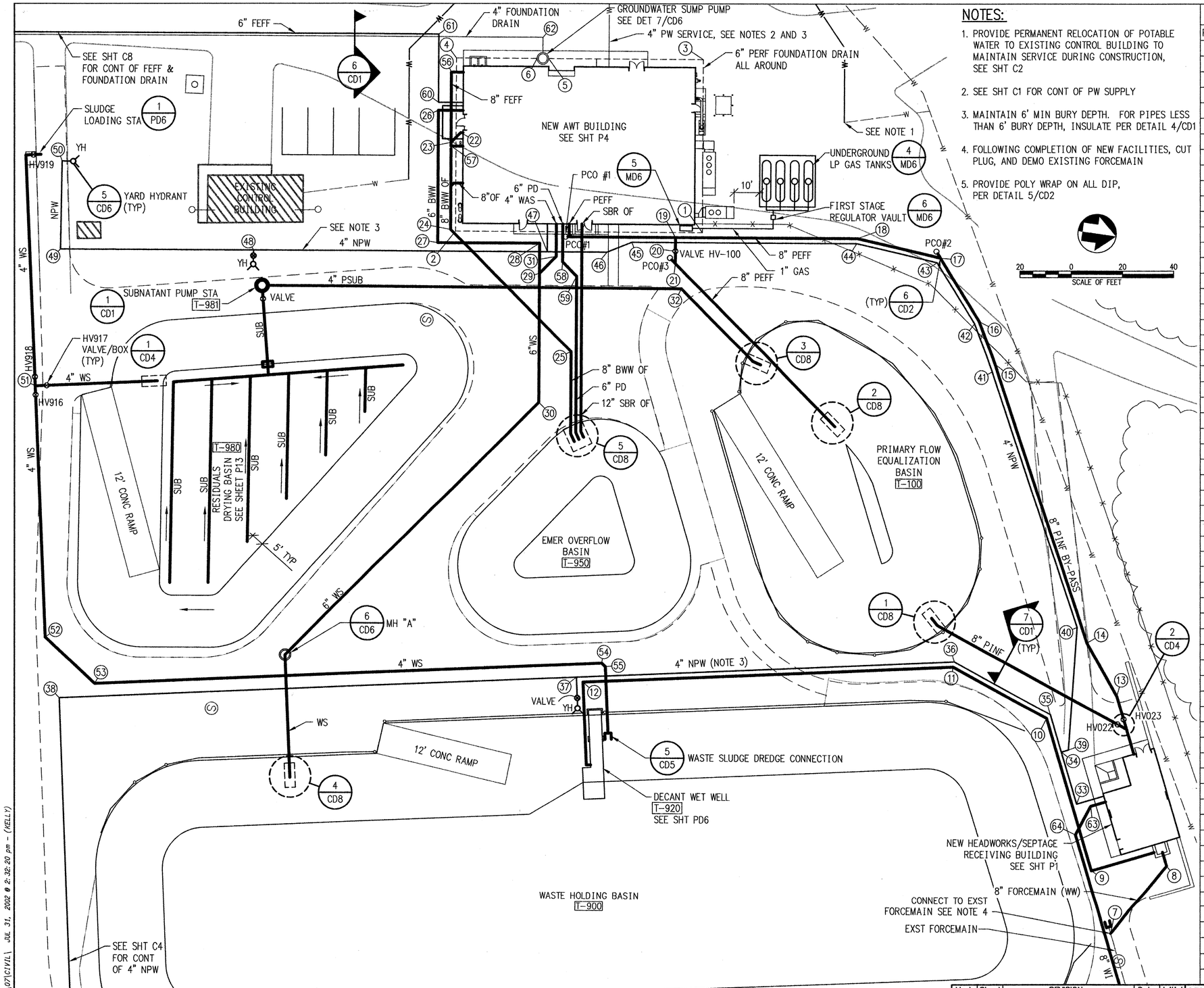


NOTES:

1. PROVIDE PERMANENT RELOCATION OF POTABLE WATER TO EXISTING CONTROL BUILDING TO MAINTAIN SERVICE DURING CONSTRUCTION, SEE SHT C2
2. SEE SHT C1 FOR CONT OF PW SUPPLY
3. MAINTAIN 6' MIN BURY DEPTH. FOR PIPES LESS THAN 6' BURY DEPTH, INSULATE PER DETAIL 4/CD1
4. FOLLOWING COMPLETION OF NEW FACILITIES, CUT PLUG, AND DEMO EXISTING FORCEMAIN
5. PROVIDE POLY WRAP ON ALL DIP, PER DETAIL 5/CD2

HORIZONTAL CONTROL POINT TABLE

PT NUMBER	NORTHING	EASTING	INVERT EL	DESCRIPTION
1	11868.23	9319.85	50.83	PERIMETER DRAIN – 6" 90° BEND
2	11772.56	9331.94	50.59	PERIMETER DRAIN – 6" 90° BEND
3	11859.87	9253.63	50.57	PERIMETER DRAIN – 6" 90° BEND
4	11764.20	9265.71	50.41	PERIMETER DRAIN – 6" 90° BEND
5	11818.47	9258.86	50.33	PERIMETER DRAIN
6	11818.85	9261.88	50.33	PERIMETER DRAIN
7	12061.89	9568.70	78.80±	8" WW FM – 45° BEND W/ TB
8	12080.16	9539.82	78.80	8" WW FM – 45° BEND W/ TB
9	12051.28	9545.50	72.67	3" DCT – 90° BEND W/ TB
10	12026.22	9489.05	72.67	3" DCT – 45° BEND W/ TB
11	11987.41	9474.11	72.67	3" DCT – 45° BEND W/ TB
12	11844.81	9498.78	68.17	3" DCT – 90° BEND W/ TB
13	12052.25	9476.95	70.25	8" PINF BY–PASS – 11 1/4° BEND W/ TB
14	12037.97	9458.10	69.78	8" PINF BY–PASS – 11 1/4° BEND W/ TB
15	11988.25	9355.61	65.23	8" PINF BY–PASS – 2° DEFL SOUTH
16	11979.98	9339.98	64.83	8" PINF BY–PASS – 11 1/4° BEND W/ TB
17	11961.78	9317.61	64.64	8" PINF BY–PASS – PCO#2
18	11928.58	9314.20	64.63	8" PINF BY–PASS – 11 1/4° BEND W/ TB
19	11858.06	9323.11	63.95	8" PINF BY–PASS – TEE W/ TB
20	11858.74	9328.48	63.98	8" PEFF – VALVE HV100
21	11859.34	9333.21	64.04	8" PEFF – PCO#3
22	11769.55	9293.97	70.50	8" BWW OF – 45° BEND W/ TB
23	11766.33	9298.12	70.45	8" BWW OF – 45° BEND
24	11770.56	9331.58	70.40	8" BWW OF – 45° BEND
25	11823.46	9372.62	70.20	8" BWW OF – 45° BEND
26	11759.84	9286.63	63.83	6" BWW – 90° BEND W/ TB
27	11766.25	9337.36	65.17	6" BWW – 90° BEND W/ TB
28	11805.74	9332.37	64.00	6" BWW – 90° BEND W/ TB
29	11807.20	9343.96	64.00	6" WS – 6"x6"x4" WYE W/ TB
30	11813.46	9393.51	67.00	6" WAS – 45° BEND W/ TB
31	11812.86	9336.67	64.00	4" WAS – 45° BEND W/ TB
32	11862.98	9342.64	69.67 ⚠1	4" PSUB – 45° BEND W/ TB
33	12042.16	9520.55	72.67	4" NPW – 90° BEND W/ TB
34	12033.59	9501.24	72.67	4" NPW – TEE W/ TB
35	12027.44	9487.38	72.67	4" NPW – 45° BEND W/ TB
36	11987.61	9472.05	72.67	4" NPW – 45° BEND W/ TB
37	11842.02	9497.23	68.17	4" NPW – 90° BEND W/ TB
38	11642.74	9531.71	72.67	4" NPW – 90° BEND W/ TB
39	12036.24	9500.07	72.67	4" NPW – 45° BEND W/ TB
40	12033.37	9452.65	71.07	4" NPW – 22 1/2° BEND W/ TB
41	11987.59	9358.64	65.33	4" NPW – 2° DEFL SOUTH
42	11978.30	9341.09	64.83	4" NPW – 11 1/4° BEND W/ TB
43	11960.75	9319.52	64.64	4" NPW – 45° BEND W/ TB
44	11928.61	9316.22	64.43	4" NPW – 11 1/4° BEND W/ TB
45	11841.39	9327.23	65.17	4" NPW – 22 1/2° BEND W/ TB
46	11832.31	9332.41	65.17	4" NPW – 22 1/2° BEND W/ TB
47	11809.14	9335.34	65.17	4" NPW – TEE W/ TB
48	11695.29	9349.72	64.67	4" NPW – TEE W/ TB
49	11620.47	9359.17	64.67	4" NPW – 90° BEND W/ TB
50	11616.67	9325.09	63.77	4" NPW – 90° BEND W/ TB
51	11617.59	9412.99	65.50	6" WS – TEE W/ TB
52	11634.24	9509.25	68.50	6" WS – PCO#4
53	11655.72	9524.39	68.50	6" WS – 45° BEND W/ TB
54	11851.06	9490.60	67.15	6" WS – 45° BEND W/ TB
55	11852.69	9491.75	67.17	6" WS – 45° BEND W/ TB
56	11762.94	9271.29	69.95	8" FEFF – 90° BEND W/ TB
57	11766.56	9299.56	69.67	8" FEFF – 90° BEND W/ TB
58	11815.60	9338.35	68.50	6" PD – 45° BEND W/ TB
59	11821.75	9343.12	70.45	6" PD – 45° BEND W/ TB
60	11759.45	9283.54	63.49	6" FEFF – 90° BEND W/ TB
61	11756.17	9257.53	62.77	6" FEFF – 90° BEND W/ TB

HORIZONTAL CONTROL POINT TABLE

PT NUMBER	NORTHING	EASTING	INVERT EL	DESCRIPTION
62	11796.64	9253.43	64.50	4" FOUNDATION DRAIN – 90° BEND W/ TB
63	12047.77	9520.66	65.91	8" WINTER LINE – 45° BEND W/ TB
64	12043.26	9532.37	65.82	8" WINTER LINE – 45° BEND W/ TB

MATCH LINE SEE SHT C4

Mark	Sheet	REVISION	Date	Initial
⚠1		AMENDMENT NO. 4	7/02	KDK

DESIGNED: JAK
DRAWN: KDK
TECH. REVIEW: RPO
DATE: 5/02

SUB SHEET NO. C7

TITLE OF SHEET
SITE PIPING PLAN
LAKE McDONALD/HEADQUARTERS AREA
GLACIER NATIONAL PARK

DRAWING NO. 117 41097A
PKG. NO. 417
SHEET 21A OF 120

AM4-C07.DWG P:\GLACV17\07\CIVIL JUL 31, 2002 @ 2:32:20 pm - (KELLY)

HORIZONTAL CONTROL POINT TABLE			
POINT NUMBER	NORTHING	EASTING	DESCRIPTION
(1)	11665.75	9581.63	SLUDGE PUMPER ANCHOR POST
(2)	11676.87	9648.00	SLUDGE PUMPER ANCHOR POST
(3)	12018.33	9494.93	SLUDGE PUMPER ANCHOR POST
(4)	12054.86	9573.73	SLUDGE PUMPER ANCHOR POST

NOTES:

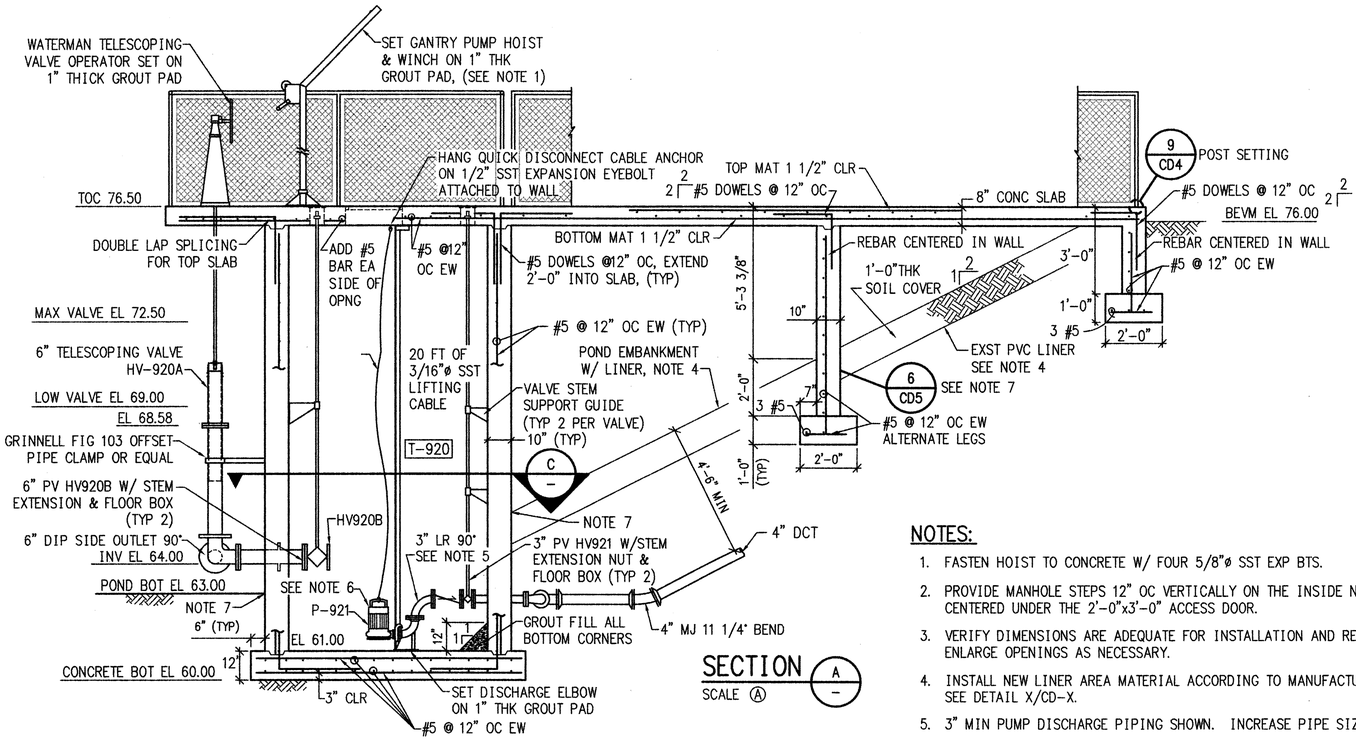
1. MOORING POST LOCATIONS TO BE FIELD LOCATED BY CONTRACTING OFFICER
2. SLUDGE DREDGE CABLE AND AERATOR POSTS PER SPEC SECTION 11350. FIELD LOCATE AS DIRECTED BY CONTRACTING OFFICER SEE DETAIL 1/PD7
3. RUN 3/16" ø SST CABLE THROUGH EYE BOLTS OF CABLE POSTS AROUND PERIMETER OF BASINS T-100 & T-900. FASTEN PLASTIC PHENOLIC DANGER SIGN TO CABLE EVERY 100 FT. RE: SPEC SECTION 01080
4. PROVIDE TWO CROSS-OVER STYLE FULL BODY HARNESSES, OLSEN SAFETY EQUIPMENT NO. 1102010, OR EQUAL, W/ TWO MANYARD II SHOCK-ABSORBING LANYARDS, OLSEN SAFETY EQUIPMENT NO. 216M OR EQUAL

20 0 20 40
SCALE OF FEET

Mark	Sheet	REVISION	Date	Initial
1		AMENDMENT NO. 4	7/02	KPR

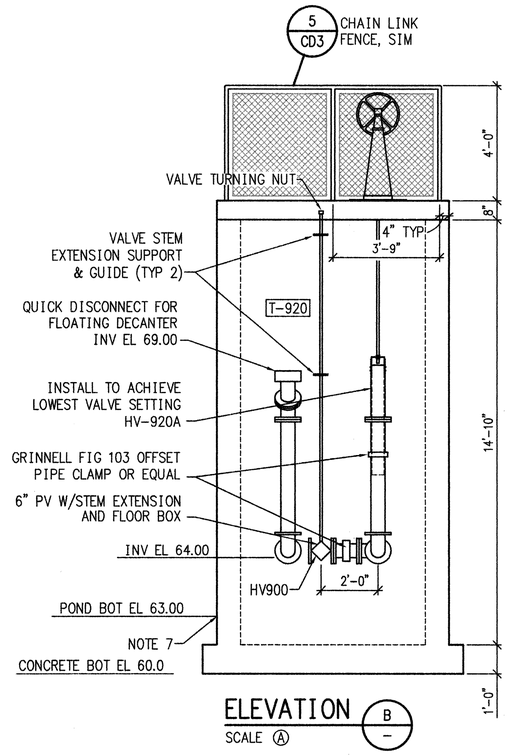
DESIGNED: JAK	SUB SHEET NO. P12	TITLE OF SHEET: PROCESS BASINS PLAN	DRAWING NO. 117 41097A
CADD KDK		LAKE McDONALD/HEADQUARTERS AREA GLACIER NATIONAL PARK	PKG. NO. 417
TECH. REVIEW: RPO			SHEET 41A
DATE: 5/02			OF 120

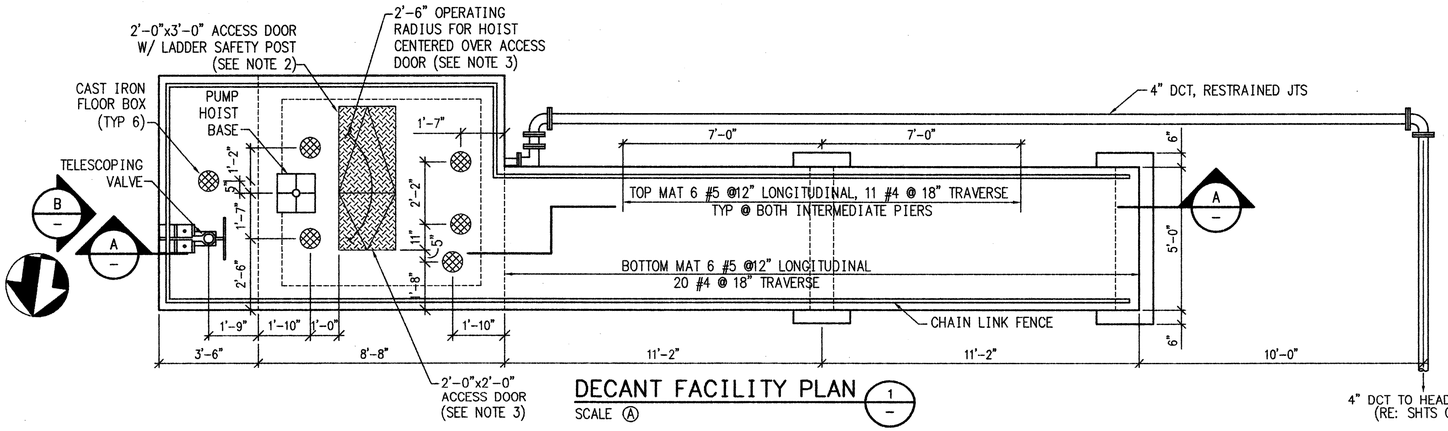
AM4-P12.DWG P:\GLAC\417\07\PROCESS\ JUL 31, 2002 @ 3:18:15 pm - (KELLY)

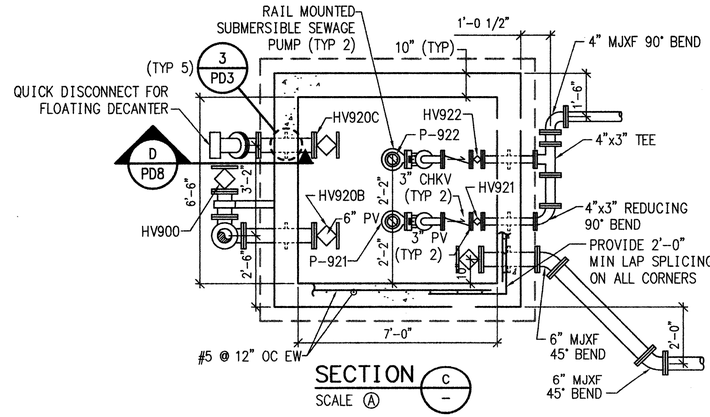


NOTES:

1. FASTEN HOIST TO CONCRETE W/ FOUR 5/8"ø SST EXP BTS.
2. PROVIDE MANHOLE STEPS 12" OC VERTICALLY ON THE INSIDE NORTH WALL OF THE DECANT STRUCTURE CENTERED UNDER THE 2'-0"x3'-0" ACCESS DOOR.
3. VERIFY DIMENSIONS ARE ADEQUATE FOR INSTALLATION AND REMOVAL OF ACTUAL PUMP TO BE SUPPLIED, ENLARGE OPENINGS AS NECESSARY.
4. INSTALL NEW LINER AREA MATERIAL ACCORDING TO MANUFACTURERS RECOMMENDATIONS. SEE DETAIL X/CD-X.
5. 3" MIN PUMP DISCHARGE PIPING SHOWN. INCREASE PIPE SIZE TO MATCH PUMP DISCHARGE.
6. RAIL MOUNTED SUBMERSIBLE SEWAGE PUMP (TYP 2) SEE SPEC SECTION 11310
7. INSTALL MEMBRANE LINER TO CONCRETE CONNECTION VERTICALLY AROUND ENTIRE PERIMETER OF PIERS AND VAULT



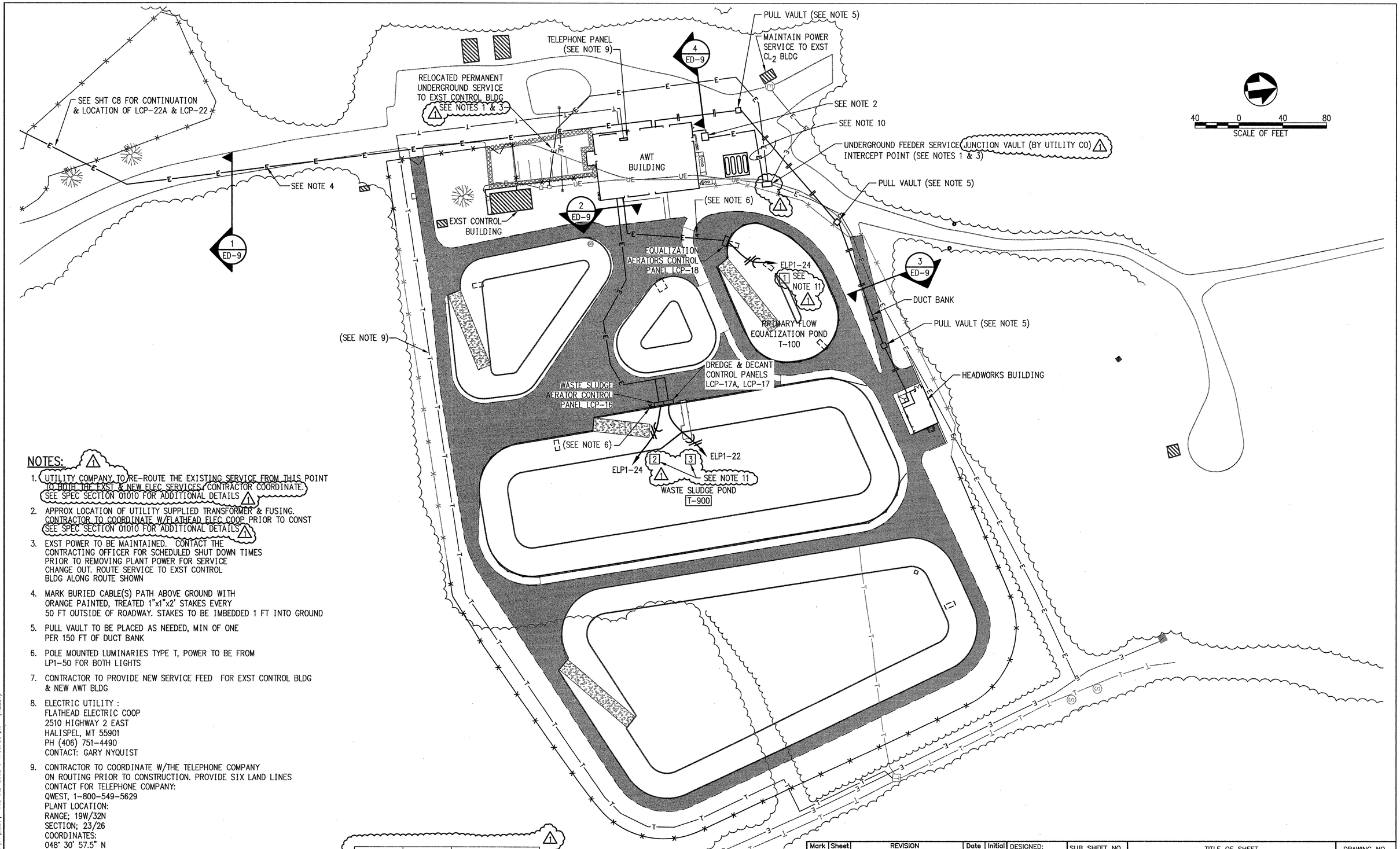




SCALE A 2 0 2 4 6
SCALE OF FEET

DESIGNED: JAK	SUB SHEET NO. PD10	TITLE OF SHEET: DECANT FACILITY PLAN, SECTIONS & DETAILS LAKE McDONALD/HEADQUARTERS AREA GLACIER NATIONAL PARK	DRAWING NO. 117 41097A
CADD: RJF			PKG. NO. 417
TECH. REVIEW: RPO			SHEET 52 OF 120
DATE: 5/02			

PD10.DWG P:\GLAC\417\07\PROCESS\ JUN 25, 2002 @ 2:57:26 pm - (KELLY)



NOTES:

1. UTILITY COMPANY TO RE-ROUTE THE EXISTING SERVICE FROM THIS POINT TO BOTH THE EXST & NEW ELEC SERVICES. CONTRACTOR COORDINATE. SEE SPEC SECTION 01010 FOR ADDITIONAL DETAILS
2. APPROX LOCATION OF UTILITY SUPPLIED TRANSFORMER & FUSING. CONTRACTOR TO COORDINATE W/FLATHEAD ELEC COOP PRIOR TO CONST SEE SPEC SECTION 01010 FOR ADDITIONAL DETAILS
3. EXST POWER TO BE MAINTAINED. CONTACT THE CONTRACTING OFFICER FOR SCHEDULED SHUT DOWN TIMES PRIOR TO REMOVING PLANT POWER FOR SERVICE CHANGE OUT. ROUTE SERVICE TO EXST CONTROL BLDG ALONG ROUTE SHOWN
4. MARK BURIED CABLE(S) PATH ABOVE GROUND WITH ORANGE PAINTED, TREATED 1"x1"x2' STAKES EVERY 50 FT OUTSIDE OF ROADWAY. STAKES TO BE IMBEDDED 1 FT INTO GROUND
5. PULL VAULT TO BE PLACED AS NEEDED, MIN OF ONE PER 150 FT OF DUCT BANK
6. POLE MOUNTED LUMINARIES TYPE T, POWER TO BE FROM LP1-50 FOR BOTH LIGHTS
7. CONTRACTOR TO PROVIDE NEW SERVICE FEED FOR EXST CONTROL BLDG & NEW AWT BLDG
8. ELECTRIC UTILITY :
   FLATHEAD ELECTRIC COOP
   2510 HIGHWAY 2 EAST
   HALISPEL, MT 55901
   PH (406) 751-4490
   CONTACT: GARY NYQUIST
9. CONTRACTOR TO COORDINATE W/THE TELEPHONE COMPANY ON ROUTING PRIOR TO CONSTRUCTION. PROVIDE SIX LAND LINES
   CONTACT FOR TELEPHONE COMPANY:
   QWEST, 1-800-549-5629
   PLANT LOCATION:
   RANGE; 19W/32N
   SECTION; 23/26
   COORDINATES:
   048° 30' 57.5" N
   113° 59' 48.25" W
10. ROUTE SERVICE FEED MINIMUM OF 5' FROM BURIED PROPANE TANK FIELD
11. PROVIDE 75 FT OF LOOSE CABLE FROM EACH LCP TO EACH PE

EQUIP NAME	POWER FEED	ORIGINATING LOCAL CONTROL PANEL
1 PE-100	ELP1-24	LCP-18
2 PE-100	ELP1-24	LCP-16
3 PE-100	ELP1-22	LCP-17

Mark	Sheet	REVISION	Date	Initial
1		AMENDMENT NO. 4	7/02	KPR

DESIGNED: GDS
DRAWN: KDK
TECH. REVIEW: RPO
DATE: 5/02

SUB SHEET NO. E2

TITLE OF SHEET
ELECTRICAL SITE PLAN

LAKE McDONALD/HEADQUARTERS AREA
GLACIER NATIONAL PARK

DRAWING NO. 117 41097A
PKG. NO. 417
SHEET 98A
OF 120

AM4-E02.DWG P:\CAC\41707\ELEC\ JUL 31, 2002 @ 4:00:31 pm - (KELLY)