

Report on
Topographic and Bathymetric Survey of Reservoirs
for Water Resources Department, Govt. of Gujarat
at Saurashtra and Northern Gujarat Region, Gujarat

Und-1 Reservoir

Owner



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2.	OSaS_P34320_WRD_Und-1_CC_02	Contour Map Scale: 1:15000
3.	OSaS_P34320_WRD_Und-1_03	Bathymetry and Topography Chart Scale: 1:5000; Grid: 25m X 25m
4.	OSaS_P34320_WRD_Und-1_04	Bathymetry and Topography Chart Scale: 1:5000; Grid: 25m X 25m
5.	OSaS_P34320_WRD_Und-1_05	Bathymetry and Topography Chart Scale: 1:5000; Grid: 25m X 25m
6.	OSaS_P34320_WRD_Und-1_06	Bathymetry and Topography Chart Scale: 1:5000; Grid: 25m X 25m
7.	OSaS_P34320_WRD_Und-1_LP_07	Longitudinal Profile Along Lowest Line Scale: 1:5000
8.	OSaS_P34320_WRD_Und-1_CP_08	Cross Section Profiles 01 - 10 Scale: 1:5000
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11.	OSaS_P34320_WRD_Und-1_CP_11	Cross Section Profiles 24 - 29 Scale: 1:5000
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ABBREVIATIONS

WRD	Water Resources Department
BM	Benchmark
C.M.	Central Meridian
CD	Chart Datum
cm	Centimetre
ddmm.mmm	Degrees minutes. decimal minutes
DGPS	Differential Global Positioning System
DTM	Digital Terrain Model
DSL	Dead Storage Level
FRL	Full reservoir Level
GPS	Global Positioning System
HSE	Health, Safety & Environment
ID	Identification name/number
IHO	International Hydrographic Organization
kHz	Kilohertz
km	Kilometre
KP	Kilometre Post
Lat	Latitude
LBM	Local Benchmark
Long	Longitude
m	Metre
MCum	Million Cubic Metre
MDDL	Minimum Drawdown Level
MSL	Mean Sea Level
MSqm	Million Square Metre
MV	Motor Vessel
NA	Not Applicable
NU	North Up
OSL	Outlet Sill Level
SOW	Scope of Work
SVP	Sound Velocity Profile
UTM	Universal Transverse Mercator projection
w.d.	Water depth
WGS84	World Geodetic System 1984

EXECUTIVE SUMMARY

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric surveys of thirteen reservoirs in the Saurashtra region; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aji-1, Nara, Tappar, Rudramata, Mitti and Fatehghadh.

This report describes the results of the topographic and bathymetric survey services provided by OSaS to the WRD for topographic and bathymetric mapping of the Und-1 reservoir, Saurashtra region, Gujarat.

The vessel SMB Ocean, owned by OSaS, was used for conducting the survey. The mobilisation of equipment started on 09th April 2021. A DGPS consistency check was done on 09th April by establishing two reference stations (TBMs) using RTK systems. The topographic survey commenced on 10th April and bathymetric survey commenced on 11th April at Und-1 reservoir.

Bathymetric survey was completed on 24th April and topographic survey was completed on 09th May 2021.

The survey data was processed on the site on a daily basis and reporting and charting was completed in the OSaS data processing centre in Navi-Mumbai after the survey.

All the co-ordinates in the report and charts are referenced to WGS 84 datum, UTM projection, CM 69° east, zone 42, northern hemisphere.

All bathymetric data has been reduced to MSL using the observed average water level of each day during the survey period. Topographic data has been reduced to MSL using the TBMs established in the field with respect to the known level of FRL

The survey was carried out in daylight hours keeping in mind the safety of personnel and survey equipment.

The construction work of Und-1 dam commenced in 1976 and was completed in 1988. The year of first impounding was 1988, with a gross storage of 72.50 M.Cu.m at FRL (98.0m above MSL) over a catchment area of 769.0 sq.km. The dead storage (at OSL: 90.10m above MSL) as per impound survey was 7.025 M.Cu.m.

A silt survey was conducted in the year 2010. During that year the gross storage at FRL (98.0 above MSL) was 69.045 M.Cu.m and the dead storage (at OSL: 90.10m above MSL) was 3.103 M.Cu.m.

The current survey (2021) resulted in the following: the gross storage at FRL (98.0 above MSL) is 73.884 M.Cu.m and the dead storage (at OSL: 90.10m above MSL) is 3.788 M.Cu.m.

Bathymetric and topographic survey was restricted at some places due to the presence of bushes and trees, waterlogged area, cultivated land, restricted private properties, exposed rocks and small streams with unsafe and inaccessible marshy ground.

In the current bathymetric and topographic survey, a minimum elevation of 84.6m was observed in the northwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 105.73m is observed at the crest of the dam, in the northern portion of the survey area.

The average elevation change within the bathymetric area is between 84.6m and 95.8m and average elevation change within the topographic area is between 91.74m and 105.73m.

The target elevation for this survey was HFL, which was given as 100m above MSL.

Most of the outer survey area is observed to occur above the 100m elevation contour. Most of the banks of all three river channels are mapped between 94m and 95m elevation contour with slightly irregular topography. A major part of the reservoir water storage area exists below the 90m elevation contour. A lower elevation contour of 86m is observed in the northern portion of survey area near the dam wall and

central portion of left river channel in the northwestern portion of the survey area. A minimum elevation contour of 85m observed within this river channel.

The current survey data was compared with the original capacity data in 1988 and silt survey data in 2010.

The comparison between 1988 and 2021 (33 years) data results shows a rate of erosion of 0.55 Ha.m/100sq.km./year. Annual percentage increase of gross storage capacity and live storage capacity are 0.06% and 0.21% respectively. The annual percentage loss of dead storage capacity is 1.40%.

The comparison between 2010 and 2021 (11 years) data results shows a rate of erosion of 5.7 Ha.m/100sq.km./year. Annual percentage increase of gross storage capacity, live storage capacity and dead storage capacity are 0.64%, 0.57% and 2.01% respectively.

The comparison of current and original capacity data in 1988 survey (33 years) shows a decrease in capacity due to sediment deposit at the dead storage area and part of live storage area between 83m and 97m possibly due to abundant sediment inflow into the reservoir due to floods or erosion of reservoir banks above these levels. The capacity at OSL (90.10m) reduced from 7.025 M.Cu.m to 3.788 M.Cu.m with a sediment deposit of 3.237 M.Cu.m over a loss in capacity of about 46.08 percentages.

The comparison of current and original capacity data in 1988 survey (33 years) shows an increase in capacity at FRL (98.0m), possibly due to erosion of the reservoir bank at these levels or conversion of more irregular water spread areas around the FRL into levelled cultivation fields. The capacity at FRL (98.0m) increased from 72.50 M.Cu.m to 73.884 M.Cu.m with a sediment erosion of 1.384 M.Cu.m over an increase in capacity of about 1.91 percentages.

The comparison of current and previous capacity data in 2010 silt survey (11 years) shows an increase in capacity from 85m to 93m and 97m to 98m, possibly due to the widening of river channels, removal of sediments due to outflow, erosion of the reservoir bank at these levels and conversion of more irregular water spread areas around the FRL into levelled cultivation fields. The capacity at OSL (90.10m) increased from 3.103 M.Cu.m to 3.788 M.Cu.m with a sediment erosion of 0.685 M.Cu.m over an increase in capacity of about 22.08 percentages. The capacity at FRL (98.0m) increased from 69.045 M.Cu.m to 73.884 M.Cu.m with a sediment erosion of 4.839 M.Cu.m over an increase in capacity of about 7.01 percentages.

The comparison of current and previous capacity data in 2010 silt survey (11 years) shows a decrease in capacity between 94m and 96m possibly due the sediment inflow and deposition at these levels due to floods and erosion above these levels.

1 INTRODUCTION

The Water Resources Department, Govt. of Gujarat is engaged in developing water reservoirs within the state of Gujarat, under a World Bank funding programme towards National Hydrology Projects of Govt. of India. Towards this end, the Water Resources Department, Govt. of Gujarat requires services for conducting bathymetric survey of reservoirs of Saurashtra and northern Gujarat regions under its National Hydrology Project.

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric surveys of thirteen reservoirs in the Saurashtra and northern Gujarat regions; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aji-1, Nara, Tappar, Rudramata, Mitti and Fatehghadh.

This report describes the results of the topographic and bathymetric survey services provided by OSaS to WRD for topographic and bathymetric mapping of the Und-1 reservoir in Saurashtra, Gujarat.

1.1 Background of survey area

Und River is a river in western India in the state of Gujarat. The source of this river is located in the Lodhika hills near Kalavad. The Und River meets the sea in the Gulf of Kutch, Arabian Sea. Its maximum length is 80 km. The total catchment area of the basin is 1,615 sq. km (624 sq. mi). Bavni is its right bank tributary, while Fulzar and Manvar are its left bank tributaries. Und-I & Und-II dams are located on this river, with catchment areas of 769 sq.km and 381 sq.km respectively.

The average rainfall in the Und basin is 541 mm. In winter, the temperature varies between 18°C and 25°C in different parts of the region. May is the hottest month, when the temperature varies between 28°C and 35°C.

The construction works for Und-1 dam commenced in the year 1976 and were completed in the year 1988. The year of first impounding was done in 1988 with a gross storage of 72.50 M.Cu.m. It is a concrete and brick type dam. This dam fulfills its operating purpose of irrigation and water supply efficiently.

1.2 General Location

The reservoirs of Saurashtra and Northern Gujarat region are shown on the Google Earth image in **Figure 1**.



Figure 1: Survey areas/reservoirs of Saurashtra and Northern Gujarat regions

This report specifically focuses on the results of topographic and bathymetric survey of the Und-1 reservoir situated within the Saurashtra region, shown in the Google earth image below:

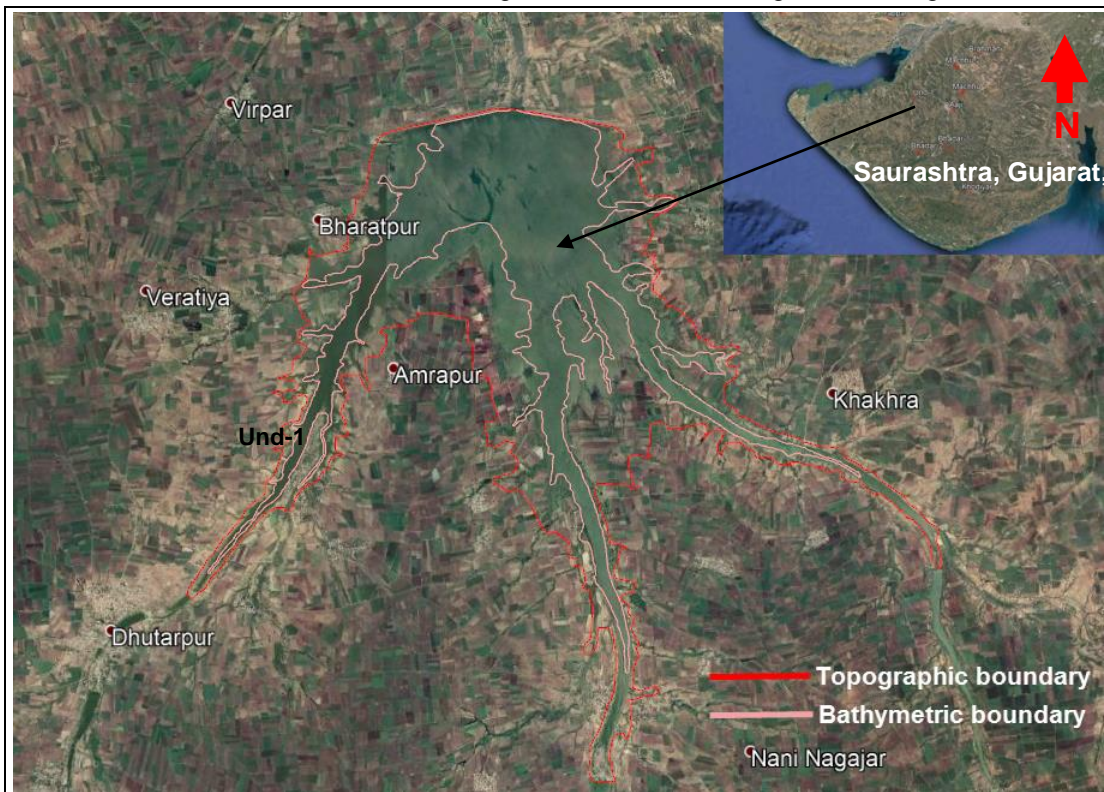


Figure 2: Survey area – Reservoir Und-1

2 SCOPE OF WORK

The scope of work for the survey was:

- To mobilize requisite topographic equipment and personnel at the sites specified by the client.
- To mobilize a suitable vessel along with requisite bathymetric equipment and personnel at the sites specified by the client.
- To carry out topographic and single beam echo sounder bathymetric survey in the specified areas.
- To estimate and study the sedimentation behaviour of the reservoirs in different zones including horizontal zones throughout the reservoirs as well as vertical zones namely (a) dead storage (b) live storage (c) flood storage, if any.
- The integrated bathymetric system will be used to collect data on depth and bottom topography of the reservoirs and rivers. Primary application is reservoir sedimentation surveying; products will be reservoir capacity figures as a function of depth, depth contours and bottom topography change over time.
- To upgrade elevation-area-capacity tables /curves of the reservoirs.
- To prepare contour plan, Longitudinal profile (L-section), Cross section profiles...etc.

2.1 Salient Features of Survey Area

The Und-1 reservoir is situated across the Und River in the Saurashtra peninsula, in the Western Indian state of Gujarat. The information extracted from the document provided by the client states that the construction works of Und-1 commenced in 1976 and were completed in 1988. The first impounding was occurred in the year 1988.

The following salient features of Und-1 reservoir are extracted from the document provided by the client:

Document: Sedimentation survey of Und-1 reservoir by Gujarat engineering research institute in the year January 2010.

a. Location	
Latitude	: 21° – 41.00' N
Longitude	: 70° – 24.00' E
b. Catchment Area	: 769 km ²
c. Full Reservoir Level (FRL)	: 98.0m m
d. High Flood Level (HFL)	: 100.0 m
e. Minimum Draw Down Level (MDDL/OSL)	: 90.10 m
f. Gross Storage	: 72.50 Mm ³
g. Dead Storage	: 7.025 Mm ³
h. Live Storage	: 65.475 Mm ³

2.2 Survey Design

The topographic and bathymetric survey lines were planned and executed at intervals of 25m throughout the area of survey. Topographic survey was conducted using RTK base and rover system. The limit of topographic survey was up to the HFL of the reservoir, which is 100.0m (328.08ft.) above MSL, as provided by the client. The bathymetric survey was conducted using RTK

positioning system and single beam echo sounder.

The topographic and bathymetric surveyed areas (in sq.km) for the Und-1 reservoir are provided in **Table 1** below.

Name of Reservoir	Bathymetric area surveyed (sq. km.)	Topographic area surveyed (sq.km.)
Und-1	9.95	16.23

Table 1: Surveyed areas for Und-1 reservoir

3 SURVEY CONTROL

3.1 Geodesy

The survey operations were conducted in WGS 84 Spheroid, Universal Transverse Mercator projection system, based on the geodetic parameters as presented below. All co-ordinates given within this document are with reference to it.

GEODETTIC PARAMETERS	
Satellite Datum	
Datum, Spheroid	WGS-84
Semi-Major Axis	6378137.000 m
Semi Minor Axis	6356752.314 m
Inverse Flattening	298.2572
Projection Parameters	
Grid Projection	Universal Transverse Mercator
Latitude of Origin of Projection	0° (Equator)
Longitude of Origin of Projection	69° E, Zone 42 North
Hemisphere	North
False Easting (metres)	500000 E
False Northing (metres)	0
Scale Factor on CM	0.9996
Units	Metres

Table 2: Geodetic Parameters

3.2 Horizontal and vertical Control

3.2.1 Topographic survey

Two reference stations were established as temporary control points/temporary benchmarks (TBM). The levelling of these TBMs was carried out using an auto level with respect to the known level of FRL which is given as 98.0m above MSL, as provided by the client. The base stations of the RTK were set up at these positions and two-hour long continuous observations were conducted using a Hemisphere RTK positioning system to fix the consistency of the position for horizontal control. The system provides real time correction signals, providing centimetre level accuracy. Additional TBMs were established at various parts of the survey area to keep the rover in range with respect to the base station.

The details of the reference stations OSaS-TBM-UN-01 and OSaS-TBM-UN-02 are given in **Figure 3: Details of OSaS-TBM-UN-01** and **Figure 4.**

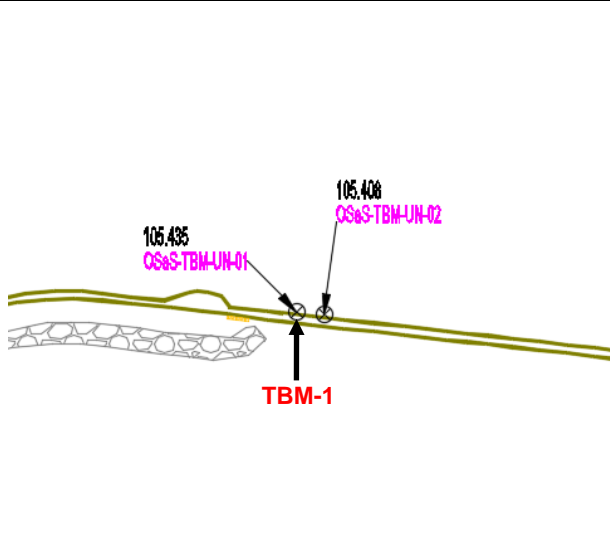



Station Number:	OSaS-TBM-UN-01	Latitude:	22° 24' 21.036" N
Locality:	Nadpur, Gujarat	Longitude:	70° 24' 10.167" E
Geodetic Datum:	WGS84	Northing:	2478423.108m N
Projection:	Mercator	Easting:	644395.386m E
Date:	09 th April 2021	Elevation:	105.435m above MSL
Station Description:	A circle with text UND-TBM-1 is drawn with yellow paint on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam.		
Access:	Road to the top of the reservoir. The TBM is situated on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam, at the northern end.		
Sketch:			
Map:			
Photo:			
Photo:			

Figure 3: Details of OSaS-TBM-UN-01

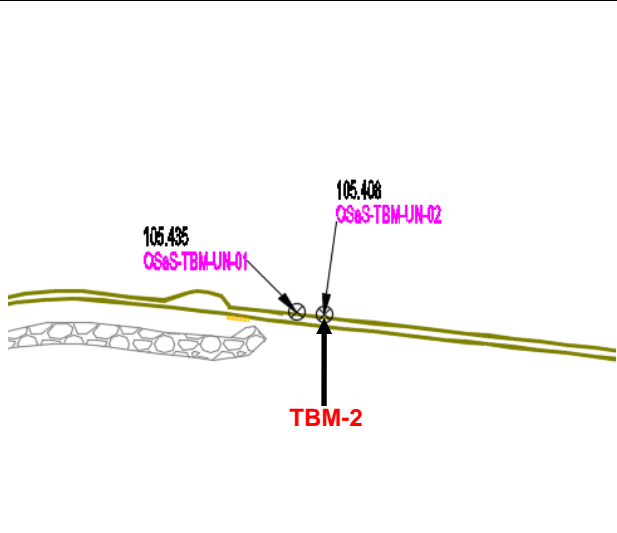



Station Number:	OSaS-TBM-UN-02	Latitude:	22° 24' 20.974" N
Locality:	Nadpur, Gujarat	Longitude:	70° 24' 10.687" E
Geodetic Datum:	WGS84	Northing:	2478421.338m N
Projection:	Mercator	Easting:	644410.271m E
Date:	09 th April 2021	Elevation:	105.408m above MSL
Station Description:	A circle with text TBM-2 is drawn with yellow paint on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam.		
Access:	Road to the top of the reservoir. The TBM is situated on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam, at the northern end. TBM02 is situated 15m east-southeast of TBM01.		
Sketch:			
Map:			
Photo:			
Photo:			

Figure 4: Details of OSaS-TBM-UN-02

Additional temporary control points were established in the field to maintain the moving rover within the range of the base reference point. The following **Table 3** summarises the details of all the temporary control points (TBMs) established at the site during the survey.

Sr. No.	Station Name	Latitude (N)	Longitude (E)	Easting (m)	Northing (m)	Reduced Level-MSL (m)
1	OSaS-TBM-UN-01	22° 24' 21.036	70° 24' 10.167"	644395.39	2478423.11	105.435
2	OSaS-TBM-UN-02	22° 24' 20.974"	70° 24' 10.687"	644410.27	2478421.34	105.408
3	OSaS-TBM-UN-03	22° 23' 21.672"	70° 25' 48.558"	647226.36	2476623.93	109.849
4	OSaS-TBM-UN-04	22° 22' 16.989"	70° 26' 22.475"	648215.43	2474643.89	105.263
5	OSaS-TBM-UN-05	22° 21' 42.505"	70° 26' 42.944"	648811.10	2473588.97	106.662
6	OSaS-TBM-UN-06	22° 22' 02.909"	70° 21' 44.584"	640270.75	2474136.87	112.240
7	OSaS-TBM-UN-07	22° 21' 13.582"	70° 21' 54.839"	640577.84	2472622.55	104.215
8	OSaS-TBM-UN-08	22° 21' 33.288"	70° 22' 24.072"	641408.55	2473236.18	103.127
9	OSaS-TBM-UN-09	22° 21' 10.647"	70° 22' 14.885"	641152.10	2472537.50	103.367
10	OSaS-TBM-UN-10	22° 21' 51.446"	70° 22' 48.648"	642106.45	2473801.06	105.396
11	OSaS-TBM-UN-10A	22° 22' 30.946"	70° 23' 06.422"	642603.68	2475020.48	100.185
12	OSaS-TBM-UN-12	22° 22' 52.244"	70° 23' 33.105"	643360.83	2475682.55	103.361
13	OSaS-TBM-UN-13	22° 22' 24.743"	70° 24' 08.495"	644380.90	2474846.18	98.084
14	OSaS-TBM-UN-14	22° 21' 56.919"	70° 24' 17.381"	644643.07	2473992.85	105.027
15	OSaS-TBM-UN-15	22° 21' 04.311"	70° 24' 24.054"	644849.05	2472376.70	105.499
16	OSaS-TBM-UN-16	22° 20' 34.461"	70° 24' 52.033"	645658.09	2471466.21	101.804
17	OSaS-TBM-UN-17	22° 19' 41.845"	70° 25' 04.427"	646027.88	2469851.38	105.245
18	OSaS-TBM-UN-18	22° 20' 10.733"	70° 25' 12.873"	646261.19	2470742.06	102.447
19	OSaS-TBM-UN-19	22° 20' 34.642"	70° 25' 03.673"	645991.04	2471474.89	100.800
20	OSaS-TBM-UN-20	22° 21' 27.705"	70° 25' 01.126"	645902.81	2473106.12	103.359
21	OSaS-TBM-UN-21	22° 22' 02.916"	70° 25' 06.120"	646035.49	2474190.34	101.684
22	OSaS-TBM-UN-22	22° 21' 49.381"	70° 25' 35.936"	646892.28	2473782.15	102.240

Table 3: Details of TBMs

3.2.2 Bathymetric survey

The same two reference stations, established as temporary control points/temporary benchmarks (TBMs) for the topographic survey were also used as the base stations for RTK positioning during the bathymetric survey. The rover fixed in the survey boat received calculated X Y Z of its position at any point with centimetre level accuracy with respect to the known base positions. The details of these reference stations are given in **Figure 3** and **Figure 4**

The water level of the reservoir with respect to the known value of FRL (98.0 above MSL) was measured twice a day during the survey. The mean value of these two readings was taken as the datum for the day's work. The depths recorded by the echo sounder were deducted from these levels to obtain the bed levels with respect to MSL. The observed water levels are given in **Table 4**.

Date	Water level				Average level in metres (MSL, m)
	Start		End		
	Time (AM)	Level (MSL, m)	Time (PM)	Level (MSL, m)	
11-04-21	9:00	95.92	03:00	95.89	95.90
12-04-21	9:00	95.87	03:00	95.85	95.86
13-04-21	9:00	95.84	03:00	95.82	95.83
14-04-21	10:00	95.79	03:00	95.77	95.78
15-04-21	9:00	95.74	03:00	95.72	95.73
16-04-21	9:00	95.68	03:00	95.67	95.67
17-04-21	9:00	95.63	03:00	95.62	95.63
18-04-21	9:00	95.60	03:00	95.58	95.59
19-04-21	9:00	95.54	03:00	95.53	95.54
20-04-21	9:00	95.46	03:00	95.36	95.41
21-04-21	9:00	95.15	03:00	95.13	95.14
22-04-21	9:00	95.10	03:00	95.08	95.09
23-04-21	9:00	95.07	01:00	95.06	95.06
24-04-21	9:00	94.98	12:00	94.97	94.97

Table 4: Observed Water Levels

3.3 Survey Vessel

A company owned boat, SMB Ocean, was utilised for conducting the survey operations.



Figure 5: Survey vessel – SMB Ocean

4 PERSONNEL

The following survey personnel were involved during the survey period.

Name	Designation	Duration
Santokh Chand	Project Manager	Project Duration (In Navi-Mumbai office)
Gaurav Sharma	Party Chief / Survey Engineer	08 th - 14 th April 2021
Mansuri M. I	Party Chief	15 th April – 09 th May 2021
Amit Bhardwaj	Surveyor	08 th - 20 th April 2021
Prasant Panda	Surveyor Engineer	15 th April – 09 th May 2021
Sanjeev Kumar	Survey Engineer	08 th - 14 th April 2021
Nikhil Rane	Survey Engineer	15 th April – 09 th May 2021
Prasant Bhojani	Client Representative	Project duration

Table 5: Survey Personnel

5 SURVEY EQUIPMENT DETAILS

5.1 General

The equipment used for the survey is described below.

Bathymetry:

- Hemisphere GPS S320 GNSS RTK Base and Rover system with accessories
- Odom MK III dual frequency single beam echo sounder system with accessories
- TSS HS50 heave sensor
- Hypack navigation system
- 2 x computers with associated accessories

Topography:

- Hemisphere GPS S320 GNSS RTK Base and Rover system with accessories
- Geomax Auto Level with accessories.

Adequate spares and back-ups for critical items will be carried on board the survey vessel to ensure that failure of any hardware unit does not adversely affect progress of field work.

5.2 RTK Positioning and Navigation

An RTK system was mobilised at the site to carry out the topographic and bathymetric survey. The system comprises the following:

- Hemisphere GPS R320 GNSS base station
- Hemisphere GPS R320 rover

The base station of the RTK was set up at the temporary benchmark. Real Time Kinematic (RTK) is a technique used to increase the accuracy of GPS signals by using a fixed base station which wirelessly sends out corrections to a moving receiver. By utilising these corrections, the GPS engine can fix the position of the antenna to within 1 - 2cm. GPS Real-Time Kinematic (RTK) operation provides centimetre-level accuracy by eliminating errors that are present in the GPS system. For obtaining corrected positions, a rover receiver and a source of corrections from a base station were used.

Vessel positioning was carried out by the RTK DGPS system and its heading determined by the course made good method (CMG). The positioning system was interfaced to the Hypack navigation software. Vessel track and offset positions were recorded digitally in the navigation software. DGPS positioning accuracy of the moving vessel was better than $\pm 1\text{m}$.

The vessel's computed position from the DGPS receiver was interfaced to the navigation computer system. Hypack navigation and data acquisition software was used to provide track guidance information for the survey crew and also output the vessel position to assist the helmsman in maintaining the selected track guidance line. The VDU displays the selected survey line, the vessel position in relation to that line and numerical data to assist the helmsman such as the along-line and off-line distances, vessel speed and course made good, gyro heading, distance and bearing to end of line and water depth. The position of each fix, together with other information such as fix numbers, depths, and down line distances were logged to the hard drive.

Sensor offsets on the survey vessel were accurately measured during mobilisation and are included in the mobilisation report.

5.3 Single Beam Echo Sounder System

Bathymetric data was acquired using a dual frequency 33/200 kHz Echotrac DF 3200 MK III single beam echo sounder. The SBES transducer assembly was side-mounted on a pole on the port side of the boat. A hard copy (paper) record was produced in real-time, annotated with line name, fix number, time and date. The digital output was logged by the navigation computer for post-processing.

Calibration

The echo sounder was calibrated at the survey location by conducting a bar-check. The bar-check is carried out by lowering a horizontal steel plate to known, fixed depths below the water surface directly below the echo sounder transducer. Acoustic reflections from the plate at different depths are then recorded and adjustments made to the settings for sound velocity and draft to get accurate results. A bar-check was carried out before commencing the survey and the average speed of sound obtained was entered into the unit.

5.4 Heave Sensor

A MRU-PD heave sensor was fixed on the deck of the boat about 0.2m ahead of the COG. Its output was given to the SBES unit.

5.5 Auto Level Geomax

A Geomax Auto Level was used to establish the local benchmark by transfer and level the TBM with respect to the known level of FRL at 98.0m above MSL, as provided by the client.

5.6 Real Time Kinematic (RTK) For Topographic Survey

A Hemisphere R320 GNSS RTK system with base station and rover was used to conduct the survey. Base stations were established with respect to FRL at the TBM and rover used to fix the positions. This is a positioning system which can measure and calculate the XYZ of any given point with centimetre level accuracy with respect to the known base positions. An AutoCAD drawing can be generated with the help of the XYZ values obtained from this equipment.

5.7 HyPack Software

Navigation data was processed using the Hypack navigation software. Single beam data from the Echotrac DF 3200 MK III echo sounder was also processed using the Hypack software. Hypack provides all of the tools necessary to complete the hydrographic survey requirements. It provides a tool to design a survey, collect data, apply corrections to soundings, remove outliers, plot field sheets, export data to CAD, compute volume quantities, generate contours, create side scan mosaics and create/modify electronic charts.

6 DATA PROCESSING AND INTERPRETATION

This section explains the established terminology and standards for the project and how they were applied to the survey data.

6.1 Navigation Data

Raw DGPS and gyro data were processed and merged to form an edited vessel track file. The final navigation data was reviewed in AutoCAD to confirm the validity of the vessel's position and to aid in the correlation between navigation data and chart location.

The survey track plots were then used for data interpretation and generation of the survey charts.

6.2 Bathymetric Data

Single beam data from the Echotrac DF 3200 MK III echo sounder was processed using the Hypack navigation package. The vertical datum for all bathymetric measurements was the known MSL value of FRL. The depth soundings obtained from the single beam echo sounder were reduced to MSL with the help of the observed water level in the reservoir.

Recorded depth data was adjusted for transducer draft and changes in water mass acoustic velocity as measured during the bar-check.

Lakebed Gradient Classification

The following terms were used to describe the lakebed gradients.

CLASSIFICATION	GRADIENT (in terms of Degrees and Slope Interval)	
Very Gentle	<1°	< 1 in 57
Gentle	1° – 4.9°	1 in 57 to 1 in 11.7
Moderate	5° – 9.9°	1 in 11.7 to 1 in 5.7
Steep	10° – 14.9°	1 in 5.7 to 1 in 3.7
Very Steep	>15°	> 1 in 3.7

Table 6: Classification of gradients

Gradients documented in the report should be taken as an indication of general slopes for the area. The localised gradients, particularly near features such as depressions or trenches may occasionally be steeper.

Following the data processing and interpretation phase, the charts were prepared at the OSaS data processing centre, in Navi Mumbai. A team comprising a bathymetry data processor, CAD processor and geophysicist prepared the report and accompanying charts to WRD's specifications.

6.3 Topographic Data

A Hemisphere R320 GNSS RTK system with base station and rover was used to conduct the survey. This is a positioning system which can measure and calculate the XYZ of any given point with centimetre level accuracy with respect to the known base positions. The data is downloaded from the controller system, processed in the OSaS Data Processing Centre in Navi Mumbai and formatted to a compatible ASCII format for plotting in AutoCAD.

6.4 Charting

The results of this survey are presented in twenty-three charts. They consist of the following:

- One overview chart displaying a 2-dimensional image of bathymetry and topography
- One contour map displaying elevation contours at 1m intervals
- Four charts showing topography and bathymetry of the surveyed area
- One longitudinal profile along the lowest elevation line within the surveyed area

- Twelve charts showing cross section profiles at 100m intervals within the surveyed area.

Their details are listed after the List of Annexures at the beginning of this report.

7 SURVEY RESULTS

7.1 Overview and Contour Charts

One chart each has been prepared for an overview of the surveyed area as well as elevation contours at 1m intervals, as described in Section 6.4 **Charting**. These charts also show the topographic survey boundary and the boundary between the bathymetric and topographic surveys.

7.2 Bathymetry and Topography

The bathymetric elevations mentioned in this report and associated charts have been reduced to Mean Sea Level (MSL) using the observed average water level of the Und-1 reservoir for the corresponding survey day. The topographic elevations are with respect to the known level at FRL, above MSL (98.0m). Hence, all the bathymetric and topographic values mentioned in this report are with respect to MSL

The MSL-reduced bathymetric and topographic data are plotted in 1:5000 scale in a 25m X 25m grid. A total of four charts were created for the purpose of plotting bathymetric and topographic data. For more details refer to **Charting**

The RTK positioning accuracy is metric, resulting in a similar positioning accuracy of single beam echo sounder data since the sensor was side-mounted on the vessel.

The following observations are obtained after the processing and interpretation of all the bathymetric and topographic data acquired during the entire period of survey.

Und-1 reservoir is constructed across Und river, situated in the easternmost part of the survey area, which is the primary source of water in the reservoir. Fulzar and Manvar are the left bank tributaries of Und river and bring a considerable amount of water to Und-1 reservoir. In addition, a number of medium and small sized rivers and streams bring water to the dam area.

A minimum elevation of 84.6m was observed in the northwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 105.73 is observed at the crest of the dam, in the northern portion of the survey area.

Und river generally flows from southeast to northwest till the main reservoir storage area and further heads towards north beyond the dam gate. Manwar and Fulzar rivers generally flow from south to north and southwest to northeast respectively and join Und River in the main reservoir storage area. In the central and northern portions of the survey area, the reservoir occupies a large area of the reservoir bed to store its water. The average elevation change within the bathymetric survey area is between 84.6m and 95.8m.

The processed topographic data shows the land is sloping from all the sides of the survey area towards the river channels and dam area. The average elevation change within the topographic area is between 91.74m and 105.73m. Rocky areas are observed in the southwestern and southeastern part of the survey area within the river channels and adjacent bank areas. A Bridge is mapped across the Und river in the southeastern portion of the survey area. Features like temples, wells, check dams, waterlogged area, cultivated lands and houses were observed within the topographic survey area. The Und-1 dam wall is mapped in the northern portion of the survey area.

Within the survey area, most of the outer survey boundaries are mapped above the 100m elevation contours. The topography exhibits a gentle slope between the 100m and 95m contours, associated with cultivation lands. Most of the banks of all three river channels are mapped between 94m and 95m elevation contours. Towards the river channels, the morphology is observed to be slightly irregular with moderate to steep slopes associated with nallas and rocky patches between the elevation contours of 95m and 90m. Further towards the north the river channel deepens from the 90m contour till the dam walls where an elevation contour of 86m is observed near the dam walls. An 86m elevation contour is also observed in the central portion of the west river channel in the

northwestern portion of the survey area. A minimum elevation contour of 85m is observed within this part.

Bathymetric and topographic survey was restricted at some places due to the presence of bushes and trees, cultivated lands, waterlogged areas, protected private properties, small streams with unsafe and inaccessible marshy ground and exposed rocks.

The following **Figure 6** shows a 2-dimensional image of the Und-1 reservoir area using the gridded bathymetric and topographic data.

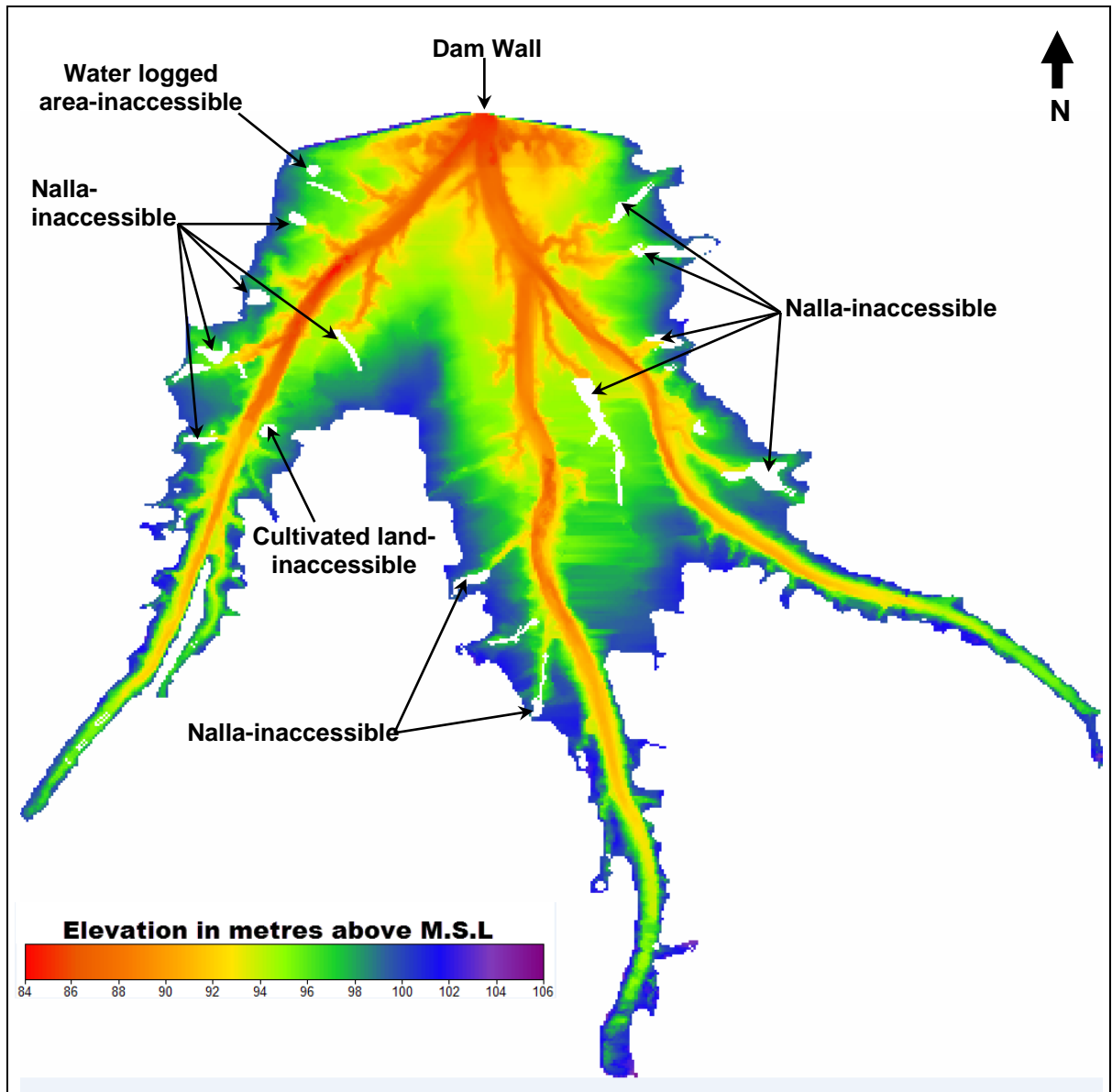


Figure 6: 2D image of the Und-1 reservoir area

7.3 Longitudinal Profile

A longitudinal profile of the reservoir was prepared from the line created by connecting the lowest bed level for each survey line. For more details refer to the charts listed in the section on **Charting**.

7.4 Cross Section Profiles

Cross section profiles consist of the bed levels along the survey lines at 100m intervals. The cross section profiles will also be provided in a Compact Disk/USB as per the instructions mentioned for deliverables. For more details refer to the charts listed in the section on **Charting**.

8 CAPACITY SURVEY RESULTS

8.1 General

It is natural for lakes and reservoirs to trap a major part of the sediment brought into them by the streams in the catchment. Sedimentation of reservoirs is therefore a natural process resulting from the geologic and geo-morphologic processes of water borne erosion.

Sedimentation of reservoirs leads to a gradual loss of their storage capacities available for regulation of supplies. Apart from this, it can cause operational problems created by the entry of large volumes of sediments in the canals or in the turbines, as also due to jamming of hydraulic gates. Reservoir sedimentation can also cause ecological problems due to turbidity, and due to gradual delta formation at the upstream end of the reservoirs. Therefore, sedimentation of reservoirs is a matter of vital concern in all water resources development projects.

The two dominant factors which influence the rate of silting in any storage reservoir are: (i) the relationship of capacity to inflow and (ii) the content of sediment in the inflow. The other factors that modify the long-term loss of storage capacities are (a) the trap efficiency of the reservoir, (b) the character of the sediment, and (c) the method of reservoir operation. Basically, these three factors mentioned are modifiers and do not usually have a major effect as compared to the capacity-inflow ratio and the sediment content in the inflow.

It is generally recommended to carry out capacity survey of reservoirs periodically so that the quantity of sedimentation taking place can be assessed and timely remedial measures taken. This also serves as a guide for proper sedimentation planning of future reservoirs to ensure that the reservoir sedimentation does not cause unexpected problems in the useful operation of the reservoir.

The capacity surveys in general, show that the observed rate of sedimentation is higher than the rate of sedimentation adopted in the original designs. However, it is observed that the rate of sedimentation decreases with the passage of time and the useful life of the reservoir may not get unduly reduced in most cases.

8.2 Effect of Sedimentation in Planning of Reservoirs

It is important to note that storage reservoirs built across rivers and streams lose their capacity on account of deposition of sediment. This deposition, which takes place progressively in time, reduces the active capacity of the reservoir to provide the outputs of water through the passage of time. Accumulation of sediment at or near the dam may interfere with the future functioning of water intakes and hence affects decisions regarding location and height of various outlets. It may also result in greater flow of water into canals / water conveyance systems drawing water from the reservoir. Problems of rise in flood levels in the head reaches and unsightly deposition of sediment from a recreation point of view may also crop up in the course of time.

In this regard, the Bureau of Indian Standards code IS: 12182 - 1987 "Guidelines for determination of effects of sedimentation in planning and performance of reservoir" is an important document which discusses some of the aspects of sedimentation that have to be considered while planning reservoirs. Some of the important points from the code are as follows:

While planning a reservoir, the degree of seriousness and the effect of sedimentation at the proposed location have to be judged from studies, which normally consist of a combination of:

1. Performance Assessment (Simulation) Studies with varying rate of sedimentation.
2. Likely effects of sedimentation at the dam face.

In special cases, where the effects of sedimentation on backwater levels are likely to be significant, backwater studies would be useful to understand the size of river water levels. The steps to be

followed for performance assessment studies with varying rates of sedimentation are as follows:

- a. Estimation of annual sediment yields into the reservoir or the average annual sediment yield and of trap efficiency expected.
- b. Distribution of sediment within the reservoir to obtain a sediment elevation and capacity curve at any appropriate time.

8.3 Earlier Capacity Survey

8.3.1 Capacity at the time of impounding

The construction works of Und-1 commenced in 1976 and were completed in 1988. The first impounding was completed in the year 1988. The following salient features of Und-1 reservoir are extracted from the document provided by the client:

Document: Sedimentation survey of Und-1 reservoir by Gujarat engineering research institute in the year January 2010.

i. Location	
Latitude	: 21° – 41.00' N
Longitude	: 70° – 24.00' E
j. Catchment Area	: 769 km ²
k. Full Reservoir Level (FRL)	: 98.0m m
l. High Flood Level (HFL)	: 100.0 m
m. Minimum Draw Down Level (MDDL/OSL)	: 90.10 m
n. Gross Storage	: 72.50 Mm ³
o. Dead Storage	: 7.025 Mm ³
p. Live Storage	: 65.475 Mm ³

In addition, original Elevation-Area-capacity data at the time of impounding from the lowest elevation level to FRL is given in the provided document. The details are included in **Annexure 3**.

Table 7 shows the original impound Elevation-Area-capacity at intervals of 1.0m.

8.3.2 Capacity survey of 2010

As per the document (*Sedimentation survey of Und-1 reservoir by Gujarat engineering research institute in the year January 2010*) provided by the client, a capacity survey had been completed in 2010. The given report documented the MDDL/OSL at 90.10m and FRL at 98.0m.

For ease of further calculations and preparation of Elevation-Area-capacity curves with respect to the previous data, the data has been extracted from the document referred to above. The revised Elevation-Area-capacity data of 2010 silt survey was provided at intervals of 1.0m. In addition, Elevation-Area-capacity data is also provided at intervals of 0.01m. The details of previous data are given in **Annexure 3**. **Table 7** shows the extracted Elevation-Area-capacity data of the 2010 silt survey, used for calculations.

8.4 Capacity survey of 2021

The water spread area and its corresponding capacity has been calculated from the acquired bathymetry and topographic data. Hypack software's TIN (Triangulated Irregular Network) MODEL package was used to calculate the Area and Capacity of the Und-1 reservoir at intervals of 0.01m with respect to the corresponding elevation above MSL. Within the survey area a few places were not accessible to the survey personnel due to the existing marshy streams, shallow patches, water logged area, cultivated lands, areas with steep slopes on the river bank, houses, areas with bushes

and thick vegetation and rocky areas. However, these areas with elevations below FRL were taken into account while calculating the water spread area by assigning interpolated values with respect to the acquired values around the restricted areas.

The depths recorded by the echo sounder were reduced to obtain the bed levels (bathymetry data) with respect to MSL for the entire surveyed area. The data obtained from the topographic survey was then merged with the bathymetric data to output a single xyz file for the entire surveyed area. Using the Hypack software a TIN (Triangulated irregular network) model was generated from this single xyz file. Further, using the 'TIN to level' option in Hypack software, the required range of levels (minimum and maximum water levels) and the desired interval (in this case 0.01m) at which the capacity/volume and area output is required were input in the software. Finally, a text file was generated by the software which contains all the information on the volume/capacity and area obtained at the specified elevation interval (0.01m) in the reservoir.

The detailed Elevation-Area-Capacity data at 0.01m is available in **Annexure 1**. The FRL is considered at 98.0m according to the information extracted from the documents provided by client. For ease of further calculations and preparation of Elevation-Area-capacity curve, the data has been selected at regular intervals of approximately 1.0m as the provided data of original capacity survey and revised capacity survey in the year 2010 are at 1.0m interval. **Table 7** shows the Elevation-Area-capacity at these intervals.

8.5 Elevation-Area-Capacity Curves

One of the most important physical characteristics of dams and their reservoirs are Elevation-area-capacity curves. These curves are important for defining the storage capacity of the reservoir and thereby can be used in reservoir operation, reservoir flood routing, determination of capacity and water spread corresponding to each elevation.

The required data extracted from the document (*Sedimentation survey of Und-1 reservoir by Gujarat engineering research institute in the year January 2010*) provided by the client. The elevation-area-capacity data available at 1.0 m intervals from the lowest elevation level to FRL. The data contains the original capacity data at the time of impounding and revised capacity data obtained in the year 2010 after the silt survey. The 2010 area-capacity data is also available at intervals of 0.01m. The current survey was conducted in 2021 and the data is provided at intervals of 0.01m. For ease of further calculations and preparation of Elevation-Area-capacity curve with respect to previous survey data, the data has been selected at regular intervals of approximately 1.0m. The following **Table 7** shows the comparative statement of data between Original (1988), previous silt survey (2010) and current survey (2021) at intervals of approximately 1.0m.

Elevation (Above MSL, m)	As per original survey (1988)		As per 2010 survey		As per 2021 survey		Remarks
	Gross Capacity (M.Cu.m)	Area (sq.km)	Gross Capacity (M.Cu.m)	Area (sq.km)	Gross Capacity (M.Cu.m)	Area (sq.km)	
83	0.052	0.098	0.000	0.000	0.000	0.000	
84	0.150	0.281	0.000	0.000	0.000	0.000	
85	0.606	0.484	0.000	0.000	0.001	0.004	
86.00	1.062	0.688	0.013	0.042	0.020	0.059	
87.00	2.043	1.044	0.136	0.219	0.210	0.315	
88.00	3.083	1.374	0.566	0.648	0.708	0.708	
89.00	4.914	1.890	1.464	1.125	1.739	1.407	

Elevation (Above MSL, m)	As per original survey (1988)		As per 2010 survey		As per 2021 survey		Remarks
	Gross Capacity (M.Cu.m)	Area (sq.km)	Gross Capacity (M.Cu.m)	Area (sq.km)	Gross Capacity (M.Cu.m)	Area (sq.km)	
90.00	6.833	2.484	2.916	1.800	3.558	2.252	
90.10	7.025	2.498	3.103	1.892	3.788	2.341	MDDL/OSL
91.00	9.961	3.215	5.282	2.973	6.244	3.111	
92.00	13.225	4.035	9.076	4.003	9.874	4.214	
93.00	18.620	5.548	14.770	5.493	14.804	5.729	
94.00	24.253	7.139	22.409	7.061	21.487	7.707	
95.00	33.326	9.308	31.743	9.208	30.526	10.502	
96.00	42.783	11.540	42.598	11.467	42.292	13.114	
97.00	57.064	14.570	54.949	12.914	56.738	15.820	
98.00	72.500	17.688	69.045	15.337	73.884	18.439	FRL

Table 7: Comparative statement of Und-1 reservoir

The above data was used for the preparation of Elevation-Area-Capacity curves. The following figure shows the Elevation-Area-Capacity curves of 2021 and 2010 superimposed on the 1988 original Elevation-Area-Capacity curves.

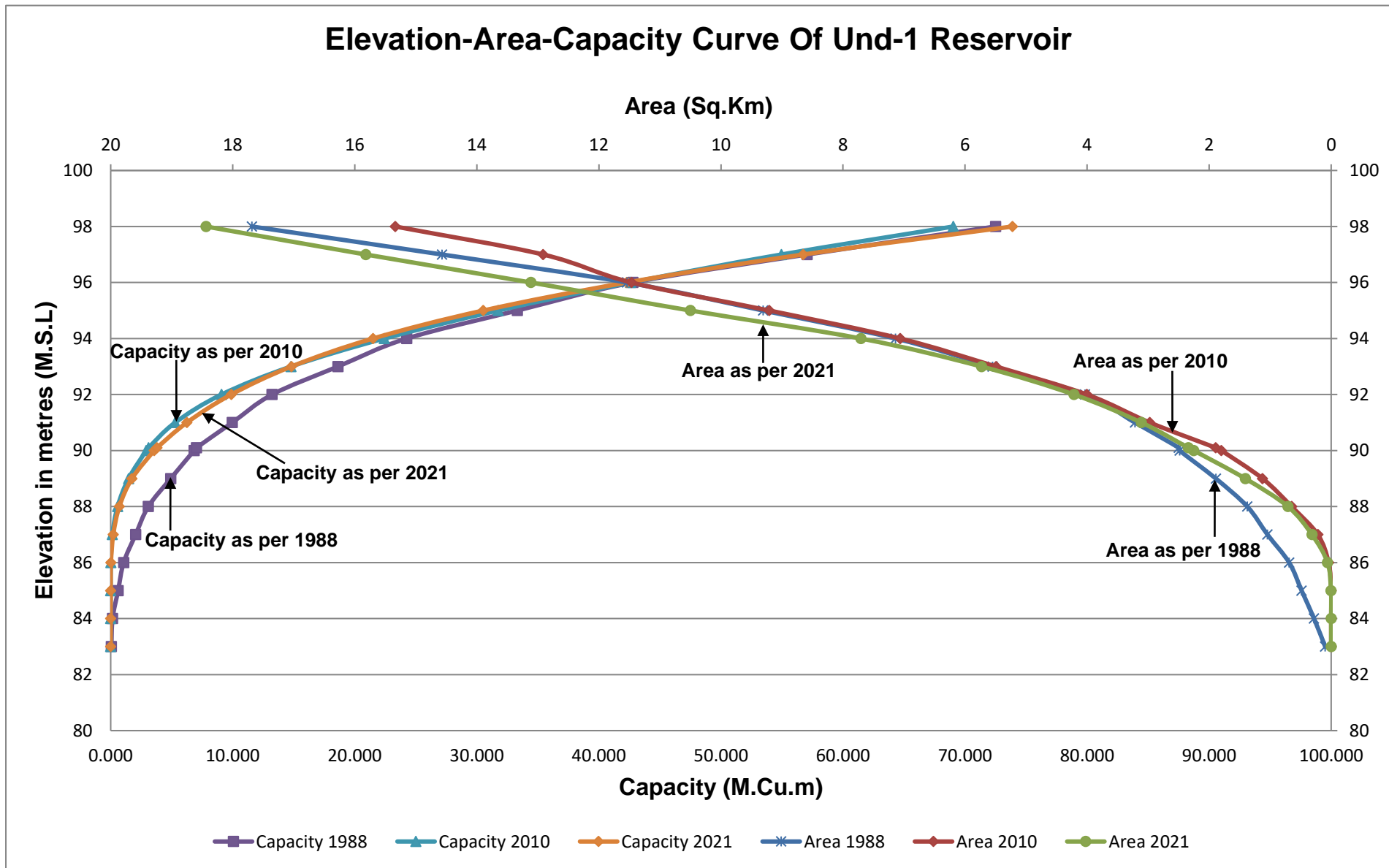


Figure 7: Elevation-Area-Capacity Curves

8.6 Data Comparison Between 1988 and 2021

Definitions

Full Reservoir Level: Denoted by FRL this level corresponds to the storage which includes both inactive and active storage and also the flood storage, it is the highest reservoir level that can be maintained without spillway discharge.

Minimum Drawdown Level (MDDL): This is the level below which the water from the reservoir will not be drawn down to maintain a minimum head required in power projects.

Maximum Water Level (MWL): This is the water level that is likely to be attained during the passage of the design flood. This level is also called the highest reservoir level or the highest flood level.

Live storage: This is the volume of water actually available at any time between the Dead Storage Level and the Full Reservoir Level.

Outlet Sill Level (OSL) / Dead Storage Level (DSL): This is the level below which there is no outlets to drain the water in the reservoir by gravity.

Dead storage: This is the total storage below the invert level of the lowest discharge outlet from the reservoir. It may be available to contain sedimentation, provided the sediment does not adversely affect the lowest discharge.

8.6.1 Rate of erosion

The increase of storage and rate of erosion calculations are based on the following basic data.

- i) The catchment area of the reservoir is 769.0 sq.km.
- ii) The FRL of the reservoir is given as 98.0m.
- iii) The dead storage level of the reservoir is at 90.10m.

The results obtained after comparing the survey data of the year 1988 with that of 2021 are provided below:

Capacity at FRL (98.0m) as per the 1988 survey	= 72.50 M.Cu.m
Capacity at FRL (98.0m) as per 2021 survey	= 73.884 M.Cu.m
Erosion in 33 years (1988-2021)	= 73.884 – 72.50
	= 1.384 M.Cu.m
Annual Erosion	= 1.384/33= 0.042 M.Cu.m/yr
Rate of Erosion	= (0.042/769) x 1000
	= 0.055 Th.Cu.m/sq.km/year
	= 0.55 Ha.m/100sq.km./year

8.6.2 Increase of gross storage capacity at FRL

Capacity at FRL (98.0m) as per the 1988 survey	= 72.50 M.Cu.m
Capacity at FRL (98.0m) as per 2021 survey	= 73.884 M.Cu.m
Increase of storage capacity in 33 years (1988-2021)	= 73.884 – 72.50
	= 1.384 M.Cu.m
Percentage increase of Gross storage capacity up to FRL in 33 years	= (1.384/72.50) x 100
	= 1.91%
Annual percentage increase	= 1.91/33
	= 0.06%

8.6.3 *Loss of dead storage capacity*

Capacity at MDDL/OSL (90.10m) as per the 1988 survey	= 7.025 M.Cu.m
Capacity at MDDL / OSL as per 2021 survey	= 3.788 M.Cu.m
Loss of storage capacity in 33 years (1988-2021)	= 7.025 – 3.788 = 3.237 M.Cu.m
Percentage loss of dead storage capacity up to OSL in 33 years	= (3.237/7.025) x 100 = 46.08%
Annual percentage loss	= 46.08/33 = 1.40%

8.6.4 *Increase of live storage capacity*

Live storage capacity as per the 1988 survey	= 72.50 – 7.025 = 65.475 M.Cu.m
Live storage capacity as per 2021 survey	= 73.884 – 3.788 = 70.096 M.Cu.m
Increase of Live storage capacity in 33 years (1988-2021)	= 70.096 – 65.475 = 4.621 M.Cu.m
Percentage increase of live storage capacity in 33 years	= (4.621/65.475) x 100 = 7.06%
Annual percentage increase	= 7.06/33 = 0.21%

8.7 Summary of Capacity Surveys (1988 and 2021)

Reservoir data as per impounding survey:

Year of impounding	: 1988
Catchment Area	: 769.00 sq.km
Spread area at FRL (98.00m)	: 17.688 sq.km
Gross storage at FRL (98.00m)	: 72.50 M.Cu.m
Dead storage at D.S.L (90.10)	: 7.025 M.Cu.m
Live storage at FRL (98.00m)	: 65.475 M.Cu.m

Rate of siltation/erosion (at FRL 98.0m) with respect to the impounding survey data in the year 1988													
Sr. No	Year of Survey	Capacity in M.Cu.m			Erosion in M.Cu.M	Period in years	Erosion Rate in M.Cu.m/Year	Increase/Loss in Capacity in M.Cu.M and percentage			Erosion index ham/100/Sq.Km/Yr	Annual % increase	Remarks
		Dead	Live	Gross				Dead	Live	Gross			
1	1988	7.025	65.475	72.500	-	-	-	-	-	-	-	-	-
2	2021	3.788	70.096	73.884	1.384	33	0.042	3.237* 46.08%**	4.621 7.06%	1.384 1.91%	0.55	0.06	-

Table 8: Rate of Erosion at FRL (98.0m)

According to IS-12182 (1987)

Annual % loss - Class of Reservoir

Up to 0.1	-	Insignificant
0.1 to 0.5	-	Significant
Above 0.5	-	Serious

Rate of Erosion	- Increase in Gross Capacity/No of Years
Erosion Index	- (Erosion rate/Catchment area) x 10000
Annual % Increase	- Increase in % of Gross Capacity/No. of years

Note:

- Values highlighted with single asterisks (*) represents the volume of sediment deposited.
- Values highlighted with double asterisks (**) represents the percentage (%) loss of storage capacity.

8.8 Data Comparison between 2010 AND 2021

8.8.1 Rate of erosion

The increase of storage and rate of erosion calculations are based on the following basic data.

- i) The catchment area of the reservoir is 769.0 Sq.Km.
- ii) The FRL of the reservoir is given as 98.0m.
- iii) The dead storage level of the reservoir is at 90.10m.

The results obtained after comparing the survey data of the year 2010 with that of 2021 are provided below:

Capacity at FRL (98.0m) as per the 2010 survey	= 69.045 M.Cu.m
Capacity at FRL (98.0m) as per 2021 survey	= 73.884 M.Cu.m
Erosion in 11 years (2010-2021)	= 73.884 – 69.045 = 4.839 M.Cu.m
Annual Erosion	= 4.839/11= 0.440 M.Cu.m/yr
Rate of Erosion	= (0.440/769) x 1000 = 0.57 Th.Cu.m/sq.km/year = 5.7 Ha.m/100sq.km./year

8.8.2 Increase of gross storage capacity at FRL

Capacity at FRL (98.0m) as per the 2010 survey	= 69.045 M.Cu.m
Capacity at FRL (98.0m) as per 2021 survey	= 73.884 M.Cu.m
Increase of storage capacity in 11 years (2010-2021)	= 73.884 – 69.045 = 4.839 M.Cu.m
Percentage increase of gross storage capacity up to FRL in 11 years	=(4.839/69.045) x 100 = 7.01%
Annual percentage increase	= 7.01/11 = 0.64%

8.8.3 Increase of dead storage capacity

Capacity at DSL/OSL (90.10m) as per the 2010 survey	= 3.103 M.Cu.m
Capacity at DSL/ OSL as per 2021 survey	= 3.788 M.Cu.m
Loss of storage capacity in 11 years (2010-2021)	= 3.788 – 3.103 = 0.685 M.Cu.m
Percentage increase of Dead storage capacity up to OSL in 11 years	= (0.685/3.103) x 100 = 22.08%
Annual percentage increase	= 22.08/11 = 2.01%

8.8.4 Increase of live storage capacity

Live storage capacity as per the 2010 survey	= 69.045 – 3.103 = 65.942 M.Cu.m
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Live storage capacity as per 2021 survey	= 73.884 – 3.788 = 70.096 M.Cu.m
Increase of Live storage capacity in 11 years (2010-2021)	= 70.096 – 65.942 = 4.154 M.Cu.m
Percentage increase of live storage capacity in 11 years	= (4.154/65.942) x 100 = 6.30%
Annual percentage increase	= 6.30/11 = 0.57%

8.9 Summary of Capacity Surveys (2010 and 2021)

Reservoir data as per 2010 silt survey:

Year of impounding	: 1988
Year of silt survey	: 2010
Catchment Area	: 769.00 Sq.Km
Spread area at FRL (98.00m)	: 15.337 Sq.Km
Gross storage at FRL (98.00m)	: 69.045 M.Cu.m
Dead storage at D.S.L (90.10)	: 3.103 M.Cu.m
Live storage at FRL (98.00m)	: 65.942 M.Cu.m

Rate of erosion (at FRL 98.0m) with respect to the silt survey data in the year 2010													
Sr. No	Year of Survey	Capacity in M.Cu.m			Erosion in M.Cu.M	Period in years	Erosion Rate in M.Cu.m/Year	Increase in Capacity in M.Cu.M and percentage			Erosion index ham/100/Sq.Km/Yr	Annual % increase	Remarks
		Dead	Live	Gross				Dead	Live	Gross			
1	2010	3.103	65.942	69.045	-	-	-	-	-	-	-	-	-
2	2021	3.788	70.096	73.884	4.839	11	0.440	0.685 22.08%	4.154 6.30%	4.839 7.01%	5.7	0.64	-

Table 9: Rate of Erosion at FRL (98.0m)

According to IS-12182 (1987)

Annual % loss - Class of Reservoir

Up to 0.1	-	Insignificant
0.1 to 0.5	-	Significant
Above 0.5	-	Serious

Rate of Erosion	-	Increase in Gross Capacity/No of Years
Erosion Index	-	(Erosion rate/Catchment area) x 10000
Annual % Increase	-	Increase in % of Gross Capacity/No. of years

8.10 Loss/Increase of Storage due to Sediment Deposit/Erosion

Reservoirs, created by dams on rivers, lose their storage capacity due to sedimentation. A large proportion of the transported silt eventually gets deposited at different levels of a reservoir and causes reduction not only in dead storage but also in live storage capacities. The consequence of loss in storage due to sediment accumulation may even cause operational problems. Periodic capacity survey of a reservoir is thus essential to ascertain the rate of sedimentation and reduction in storage capacity for efficient and productive management of water resources. Reservoir siltation affects the safety of an old reservoir since the sediment in the reservoirs increases the load on the wall of the dam.

On the other hand, the storage capacity of a reservoir may increase due to various reasons. One of the major reasons behind the increase of storage capacity is due to the conversion of more irregular land area around the river bank in to levelled cultivation lands. This will increase the water spread area around the FRL and the corresponding volume of capacity will be increased. The capacity could also increase by the widening of the river channel at various levels within the reservoir. The increases in capacity due to sediment removal can occur in any level from the dead storage level to gross storage level.

For ease of reporting, the current survey data in 2021 has been compared separately with the original impounding data of 1988 and with the previous silt survey data of 2010.

For Und-1 reservoir, the detailed comparison of current capacity data at different levels to the impounding capacity data of 1988 survey shows decrease in capacity due to sediment deposit at the dead storage area and part of live storage area up to 97.0m. The increase of sediment deposit and the corresponding reduction in capacity could be due to the abundant sediment inflow into the reservoir due to floods or erosion of reservoir banks above these levels. The capacity at OSL reduced from 7.025 M.Cu.m to 3.788 M.Cu.m between the years 1988 and 2021 with a loss in capacity of about 46.08%. The amount of sediment deposited during this period at OSL is 3.237 M.Cu.m.

Above 97.0m, the comparison shows increase in capacity at FRL (98.0m). The increase in capacity could be due to erosion of the reservoir bank at these levels or conversion of more irregular water spread areas around the FRL into levelled cultivation fields. The capacity at FRL increased from 72.50 M.Cu.m to 73.884 M.Cu.m between the years 1988 and 2021 with an increase in capacity of about 1.91%. The amount of sediment eroded during this period at FRL is 1.384 M.Cu.m.

The following **Table 10** shows the amount of deposition and erosion of sediment at different levels from the lowest elevation level to FRL and corresponding percentage loss and increase in capacity at different levels.

Elevation (Above MSL, m)	Capacity 1988 (M.Cu.m)	Area 2021 (Sq.Km)	Capacity 2021 (M.Cu.m)	Deposition/ Erosion of Sediment (M.Cu.m)	% Loss /Increase of Capacity	Remarks
83	0.052	0.000	0.000	0.052	100.00	Sediment deposit, loss of capacity
84	0.150	0.000	0.000	0.150	100.00	Sediment deposit, loss of capacity
85	0.606	0.004	0.001	0.605	99.83	Sediment deposit, loss of capacity
86.00	1.062	0.059	0.020	1.042	98.12	Sediment deposit, loss of capacity
87.00	2.043	0.315	0.210	1.833	89.72	Sediment deposit, loss of capacity

Elevation (Above MSL, m)	Capacity 1988 (M.Cu.m)	Area 2021 (Sq.Km)	Capacity 2021 (M.Cu.m)	Deposition/Erosion of Sediment (M.Cu.m)	% Loss /Increase of Capacity	Remarks
88.00	3.083	0.708	0.708	2.375	77.04	Sediment deposit, loss of capacity
89.00	4.914	1.407	1.739	3.175	64.61	Sediment deposit, loss of capacity
90.00	6.833	2.252	3.558	3.275	47.93	Sediment deposit, loss of capacity
90.10(OSL)	7.025	2.341	3.788	3.237	46.08	Sediment deposit, loss of capacity
91.00	9.961	3.111	6.244	3.717	37.32	Sediment deposit, loss of capacity
92.00	13.225	4.214	9.874	3.351	25.34	Sediment deposit, loss of capacity
93.00	18.620	5.729	14.804	3.816	20.49	Sediment deposit, loss of capacity
94.00	24.253	7.707	21.487	2.766	11.40	Sediment deposit, loss of capacity
95.00	33.326	10.502	30.526	2.800	8.40	Sediment deposit, loss of capacity
96.00	42.783	13.114	42.292	0.491	1.15	Sediment deposit, loss of capacity
97.00	57.064	15.820	56.738	0.326	0.57	Sediment deposit, loss of capacity
98.00(FRL)	72.500	18.439	73.884	1.384*	1.91**	Sediment erosion, increase of capacity

Table 10: Loss/increase of storage capacity between 1988 and 2021

Note:

- Values highlighted with single asterisks (*) represents the volume of sediment eroded.
- Values highlighted with double asterisks (**) represents the percentage (%) increase of storage capacity.

For Und-1 reservoir, the detailed comparison of current capacity data at different levels to the silt capacity data of 2010 survey shows increase in capacity due to sediment erosion at the dead storage area and part of live storage area from 85m to 93m and 97m to 98m. The increase of sediment erosion and the corresponding increase in capacity possibly due to the widening of river channels or removal of sediments due to outflow. Another possibility is that the erosion of the reservoir bank at these levels or conversion of more irregular water spread areas around the FRL into levelled cultivation fields.

The capacity at OSL increased from 3.103 M.Cu.m to 3.788 M.Cu.m between the years 2010 and 2021 with an increase in capacity of about 22.08 percent. The amount of sediment eroded during this period at OSL is 0.685 M.Cu.m. The capacity at FRL increased from 69.045 M.Cu.m to 73.884 M.Cu.m between the years 2010 and 2021 with an increase in capacity of about 7.01 percent. The amount of sediment eroded during this period at FRL is 4.839 M.Cu.m.

Within the live storage area, between 94m and 96m is observed a loss of capacity due to sediment deposit. The increase of sediment deposit and the corresponding reduction in capacity could be due to sediment inflow and deposition at these levels due to floods and erosion above these levels.

The following **Table 10** shows the amount of deposition and erosion of sediment at different levels from the lowest elevation level to FRL and corresponding percentage loss and increase in capacity at different levels.

Elevation (Above MSL, m)	Capacity 2010 (M.Cu.m)	Area 2021 (sq.km)	Capacity 2021 (M.Cu.m)	Deposition/ Erosion of Sediment (M.Cu.m)	% Loss /Increase of Capacity	Remarks
85	0.000	0.004	0.001	0.001	0.001	Sediment erosion, increase of capacity
86.00	0.013	0.059	0.020	0.007	53.85	Sediment erosion, increase of capacity
87.00	0.136	0.315	0.210	0.074	54.41	Sediment erosion, increase of capacity
88.00	0.566	0.708	0.708	0.142	25.09	Sediment erosion, increase of capacity
89.00	1.464	1.407	1.739	0.275	18.78	Sediment erosion, increase of capacity
90.00	2.916	2.252	3.558	0.642	22.02	Sediment erosion, increase of capacity
90.10(OSL)	3.103	2.341	3.788	0.685	22.08	Sediment erosion, increase of capacity
91.00	5.282	3.111	6.244	0.962	18.21	Sediment erosion, increase of capacity
92.00	9.076	4.214	9.874	0.798	8.79	Sediment erosion, increase of capacity
93.00	14.770	5.729	14.804	0.034	0.23	Sediment erosion, increase of capacity
94.00	22.409	7.707	21.487	0.922*	4.11**	Sediment deposit, loss of capacity
95.00	31.743	10.502	30.526	1.217*	3.83**	Sediment deposit, loss of capacity
96.00	42.598	13.114	42.292	0.306*	0.72**	Sediment deposit, loss of capacity
97.00	54.949	15.820	56.738	1.789	3.26	Sediment erosion, increase of capacity
98.00(FRL)	69.045	18.439	73.884	4.839	7.01	Sediment erosion, increase of capacity

Table 11: Loss/increase of storage capacity between 2010 and 2021

Note:

- Values highlighted with single asterisks (*) represents the volume of sediment deposited.
- Values highlighted with double asterisks (**) represents the percentage (%) loss of storage capacity.

The loss or increase in capacity within the reservoir is directly proportional to the amount of sediment deposited or eroded within the reservoir. This sediment deposition or removal can occur at any level of the reservoir throughout the live and dead storage area. This deposition or erosion of the sediment within the reservoir results in a corresponding loss or increase of capacity.

The amount of silt present in any reservoir is attributed to the geological nature of the area surrounding the reservoir. If the area is rich in silt, definitely any reservoir located within the area will have a greater proportion of silt in any sediment transported into it. Since erosional sedimentation is a serious problem in different parts of the world today resulting in several reservoirs becoming completely silted over, designers should aim at the following mitigation measures of soil erosion and sediment transport processes:

- Prevention of further land degradation in any catchment to reduce siltation
- Prevention of soil erosion from catchment to reduce siltation of reservoir
- Ensuring adequate irrigation water to the demand area
- Improving land capability moisture regime in the watershed
- Improving land use to match capability
- Maintaining ecological balance in a catchment area
- Educating people in the management of a catchment

8.11 Control Of Sedimentation in Reservoirs

Sedimentation in a reservoir is a natural process which affects the capacity of the reservoir. Excess deposition of sediment directly affects the useful capacity of the reservoir based on the project requirements like irrigation, hydroelectric power, flood control etc. The rate of deposition of sediment largely depends on the annual sediment load carried by the streams and up to what extent the sediment is retained in the reservoir. This, in turn, depends upon a number of factors such as the area and nature of the catchment, level use pattern (cultivation practices, grazing, logging, construction activities and conservation practices), rainfall pattern, storage capacity, period of storage in relation to the sediment load of the stream, particle size distribution in the suspended sediment, channel hydraulics, location and sizes of sluices, outlet works, configuration of the reservoir, and the method and purpose of releases through the dam. An appropriate approach to these factors mentioned above is essential for efficient control of sedimentation and therefore to extend the life of the reservoir.

There are numerous techniques developed to control the sedimentation in reservoirs, broadly classified as

- I. Suitable design of reservoir
- II. Restrict the sediment inflow
- III. Limit the sediment deposition
- IV. Regular removal of deposited sediment

8.11.1 Suitable design of reservoir

The volume of discharge directly affects the rate of sedimentation. The rate of sedimentation increases with the volume of discharge. The higher deposition of sediment within a reservoir increases the surface area of the water, thereby resulting in greater loss of water by evaporation. This will ultimately result in decrease of storage capacity which in turn lowers the trap efficiency of the reservoir.

The capacity of the reservoir and the size and characteristics of the reservoir and its drainage area are the most important factors governing the annual rate of accumulation of sediment. Periodic reservoir sediment surveys provide information about the rate of sediment deposited, and hence can enable us to make necessary steps to limit the same. The sedimentation may take place not only in the dead storage area of a reservoir; reservoir studies have revealed significant deposition of sediment in the live storage area of a reservoir as well.

The capacity of reservoirs largely depends on various factors. Hence the following points need to be considered for their optimum design.

- Topographical, geological and geomorphological factors which directly affect the sediment yield
- Sediment delivery characteristics of the channel system
- The efficiency of the reservoir as a sediment trap
- The ratio of capacity of the reservoir to the inflow
- Configuration of the reservoir
- Method of operation of the reservoir
- Provisions for silt exclusion

8.11.2 *Restrict the sediment inflow*

The sediment inflow to the reservoirs can be controlled by proper watershed management and soil conservation measures to check production and transport of sediment to the catchment area. Also adopt adequate preventive measures to check the inflow of sediment into the reservoir. Soil conservation involves the prevention of loss of the topmost layer of the soil from erosion or prevention of reduced fertility caused by over usage, acidification, salinization or other chemical soil contamination. The soil conservation measures are further sub-divided as

- Engineering
- Agronomy
- Forestry

Engineering methods

Check dams

One of the methods of soil conservation is the use of check dams. A check dam is a small dam which can be either temporary or permanent, built across a minor channel, swale, or drainage ditch. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion.

Contour trenching and bunding

In the contour trenching method, the surrounding area of the reservoir is ploughed, like contour lines. These contour lines create a water break which reduces the formation of rills and gullies during times of heavy precipitation, allowing more time for the water to settle into the soil. Also, trenches can be artificially dug along the contour lines. Water flowing down the hill is retained by the trenches, and infiltrates the soil below. Manually dug trenches are smaller, machine dug trenches can be deeper. The dimensions and the format of the trenches should correspond to the local climate and soil conditions.

A similar practice is contour bunding where stones are placed around the contours of slopes. Contour bunding or contour bundling, and contour farming involves the placement of lines of stones along the natural rises of a landscape. These techniques help to capture and hold rainfall before it can become runoff. Contour bunds also help to control soil erosion.

Gully Plugging

A gully plug is a small, temporary or permanent dam constructed across a drainage ditch, swale, or channel to lower the speed of concentrated flows. These dams can be constructed using locally available materials. These small dams reduce the speed of water flow and minimise the erosive power of runoff. They also promote the deposition of eroded materials to further stabilise the gullies.

Agronomy methods

Agronomic conservation measures function by reducing the impact of raindrops through interception and thus reducing soil erosion and increasing infiltration rates, and also reducing surface runoff and soil erosion. The major agronomic soil and water conservation practices are strip cropping, mixed cropping, intercropping, fallowing, mulching, contour ploughing, crop rotation, conservation tillage, and agroforestry.

Forestry methods

Forestry measures include forest conservancy, control on grazing, lumbering operations and forest fires along with management and protection of forest plantations.

8.11.3 Limit sediment deposition

The amount of suspended sediment is comparatively large during and just after flood flow. The settlement of sediment in the reservoir can be controlled by adequate operation of outlets in such a manner as to permit selective withdrawals of water having a higher-than-average sediment content. Thus, more water wasted at peak time of inflow will result a low level of sediment to deposit in the reservoir. There are two methods:

Density Current

Water at various levels of a reservoir often contains radically different concentrations of suspended sediment, particularly during and after flood flows and if all waste-water could be withdrawn at those levels where the concentration is highest, a significant amount of sediment might be removed from the reservoir. The density differences between the sediment-laden inflow and the clear water in the reservoir leads to a turbidity current which plunges beneath the clear water and moves towards the dam as a submerged current. The proper allocation of gates or sluices can remove a significant amount of sediment-saturated water and therefore can reduce the amount of sedimentation.

Waste-Water Release

This method is applicable only when a reservoir is of such a size that a small part of large flood flows will fill it. A series of outlets at various elevations can eject sediment-saturated water. This method, which can remove considerable amount of sediment from the reservoir through proper gate control, will differ greatly with different locations. The drawback of this method is that waste-water release is only possible when water can be or should be wasted.

8.11.4 Regular removal of deposited sediment

Removal of accumulated sediment is considered as the last resort as the operations are very expensive unless the excavated sediment is economically usable. The removal of sediment deposits may be accomplished by a variety of mechanical and hydraulic methods, such as excavation, dredging, draining & flushing, sluicing aided by measures like hydraulic or mechanical agitation or blasting of the sediment.

Excavation

Excavation is the removal of the sediment by hand or power operated shovel, dragline scraper or other mechanical means after draining most of the water. The excavation of silt and clay which constitute most of the material in larger reservoirs is more difficult than the excavation of sand and gravel. Fine-textured sediment cannot be excavated easily from larger reservoirs unless it is relatively fluid or relatively compact.

Dredging

In this method, the deposit is removed from the bottom of the reservoir irrespective of the level of storage using mechanical or hydraulic equipment. The various types of dredging are mechanical dredging by bucket, suction dredging with floating pipeline and a pump on a barge and siphon dredging with a floating pipe extending over the dam or connected to an opening in the dam and with a pump on a barge.

Draining and flushing

This method, also called flood sluicing, involves a relatively slow release of all stored water in a reservoir through gates or valves located near the bottom of the dam and the maintenance thereafter of open outlets for a shorter or longer period during which normal stream flow cuts into or is directed against the sediment deposits.

Sluicing with Controlled Water

In this method the controlled water supply permits choosing the time of sluicing more advantageously and the water may be directed more effectively against the sediment deposits. While the flood sluicing depends either on the occurrence of flood or on being able to release rapidly all of a full or nearly full supply of water in the main reservoir. The advantage of this method is that generally more sediment can be removed per unit of water used than in flood scouring or draining and flushing.

Sluicing with Hydraulics and Mechanical Agitation

In this method, stirring up, breaking up or moving deposits of a sediment into a stream current moving through a drained reservoir basin or into a full reservoir will tend to make the removal of sediment from the reservoir more complete. Wherever draining, flushing or sluicing appear to be warranted, the additional use of hydraulic means for stirring up the sediment deposits, or sloughing them off, into a stream flowing through the reservoir basin should be considered.

9 CONCLUSIONS

- The construction work of Und-1 dam commenced in 1976 and was completed in 1988. The year of first impounding was done in 1988 with a gross storage of 72.50 M.Cu.m at FRL (98.0m above M.SL) over a catchment area of 769.0 Sq.Km. The dead storage (at OSL:910.10m above MSL) as per impound survey was 7.025 M.Cu.m.
- A silt survey was conducted in the year 2010. The gross storage at FRL (98.0 above M.SL) was 69.045 M.Cu.m and the dead storage (at OSL: 90.10m above MSL) was 3.103 M.Cu.m.
- The current survey (2021) obtained the gross storage at FRL (98.0 above M.SL) is 73.884 M.Cu.m and the dead storage (at OSL: 90.10m above MSL) is 3.788 M.Cu.m.
- Bathymetric and topographic survey was restricted at some places due to the presence of bushes and trees, waterlogged area, cultivated land, restricted private properties, exposed rocks and small streams with unsafe and inaccessible marshy ground.
- In the current bathymetric and topographic survey, a minimum elevation of 84.6m was observed in the northwestern portion of the survey area within the bathymetric section. A maximum topographic elevation value of 105.73m is observed in the in the crest of the dam, in the northern portion of the survey area.
- The average elevation change within the bathymetric area is between 84.6m and 95.8m and average elevation change within the topographic area is between 91.74m and 105.73m
- Most of the outer survey area is observed to be above the 100m elevation contour. Most of the banks of all three river channels are mapped between 94m and 95m elevation contour with slightly irregular topography. A major part of the reservoir water storage area exists below the 90m elevation contour. A lower elevation contour of 86m is observed in the northern portion of survey area near the dam wall and central portion of the left river channel in the northwestern portion of the survey area. A minimum elevation contour of 85m is observed within this river channel.
- The current survey data was compared with the original capacity data in 1988 and silt survey data in 2010.
- The comparison between 1988 and 2021 (33 years) data results shows a rate of erosion of 0.55 Ha.m/100sq.km./year. Annual percentage increase of gross storage capacity and live storage capacity are 0.06% and 0.21% respectively. The annual percentage loss of dead storage capacity is 1.40%.
- The comparison between 2010 and 2021 (11 years) data results shows a rate of erosion of 5.7 Ha.m/100sq.km./year. Annual percentage increase of gross storage capacity, live storage capacity and dead storage capacity are 0.64%, 0.57% and 2.01% respectively.
- The comparison of current and original capacity data of the 1988 survey (33 years) shows a decrease in capacity due to sediment deposit at the dead storage area and part of live storage area between 83m and 97m, possibly due to abundant sediment inflow into the reservoir due to floods or erosion of reservoir banks above these levels. The capacity at OSL (90.10m) reduced from 7.025 M.Cu.m to 3.788 M.Cu.m with a sediment deposit of 3.237 M.Cu.m over a loss in capacity of about 46.08 percent.
- The comparison of the current and original capacity data of 1988 survey (33 years) shows an increase in capacity at FRL (98.0m), possibly due to erosion of the reservoir bank at these levels or conversion of more irregular water spread areas around the FRL into levelled cultivation fields. The capacity at FRL (98.0m) increased from 72.50 M.Cu.m to 73.884 M.Cu.m with a sediment erosion of 1.384 M.Cu.m over an increase in capacity of about 1.91 percent.
- The comparison of the current and previous capacity data of the 2010 silt survey (11 years) shows an increase in capacity from 85m to 93m and 97m to 98m, possibly due to the widening of river channels, removal of sediments due to outflow, erosion of the reservoir bank at these levels and conversion of

more irregular water spread areas around the FRL into levelled cultivation fields. The capacity at OSL (90.10m) increased from 3.103 M.Cu.m to 3.788 M.Cu.m with a sediment erosion of 0.685 M.Cu.m over an increase in capacity of about 22.08 percent. The capacity at FRL (98.0m) increased from 69.045 M.Cu.m to 73.884 M.Cu.m with a sediment erosion of 4.839 M.Cu.m over an increase in capacity of about 7.01 percent.

- The comparison of the current and previous capacity data of the 2010 silt survey (11 years) shows a decrease in capacity between 94m and 96m, possibly due to the sediment inflow and deposition at these levels due to floods and erosion above these levels.

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Annexure - 1
Elevation-Area-Capacity (2021)
Und-1 Reservoir

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
278.41	84.86	0.00	0.00	0.032	0.003	0.000	0.000	0.000	0.000
278.44	84.87	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.48	84.88	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.51	84.89	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.54	84.90	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.58	84.91	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.61	84.92	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.64	84.93	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.67	84.94	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.71	84.95	0.00	0.00	0.032	0.003	0.000	0.000	0.035	0.001
278.74	84.96	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.77	84.97	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.81	84.98	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.84	84.99	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.87	85.00	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.90	85.01	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.94	85.02	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
278.97	85.03	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
279.00	85.04	0.00	0.00	0.043	0.004	0.000	0.000	0.035	0.001
279.04	85.05	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.07	85.06	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.10	85.07	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.13	85.08	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.17	85.09	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.20	85.10	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.23	85.11	0.00	0.00	0.054	0.005	0.000	0.000	0.035	0.001
279.27	85.12	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002
279.30	85.13	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002
279.33	85.14	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002
279.36	85.15	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
279.40	85.16	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002
279.43	85.17	0.00	0.00	0.065	0.006	0.000	0.000	0.071	0.002
279.46	85.18	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.49	85.19	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.53	85.20	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.56	85.21	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.59	85.22	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.63	85.23	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.66	85.24	0.00	0.00	0.075	0.007	0.000	0.000	0.071	0.002
279.69	85.25	0.00	0.00	0.086	0.008	0.000	0.000	0.071	0.002
279.72	85.26	0.00	0.00	0.086	0.008	0.000	0.000	0.071	0.002
279.76	85.27	0.00	0.00	0.086	0.008	0.000	0.000	0.106	0.003
279.79	85.28	0.00	0.00	0.086	0.008	0.000	0.000	0.106	0.003
279.82	85.29	0.00	0.00	0.086	0.008	0.000	0.000	0.106	0.003
279.86	85.30	0.00	0.00	0.097	0.009	0.000	0.000	0.106	0.003
279.89	85.31	0.00	0.00	0.097	0.009	0.000	0.000	0.106	0.003
279.92	85.32	0.00	0.00	0.097	0.009	0.000	0.000	0.106	0.003
279.95	85.33	0.00	0.00	0.097	0.009	0.000	0.000	0.106	0.003
279.99	85.34	0.00	0.00	0.108	0.010	0.000	0.000	0.106	0.003
280.02	85.35	0.00	0.00	0.108	0.010	0.000	0.000	0.106	0.003
280.05	85.36	0.00	0.00	0.108	0.010	0.000	0.000	0.106	0.003
280.09	85.37	0.00	0.00	0.108	0.010	0.000	0.000	0.106	0.003
280.12	85.38	0.00	0.00	0.118	0.011	0.000	0.000	0.141	0.004
280.15	85.39	0.00	0.00	0.118	0.011	0.000	0.000	0.141	0.004
280.18	85.40	0.00	0.00	0.118	0.011	0.000	0.000	0.141	0.004
280.22	85.41	0.00	0.00	0.129	0.012	0.000	0.000	0.141	0.004
280.25	85.42	0.00	0.00	0.129	0.012	0.000	0.000	0.141	0.004
280.28	85.43	0.00	0.00	0.129	0.012	0.000	0.000	0.141	0.004
280.31	85.44	0.00	0.00	0.140	0.013	0.000	0.000	0.141	0.004
280.35	85.45	0.00	0.00	0.140	0.013	0.000	0.000	0.141	0.004

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
280.38	85.46	0.00	0.00	0.140	0.013	0.000	0.000	0.141	0.004
280.41	85.47	0.00	0.00	0.151	0.014	0.000	0.000	0.177	0.005
280.45	85.48	0.00	0.00	0.151	0.014	0.000	0.000	0.177	0.005
280.48	85.49	0.00	0.00	0.151	0.014	0.000	0.000	0.177	0.005
280.51	85.50	0.00	0.00	0.161	0.015	0.000	0.000	0.177	0.005
280.54	85.51	0.00	0.00	0.161	0.015	0.000	0.000	0.177	0.005
280.58	85.52	0.00	0.00	0.161	0.015	0.000	0.000	0.177	0.005
280.61	85.53	0.00	0.00	0.172	0.016	0.000	0.000	0.212	0.006
280.64	85.54	0.00	0.00	0.172	0.016	0.000	0.000	0.212	0.006
280.68	85.55	0.00	0.00	0.183	0.017	0.000	0.000	0.212	0.006
280.71	85.56	0.00	0.00	0.183	0.017	0.000	0.000	0.212	0.006
280.74	85.57	0.00	0.00	0.183	0.017	0.000	0.000	0.212	0.006
280.77	85.58	0.00	0.00	0.194	0.018	0.000	0.000	0.212	0.006
280.81	85.59	0.00	0.00	0.194	0.018	0.000	0.000	0.247	0.007
280.84	85.60	0.00	0.00	0.205	0.019	0.000	0.000	0.247	0.007
280.87	85.61	0.00	0.00	0.205	0.019	0.000	0.000	0.247	0.007
280.91	85.62	0.00	0.00	0.205	0.019	0.000	0.000	0.247	0.007
280.94	85.63	0.00	0.00	0.215	0.020	0.000	0.000	0.247	0.007
280.97	85.64	0.00	0.00	0.215	0.020	0.000	0.000	0.247	0.007
281.00	85.65	0.00	0.00	0.226	0.021	0.000	0.000	0.283	0.008
281.04	85.66	0.00	0.00	0.226	0.021	0.000	0.000	0.283	0.008
281.07	85.67	0.00	0.00	0.237	0.022	0.000	0.000	0.283	0.008
281.10	85.68	0.00	0.00	0.248	0.023	0.000	0.000	0.283	0.008
281.14	85.69	0.00	0.00	0.248	0.023	0.000	0.000	0.318	0.009
281.17	85.70	0.00	0.00	0.258	0.024	0.000	0.000	0.318	0.009
281.20	85.71	0.00	0.00	0.269	0.025	0.000	0.000	0.318	0.009
281.23	85.72	0.00	0.00	0.269	0.025	0.000	0.000	0.318	0.009
281.27	85.73	0.00	0.00	0.280	0.026	0.000	0.000	0.353	0.010
281.30	85.74	0.00	0.00	0.291	0.027	0.000	0.000	0.353	0.010
281.33	85.75	0.00	0.00	0.301	0.028	0.000	0.000	0.353	0.010

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
281.36	85.76	0.00	0.00	0.312	0.029	0.000	0.000	0.353	0.010
281.40	85.77	0.00	0.00	0.312	0.029	0.000	0.000	0.388	0.011
281.43	85.78	0.00	0.00	0.323	0.030	0.000	0.000	0.388	0.011
281.46	85.79	0.00	0.00	0.334	0.031	0.000	0.000	0.388	0.011
281.50	85.80	0.00	0.00	0.344	0.032	0.000	0.000	0.424	0.012
281.53	85.81	0.00	0.00	0.355	0.033	0.000	0.000	0.424	0.012
281.56	85.82	0.00	0.00	0.366	0.034	0.000	0.000	0.424	0.012
281.59	85.83	0.00	0.00	0.388	0.036	0.000	0.000	0.459	0.013
281.63	85.84	0.00	0.00	0.398	0.037	0.000	0.000	0.459	0.013
281.66	85.85	0.00	0.00	0.409	0.038	0.000	0.000	0.459	0.013
281.69	85.86	0.00	0.00	0.420	0.039	0.000	0.000	0.494	0.014
281.73	85.87	0.00	0.00	0.431	0.040	0.000	0.000	0.494	0.014
281.76	85.88	0.00	0.00	0.452	0.042	0.000	0.000	0.530	0.015
281.79	85.89	0.00	0.00	0.463	0.043	0.000	0.000	0.530	0.015
281.82	85.90	0.00	0.00	0.474	0.044	0.000	0.000	0.530	0.015
281.86	85.91	0.00	0.00	0.484	0.045	0.000	0.000	0.565	0.016
281.89	85.92	0.00	0.00	0.506	0.047	0.000	0.000	0.565	0.016
281.92	85.93	0.00	0.00	0.517	0.048	0.000	0.000	0.600	0.017
281.96	85.94	0.00	0.00	0.527	0.049	0.000	0.000	0.600	0.017
281.99	85.95	0.00	0.00	0.549	0.051	0.000	0.000	0.636	0.018
282.02	85.96	0.00	0.00	0.560	0.052	0.000	0.000	0.636	0.018
282.05	85.97	0.00	0.00	0.581	0.054	0.000	0.000	0.671	0.019
282.09	85.98	0.00	0.00	0.603	0.056	0.000	0.000	0.671	0.019
282.12	85.99	0.00	0.00	0.614	0.057	0.000	0.000	0.706	0.020
282.15	86.00	0.00	0.00	0.635	0.059	0.000	0.000	0.706	0.020
282.19	86.01	0.00	0.00	0.657	0.061	0.000	0.000	0.742	0.021
282.22	86.02	0.00	0.00	0.678	0.063	0.000	0.000	0.777	0.022
282.25	86.03	0.00	0.00	0.700	0.065	0.000	0.000	0.777	0.022
282.28	86.04	0.00	0.00	0.732	0.068	0.000	0.000	0.812	0.023
282.32	86.05	0.00	0.00	0.764	0.071	0.000	0.000	0.848	0.024

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
282.35	86.06	0.00	0.00	0.797	0.074	0.000	0.000	0.848	0.024
282.38	86.07	0.00	0.00	0.840	0.078	0.000	0.000	0.883	0.025
282.41	86.08	0.00	0.00	0.893	0.083	0.000	0.000	0.918	0.026
282.45	86.09	0.00	0.00	0.936	0.087	0.000	0.000	0.953	0.027
282.48	86.10	0.00	0.00	0.980	0.091	0.000	0.000	0.989	0.028
282.51	86.11	0.00	0.00	1.012	0.094	0.000	0.000	1.024	0.029
282.55	86.12	0.00	0.00	1.055	0.098	0.000	0.000	1.059	0.030
282.58	86.13	0.00	0.00	1.076	0.100	0.000	0.000	1.095	0.031
282.61	86.14	0.00	0.00	1.109	0.103	0.000	0.000	1.130	0.032
282.64	86.15	0.00	0.00	1.130	0.105	0.000	0.000	1.165	0.033
282.68	86.16	0.00	0.00	1.152	0.107	0.000	0.000	1.201	0.034
282.71	86.17	0.00	0.00	1.173	0.109	0.000	0.000	1.236	0.035
282.74	86.18	0.00	0.00	1.195	0.111	0.000	0.000	1.271	0.036
282.78	86.19	0.00	0.00	1.227	0.114	0.000	0.000	1.307	0.037
282.81	86.20	0.00	0.00	1.249	0.116	0.000	0.000	1.342	0.038
282.84	86.21	0.00	0.00	1.259	0.117	0.000	0.000	1.377	0.039
282.87	86.22	0.00	0.00	1.281	0.119	0.000	0.000	1.448	0.041
282.91	86.23	0.00	0.00	1.302	0.121	0.000	0.000	1.483	0.042
282.94	86.24	0.00	0.00	1.324	0.123	0.000	0.000	1.519	0.043
282.97	86.25	0.00	0.00	1.345	0.125	0.000	0.000	1.554	0.044
283.01	86.26	0.00	0.00	1.367	0.127	0.000	0.000	1.589	0.045
283.04	86.27	0.00	0.00	1.389	0.129	0.000	0.000	1.660	0.047
283.07	86.28	0.00	0.00	1.410	0.131	0.000	0.000	1.695	0.048
283.10	86.29	0.00	0.00	1.442	0.134	0.000	0.000	1.730	0.049
283.14	86.30	0.00	0.00	1.464	0.136	0.000	0.000	1.801	0.051
283.17	86.31	0.00	0.00	1.485	0.138	0.000	0.000	1.836	0.052
283.20	86.32	0.00	0.00	1.518	0.141	0.000	0.000	1.907	0.054
283.23	86.33	0.00	0.00	1.539	0.143	0.000	0.000	1.942	0.055
283.27	86.34	0.00	0.00	1.572	0.146	0.000	0.000	1.978	0.056
283.30	86.35	0.00	0.00	1.593	0.148	0.000	0.000	2.048	0.058

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
283.33	86.36	0.00	0.00	1.625	0.151	0.000	0.000	2.084	0.059
283.37	86.37	0.00	0.00	1.647	0.153	0.000	0.000	2.154	0.061
283.40	86.38	0.00	0.00	1.679	0.156	0.000	0.000	2.190	0.062
283.43	86.39	0.00	0.00	1.711	0.159	0.000	0.000	2.260	0.064
283.46	86.40	0.00	0.00	1.733	0.161	0.000	0.000	2.331	0.066
283.50	86.41	0.00	0.00	1.765	0.164	0.000	0.000	2.366	0.067
283.53	86.42	0.00	0.00	1.798	0.167	0.000	0.000	2.437	0.069
283.56	86.43	0.00	0.00	1.830	0.170	0.000	0.000	2.507	0.071
283.60	86.44	0.00	0.00	1.862	0.173	0.000	0.000	2.543	0.072
283.63	86.45	0.00	0.00	1.884	0.175	0.000	0.000	2.613	0.074
283.66	86.46	0.00	0.00	1.916	0.178	0.000	0.000	2.684	0.076
283.69	86.47	0.00	0.00	1.948	0.181	0.000	0.000	2.755	0.078
283.73	86.48	0.00	0.00	1.981	0.184	0.000	0.000	2.790	0.079
283.76	86.49	0.00	0.00	2.002	0.186	0.000	0.000	2.860	0.081
283.79	86.50	0.00	0.00	2.034	0.189	0.000	0.000	2.931	0.083
283.83	86.51	0.00	0.00	2.067	0.192	0.000	0.000	3.002	0.085
283.86	86.52	0.00	0.00	2.099	0.195	0.000	0.000	3.072	0.087
283.89	86.53	0.00	0.00	2.120	0.197	0.000	0.000	3.143	0.089
283.92	86.54	0.00	0.00	2.153	0.200	0.000	0.000	3.214	0.091
283.96	86.55	0.00	0.00	2.174	0.202	0.000	0.000	3.284	0.093
283.99	86.56	0.00	0.00	2.207	0.205	0.000	0.000	3.355	0.095
284.02	86.57	0.00	0.00	2.228	0.207	0.000	0.000	3.426	0.097
284.06	86.58	0.00	0.00	2.260	0.210	0.000	0.000	3.496	0.099
284.09	86.59	0.00	0.00	2.282	0.212	0.000	0.000	3.567	0.101
284.12	86.60	0.00	0.00	2.314	0.215	0.000	0.000	3.637	0.103
284.15	86.61	0.00	0.00	2.336	0.217	0.000	0.000	3.743	0.106
284.19	86.62	0.00	0.00	2.368	0.220	0.000	0.000	3.814	0.108
284.22	86.63	0.00	0.00	2.390	0.222	0.000	0.000	3.885	0.110
284.25	86.64	0.00	0.00	2.422	0.225	0.000	0.000	3.955	0.112
284.28	86.65	0.00	0.00	2.454	0.228	0.000	0.000	4.026	0.114

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
284.32	86.66	0.00	0.00	2.476	0.230	0.000	0.000	4.132	0.117
284.35	86.67	0.00	0.00	2.508	0.233	0.000	0.000	4.202	0.119
284.38	86.68	0.00	0.00	2.530	0.235	0.000	0.000	4.273	0.121
284.42	86.69	0.00	0.00	2.562	0.238	0.000	0.000	4.379	0.124
284.45	86.70	0.00	0.00	2.594	0.241	0.000	0.000	4.450	0.126
284.48	86.71	0.00	0.00	2.616	0.243	0.000	0.000	4.556	0.129
284.51	86.72	0.00	0.00	2.648	0.246	0.000	0.000	4.626	0.131
284.55	86.73	0.00	0.00	2.669	0.248	0.000	0.000	4.697	0.133
284.58	86.74	0.00	0.00	2.702	0.251	0.000	0.000	4.803	0.136
284.61	86.75	0.00	0.00	2.723	0.253	0.000	0.000	4.873	0.138
284.65	86.76	0.00	0.00	2.756	0.256	0.000	0.000	4.979	0.141
284.68	86.77	0.00	0.00	2.777	0.258	0.000	0.000	5.085	0.144
284.71	86.78	0.00	0.00	2.809	0.261	0.000	0.000	5.156	0.146
284.74	86.79	0.00	0.00	2.831	0.263	0.000	0.000	5.262	0.149
284.78	86.80	0.00	0.00	2.863	0.266	0.000	0.000	5.333	0.151
284.81	86.81	0.00	0.00	2.885	0.268	0.000	0.000	5.438	0.154
284.84	86.82	0.00	0.00	2.917	0.271	0.000	0.000	5.544	0.157
284.88	86.83	0.00	0.00	2.939	0.273	0.000	0.000	5.650	0.160
284.91	86.84	0.00	0.00	2.971	0.276	0.000	0.000	5.721	0.162
284.94	86.85	0.00	0.00	2.992	0.278	0.000	0.000	5.827	0.165
284.97	86.86	0.00	0.00	3.025	0.281	0.000	0.000	5.933	0.168
285.01	86.87	0.00	0.00	3.046	0.283	0.000	0.000	6.039	0.171
285.04	86.88	0.00	0.00	3.078	0.286	0.000	0.000	6.109	0.173
285.07	86.89	0.00	0.00	3.100	0.288	0.000	0.000	6.215	0.176
285.10	86.90	0.00	0.00	3.132	0.291	0.000	0.000	6.321	0.179
285.14	86.91	0.00	0.00	3.165	0.294	0.000	0.000	6.427	0.182
285.17	86.92	0.00	0.00	3.186	0.296	0.000	0.000	6.533	0.185
285.20	86.93	0.00	0.00	3.208	0.298	0.000	0.000	6.639	0.188
285.24	86.94	0.00	0.00	3.240	0.301	0.000	0.000	6.745	0.191
285.27	86.95	0.00	0.00	3.261	0.303	0.000	0.000	6.851	0.194

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
285.30	86.96	0.00	0.00	3.294	0.306	0.000	0.000	6.957	0.197
285.33	86.97	0.00	0.00	3.315	0.308	0.000	0.000	7.063	0.200
285.37	86.98	0.00	0.00	3.337	0.310	0.000	0.000	7.169	0.203
285.40	86.99	0.00	0.00	3.358	0.312	0.000	0.000	7.275	0.206
285.43	87.00	0.00	0.00	3.391	0.315	0.000	0.000	7.416	0.210
285.47	87.01	0.00	0.00	3.412	0.317	0.000	0.000	7.522	0.213
285.50	87.02	0.00	0.00	3.434	0.319	0.000	0.000	7.628	0.216
285.53	87.03	0.00	0.00	3.455	0.321	0.000	0.000	7.734	0.219
285.56	87.04	0.00	0.00	3.477	0.323	0.000	0.000	7.840	0.222
285.60	87.05	0.00	0.00	3.509	0.326	0.000	0.000	7.981	0.226
285.63	87.06	0.00	0.00	3.531	0.328	0.000	0.000	8.087	0.229
285.66	87.07	0.00	0.00	3.552	0.330	0.000	0.000	8.193	0.232
285.70	87.08	0.00	0.00	3.584	0.333	0.000	0.000	8.299	0.235
285.73	87.09	0.00	0.00	3.606	0.335	0.000	0.000	8.440	0.239
285.76	87.10	0.00	0.00	3.638	0.338	0.000	0.000	8.546	0.242
285.79	87.11	0.00	0.00	3.670	0.341	0.000	0.000	8.687	0.246
285.83	87.12	0.00	0.00	3.703	0.344	0.000	0.000	8.793	0.249
285.86	87.13	0.00	0.00	3.735	0.347	0.000	0.000	8.899	0.252
285.89	87.14	0.00	0.00	3.767	0.350	0.000	0.000	9.041	0.256
285.93	87.15	0.00	0.00	3.800	0.353	0.000	0.000	9.147	0.259
285.96	87.16	0.00	0.00	3.832	0.356	0.000	0.000	9.288	0.263
285.99	87.17	0.00	0.00	3.875	0.360	0.000	0.000	9.429	0.267
286.02	87.18	0.00	0.00	3.918	0.364	0.000	0.000	9.535	0.270
286.06	87.19	0.00	0.00	3.961	0.368	0.000	0.000	9.676	0.274
286.09	87.20	0.00	0.00	4.015	0.373	0.000	0.000	9.817	0.278
286.12	87.21	0.00	0.00	4.058	0.377	0.000	0.000	9.923	0.281
286.15	87.22	0.00	0.00	4.112	0.382	0.000	0.000	10.065	0.285
286.19	87.23	0.00	0.00	4.155	0.386	0.000	0.000	10.206	0.289
286.22	87.24	0.00	0.00	4.198	0.390	0.000	0.000	10.347	0.293
286.25	87.25	0.00	0.00	4.241	0.394	0.000	0.000	10.488	0.297

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
286.29	87.26	0.00	0.00	4.295	0.399	0.000	0.000	10.630	0.301
286.32	87.27	0.00	0.00	4.338	0.403	0.000	0.000	10.771	0.305
286.35	87.28	0.00	0.00	4.392	0.408	0.000	0.000	10.912	0.309
286.38	87.29	0.00	0.00	4.435	0.412	0.000	0.000	11.054	0.313
286.42	87.30	0.00	0.00	4.478	0.416	0.000	0.000	11.195	0.317
286.45	87.31	0.00	0.00	4.521	0.420	0.000	0.000	11.336	0.321
286.48	87.32	0.00	0.00	4.564	0.424	0.000	0.000	11.477	0.325
286.52	87.33	0.00	0.00	4.607	0.428	0.000	0.000	11.654	0.330
286.55	87.34	0.00	0.00	4.650	0.432	0.000	0.000	11.795	0.334
286.58	87.35	0.00	0.00	4.693	0.436	0.000	0.000	11.936	0.338
286.61	87.36	0.00	0.00	4.736	0.440	0.000	0.000	12.113	0.343
286.65	87.37	0.00	0.00	4.779	0.444	0.000	0.000	12.254	0.347
286.68	87.38	0.00	0.00	4.822	0.448	0.000	0.000	12.431	0.352
286.71	87.39	0.00	0.00	4.855	0.451	0.000	0.000	12.572	0.356
286.75	87.40	0.00	0.00	4.898	0.455	0.000	0.000	12.749	0.361
286.78	87.41	0.00	0.00	4.941	0.459	0.000	0.000	12.890	0.365
286.81	87.42	0.00	0.00	4.984	0.463	0.000	0.000	13.066	0.370
286.84	87.43	0.00	0.00	5.027	0.467	0.000	0.000	13.208	0.374
286.88	87.44	0.00	0.00	5.059	0.470	0.000	0.000	13.384	0.379
286.91	87.45	0.00	0.00	5.102	0.474	0.000	0.000	13.561	0.384
286.94	87.46	0.00	0.00	5.145	0.478	0.000	0.000	13.737	0.389
286.98	87.47	0.00	0.00	5.188	0.482	0.000	0.000	13.879	0.393
287.01	87.48	0.00	0.00	5.231	0.486	0.000	0.000	14.055	0.398
287.04	87.49	0.00	0.00	5.274	0.490	0.000	0.000	14.232	0.403
287.07	87.50	0.00	0.00	5.317	0.494	0.000	0.000	14.408	0.408
287.11	87.51	0.00	0.00	5.371	0.499	0.000	0.000	14.585	0.413
287.14	87.52	0.00	0.00	5.414	0.503	0.000	0.000	14.762	0.418
287.17	87.53	0.00	0.00	5.457	0.507	0.000	0.000	14.938	0.423
287.20	87.54	0.00	0.00	5.500	0.511	0.000	0.000	15.115	0.428
287.24	87.55	0.00	0.00	5.554	0.516	0.000	0.000	15.291	0.433

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
287.27	87.56	0.00	0.00	5.597	0.520	0.000	0.000	15.468	0.438
287.30	87.57	0.00	0.00	5.640	0.524	0.000	0.000	15.680	0.444
287.34	87.58	0.00	0.00	5.694	0.529	0.000	0.000	15.856	0.449
287.37	87.59	0.00	0.00	5.737	0.533	0.000	0.000	16.033	0.454
287.40	87.60	0.00	0.00	5.780	0.537	0.000	0.000	16.245	0.460
287.43	87.61	0.00	0.00	5.823	0.541	0.000	0.000	16.421	0.465
287.47	87.62	0.00	0.00	5.866	0.545	0.000	0.000	16.598	0.470
287.50	87.63	0.00	0.00	5.920	0.550	0.000	0.000	16.810	0.476
287.53	87.64	0.00	0.00	5.963	0.554	0.000	0.000	16.986	0.481
287.57	87.65	0.00	0.00	6.006	0.558	0.000	0.000	17.198	0.487
287.60	87.66	0.00	0.00	6.060	0.563	0.000	0.000	17.410	0.493
287.63	87.67	0.00	0.00	6.103	0.567	0.000	0.000	17.587	0.498
287.66	87.68	0.00	0.00	6.146	0.571	0.000	0.000	17.799	0.504
287.70	87.69	0.00	0.00	6.200	0.576	0.000	0.000	18.010	0.510
287.73	87.70	0.00	0.00	6.243	0.580	0.000	0.000	18.187	0.515
287.76	87.71	0.00	0.00	6.286	0.584	0.000	0.000	18.399	0.521
287.80	87.72	0.00	0.00	6.329	0.588	0.000	0.000	18.611	0.527
287.83	87.73	0.00	0.00	6.372	0.592	0.000	0.000	18.823	0.533
287.86	87.74	0.00	0.00	6.415	0.596	0.000	0.000	19.035	0.539
287.89	87.75	0.00	0.00	6.458	0.600	0.000	0.000	19.247	0.545
287.93	87.76	0.00	0.00	6.501	0.604	0.000	0.000	19.458	0.551
287.96	87.77	0.00	0.00	6.544	0.608	0.000	0.000	19.670	0.557
287.99	87.78	0.00	0.00	6.588	0.612	0.000	0.000	19.882	0.563
288.02	87.79	0.00	0.00	6.631	0.616	0.000	0.000	20.094	0.569
288.06	87.80	0.00	0.00	6.663	0.619	0.000	0.000	20.306	0.575
288.09	87.81	0.00	0.00	6.706	0.623	0.000	0.000	20.553	0.582
288.12	87.82	0.00	0.00	6.749	0.627	0.000	0.000	20.765	0.588
288.16	87.83	0.00	0.00	6.792	0.631	0.000	0.000	20.977	0.594
288.19	87.84	0.00	0.00	6.846	0.636	0.000	0.000	21.224	0.601
288.22	87.85	0.00	0.00	6.889	0.640	0.000	0.000	21.436	0.607

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
288.25	87.86	0.00	0.00	6.932	0.644	0.000	0.000	21.648	0.613
288.29	87.87	0.00	0.00	6.975	0.648	0.000	0.000	21.895	0.620
288.32	87.88	0.00	0.00	7.018	0.652	0.000	0.000	22.107	0.626
288.35	87.89	0.00	0.00	7.061	0.656	0.000	0.000	22.354	0.633
288.39	87.90	0.00	0.00	7.104	0.660	0.000	0.000	22.566	0.639
288.42	87.91	0.00	0.00	7.158	0.665	0.000	0.000	22.813	0.646
288.45	87.92	0.00	0.00	7.201	0.669	0.000	0.000	23.060	0.653
288.48	87.93	0.00	0.00	7.255	0.674	0.000	0.000	23.272	0.659
288.52	87.94	0.00	0.00	7.298	0.678	0.000	0.000	23.520	0.666
288.55	87.95	0.00	0.00	7.352	0.683	0.000	0.000	23.767	0.673
288.58	87.96	0.00	0.00	7.406	0.688	0.000	0.000	24.014	0.680
288.62	87.97	0.00	0.00	7.459	0.693	0.000	0.000	24.261	0.687
288.65	87.98	0.00	0.00	7.513	0.698	0.000	0.000	24.508	0.694
288.68	87.99	0.00	0.00	7.567	0.703	0.000	0.000	24.756	0.701
288.71	88.00	0.00	0.00	7.621	0.708	0.000	0.000	25.003	0.708
288.75	88.01	0.00	0.00	7.685	0.714	0.000	0.000	25.250	0.715
288.78	88.02	0.00	0.00	7.739	0.719	0.000	0.000	25.497	0.722
288.81	88.03	0.00	0.00	7.793	0.724	0.000	0.000	25.744	0.729
288.85	88.04	0.00	0.00	7.858	0.730	0.000	0.000	25.992	0.736
288.88	88.05	0.00	0.00	7.911	0.735	0.000	0.000	26.274	0.744
288.91	88.06	0.00	0.00	7.976	0.741	0.000	0.000	26.521	0.751
288.94	88.07	0.00	0.00	8.041	0.747	0.000	0.000	26.804	0.759
288.98	88.08	0.00	0.00	8.105	0.753	0.000	0.000	27.051	0.766
289.01	88.09	0.00	0.00	8.170	0.759	0.000	0.000	27.334	0.774
289.04	88.10	0.00	0.00	8.245	0.766	0.000	0.000	27.581	0.781
289.07	88.11	0.00	0.00	8.299	0.771	0.000	0.000	27.863	0.789
289.11	88.12	0.00	0.00	8.364	0.777	0.000	0.000	28.146	0.797
289.14	88.13	0.00	0.00	8.439	0.784	0.000	0.000	28.428	0.805
289.17	88.14	0.00	0.00	8.503	0.790	0.000	0.000	28.676	0.812
289.21	88.15	0.00	0.00	8.579	0.797	0.000	0.000	28.958	0.820

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
289.24	88.16	0.00	0.00	8.643	0.803	0.000	0.000	29.241	0.828
289.27	88.17	0.00	0.00	8.719	0.810	0.000	0.000	29.523	0.836
289.30	88.18	0.00	0.00	8.783	0.816	0.000	0.000	29.841	0.845
289.34	88.19	0.00	0.00	8.848	0.822	0.000	0.000	30.123	0.853
289.37	88.20	0.00	0.00	8.923	0.829	0.000	0.000	30.406	0.861
289.40	88.21	0.00	0.00	8.988	0.835	0.000	0.000	30.688	0.869
289.44	88.22	0.00	0.00	9.042	0.840	0.000	0.000	31.006	0.878
289.47	88.23	0.00	0.00	9.106	0.846	0.000	0.000	31.289	0.886
289.50	88.24	0.00	0.00	9.160	0.851	0.000	0.000	31.607	0.895
289.53	88.25	0.00	0.00	9.225	0.857	0.000	0.000	31.889	0.903
289.57	88.26	0.00	0.00	9.289	0.863	0.000	0.000	32.207	0.912
289.60	88.27	0.00	0.00	9.354	0.869	0.000	0.000	32.490	0.920
289.63	88.28	0.00	0.00	9.418	0.875	0.000	0.000	32.807	0.929
289.67	88.29	0.00	0.00	9.472	0.880	0.000	0.000	33.125	0.938
289.70	88.30	0.00	0.00	9.537	0.886	0.000	0.000	33.443	0.947
289.73	88.31	0.00	0.00	9.601	0.892	0.000	0.000	33.761	0.956
289.76	88.32	0.00	0.00	9.666	0.898	0.000	0.000	34.079	0.965
289.80	88.33	0.00	0.00	9.731	0.904	0.000	0.000	34.397	0.974
289.83	88.34	0.00	0.00	9.795	0.910	0.000	0.000	34.714	0.983
289.86	88.35	0.00	0.00	9.860	0.916	0.000	0.000	35.032	0.992
289.90	88.36	0.00	0.00	9.914	0.921	0.000	0.000	35.350	1.001
289.93	88.37	0.00	0.00	9.978	0.927	0.000	0.000	35.668	1.010
289.96	88.38	0.00	0.00	10.043	0.933	0.000	0.000	35.986	1.019
289.99	88.39	0.00	0.00	10.107	0.939	0.000	0.000	36.339	1.029
290.03	88.40	0.00	0.00	10.172	0.945	0.000	0.000	36.657	1.038
290.06	88.41	0.00	0.00	10.236	0.951	0.000	0.000	37.010	1.048
290.09	88.42	0.00	0.00	10.301	0.957	0.000	0.000	37.328	1.057
290.12	88.43	0.00	0.00	10.366	0.963	0.000	0.000	37.681	1.067
290.16	88.44	0.00	0.00	10.441	0.970	0.000	0.000	38.034	1.077
290.19	88.45	0.00	0.00	10.506	0.976	0.000	0.000	38.352	1.086

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
290.22	88.46	0.00	0.00	10.570	0.982	0.000	0.000	38.705	1.096
290.26	88.47	0.00	0.00	10.645	0.989	0.000	0.000	39.058	1.106
290.29	88.48	0.00	0.00	10.721	0.996	0.000	0.000	39.411	1.116
290.32	88.49	0.00	0.00	10.796	1.003	0.000	0.000	39.764	1.126
290.35	88.50	0.00	0.00	10.872	1.010	0.000	0.000	40.117	1.136
290.39	88.51	0.00	0.00	10.947	1.017	0.000	0.000	40.471	1.146
290.42	88.52	0.00	0.00	11.033	1.025	0.000	0.000	40.824	1.156
290.45	88.53	0.00	0.00	11.130	1.034	0.000	0.000	41.212	1.167
290.49	88.54	0.00	0.00	11.216	1.042	0.000	0.000	41.565	1.177
290.52	88.55	0.00	0.00	11.313	1.051	0.000	0.000	41.919	1.187
290.55	88.56	0.00	0.00	11.399	1.059	0.000	0.000	42.307	1.198
290.58	88.57	0.00	0.00	11.485	1.067	0.000	0.000	42.695	1.209
290.62	88.58	0.00	0.00	11.571	1.075	0.000	0.000	43.049	1.219
290.65	88.59	0.00	0.00	11.657	1.083	0.000	0.000	43.437	1.230
290.68	88.60	0.00	0.00	11.743	1.091	0.000	0.000	43.826	1.241
290.72	88.61	0.00	0.00	11.819	1.098	0.000	0.000	44.214	1.252
290.75	88.62	0.00	0.00	11.905	1.106	0.000	0.000	44.602	1.263
290.78	88.63	0.00	0.00	11.980	1.113	0.000	0.000	44.991	1.274
290.81	88.64	0.00	0.00	12.066	1.121	0.000	0.000	45.379	1.285
290.85	88.65	0.00	0.00	12.152	1.129	0.000	0.000	45.768	1.296
290.88	88.66	0.00	0.00	12.228	1.136	0.000	0.000	46.192	1.308
290.91	88.67	0.00	0.00	12.314	1.144	0.000	0.000	46.580	1.319
290.94	88.68	0.00	0.00	12.400	1.152	0.000	0.000	47.004	1.331
290.98	88.69	0.00	0.00	12.486	1.160	0.000	0.000	47.392	1.342
291.01	88.70	0.00	0.00	12.572	1.168	0.000	0.000	47.816	1.354
291.04	88.71	0.00	0.00	12.658	1.176	0.000	0.000	48.240	1.366
291.08	88.72	0.00	0.00	12.734	1.183	0.000	0.000	48.628	1.377
291.11	88.73	0.00	0.00	12.820	1.191	0.000	0.000	49.052	1.389
291.14	88.74	0.00	0.00	12.895	1.198	0.000	0.000	49.476	1.401
291.17	88.75	0.00	0.00	12.981	1.206	0.000	0.000	49.900	1.413

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
291.21	88.76	0.00	0.00	13.057	1.213	0.000	0.000	50.323	1.425
291.24	88.77	0.00	0.00	13.132	1.220	0.000	0.000	50.747	1.437
291.27	88.78	0.00	0.00	13.218	1.228	0.000	0.000	51.206	1.450
291.31	88.79	0.00	0.00	13.293	1.235	0.000	0.000	51.630	1.462
291.34	88.80	0.00	0.00	13.380	1.243	0.000	0.000	52.054	1.474
291.37	88.81	0.00	0.00	13.455	1.250	0.000	0.000	52.513	1.487
291.40	88.82	0.00	0.00	13.541	1.258	0.000	0.000	52.937	1.499
291.44	88.83	0.00	0.00	13.616	1.265	0.000	0.000	53.396	1.512
291.47	88.84	0.00	0.00	13.702	1.273	0.000	0.000	53.855	1.525
291.50	88.85	0.00	0.00	13.789	1.281	0.000	0.000	54.279	1.537
291.54	88.86	0.00	0.00	13.875	1.289	0.000	0.000	54.738	1.550
291.57	88.87	0.00	0.00	13.961	1.297	0.000	0.000	55.197	1.563
291.60	88.88	0.00	0.00	14.047	1.305	0.000	0.000	55.656	1.576
291.63	88.89	0.00	0.00	14.133	1.313	0.000	0.000	56.115	1.589
291.67	88.90	0.00	0.00	14.230	1.322	0.000	0.000	56.609	1.603
291.70	88.91	0.00	0.00	14.316	1.330	0.000	0.000	57.069	1.616
291.73	88.92	0.00	0.00	14.413	1.339	0.000	0.000	57.528	1.629
291.77	88.93	0.00	0.00	14.499	1.347	0.000	0.000	58.022	1.643
291.80	88.94	0.00	0.00	14.596	1.356	0.000	0.000	58.481	1.656
291.83	88.95	0.00	0.00	14.682	1.364	0.000	0.000	58.976	1.670
291.86	88.96	0.00	0.00	14.768	1.372	0.000	0.000	59.435	1.683
291.90	88.97	0.00	0.00	14.865	1.381	0.000	0.000	59.929	1.697
291.93	88.98	0.00	0.00	14.962	1.390	0.000	0.000	60.423	1.711
291.96	88.99	0.00	0.00	15.048	1.398	0.000	0.000	60.918	1.725
291.99	89.00	0.00	0.00	15.145	1.407	0.000	0.000	61.412	1.739
292.03	89.01	0.00	0.00	15.231	1.415	0.000	0.000	61.907	1.753
292.06	89.02	0.00	0.00	15.317	1.423	0.000	0.000	62.401	1.767
292.09	89.03	0.00	0.00	15.403	1.431	0.000	0.000	62.895	1.781
292.13	89.04	0.00	0.00	15.489	1.439	0.000	0.000	63.425	1.796
292.16	89.05	0.00	0.00	15.575	1.447	0.000	0.000	63.920	1.810

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
292.19	89.06	0.00	0.00	15.661	1.455	0.000	0.000	64.449	1.825
292.22	89.07	0.00	0.00	15.758	1.464	0.000	0.000	64.944	1.839
292.26	89.08	0.00	0.00	15.844	1.472	0.000	0.000	65.473	1.854
292.29	89.09	0.00	0.00	15.931	1.480	0.000	0.000	66.003	1.869
292.32	89.10	0.00	0.00	16.017	1.488	0.000	0.000	66.533	1.884
292.36	89.11	0.00	0.00	16.103	1.496	0.000	0.000	67.063	1.899
292.39	89.12	0.00	0.00	16.189	1.504	0.000	0.000	67.592	1.914
292.42	89.13	0.00	0.00	16.275	1.512	0.000	0.000	68.122	1.929
292.45	89.14	0.00	0.00	16.350	1.519	0.000	0.000	68.652	1.944
292.49	89.15	0.00	0.00	16.436	1.527	0.000	0.000	69.181	1.959
292.52	89.16	0.00	0.00	16.523	1.535	0.000	0.000	69.711	1.974
292.55	89.17	0.00	0.00	16.609	1.543	0.000	0.000	70.276	1.990
292.59	89.18	0.00	0.00	16.695	1.551	0.000	0.000	70.806	2.005
292.62	89.19	0.00	0.00	16.781	1.559	0.000	0.000	71.371	2.021
292.65	89.20	0.00	0.00	16.867	1.567	0.000	0.000	71.901	2.036
292.68	89.21	0.00	0.00	16.953	1.575	0.000	0.000	72.466	2.052
292.72	89.22	0.00	0.00	17.028	1.582	0.000	0.000	73.031	2.068
292.75	89.23	0.00	0.00	17.115	1.590	0.000	0.000	73.596	2.084
292.78	89.24	0.00	0.00	17.201	1.598	0.000	0.000	74.161	2.100
292.81	89.25	0.00	0.00	17.287	1.606	0.000	0.000	74.726	2.116
292.85	89.26	0.00	0.00	17.373	1.614	0.000	0.000	75.291	2.132
292.88	89.27	0.00	0.00	17.459	1.622	0.000	0.000	75.856	2.148
292.91	89.28	0.00	0.00	17.545	1.630	0.000	0.000	76.421	2.164
292.95	89.29	0.00	0.00	17.631	1.638	0.000	0.000	77.021	2.181
292.98	89.30	0.00	0.00	17.717	1.646	0.000	0.000	77.586	2.197
293.01	89.31	0.00	0.00	17.803	1.654	0.000	0.000	78.151	2.213
293.04	89.32	0.00	0.00	17.890	1.662	0.000	0.000	78.752	2.230
293.08	89.33	0.00	0.00	17.976	1.670	0.000	0.000	79.352	2.247
293.11	89.34	0.00	0.00	18.062	1.678	0.000	0.000	79.917	2.263
293.14	89.35	0.00	0.00	18.148	1.686	0.000	0.000	80.518	2.280

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
293.18	89.36	0.00	0.00	18.234	1.694	0.000	0.000	81.118	2.297
293.21	89.37	0.00	0.00	18.320	1.702	0.000	0.000	81.718	2.314
293.24	89.38	0.00	0.00	18.417	1.711	0.000	0.000	82.319	2.331
293.27	89.39	0.00	0.00	18.503	1.719	0.000	0.000	82.919	2.348
293.31	89.40	0.00	0.00	18.589	1.727	0.000	0.000	83.555	2.366
293.34	89.41	0.00	0.00	18.686	1.736	0.000	0.000	84.155	2.383
293.37	89.42	0.00	0.00	18.772	1.744	0.000	0.000	84.755	2.400
293.41	89.43	0.00	0.00	18.858	1.752	0.000	0.000	85.391	2.418
293.44	89.44	0.00	0.00	18.955	1.761	0.000	0.000	85.991	2.435
293.47	89.45	0.00	0.00	19.041	1.769	0.000	0.000	86.627	2.453
293.50	89.46	0.00	0.00	19.138	1.778	0.000	0.000	87.263	2.471
293.54	89.47	0.00	0.00	19.235	1.787	0.000	0.000	87.898	2.489
293.57	89.48	0.00	0.00	19.332	1.796	0.000	0.000	88.499	2.506
293.60	89.49	0.00	0.00	19.418	1.804	0.000	0.000	89.134	2.524
293.64	89.50	0.00	0.00	19.515	1.813	0.000	0.000	89.805	2.543
293.67	89.51	0.00	0.00	19.612	1.822	0.000	0.000	90.441	2.561
293.70	89.52	0.00	0.00	19.709	1.831	0.000	0.000	91.077	2.579
293.73	89.53	0.00	0.00	19.806	1.840	0.000	0.000	91.712	2.597
293.77	89.54	0.00	0.00	19.892	1.848	0.000	0.000	92.383	2.616
293.80	89.55	0.00	0.00	19.989	1.857	0.000	0.000	93.019	2.634
293.83	89.56	0.00	0.00	20.075	1.865	0.000	0.000	93.690	2.653
293.86	89.57	0.00	0.00	20.172	1.874	0.000	0.000	94.361	2.672
293.90	89.58	0.00	0.00	20.268	1.883	0.000	0.000	94.997	2.690
293.93	89.59	0.00	0.00	20.355	1.891	0.000	0.000	95.668	2.709
293.96	89.60	0.00	0.00	20.451	1.900	0.000	0.000	96.339	2.728
294.00	89.61	0.00	0.00	20.548	1.909	0.000	0.000	97.009	2.747
294.03	89.62	0.00	0.00	20.634	1.917	0.000	0.000	97.680	2.766
294.06	89.63	0.00	0.00	20.731	1.926	0.000	0.000	98.387	2.786
294.09	89.64	0.00	0.00	20.817	1.934	0.000	0.000	99.058	2.805
294.13	89.65	0.00	0.00	20.914	1.943	0.000	0.000	99.729	2.824

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
294.16	89.66	0.00	0.00	21.000	1.951	0.000	0.000	100.435	2.844
294.19	89.67	0.00	0.00	21.097	1.960	0.000	0.000	101.106	2.863
294.23	89.68	0.00	0.00	21.183	1.968	0.000	0.000	101.812	2.883
294.26	89.69	0.00	0.00	21.280	1.977	0.000	0.000	102.519	2.903
294.29	89.70	0.00	0.00	21.377	1.986	0.000	0.000	103.225	2.923
294.32	89.71	0.00	0.00	21.474	1.995	0.000	0.000	103.896	2.942
294.36	89.72	0.00	0.00	21.571	2.004	0.000	0.000	104.602	2.962
294.39	89.73	0.00	0.00	21.657	2.012	0.000	0.000	105.308	2.982
294.42	89.74	0.00	0.00	21.754	2.021	0.000	0.000	106.050	3.003
294.46	89.75	0.00	0.00	21.851	2.030	0.000	0.000	106.756	3.023
294.49	89.76	0.00	0.00	21.948	2.039	0.000	0.000	107.463	3.043
294.52	89.77	0.00	0.00	22.044	2.048	0.000	0.000	108.204	3.064
294.55	89.78	0.00	0.00	22.131	2.056	0.000	0.000	108.911	3.084
294.59	89.79	0.00	0.00	22.227	2.065	0.000	0.000	109.652	3.105
294.62	89.80	0.00	0.00	22.335	2.075	0.000	0.000	110.394	3.126
294.65	89.81	0.00	0.00	22.421	2.083	0.000	0.000	111.100	3.146
294.69	89.82	0.00	0.00	22.518	2.092	0.000	0.000	111.842	3.167
294.72	89.83	0.00	0.00	22.615	2.101	0.000	0.000	112.583	3.188
294.75	89.84	0.00	0.00	22.712	2.110	0.000	0.000	113.325	3.209
294.78	89.85	0.00	0.00	22.809	2.119	0.000	0.000	114.066	3.230
294.82	89.86	0.00	0.00	22.895	2.127	0.000	0.000	114.843	3.252
294.85	89.87	0.00	0.00	22.992	2.136	0.000	0.000	115.585	3.273
294.88	89.88	0.00	0.00	23.099	2.146	0.000	0.000	116.327	3.294
294.91	89.89	0.00	0.00	23.196	2.155	0.000	0.000	117.104	3.316
294.95	89.90	0.00	0.00	23.293	2.164	0.000	0.000	117.845	3.337
294.98	89.91	0.00	0.00	23.401	2.174	0.000	0.000	118.622	3.359
295.01	89.92	0.00	0.00	23.487	2.182	0.000	0.000	119.399	3.381
295.05	89.93	0.00	0.00	23.584	2.191	0.000	0.000	120.176	3.403
295.08	89.94	0.00	0.00	23.681	2.200	0.000	0.000	120.953	3.425
295.11	89.95	0.00	0.00	23.777	2.209	0.000	0.000	121.730	3.447

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
295.14	89.96	0.00	0.00	23.864	2.217	0.000	0.000	122.507	3.469
295.18	89.97	0.00	0.00	23.960	2.226	0.000	0.000	123.284	3.491
295.21	89.98	0.00	0.00	24.047	2.234	0.000	0.000	124.061	3.513
295.24	89.99	0.00	0.00	24.143	2.243	0.000	0.000	124.873	3.536
295.28	90.00	0.00	0.00	24.240	2.252	0.000	0.000	125.650	3.558
295.31	90.01	0.00	0.00	24.337	2.261	0.000	0.000	126.462	3.581
295.34	90.02	0.00	0.00	24.423	2.269	0.000	0.000	127.239	3.603
295.37	90.03	0.00	0.00	24.520	2.278	0.000	0.000	128.051	3.626
295.41	90.04	0.00	0.00	24.617	2.287	0.000	0.000	128.863	3.649
295.44	90.05	0.00	0.00	24.714	2.296	0.000	0.000	129.676	3.672
295.47	90.06	0.00	0.00	24.811	2.305	0.000	0.000	130.488	3.695
295.51	90.07	0.00	0.00	24.908	2.314	0.000	0.000	131.300	3.718
295.54	90.08	0.00	0.00	25.005	2.323	0.000	0.000	132.112	3.741
295.57	90.09	0.00	0.00	25.101	2.332	0.000	0.000	132.925	3.764
295.60	90.10	0.00	0.00	25.198	2.341	0.000	0.000	133.772	3.788
295.64	90.11	0.03	0.01	25.306	2.351	0.812	0.023	134.584	3.811
295.67	90.12	0.07	0.02	25.403	2.360	1.660	0.047	135.432	3.835
295.70	90.13	0.10	0.03	25.500	2.369	2.507	0.071	136.279	3.859
295.73	90.14	0.13	0.04	25.586	2.377	3.320	0.094	137.092	3.882
295.77	90.15	0.16	0.05	25.683	2.386	4.167	0.118	137.939	3.906
295.80	90.16	0.20	0.06	25.780	2.395	5.015	0.142	138.787	3.930
295.83	90.17	0.23	0.07	25.876	2.404	5.862	0.166	139.634	3.954
295.87	90.18	0.26	0.08	25.973	2.413	6.710	0.190	140.482	3.978
295.90	90.19	0.30	0.09	26.070	2.422	7.557	0.214	141.329	4.002
295.93	90.20	0.33	0.10	26.167	2.431	8.405	0.238	142.177	4.026
295.96	90.21	0.36	0.11	26.253	2.439	9.288	0.263	143.060	4.051
296.00	90.22	0.39	0.12	26.361	2.449	10.135	0.287	143.907	4.075
296.03	90.23	0.43	0.13	26.447	2.457	11.018	0.312	144.790	4.100
296.06	90.24	0.46	0.14	26.544	2.466	11.866	0.336	145.638	4.124
296.10	90.25	0.49	0.15	26.641	2.475	12.749	0.361	146.521	4.149

OSL/DSL

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
296.13	90.26	0.52	0.16	26.738	2.484	13.631	0.386	147.404	4.174
296.16	90.27	0.56	0.17	26.834	2.493	14.514	0.411	148.286	4.199
296.19	90.28	0.59	0.18	26.921	2.501	15.397	0.436	149.169	4.224
296.23	90.29	0.62	0.19	27.017	2.510	16.280	0.461	150.052	4.249
296.26	90.30	0.66	0.20	27.114	2.519	17.163	0.486	150.935	4.274
296.29	90.31	0.69	0.21	27.200	2.527	18.046	0.511	151.818	4.299
296.33	90.32	0.72	0.22	27.286	2.535	18.964	0.537	152.736	4.325
296.36	90.33	0.75	0.23	27.383	2.544	19.847	0.562	153.619	4.350
296.39	90.34	0.79	0.24	27.469	2.552	20.730	0.587	154.502	4.375
296.42	90.35	0.82	0.25	27.566	2.561	21.648	0.613	155.420	4.401
296.46	90.36	0.85	0.26	27.652	2.569	22.566	0.639	156.338	4.427
296.49	90.37	0.89	0.27	27.749	2.578	23.449	0.664	157.221	4.452
296.52	90.38	0.92	0.28	27.835	2.586	24.367	0.690	158.139	4.478
296.56	90.39	0.95	0.29	27.932	2.595	25.285	0.716	159.057	4.504
296.59	90.40	0.98	0.30	28.018	2.603	26.204	0.742	159.976	4.530
296.62	90.41	1.02	0.31	28.115	2.612	27.122	0.768	160.894	4.556
296.65	90.42	1.05	0.32	28.201	2.620	28.040	0.794	161.812	4.582
296.69	90.43	1.08	0.33	28.298	2.629	28.993	0.821	162.765	4.609
296.72	90.44	1.12	0.34	28.384	2.637	29.912	0.847	163.684	4.635
296.75	90.45	1.15	0.35	28.481	2.646	30.830	0.873	164.602	4.661
296.78	90.46	1.18	0.36	28.567	2.654	31.783	0.900	165.555	4.688
296.82	90.47	1.21	0.37	28.664	2.663	32.701	0.926	166.473	4.714
296.85	90.48	1.25	0.38	28.750	2.671	33.655	0.953	167.427	4.741
296.88	90.49	1.28	0.39	28.836	2.679	34.608	0.980	168.380	4.768
296.92	90.50	1.31	0.40	28.933	2.688	35.562	1.007	169.334	4.795
296.95	90.51	1.35	0.41	29.019	2.696	36.515	1.034	170.287	4.822
296.98	90.52	1.38	0.42	29.116	2.705	37.469	1.061	171.241	4.849
297.01	90.53	1.41	0.43	29.202	2.713	38.422	1.088	172.194	4.876
297.05	90.54	1.44	0.44	29.299	2.722	39.376	1.115	173.148	4.903
297.08	90.55	1.48	0.45	29.385	2.730	40.329	1.142	174.101	4.930

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
297.11	90.56	1.51	0.46	29.482	2.739	41.283	1.169	175.055	4.957
297.15	90.57	1.54	0.47	29.568	2.747	42.272	1.197	176.044	4.985
297.18	90.58	1.57	0.48	29.665	2.756	43.225	1.224	176.997	5.012
297.21	90.59	1.61	0.49	29.762	2.765	44.214	1.252	177.986	5.040
297.24	90.60	1.64	0.50	29.848	2.773	45.203	1.280	178.975	5.068
297.28	90.61	1.67	0.51	29.945	2.782	46.156	1.307	179.928	5.095
297.31	90.62	1.71	0.52	30.031	2.790	47.145	1.335	180.917	5.123
297.34	90.63	1.74	0.53	30.117	2.798	48.134	1.363	181.906	5.151
297.38	90.64	1.77	0.54	30.214	2.807	49.123	1.391	182.895	5.179
297.41	90.65	1.80	0.55	30.300	2.815	50.112	1.419	183.884	5.207
297.44	90.66	1.84	0.56	30.386	2.823	51.136	1.448	184.908	5.236
297.47	90.67	1.87	0.57	30.483	2.832	52.124	1.476	185.897	5.264
297.51	90.68	1.90	0.58	30.569	2.840	53.113	1.504	186.885	5.292
297.54	90.69	1.94	0.59	30.666	2.849	54.137	1.533	187.910	5.321
297.57	90.70	1.97	0.60	30.752	2.857	55.126	1.561	188.898	5.349
297.60	90.71	2.00	0.61	30.849	2.866	56.150	1.590	189.922	5.378
297.64	90.72	2.03	0.62	30.935	2.874	57.139	1.618	190.911	5.406
297.67	90.73	2.07	0.63	31.022	2.882	58.163	1.647	191.935	5.435
297.70	90.74	2.10	0.64	31.118	2.891	59.187	1.676	192.960	5.464
297.74	90.75	2.13	0.65	31.205	2.899	60.212	1.705	193.984	5.493
297.77	90.76	2.17	0.66	31.291	2.907	61.236	1.734	195.008	5.522
297.80	90.77	2.20	0.67	31.377	2.915	62.260	1.763	196.032	5.551
297.83	90.78	2.23	0.68	31.463	2.923	63.284	1.792	197.056	5.580
297.87	90.79	2.26	0.69	31.560	2.932	64.343	1.822	198.115	5.610
297.90	90.80	2.30	0.70	31.646	2.940	65.368	1.851	199.140	5.639
297.93	90.81	2.33	0.71	31.732	2.948	66.392	1.880	200.164	5.668
297.97	90.82	2.36	0.72	31.829	2.957	67.451	1.910	201.223	5.698
298.00	90.83	2.40	0.73	31.915	2.965	68.511	1.940	202.283	5.728
298.03	90.84	2.43	0.74	32.001	2.973	69.535	1.969	203.307	5.757
298.06	90.85	2.46	0.75	32.087	2.981	70.594	1.999	204.366	5.787

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
298.10	90.86	2.49	0.76	32.184	2.990	71.654	2.029	205.426	5.817
298.13	90.87	2.53	0.77	32.270	2.998	72.713	2.059	206.485	5.847
298.16	90.88	2.56	0.78	32.367	3.007	73.772	2.089	207.544	5.877
298.20	90.89	2.59	0.79	32.453	3.015	74.832	2.119	208.604	5.907
298.23	90.90	2.62	0.80	32.550	3.024	75.891	2.149	209.663	5.937
298.26	90.91	2.66	0.81	32.636	3.032	76.951	2.179	210.723	5.967
298.29	90.92	2.69	0.82	32.733	3.041	78.045	2.210	211.818	5.998
298.33	90.93	2.72	0.83	32.819	3.049	79.105	2.240	212.877	6.028
298.36	90.94	2.76	0.84	32.916	3.058	80.200	2.271	213.972	6.059
298.39	90.95	2.79	0.85	33.013	3.067	81.259	2.301	215.031	6.089
298.43	90.96	2.82	0.86	33.110	3.076	82.354	2.332	216.126	6.120
298.46	90.97	2.85	0.87	33.207	3.085	83.449	2.363	217.221	6.151
298.49	90.98	2.89	0.88	33.304	3.094	84.543	2.394	218.315	6.182
298.52	90.99	2.92	0.89	33.390	3.102	85.638	2.425	219.410	6.213
298.56	91.00	2.95	0.90	33.486	3.111	86.733	2.456	220.505	6.244
298.59	91.01	2.99	0.91	33.583	3.120	87.828	2.487	221.600	6.275
298.62	91.02	3.02	0.92	33.680	3.129	88.922	2.518	222.694	6.306
298.65	91.03	3.05	0.93	33.788	3.139	90.052	2.550	223.825	6.338
298.69	91.04	3.08	0.94	33.885	3.148	91.147	2.581	224.919	6.369
298.72	91.05	3.12	0.95	33.982	3.157	92.277	2.613	226.049	6.401
298.75	91.06	3.15	0.96	34.089	3.167	93.372	2.644	227.144	6.432
298.79	91.07	3.18	0.97	34.186	3.176	94.502	2.676	228.274	6.464
298.82	91.08	3.22	0.98	34.294	3.186	95.632	2.708	229.404	6.496
298.85	91.09	3.25	0.99	34.391	3.195	96.762	2.740	230.534	6.528
298.88	91.10	3.28	1.00	34.498	3.205	97.892	2.772	231.664	6.560
298.92	91.11	3.31	1.01	34.595	3.214	99.022	2.804	232.795	6.592
298.95	91.12	3.35	1.02	34.703	3.224	100.152	2.836	233.925	6.624
298.98	91.13	3.38	1.03	34.810	3.234	101.283	2.868	235.055	6.656
299.02	91.14	3.41	1.04	34.907	3.243	102.448	2.901	236.220	6.689
299.05	91.15	3.44	1.05	35.015	3.253	103.578	2.933	237.350	6.721

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
299.08	91.16	3.48	1.06	35.112	3.262	104.743	2.966	238.515	6.754
299.11	91.17	3.51	1.07	35.219	3.272	105.873	2.998	239.646	6.786
299.15	91.18	3.54	1.08	35.327	3.282	107.039	3.031	240.811	6.819
299.18	91.19	3.58	1.09	35.435	3.292	108.204	3.064	241.976	6.852
299.21	91.20	3.61	1.10	35.542	3.302	109.370	3.097	243.142	6.885
299.25	91.21	3.64	1.11	35.650	3.312	110.535	3.130	244.307	6.918
299.28	91.22	3.67	1.12	35.758	3.322	111.700	3.163	245.472	6.951
299.31	91.23	3.71	1.13	35.865	3.332	112.866	3.196	246.638	6.984
299.34	91.24	3.74	1.14	35.973	3.342	114.066	3.230	247.839	7.018
299.38	91.25	3.77	1.15	36.081	3.352	115.232	3.263	249.004	7.051
299.41	91.26	3.81	1.16	36.188	3.362	116.433	3.297	250.205	7.085
299.44	91.27	3.84	1.17	36.296	3.372	117.633	3.331	251.405	7.119
299.48	91.28	3.87	1.18	36.404	3.382	118.799	3.364	252.571	7.152
299.51	91.29	3.90	1.19	36.522	3.393	119.999	3.398	253.771	7.186
299.54	91.30	3.94	1.20	36.630	3.403	121.200	3.432	254.972	7.220
299.57	91.31	3.97	1.21	36.737	3.413	122.401	3.466	256.173	7.254
299.61	91.32	4.00	1.22	36.856	3.424	123.601	3.500	257.374	7.288
299.64	91.33	4.04	1.23	36.974	3.435	124.837	3.535	258.610	7.323
299.67	91.34	4.07	1.24	37.082	3.445	126.038	3.569	259.810	7.357
299.70	91.35	4.10	1.25	37.200	3.456	127.274	3.604	261.046	7.392
299.74	91.36	4.13	1.26	37.308	3.466	128.475	3.638	262.247	7.426
299.77	91.37	4.17	1.27	37.426	3.477	129.711	3.673	263.483	7.461
299.80	91.38	4.20	1.28	37.534	3.487	130.947	3.708	264.719	7.496
299.84	91.39	4.23	1.29	37.641	3.497	132.183	3.743	265.955	7.531
299.87	91.40	4.27	1.30	37.760	3.508	133.419	3.778	267.191	7.566
299.90	91.41	4.30	1.31	37.867	3.518	134.655	3.813	268.427	7.601
299.93	91.42	4.33	1.32	37.975	3.528	135.891	3.848	269.663	7.636
299.97	91.43	4.36	1.33	38.083	3.538	137.127	3.883	270.899	7.671
300.00	91.44	4.40	1.34	38.190	3.548	138.398	3.919	272.170	7.707
300.03	91.45	4.43	1.35	38.309	3.559	139.634	3.954	273.406	7.742

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
300.07	91.46	4.46	1.36	38.416	3.569	140.906	3.990	274.678	7.778
300.10	91.47	4.49	1.37	38.524	3.579	142.177	4.026	275.949	7.814
300.13	91.48	4.53	1.38	38.632	3.589	143.448	4.062	277.220	7.850
300.16	91.49	4.56	1.39	38.750	3.600	144.720	4.098	278.492	7.886
300.20	91.50	4.59	1.40	38.858	3.610	145.991	4.134	279.763	7.922
300.23	91.51	4.63	1.41	38.976	3.621	147.262	4.170	281.034	7.958
300.26	91.52	4.66	1.42	39.094	3.632	148.534	4.206	282.306	7.994
300.30	91.53	4.69	1.43	39.213	3.643	149.805	4.242	283.577	8.030
300.33	91.54	4.72	1.44	39.342	3.655	151.112	4.279	284.884	8.067
300.36	91.55	4.76	1.45	39.460	3.666	152.383	4.315	286.155	8.103
300.39	91.56	4.79	1.46	39.579	3.677	153.690	4.352	287.462	8.140
300.43	91.57	4.82	1.47	39.708	3.689	154.996	4.389	288.768	8.177
300.46	91.58	4.86	1.48	39.837	3.701	156.303	4.426	290.075	8.214
300.49	91.59	4.89	1.49	39.956	3.712	157.610	4.463	291.382	8.251
300.52	91.60	4.92	1.50	40.085	3.724	158.916	4.500	292.688	8.288
300.56	91.61	4.95	1.51	40.214	3.736	160.258	4.538	294.030	8.326
300.59	91.62	4.99	1.52	40.343	3.748	161.565	4.575	295.337	8.363
300.62	91.63	5.02	1.53	40.483	3.761	162.871	4.612	296.643	8.400
300.66	91.64	5.05	1.54	40.601	3.772	164.213	4.650	297.985	8.438
300.69	91.65	5.09	1.55	40.731	3.784	165.555	4.688	299.327	8.476
300.72	91.66	5.12	1.56	40.860	3.796	166.897	4.726	300.669	8.514
300.75	91.67	5.15	1.57	40.989	3.808	168.239	4.764	302.011	8.552
300.79	91.68	5.18	1.58	41.118	3.820	169.581	4.802	303.353	8.590
300.82	91.69	5.22	1.59	41.247	3.832	170.923	4.840	304.695	8.628
300.85	91.70	5.25	1.60	41.376	3.844	172.300	4.879	306.073	8.667
300.89	91.71	5.28	1.61	41.495	3.855	173.642	4.917	307.414	8.705
300.92	91.72	5.31	1.62	41.624	3.867	175.020	4.956	308.792	8.744
300.95	91.73	5.35	1.63	41.742	3.878	176.362	4.994	310.134	8.782
300.98	91.74	5.38	1.64	41.872	3.890	177.739	5.033	311.511	8.821
301.02	91.75	5.41	1.65	42.001	3.902	179.116	5.072	312.888	8.860

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
301.05	91.76	5.45	1.66	42.130	3.914	180.493	5.111	314.266	8.899
301.08	91.77	5.48	1.67	42.259	3.926	181.906	5.151	315.678	8.939
301.12	91.78	5.51	1.68	42.388	3.938	183.283	5.190	317.055	8.978
301.15	91.79	5.54	1.69	42.528	3.951	184.661	5.229	318.433	9.017
301.18	91.80	5.58	1.70	42.657	3.963	186.073	5.269	319.845	9.057
301.21	91.81	5.61	1.71	42.787	3.975	187.486	5.309	321.258	9.097
301.25	91.82	5.64	1.72	42.926	3.988	188.863	5.348	322.635	9.136
301.28	91.83	5.68	1.73	43.056	4.000	190.276	5.388	324.048	9.176
301.31	91.84	5.71	1.74	43.185	4.012	191.688	5.428	325.460	9.216
301.35	91.85	5.74	1.75	43.325	4.025	193.136	5.469	326.908	9.257
301.38	91.86	5.77	1.76	43.454	4.037	194.549	5.509	328.321	9.297
301.41	91.87	5.81	1.77	43.594	4.050	195.961	5.549	329.733	9.337
301.44	91.88	5.84	1.78	43.723	4.062	197.409	5.590	331.181	9.378
301.48	91.89	5.87	1.79	43.852	4.074	198.857	5.631	332.629	9.419
301.51	91.90	5.91	1.80	43.992	4.087	200.270	5.671	334.042	9.459
301.54	91.91	5.94	1.81	44.121	4.099	201.718	5.712	335.490	9.500
301.57	91.92	5.97	1.82	44.250	4.111	203.165	5.753	336.938	9.541
301.61	91.93	6.00	1.83	44.390	4.124	204.649	5.795	338.421	9.583
301.64	91.94	6.04	1.84	44.519	4.136	206.097	5.836	339.869	9.624
301.67	91.95	6.07	1.85	44.659	4.149	207.544	5.877	341.317	9.665
301.71	91.96	6.10	1.86	44.789	4.161	209.028	5.919	342.800	9.707
301.74	91.97	6.14	1.87	44.929	4.174	210.476	5.960	344.248	9.748
301.77	91.98	6.17	1.88	45.068	4.187	211.959	6.002	345.731	9.790
301.80	91.99	6.20	1.89	45.219	4.201	213.442	6.044	347.214	9.832
301.84	92.00	6.23	1.90	45.359	4.214	214.925	6.086	348.697	9.874
301.87	92.01	6.27	1.91	45.499	4.227	216.444	6.129	350.216	9.917
301.90	92.02	6.30	1.92	45.628	4.239	217.927	6.171	351.699	9.959
301.94	92.03	6.33	1.93	45.768	4.252	219.410	6.213	353.182	10.001
301.97	92.04	6.36	1.94	45.919	4.266	220.929	6.256	354.701	10.044
302.00	92.05	6.40	1.95	46.059	4.279	222.447	6.299	356.219	10.087

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
302.03	92.06	6.43	1.96	46.199	4.292	223.931	6.341	357.703	10.129
302.07	92.07	6.46	1.97	46.339	4.305	225.449	6.384	359.221	10.172
302.10	92.08	6.50	1.98	46.479	4.318	227.003	6.428	360.775	10.216
302.13	92.09	6.53	1.99	46.629	4.332	228.521	6.471	362.294	10.259
302.17	92.10	6.56	2.00	46.769	4.345	230.040	6.514	363.812	10.302
302.20	92.11	6.59	2.01	46.920	4.359	231.594	6.558	365.366	10.346
302.23	92.12	6.63	2.02	47.071	4.373	233.112	6.601	366.884	10.389
302.26	92.13	6.66	2.03	47.210	4.386	234.666	6.645	368.438	10.433
302.30	92.14	6.69	2.04	47.361	4.400	236.220	6.689	369.992	10.477
302.33	92.15	6.73	2.05	47.501	4.413	237.774	6.733	371.546	10.521
302.36	92.16	6.76	2.06	47.652	4.427	239.328	6.777	373.100	10.565
302.40	92.17	6.79	2.07	47.802	4.441	240.917	6.822	374.689	10.610
302.43	92.18	6.82	2.08	47.942	4.454	242.471	6.866	376.243	10.654
302.46	92.19	6.86	2.09	48.093	4.468	244.060	6.911	377.832	10.699
302.49	92.20	6.89	2.10	48.244	4.482	245.649	6.956	379.421	10.744
302.53	92.21	6.92	2.11	48.394	4.496	247.203	7.000	380.975	10.788
302.56	92.22	6.96	2.12	48.534	4.509	248.792	7.045	382.564	10.833
302.59	92.23	6.99	2.13	48.685	4.523	250.417	7.091	384.189	10.879
302.62	92.24	7.02	2.14	48.836	4.537	252.006	7.136	385.778	10.924
302.66	92.25	7.05	2.15	48.987	4.551	253.595	7.181	387.367	10.969
302.69	92.26	7.09	2.16	49.137	4.565	255.219	7.227	388.991	11.015
302.72	92.27	7.12	2.17	49.288	4.579	256.844	7.273	390.616	11.061
302.76	92.28	7.15	2.18	49.439	4.593	258.468	7.319	392.240	11.107
302.79	92.29	7.19	2.19	49.600	4.608	260.093	7.365	393.865	11.153
302.82	92.30	7.22	2.20	49.751	4.622	261.717	7.411	395.489	11.199
302.85	92.31	7.25	2.21	49.901	4.636	263.342	7.457	397.114	11.245
302.89	92.32	7.28	2.22	50.052	4.650	264.966	7.503	398.738	11.291
302.92	92.33	7.32	2.23	50.203	4.664	266.626	7.550	400.398	11.338
302.95	92.34	7.35	2.24	50.354	4.678	268.286	7.597	402.058	11.385
302.99	92.35	7.38	2.25	50.515	4.693	269.946	7.644	403.718	11.432

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
303.02	92.36	7.41	2.26	50.666	4.707	271.605	7.691	405.377	11.479
303.05	92.37	7.45	2.27	50.816	4.721	273.265	7.738	407.037	11.526
303.08	92.38	7.48	2.28	50.967	4.735	274.925	7.785	408.697	11.573
303.12	92.39	7.51	2.29	51.118	4.749	276.585	7.832	410.357	11.620
303.15	92.40	7.55	2.30	51.279	4.764	278.280	7.880	412.052	11.668
303.18	92.41	7.58	2.31	51.441	4.779	279.975	7.928	413.747	11.716
303.22	92.42	7.61	2.32	51.591	4.793	281.670	7.976	415.442	11.764
303.25	92.43	7.64	2.33	51.753	4.808	283.365	8.024	417.137	11.812
303.28	92.44	7.68	2.34	51.904	4.822	285.060	8.072	418.832	11.860
303.31	92.45	7.71	2.35	52.065	4.837	286.755	8.120	420.527	11.908
303.35	92.46	7.74	2.36	52.216	4.851	288.450	8.168	422.223	11.956
303.38	92.47	7.78	2.37	52.377	4.866	290.181	8.217	423.953	12.005
303.41	92.48	7.81	2.38	52.528	4.880	291.911	8.266	425.683	12.054
303.44	92.49	7.84	2.39	52.689	4.895	293.642	8.315	427.414	12.103
303.48	92.50	7.87	2.40	52.840	4.909	295.372	8.364	429.144	12.152
303.51	92.51	7.91	2.41	53.001	4.924	297.103	8.413	430.875	12.201
303.54	92.52	7.94	2.42	53.163	4.939	298.833	8.462	432.605	12.250
303.58	92.53	7.97	2.43	53.324	4.954	300.599	8.512	434.371	12.300
303.61	92.54	8.01	2.44	53.486	4.969	302.329	8.561	436.101	12.349
303.64	92.55	8.04	2.45	53.647	4.984	304.095	8.611	437.867	12.399
303.67	92.56	8.07	2.46	53.809	4.999	305.861	8.661	439.633	12.449
303.71	92.57	8.10	2.47	53.970	5.014	307.626	8.711	441.398	12.499
303.74	92.58	8.14	2.48	54.132	5.029	309.392	8.761	443.164	12.549
303.77	92.59	8.17	2.49	54.304	5.045	311.193	8.812	444.965	12.600
303.81	92.60	8.20	2.50	54.465	5.060	312.959	8.862	446.731	12.650
303.84	92.61	8.23	2.51	54.627	5.075	314.760	8.913	448.532	12.701
303.87	92.62	8.27	2.52	54.799	5.091	316.561	8.964	450.333	12.752
303.90	92.63	8.30	2.53	54.960	5.106	318.362	9.015	452.134	12.803
303.94	92.64	8.33	2.54	55.122	5.121	320.163	9.066	453.935	12.854
303.97	92.65	8.37	2.55	55.294	5.137	321.964	9.117	455.736	12.905

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
304.00	92.66	8.40	2.56	55.456	5.152	323.765	9.168	457.537	12.956
304.04	92.67	8.43	2.57	55.628	5.168	325.602	9.220	459.374	13.008
304.07	92.68	8.46	2.58	55.800	5.184	327.438	9.272	461.210	13.060
304.10	92.69	8.50	2.59	55.972	5.200	329.274	9.324	463.046	13.112
304.13	92.70	8.53	2.60	56.145	5.216	331.111	9.376	464.883	13.164
304.17	92.71	8.56	2.61	56.317	5.232	332.947	9.428	466.719	13.216
304.20	92.72	8.60	2.62	56.489	5.248	334.783	9.480	468.555	13.268
304.23	92.73	8.63	2.63	56.661	5.264	336.655	9.533	470.427	13.321
304.27	92.74	8.66	2.64	56.833	5.280	338.527	9.586	472.299	13.374
304.30	92.75	8.69	2.65	57.016	5.297	340.398	9.639	474.170	13.427
304.33	92.76	8.73	2.66	57.189	5.313	342.270	9.692	476.042	13.480
304.36	92.77	8.76	2.67	57.361	5.329	344.142	9.745	477.914	13.533
304.40	92.78	8.79	2.68	57.544	5.346	346.013	9.798	479.786	13.586
304.43	92.79	8.83	2.69	57.716	5.362	347.920	9.852	481.693	13.640
304.46	92.80	8.86	2.70	57.888	5.378	349.792	9.905	483.564	13.693
304.49	92.81	8.89	2.71	58.082	5.396	351.699	9.959	485.471	13.747
304.53	92.82	8.92	2.72	58.265	5.413	353.606	10.013	487.378	13.801
304.56	92.83	8.96	2.73	58.448	5.430	355.548	10.068	489.320	13.856
304.59	92.84	8.99	2.74	58.631	5.447	357.455	10.122	491.227	13.910
304.63	92.85	9.02	2.75	58.814	5.464	359.362	10.176	493.134	13.964
304.66	92.86	9.06	2.76	59.008	5.482	361.305	10.231	495.077	14.019
304.69	92.87	9.09	2.77	59.191	5.499	363.247	10.286	497.019	14.074
304.72	92.88	9.12	2.78	59.374	5.516	365.189	10.341	498.961	14.129
304.76	92.89	9.15	2.79	59.557	5.533	367.132	10.396	500.904	14.184
304.79	92.90	9.19	2.80	59.761	5.552	369.109	10.452	502.881	14.240
304.82	92.91	9.22	2.81	59.955	5.570	371.052	10.507	504.824	14.295
304.86	92.92	9.25	2.82	60.149	5.588	373.029	10.563	506.801	14.351
304.89	92.93	9.28	2.83	60.342	5.606	375.007	10.619	508.779	14.407
304.92	92.94	9.32	2.84	60.536	5.624	376.984	10.675	510.757	14.463
304.95	92.95	9.35	2.85	60.719	5.641	378.997	10.732	512.769	14.520

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
304.99	92.96	9.38	2.86	60.913	5.659	380.975	10.788	514.747	14.576
305.02	92.97	9.42	2.87	61.096	5.676	382.988	10.845	516.760	14.633
305.05	92.98	9.45	2.88	61.290	5.694	385.001	10.902	518.773	14.690
305.09	92.99	9.48	2.89	61.473	5.711	387.014	10.959	520.786	14.747
305.12	93.00	9.51	2.90	61.666	5.729	389.027	11.016	522.799	14.804
305.15	93.01	9.55	2.91	61.860	5.747	391.040	11.073	524.812	14.861
305.18	93.02	9.58	2.92	62.065	5.766	393.088	11.131	526.860	14.919
305.22	93.03	9.61	2.93	62.258	5.784	395.136	11.189	528.908	14.977
305.25	93.04	9.65	2.94	62.452	5.802	397.184	11.247	530.957	15.035
305.28	93.05	9.68	2.95	62.657	5.821	399.233	11.305	533.005	15.093
305.31	93.06	9.71	2.96	62.850	5.839	401.281	11.363	535.053	15.151
305.35	93.07	9.74	2.97	63.055	5.858	403.329	11.421	537.101	15.209
305.38	93.08	9.78	2.98	63.259	5.877	405.413	11.480	539.185	15.268
305.41	93.09	9.81	2.99	63.464	5.896	407.496	11.539	541.268	15.327
305.45	93.10	9.84	3.00	63.679	5.916	409.580	11.598	543.352	15.386
305.48	93.11	9.88	3.01	63.884	5.935	411.663	11.657	545.436	15.445
305.51	93.12	9.91	3.02	64.088	5.954	413.782	11.717	547.554	15.505
305.54	93.13	9.94	3.03	64.304	5.974	415.866	11.776	549.638	15.564
305.58	93.14	9.97	3.04	64.508	5.993	417.985	11.836	551.757	15.624
305.61	93.15	10.01	3.05	64.734	6.014	420.104	11.896	553.876	15.684
305.64	93.16	10.04	3.06	64.949	6.034	422.258	11.957	556.030	15.745
305.68	93.17	10.07	3.07	65.165	6.054	424.377	12.017	558.149	15.805
305.71	93.18	10.10	3.08	65.380	6.074	426.531	12.078	560.303	15.866
305.74	93.19	10.14	3.09	65.584	6.093	428.650	12.138	562.422	15.926
305.77	93.20	10.17	3.10	65.789	6.112	430.804	12.199	564.576	15.987
305.81	93.21	10.20	3.11	65.983	6.130	432.994	12.261	566.766	16.049
305.84	93.22	10.24	3.12	66.176	6.148	435.148	12.322	568.920	16.110
305.87	93.23	10.27	3.13	66.381	6.167	437.337	12.384	571.109	16.172
305.91	93.24	10.30	3.14	66.575	6.185	439.491	12.445	573.264	16.233
305.94	93.25	10.33	3.15	66.758	6.202	441.681	12.507	575.453	16.295

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
305.97	93.26	10.37	3.16	66.951	6.220	443.870	12.569	577.643	16.357
306.00	93.27	10.40	3.17	67.145	6.238	446.095	12.632	579.867	16.420
306.04	93.28	10.43	3.18	67.339	6.256	448.285	12.694	582.057	16.482
306.07	93.29	10.47	3.19	67.533	6.274	450.510	12.757	584.282	16.545
306.10	93.30	10.50	3.20	67.737	6.293	452.734	12.820	586.507	16.608
306.14	93.31	10.53	3.21	67.931	6.311	454.959	12.883	588.731	16.671
306.17	93.32	10.56	3.22	68.125	6.329	457.184	12.946	590.956	16.734
306.20	93.33	10.60	3.23	68.318	6.347	459.409	13.009	593.181	16.797
306.23	93.34	10.63	3.24	68.512	6.365	461.669	13.073	595.441	16.861
306.27	93.35	10.66	3.25	68.695	6.382	463.929	13.137	597.701	16.925
306.30	93.36	10.70	3.26	68.889	6.400	466.154	13.200	599.926	16.988
306.33	93.37	10.73	3.27	69.083	6.418	468.449	13.265	602.222	17.053
306.36	93.38	10.76	3.28	69.276	6.436	470.710	13.329	604.482	17.117
306.40	93.39	10.79	3.29	69.470	6.454	472.970	13.393	606.742	17.181
306.43	93.40	10.83	3.30	69.664	6.472	475.265	13.458	609.037	17.246
306.46	93.41	10.86	3.31	69.858	6.490	477.561	13.523	611.333	17.311
306.50	93.42	10.89	3.32	70.062	6.509	479.856	13.588	613.628	17.376
306.53	93.43	10.93	3.33	70.267	6.528	482.152	13.653	615.924	17.441
306.56	93.44	10.96	3.34	70.471	6.547	484.447	13.718	618.219	17.506
306.59	93.45	10.99	3.35	70.665	6.565	486.778	13.784	620.550	17.572
306.63	93.46	11.02	3.36	70.870	6.584	489.109	13.850	622.881	17.638
306.66	93.47	11.06	3.37	71.074	6.603	491.439	13.916	625.211	17.704
306.69	93.48	11.09	3.38	71.279	6.622	493.770	13.982	627.542	17.770
306.73	93.49	11.12	3.39	71.483	6.641	496.101	14.048	629.873	17.836
306.76	93.50	11.15	3.40	71.688	6.660	498.467	14.115	632.239	17.903
306.79	93.51	11.19	3.41	71.892	6.679	500.798	14.181	634.570	17.969
306.82	93.52	11.22	3.42	72.097	6.698	503.164	14.248	636.936	18.036
306.86	93.53	11.25	3.43	72.312	6.718	505.530	14.315	639.302	18.103
306.89	93.54	11.29	3.44	72.527	6.738	507.896	14.382	641.668	18.170
306.92	93.55	11.32	3.45	72.742	6.758	510.297	14.450	644.069	18.238

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
306.96	93.56	11.35	3.46	72.958	6.778	512.699	14.518	646.471	18.306
306.99	93.57	11.38	3.47	73.162	6.797	515.065	14.585	648.837	18.373
307.02	93.58	11.42	3.48	73.378	6.817	517.502	14.654	651.274	18.442
307.05	93.59	11.45	3.49	73.582	6.836	519.903	14.722	653.675	18.510
307.09	93.60	11.48	3.50	73.797	6.856	522.304	14.790	656.076	18.578
307.12	93.61	11.52	3.51	74.002	6.875	524.741	14.859	658.513	18.647
307.15	93.62	11.55	3.52	74.217	6.895	527.178	14.928	660.950	18.716
307.19	93.63	11.58	3.53	74.422	6.914	529.615	14.997	663.387	18.785
307.22	93.64	11.61	3.54	74.637	6.934	532.051	15.066	665.823	18.854
307.25	93.65	11.65	3.55	74.852	6.954	534.488	15.135	668.260	18.923
307.28	93.66	11.68	3.56	75.067	6.974	536.960	15.205	670.732	18.993
307.32	93.67	11.71	3.57	75.283	6.994	539.432	15.275	673.204	19.063
307.35	93.68	11.75	3.58	75.509	7.015	541.904	15.345	675.676	19.133
307.38	93.69	11.78	3.59	75.724	7.035	544.376	15.415	678.148	19.203
307.41	93.70	11.81	3.60	75.950	7.056	546.883	15.486	680.656	19.274
307.45	93.71	11.84	3.61	76.176	7.077	549.355	15.556	683.128	19.344
307.48	93.72	11.88	3.62	76.402	7.098	551.863	15.627	685.635	19.415
307.51	93.73	11.91	3.63	76.628	7.119	554.370	15.698	688.142	19.486
307.55	93.74	11.94	3.64	76.854	7.140	556.913	15.770	690.685	19.558
307.58	93.75	11.98	3.65	77.091	7.162	559.420	15.841	693.192	19.629
307.61	93.76	12.01	3.66	77.328	7.184	561.963	15.913	695.735	19.701
307.64	93.77	12.04	3.67	77.565	7.206	564.505	15.985	698.278	19.773
307.68	93.78	12.07	3.68	77.791	7.227	567.048	16.057	700.820	19.845
307.71	93.79	12.11	3.69	78.017	7.248	569.591	16.129	703.363	19.917
307.74	93.80	12.14	3.70	78.254	7.270	572.169	16.202	705.941	19.990
307.78	93.81	12.17	3.71	78.480	7.291	574.747	16.275	708.519	20.063
307.81	93.82	12.20	3.72	78.706	7.312	577.325	16.348	711.097	20.136
307.84	93.83	12.24	3.73	78.932	7.333	579.903	16.421	713.675	20.209
307.87	93.84	12.27	3.74	79.158	7.354	582.481	16.494	716.253	20.282
307.91	93.85	12.30	3.75	79.395	7.376	585.094	16.568	718.866	20.356

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
307.94	93.86	12.34	3.76	79.621	7.397	587.707	16.642	721.479	20.430
307.97	93.87	12.37	3.77	79.857	7.419	590.321	16.716	724.093	20.504
308.01	93.88	12.40	3.78	80.094	7.441	592.934	16.790	726.706	20.578
308.04	93.89	12.43	3.79	80.331	7.463	595.582	16.865	729.354	20.653
308.07	93.90	12.47	3.80	80.568	7.485	598.231	16.940	732.003	20.728
308.10	93.91	12.50	3.81	80.794	7.506	600.880	17.015	734.652	20.803
308.14	93.92	12.53	3.82	81.041	7.529	603.528	17.090	737.300	20.878
308.17	93.93	12.57	3.83	81.289	7.552	606.177	17.165	739.949	20.953
308.20	93.94	12.60	3.84	81.526	7.574	608.861	17.241	742.633	21.029
308.23	93.95	12.63	3.85	81.763	7.596	611.545	17.317	745.317	21.105
308.27	93.96	12.66	3.86	82.010	7.619	614.229	17.393	748.001	21.181
308.30	93.97	12.70	3.87	82.247	7.641	616.912	17.469	750.685	21.257
308.33	93.98	12.73	3.88	82.484	7.663	619.596	17.545	753.368	21.333
308.37	93.99	12.76	3.89	82.721	7.685	622.316	17.622	756.088	21.410
308.40	94.00	12.80	3.90	82.957	7.707	625.035	17.699	758.807	21.487
308.43	94.01	12.83	3.91	83.205	7.730	627.754	17.776	761.526	21.564
308.46	94.02	12.86	3.92	83.442	7.752	630.509	17.854	764.281	21.642
308.50	94.03	12.89	3.93	83.679	7.774	633.228	17.931	767.000	21.719
308.53	94.04	12.93	3.94	83.926	7.797	635.982	18.009	769.755	21.797
308.56	94.05	12.96	3.95	84.174	7.820	638.737	18.087	772.509	21.875
308.60	94.06	12.99	3.96	84.421	7.843	641.527	18.166	775.299	21.954
308.63	94.07	13.02	3.97	84.680	7.867	644.281	18.244	778.053	22.032
308.66	94.08	13.06	3.98	84.938	7.891	647.071	18.323	780.843	22.111
308.69	94.09	13.09	3.99	85.196	7.915	649.861	18.402	783.633	22.190
308.73	94.10	13.12	4.00	85.455	7.939	652.651	18.481	786.423	22.269
308.76	94.11	13.16	4.01	85.713	7.963	655.476	18.561	789.248	22.349
308.79	94.12	13.19	4.02	85.982	7.988	658.301	18.641	792.073	22.429
308.83	94.13	13.22	4.03	86.240	8.012	661.126	18.721	794.899	22.509
308.86	94.14	13.25	4.04	86.520	8.038	663.952	18.801	797.724	22.589
308.89	94.15	13.29	4.05	86.800	8.064	666.777	18.881	800.549	22.669

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
308.92	94.16	13.32	4.06	87.080	8.090	669.637	18.962	803.409	22.750
308.96	94.17	13.35	4.07	87.360	8.116	672.498	19.043	806.270	22.831
308.99	94.18	13.39	4.08	87.640	8.142	675.358	19.124	809.130	22.912
309.02	94.19	13.42	4.09	87.920	8.168	678.254	19.206	812.026	22.994
309.06	94.20	13.45	4.10	88.199	8.194	681.150	19.288	814.922	23.076
309.09	94.21	13.48	4.11	88.479	8.220	684.046	19.370	817.818	23.158
309.12	94.22	13.52	4.12	88.770	8.247	686.942	19.452	820.714	23.240
309.15	94.23	13.55	4.13	89.050	8.273	689.873	19.535	823.645	23.323
309.19	94.24	13.58	4.14	89.330	8.299	692.804	19.618	826.576	23.406
309.22	94.25	13.62	4.15	89.609	8.325	695.735	19.701	829.507	23.489
309.25	94.26	13.65	4.16	89.889	8.351	698.666	19.784	832.438	23.572
309.28	94.27	13.68	4.17	90.180	8.378	701.632	19.868	835.405	23.656
309.32	94.28	13.71	4.18	90.460	8.404	704.599	19.952	838.371	23.740
309.35	94.29	13.75	4.19	90.750	8.431	707.565	20.036	841.337	23.824
309.38	94.30	13.78	4.20	91.030	8.457	710.532	20.120	844.304	23.908
309.42	94.31	13.81	4.21	91.332	8.485	713.534	20.205	847.306	23.993
309.45	94.32	13.85	4.22	91.622	8.512	716.535	20.290	850.307	24.078
309.48	94.33	13.88	4.23	91.924	8.540	719.537	20.375	853.309	24.163
309.51	94.34	13.91	4.24	92.236	8.569	722.574	20.461	856.346	24.249
309.55	94.35	13.94	4.25	92.537	8.597	725.611	20.547	859.383	24.335
309.58	94.36	13.98	4.26	92.839	8.625	728.648	20.633	862.420	24.421
309.61	94.37	14.01	4.27	93.151	8.654	731.685	20.719	865.457	24.507
309.65	94.38	14.04	4.28	93.452	8.682	734.758	20.806	868.530	24.594
309.68	94.39	14.07	4.29	93.754	8.710	737.830	20.893	871.602	24.681
309.71	94.40	14.11	4.30	94.066	8.739	740.902	20.980	874.674	24.768
309.74	94.41	14.14	4.31	94.367	8.767	744.010	21.068	877.782	24.856
309.78	94.42	14.17	4.32	94.669	8.795	747.082	21.155	880.855	24.943
309.81	94.43	14.21	4.33	94.970	8.823	750.225	21.244	883.998	25.032
309.84	94.44	14.24	4.34	95.282	8.852	753.333	21.332	887.105	25.120
309.88	94.45	14.27	4.35	95.583	8.880	756.476	21.421	890.248	25.209

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
309.91	94.46	14.30	4.36	95.885	8.908	759.584	21.509	893.356	25.297
309.94	94.47	14.34	4.37	96.186	8.936	762.762	21.599	896.534	25.387
309.97	94.48	14.37	4.38	96.477	8.963	765.905	21.688	899.677	25.476
310.01	94.49	14.40	4.39	96.757	8.989	769.084	21.778	902.856	25.566
310.04	94.50	14.44	4.40	97.047	9.016	772.262	21.868	906.034	25.656
310.07	94.51	14.47	4.41	97.327	9.042	775.440	21.958	909.212	25.746
310.10	94.52	14.50	4.42	97.607	9.068	778.654	22.049	912.426	25.837
310.14	94.53	14.53	4.43	97.887	9.094	781.867	22.140	915.640	25.928
310.17	94.54	14.57	4.44	98.167	9.120	785.081	22.231	918.853	26.019
310.20	94.55	14.60	4.45	98.457	9.147	788.295	22.322	922.067	26.110
310.24	94.56	14.63	4.46	98.748	9.174	791.544	22.414	925.316	26.202
310.27	94.57	14.67	4.47	99.039	9.201	794.793	22.506	928.565	26.294
310.30	94.58	14.70	4.48	99.340	9.229	798.042	22.598	931.814	26.386
310.33	94.59	14.73	4.49	99.652	9.258	801.291	22.690	935.063	26.478
310.37	94.60	14.76	4.50	99.975	9.288	804.575	22.783	938.347	26.571
310.40	94.61	14.80	4.51	100.287	9.317	807.859	22.876	941.631	26.664
310.43	94.62	14.83	4.52	100.589	9.345	811.143	22.969	944.915	26.757
310.47	94.63	14.86	4.53	100.890	9.373	814.463	23.063	948.235	26.851
310.50	94.64	14.90	4.54	101.202	9.402	817.783	23.157	951.555	26.945
310.53	94.65	14.93	4.55	101.525	9.432	821.102	23.251	954.874	27.039
310.56	94.66	14.96	4.56	101.837	9.461	824.422	23.345	958.194	27.133
310.60	94.67	14.99	4.57	102.149	9.490	827.777	23.440	961.549	27.228
310.63	94.68	15.03	4.58	102.462	9.519	831.131	23.535	964.904	27.323
310.66	94.69	15.06	4.59	102.784	9.549	834.486	23.630	968.258	27.418
310.70	94.70	15.09	4.60	103.107	9.579	837.877	23.726	971.649	27.514
310.73	94.71	15.12	4.61	103.441	9.610	841.267	23.822	975.039	27.610
310.76	94.72	15.16	4.62	103.775	9.641	844.657	23.918	978.429	27.706
310.79	94.73	15.19	4.63	104.108	9.672	848.083	24.015	981.855	27.803
310.83	94.74	15.22	4.64	104.453	9.704	851.508	24.112	985.280	27.900
310.86	94.75	15.26	4.65	104.787	9.735	854.934	24.209	988.706	27.997

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
310.89	94.76	15.29	4.66	105.109	9.765	858.359	24.306	992.131	28.094
310.93	94.77	15.32	4.67	105.443	9.796	861.820	24.404	995.592	28.192
310.96	94.78	15.35	4.68	105.788	9.828	865.281	24.502	999.053	28.290
310.99	94.79	15.39	4.69	106.111	9.858	868.777	24.601	1002.549	28.389
311.02	94.80	15.42	4.70	106.444	9.889	872.238	24.699	1006.010	28.487
311.06	94.81	15.45	4.71	106.767	9.919	875.769	24.799	1009.541	28.587
311.09	94.82	15.49	4.72	107.101	9.950	879.265	24.898	1013.037	28.686
311.12	94.83	15.52	4.73	107.424	9.980	882.762	24.997	1016.534	28.785
311.15	94.84	15.55	4.74	107.747	10.010	886.293	25.097	1020.065	28.885
311.19	94.85	15.58	4.75	108.080	10.041	889.860	25.198	1023.632	28.986
311.22	94.86	15.62	4.76	108.414	10.072	893.391	25.298	1027.163	29.086
311.25	94.87	15.65	4.77	108.748	10.103	896.958	25.399	1030.730	29.187
311.29	94.88	15.68	4.78	109.081	10.134	900.525	25.500	1034.297	29.288
311.32	94.89	15.72	4.79	109.404	10.164	904.127	25.602	1037.899	29.390
311.35	94.90	15.75	4.80	109.738	10.195	907.729	25.704	1041.501	29.492
311.38	94.91	15.78	4.81	110.061	10.225	911.331	25.806	1045.103	29.594
311.42	94.92	15.81	4.82	110.395	10.256	914.933	25.908	1048.705	29.696
311.45	94.93	15.85	4.83	110.750	10.289	918.571	26.011	1052.343	29.799
311.48	94.94	15.88	4.84	111.083	10.320	922.208	26.114	1055.980	29.902
311.52	94.95	15.91	4.85	111.396	10.349	925.845	26.217	1059.618	30.005
311.55	94.96	15.94	4.86	111.708	10.378	929.518	26.321	1063.290	30.109
311.58	94.97	15.98	4.87	112.020	10.407	933.191	26.425	1066.963	30.213
311.61	94.98	16.01	4.88	112.343	10.437	936.864	26.529	1070.636	30.317
311.65	94.99	16.04	4.89	112.687	10.469	940.572	26.634	1074.344	30.422
311.68	95.00	16.08	4.90	113.042	10.502	944.244	26.738	1078.017	30.526
311.71	95.01	16.11	4.91	113.387	10.534	947.988	26.844	1081.760	30.632
311.75	95.02	16.14	4.92	113.721	10.565	951.696	26.949	1085.468	30.737
311.78	95.03	16.17	4.93	114.044	10.595	955.439	27.055	1089.211	30.843
311.81	95.04	16.21	4.94	114.366	10.625	959.183	27.161	1092.955	30.949
311.84	95.05	16.24	4.95	114.679	10.654	962.926	27.267	1096.698	31.055

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
311.88	95.06	16.27	4.96	115.002	10.684	966.705	27.374	1100.477	31.162
311.91	95.07	16.31	4.97	115.303	10.712	970.483	27.481	1104.255	31.269
311.94	95.08	16.34	4.98	115.583	10.738	974.262	27.588	1108.034	31.376
311.98	95.09	16.37	4.99	115.852	10.763	978.076	27.696	1111.848	31.484
312.01	95.10	16.40	5.00	116.121	10.788	981.890	27.804	1115.662	31.592
312.04	95.11	16.44	5.01	116.390	10.813	985.704	27.912	1119.476	31.700
312.07	95.12	16.47	5.02	116.659	10.838	989.518	28.020	1123.290	31.808
312.11	95.13	16.50	5.03	116.928	10.863	993.332	28.128	1127.104	31.916
312.14	95.14	16.54	5.04	117.187	10.887	997.181	28.237	1130.953	32.025
312.17	95.15	16.57	5.05	117.456	10.912	1001.030	28.346	1134.803	32.134
312.20	95.16	16.60	5.06	117.703	10.935	1004.880	28.455	1138.652	32.243
312.24	95.17	16.63	5.07	117.962	10.959	1008.764	28.565	1142.536	32.353
312.27	95.18	16.67	5.08	118.209	10.982	1012.614	28.674	1146.386	32.462
312.30	95.19	16.70	5.09	118.457	11.005	1016.498	28.784	1150.270	32.572
312.34	95.20	16.73	5.10	118.694	11.027	1020.418	28.895	1154.190	32.683
312.37	95.21	16.77	5.11	118.930	11.049	1024.303	29.005	1158.075	32.793
312.40	95.22	16.80	5.12	119.167	11.071	1028.223	29.116	1161.995	32.904
312.43	95.23	16.83	5.13	119.393	11.092	1032.107	29.226	1165.880	33.014
312.47	95.24	16.86	5.14	119.630	11.114	1036.027	29.337	1169.799	33.125
312.50	95.25	16.90	5.15	119.856	11.135	1039.983	29.449	1173.755	33.237
312.53	95.26	16.93	5.16	120.093	11.157	1043.903	29.560	1177.675	33.348
312.57	95.27	16.96	5.17	120.319	11.178	1047.858	29.672	1181.630	33.460
312.60	95.28	16.99	5.18	120.545	11.199	1051.813	29.784	1185.585	33.572
312.63	95.29	17.03	5.19	120.771	11.220	1055.768	29.896	1189.540	33.684
312.66	95.30	17.06	5.20	121.008	11.242	1059.724	30.008	1193.496	33.796
312.70	95.31	17.09	5.21	121.234	11.263	1063.714	30.121	1197.486	33.909
312.73	95.32	17.13	5.22	121.460	11.284	1067.669	30.233	1201.441	34.021
312.76	95.33	17.16	5.23	121.686	11.305	1071.660	30.346	1205.432	34.134
312.80	95.34	17.19	5.24	121.912	11.326	1075.650	30.459	1209.423	34.247
312.83	95.35	17.22	5.25	122.149	11.348	1079.676	30.573	1213.448	34.361

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
312.86	95.36	17.26	5.26	122.386	11.370	1083.667	30.686	1217.439	34.474
312.89	95.37	17.29	5.27	122.622	11.392	1087.693	30.800	1221.465	34.588
312.93	95.38	17.32	5.28	122.848	11.413	1091.719	30.914	1225.491	34.702
312.96	95.39	17.36	5.29	123.085	11.435	1095.745	31.028	1229.517	34.816
312.99	95.40	17.39	5.30	123.322	11.457	1099.806	31.143	1233.578	34.931
313.02	95.41	17.42	5.31	123.559	11.479	1103.867	31.258	1237.639	35.046
313.06	95.42	17.45	5.32	123.806	11.502	1107.893	31.372	1241.665	35.160
313.09	95.43	17.49	5.33	124.054	11.525	1111.989	31.488	1245.761	35.276
313.12	95.44	17.52	5.34	124.312	11.549	1116.050	31.603	1249.823	35.391
313.16	95.45	17.55	5.35	124.571	11.573	1120.147	31.719	1253.919	35.507
313.19	95.46	17.59	5.36	124.829	11.597	1124.208	31.834	1257.980	35.622
313.22	95.47	17.62	5.37	125.098	11.622	1128.340	31.951	1262.112	35.739
313.25	95.48	17.65	5.38	125.367	11.647	1132.436	32.067	1266.209	35.855
313.29	95.49	17.68	5.39	125.636	11.672	1136.568	32.184	1270.340	35.972
313.32	95.50	17.72	5.40	125.916	11.698	1140.665	32.300	1274.437	36.088
313.35	95.51	17.75	5.41	126.196	11.724	1144.797	32.417	1278.569	36.205
313.39	95.52	17.78	5.42	126.497	11.752	1148.964	32.535	1282.736	36.323
313.42	95.53	17.81	5.43	126.820	11.782	1153.131	32.653	1286.903	36.441
313.45	95.54	17.85	5.44	127.175	11.815	1157.263	32.770	1291.035	36.558
313.48	95.55	17.88	5.45	127.520	11.847	1161.465	32.889	1295.237	36.677
313.52	95.56	17.91	5.46	127.832	11.876	1165.632	33.007	1299.404	36.795
313.55	95.57	17.95	5.47	128.101	11.901	1169.835	33.126	1303.607	36.914
313.58	95.58	17.98	5.48	128.370	11.926	1174.037	33.245	1307.809	37.033
313.62	95.59	18.01	5.49	128.639	11.951	1178.275	33.365	1312.047	37.153
313.65	95.60	18.04	5.50	128.908	11.976	1182.477	33.484	1316.249	37.272
313.68	95.61	18.08	5.51	129.188	12.002	1186.715	33.604	1320.487	37.392
313.71	95.62	18.11	5.52	129.457	12.027	1190.988	33.725	1324.760	37.513
313.75	95.63	18.14	5.53	129.748	12.054	1195.226	33.845	1328.998	37.633
313.78	95.64	18.18	5.54	130.049	12.082	1199.499	33.966	1333.271	37.754
313.81	95.65	18.21	5.55	130.372	12.112	1203.772	34.087	1337.544	37.875

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
313.85	95.66	18.24	5.56	130.706	12.143	1208.045	34.208	1341.817	37.996
313.88	95.67	18.27	5.57	131.061	12.176	1212.318	34.329	1346.090	38.117
313.91	95.68	18.31	5.58	131.395	12.207	1216.627	34.451	1350.399	38.239
313.94	95.69	18.34	5.59	131.718	12.237	1220.970	34.574	1354.743	38.362
313.98	95.70	18.37	5.60	132.030	12.266	1225.279	34.696	1359.051	38.484
314.01	95.71	18.41	5.61	132.342	12.295	1229.623	34.819	1363.395	38.607
314.04	95.72	18.44	5.62	132.654	12.324	1233.966	34.942	1367.738	38.730
314.07	95.73	18.47	5.63	132.966	12.353	1238.310	35.065	1372.082	38.853
314.11	95.74	18.50	5.64	133.289	12.383	1242.689	35.189	1376.461	38.977
314.14	95.75	18.54	5.65	133.612	12.413	1247.068	35.313	1380.840	39.101
314.17	95.76	18.57	5.66	133.935	12.443	1251.447	35.437	1385.219	39.225
314.21	95.77	18.60	5.67	134.247	12.472	1255.861	35.562	1389.633	39.350
314.24	95.78	18.64	5.68	134.549	12.500	1260.276	35.687	1394.048	39.475
314.27	95.79	18.67	5.69	134.839	12.527	1264.690	35.812	1398.462	39.600
314.30	95.80	18.70	5.70	135.130	12.554	1269.104	35.937	1402.876	39.725
314.34	95.81	18.73	5.71	135.421	12.581	1273.554	36.063	1407.326	39.851
314.37	95.82	18.77	5.72	135.711	12.608	1278.004	36.189	1411.776	39.977
314.40	95.83	18.80	5.73	136.002	12.635	1282.453	36.315	1416.225	40.103
314.44	95.84	18.83	5.74	136.303	12.663	1286.938	36.442	1420.710	40.230
314.47	95.85	18.86	5.75	136.605	12.691	1291.388	36.568	1425.160	40.356
314.50	95.86	18.90	5.76	136.895	12.718	1295.873	36.695	1429.645	40.483
314.53	95.87	18.93	5.77	137.197	12.746	1300.393	36.823	1434.165	40.611
314.57	95.88	18.96	5.78	137.498	12.774	1304.878	36.950	1438.650	40.738
314.60	95.89	19.00	5.79	137.799	12.802	1309.398	37.078	1443.171	40.866
314.63	95.90	19.03	5.80	138.112	12.831	1313.919	37.206	1447.691	40.994
314.67	95.91	19.06	5.81	138.435	12.861	1318.474	37.335	1452.246	41.123
314.70	95.92	19.09	5.82	138.747	12.890	1323.030	37.464	1456.802	41.252
314.73	95.93	19.13	5.83	139.059	12.919	1327.586	37.593	1461.358	41.381
314.76	95.94	19.16	5.84	139.360	12.947	1332.141	37.722	1465.913	41.510
314.80	95.95	19.19	5.85	139.672	12.976	1336.732	37.852	1470.504	41.640

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
314.83	95.96	19.23	5.86	139.974	13.004	1341.288	37.981	1475.060	41.769
314.86	95.97	19.26	5.87	140.275	13.032	1345.914	38.112	1479.686	41.900
314.90	95.98	19.29	5.88	140.577	13.060	1350.505	38.242	1484.277	42.030
314.93	95.99	19.32	5.89	140.867	13.087	1355.131	38.373	1488.903	42.161
314.96	96.00	19.36	5.90	141.158	13.114	1359.757	38.504	1493.529	42.292
314.99	96.01	19.39	5.91	141.438	13.140	1364.383	38.635	1498.156	42.423
315.03	96.02	19.42	5.92	141.728	13.167	1369.045	38.767	1502.817	42.555
315.06	96.03	19.46	5.93	142.008	13.193	1373.671	38.898	1507.443	42.686
315.09	96.04	19.49	5.94	142.299	13.220	1378.368	39.031	1512.140	42.819
315.12	96.05	19.52	5.95	142.579	13.246	1383.030	39.163	1516.802	42.951
315.16	96.06	19.55	5.96	142.858	13.272	1387.691	39.295	1521.463	43.083
315.19	96.07	19.59	5.97	143.138	13.298	1392.388	39.428	1526.160	43.216
315.22	96.08	19.62	5.98	143.429	13.325	1397.085	39.561	1530.857	43.349
315.26	96.09	19.65	5.99	143.720	13.352	1401.817	39.695	1535.589	43.483
315.29	96.10	19.69	6.00	144.010	13.379	1406.514	39.828	1540.286	43.616
315.32	96.11	19.72	6.01	144.301	13.406	1411.246	39.962	1545.018	43.750
315.35	96.12	19.75	6.02	144.591	13.433	1416.014	40.097	1549.786	43.885
315.39	96.13	19.78	6.03	144.882	13.460	1420.746	40.231	1554.518	44.019
315.42	96.14	19.82	6.04	145.162	13.486	1425.513	40.366	1559.285	44.154
315.45	96.15	19.85	6.05	145.453	13.513	1430.281	40.501	1564.053	44.289
315.49	96.16	19.88	6.06	145.732	13.539	1435.048	40.636	1568.820	44.424
315.52	96.17	19.91	6.07	146.012	13.565	1439.851	40.772	1573.623	44.560
315.55	96.18	19.95	6.08	146.292	13.591	1444.618	40.907	1578.391	44.695
315.58	96.19	19.98	6.09	146.583	13.618	1449.421	41.043	1583.193	44.831
315.62	96.20	20.01	6.10	146.863	13.644	1454.259	41.180	1588.031	44.968
315.65	96.21	20.05	6.11	147.143	13.670	1459.062	41.316	1592.834	45.104
315.68	96.22	20.08	6.12	147.412	13.695	1463.900	41.453	1597.672	45.241
315.72	96.23	20.11	6.13	147.691	13.721	1468.738	41.590	1602.510	45.378
315.75	96.24	20.14	6.14	147.971	13.747	1473.576	41.727	1607.349	45.515
315.78	96.25	20.18	6.15	148.240	13.772	1478.450	41.865	1612.222	45.653

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
315.81	96.26	20.21	6.16	148.520	13.798	1483.323	42.003	1617.095	45.791
315.85	96.27	20.24	6.17	148.800	13.824	1488.197	42.141	1621.969	45.929
315.88	96.28	20.28	6.18	149.080	13.850	1493.070	42.279	1626.842	46.067
315.91	96.29	20.31	6.19	149.360	13.876	1497.979	42.418	1631.751	46.206
315.94	96.30	20.34	6.20	149.629	13.901	1502.888	42.557	1636.660	46.345
315.98	96.31	20.37	6.21	149.909	13.927	1507.796	42.696	1641.569	46.484
316.01	96.32	20.41	6.22	150.189	13.953	1512.705	42.835	1646.477	46.623
316.04	96.33	20.44	6.23	150.469	13.979	1517.649	42.975	1651.421	46.763
316.08	96.34	20.47	6.24	150.738	14.004	1522.593	43.115	1656.365	46.903
316.11	96.35	20.51	6.25	151.018	14.030	1527.537	43.255	1661.309	47.043
316.14	96.36	20.54	6.26	151.297	14.056	1532.517	43.396	1666.289	47.184
316.17	96.37	20.57	6.27	151.566	14.081	1537.461	43.536	1671.233	47.324
316.21	96.38	20.60	6.28	151.846	14.107	1542.440	43.677	1676.212	47.465
316.24	96.39	20.64	6.29	152.115	14.132	1547.420	43.818	1681.192	47.606
316.27	96.40	20.67	6.30	152.395	14.158	1552.434	43.960	1686.206	47.748
316.31	96.41	20.70	6.31	152.675	14.184	1557.449	44.102	1691.221	47.890
316.34	96.42	20.73	6.32	152.944	14.209	1562.464	44.244	1696.236	48.032
316.37	96.43	20.77	6.33	153.224	14.235	1567.478	44.386	1701.250	48.174
316.40	96.44	20.80	6.34	153.515	14.262	1572.493	44.528	1706.265	48.316
316.44	96.45	20.83	6.35	153.795	14.288	1577.543	44.671	1711.315	48.459
316.47	96.46	20.87	6.36	154.085	14.315	1582.593	44.814	1716.365	48.602
316.50	96.47	20.90	6.37	154.365	14.341	1587.643	44.957	1721.415	48.745
316.54	96.48	20.93	6.38	154.656	14.368	1592.728	45.101	1726.500	48.889
316.57	96.49	20.96	6.39	154.946	14.395	1597.814	45.245	1731.586	49.033
316.60	96.50	21.00	6.40	155.226	14.421	1602.899	45.389	1736.671	49.177
316.63	96.51	21.03	6.41	155.517	14.448	1607.984	45.533	1741.756	49.321
316.67	96.52	21.06	6.42	155.807	14.475	1613.105	45.678	1746.877	49.466
316.70	96.53	21.10	6.43	156.098	14.502	1618.225	45.823	1751.998	49.611
316.73	96.54	21.13	6.44	156.389	14.529	1623.346	45.968	1757.118	49.756
316.77	96.55	21.16	6.45	156.690	14.557	1628.467	46.113	1762.239	49.901

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
316.80	96.56	21.19	6.46	156.981	14.584	1633.623	46.259	1767.395	50.047
316.83	96.57	21.23	6.47	157.282	14.612	1638.779	46.405	1772.551	50.193
316.86	96.58	21.26	6.48	157.583	14.640	1643.935	46.551	1777.707	50.339
316.90	96.59	21.29	6.49	157.885	14.668	1649.126	46.698	1782.898	50.486
316.93	96.60	21.33	6.50	158.186	14.696	1654.317	46.845	1788.089	50.633
316.96	96.61	21.36	6.51	158.498	14.725	1659.508	46.992	1793.280	50.780
316.99	96.62	21.39	6.52	158.811	14.754	1664.700	47.139	1798.472	50.927
317.03	96.63	21.42	6.53	159.123	14.783	1669.926	47.287	1803.698	51.075
317.06	96.64	21.46	6.54	159.446	14.813	1675.153	47.435	1808.925	51.223
317.09	96.65	21.49	6.55	159.790	14.845	1680.379	47.583	1814.151	51.371
317.13	96.66	21.52	6.56	160.124	14.876	1685.641	47.732	1819.413	51.520
317.16	96.67	21.56	6.57	160.436	14.905	1690.868	47.880	1824.640	51.668
317.19	96.68	21.59	6.58	160.737	14.933	1696.165	48.030	1829.937	51.818
317.22	96.69	21.62	6.59	161.039	14.961	1701.427	48.179	1835.199	51.967
317.26	96.70	21.65	6.60	161.340	14.989	1706.724	48.329	1840.496	52.117
317.29	96.71	21.69	6.61	161.641	15.017	1712.021	48.479	1845.793	52.267
317.32	96.72	21.72	6.62	161.943	15.045	1717.319	48.629	1851.091	52.417
317.36	96.73	21.75	6.63	162.244	15.073	1722.651	48.780	1856.423	52.568
317.39	96.74	21.78	6.64	162.535	15.100	1727.984	48.931	1861.756	52.719
317.42	96.75	21.82	6.65	162.836	15.128	1733.316	49.082	1867.088	52.870
317.45	96.76	21.85	6.66	163.127	15.155	1738.649	49.233	1872.421	53.021
317.49	96.77	21.88	6.67	163.418	15.182	1744.016	49.385	1877.789	53.173
317.52	96.78	21.92	6.68	163.708	15.209	1749.384	49.537	1883.156	53.325
317.55	96.79	21.95	6.69	163.999	15.236	1754.752	49.689	1888.524	53.477
317.59	96.80	21.98	6.70	164.300	15.264	1760.155	49.842	1893.927	53.630
317.62	96.81	22.01	6.71	164.591	15.291	1765.523	49.994	1899.295	53.782
317.65	96.82	22.05	6.72	164.892	15.319	1770.926	50.147	1904.698	53.935
317.68	96.83	22.08	6.73	165.183	15.346	1776.365	50.301	1910.137	54.089
317.72	96.84	22.11	6.74	165.484	15.374	1781.768	50.454	1915.540	54.242
317.75	96.85	22.15	6.75	165.786	15.402	1787.206	50.608	1920.978	54.396

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
317.78	96.86	22.18	6.76	166.087	15.430	1792.645	50.762	1926.417	54.550
317.81	96.87	22.21	6.77	166.378	15.457	1798.119	50.917	1931.891	54.705
317.85	96.88	22.24	6.78	166.679	15.485	1803.592	51.072	1937.364	54.860
317.88	96.89	22.28	6.79	166.970	15.512	1809.066	51.227	1942.838	55.015
317.91	96.90	22.31	6.80	167.271	15.540	1814.540	51.382	1948.312	55.170
317.95	96.91	22.34	6.81	167.572	15.568	1820.014	51.537	1953.786	55.325
317.98	96.92	22.38	6.82	167.863	15.595	1825.523	51.693	1959.295	55.481
318.01	96.93	22.41	6.83	168.164	15.623	1831.032	51.849	1964.804	55.637
318.04	96.94	22.44	6.84	168.466	15.651	1836.576	52.006	1970.348	55.794
318.08	96.95	22.47	6.85	168.767	15.679	1842.085	52.162	1975.857	55.950
318.11	96.96	22.51	6.86	169.079	15.708	1847.630	52.319	1981.402	56.107
318.14	96.97	22.54	6.87	169.381	15.736	1853.174	52.476	1986.946	56.264
318.18	96.98	22.57	6.88	169.682	15.764	1858.754	52.634	1992.526	56.422
318.21	96.99	22.60	6.89	169.984	15.792	1864.334	52.792	1998.106	56.580
318.24	97.00	22.64	6.90	170.285	15.820	1869.913	52.950	2003.685	56.738
318.27	97.01	22.67	6.91	170.586	15.848	1875.493	53.108	2009.265	56.896
318.31	97.02	22.70	6.92	170.888	15.876	1881.108	53.267	2014.880	57.055
318.34	97.03	22.74	6.93	171.189	15.904	1886.723	53.426	2020.495	57.214
318.37	97.04	22.77	6.94	171.490	15.932	1892.338	53.585	2026.110	57.373
318.41	97.05	22.80	6.95	171.803	15.961	1897.953	53.744	2031.725	57.532
318.44	97.06	22.83	6.96	172.115	15.990	1903.604	53.904	2037.376	57.692
318.47	97.07	22.87	6.97	172.427	16.019	1909.254	54.064	2043.026	57.852
318.50	97.08	22.90	6.98	172.728	16.047	1914.904	54.224	2048.676	58.012
318.54	97.09	22.93	6.99	173.040	16.076	1920.590	54.385	2054.362	58.173
318.57	97.10	22.97	7.00	173.342	16.104	1926.276	54.546	2060.048	58.334
318.60	97.11	23.00	7.01	173.654	16.133	1931.961	54.707	2065.733	58.495
318.64	97.12	23.03	7.02	173.966	16.162	1937.682	54.869	2071.454	58.657
318.67	97.13	23.06	7.03	174.268	16.190	1943.368	55.030	2077.140	58.818
318.70	97.14	23.10	7.04	174.580	16.219	1949.089	55.192	2082.861	58.980
318.73	97.15	23.13	7.05	174.881	16.247	1954.845	55.355	2088.617	59.143

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
318.77	97.16	23.16	7.06	175.182	16.275	1960.566	55.517	2094.338	59.305
318.80	97.17	23.20	7.07	175.495	16.304	1966.322	55.680	2100.095	59.468
318.83	97.18	23.23	7.08	175.796	16.332	1972.079	55.843	2105.851	59.631
318.86	97.19	23.26	7.09	176.097	16.360	1977.870	56.007	2111.642	59.795
318.90	97.20	23.29	7.10	176.399	16.388	1983.662	56.171	2117.434	59.959
318.93	97.21	23.33	7.11	176.700	16.416	1989.454	56.335	2123.226	60.123
318.96	97.22	23.36	7.12	176.991	16.443	1995.245	56.499	2129.017	60.287
319.00	97.23	23.39	7.13	177.281	16.470	2001.037	56.663	2134.809	60.451
319.03	97.24	23.43	7.14	177.572	16.497	2006.864	56.828	2140.636	60.616
319.06	97.25	23.46	7.15	177.852	16.523	2012.691	56.993	2146.463	60.781
319.09	97.26	23.49	7.16	178.132	16.549	2018.553	57.159	2152.325	60.947
319.13	97.27	23.52	7.17	178.401	16.574	2024.380	57.324	2158.152	61.112
319.16	97.28	23.56	7.18	178.681	16.600	2030.242	57.490	2164.014	61.278
319.19	97.29	23.59	7.19	178.950	16.625	2036.104	57.656	2169.876	61.444
319.23	97.30	23.62	7.20	179.219	16.650	2042.002	57.823	2175.774	61.611
319.26	97.31	23.65	7.21	179.477	16.674	2047.864	57.989	2181.636	61.777
319.29	97.32	23.69	7.22	179.746	16.699	2053.762	58.156	2187.534	61.944
319.32	97.33	23.72	7.23	180.015	16.724	2059.659	58.323	2193.431	62.111
319.36	97.34	23.75	7.24	180.274	16.748	2065.592	58.491	2199.364	62.279
319.39	97.35	23.79	7.25	180.543	16.773	2071.490	58.658	2205.262	62.446
319.42	97.36	23.82	7.26	180.812	16.798	2077.423	58.826	2211.195	62.614
319.46	97.37	23.85	7.27	181.070	16.822	2083.355	58.994	2217.127	62.782
319.49	97.38	23.88	7.28	181.339	16.847	2089.324	59.163	2223.096	62.951
319.52	97.39	23.92	7.29	181.609	16.872	2095.256	59.331	2229.029	63.119
319.55	97.40	23.95	7.30	181.878	16.897	2101.225	59.500	2234.997	63.288
319.59	97.41	23.98	7.31	182.136	16.921	2107.193	59.669	2240.965	63.457
319.62	97.42	24.02	7.32	182.405	16.946	2113.161	59.838	2246.933	63.626
319.65	97.43	24.05	7.33	182.674	16.971	2119.165	60.008	2252.937	63.796
319.69	97.44	24.08	7.34	182.943	16.996	2125.168	60.178	2258.940	63.966
319.72	97.45	24.11	7.35	183.202	17.020	2131.172	60.348	2264.944	64.136

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
319.75	97.46	24.15	7.36	183.471	17.045	2137.175	60.518	2270.947	64.306
319.78	97.47	24.18	7.37	183.740	17.070	2143.214	60.689	2276.986	64.477
319.82	97.48	24.21	7.38	184.009	17.095	2149.253	60.860	2283.025	64.648
319.85	97.49	24.25	7.39	184.278	17.120	2155.291	61.031	2289.064	64.819
319.88	97.50	24.28	7.40	184.547	17.145	2161.330	61.202	2295.102	64.990
319.91	97.51	24.31	7.41	184.816	17.170	2167.404	61.374	2301.176	65.162
319.95	97.52	24.34	7.42	185.074	17.194	2173.443	61.545	2307.215	65.333
319.98	97.53	24.38	7.43	185.344	17.219	2179.553	61.718	2313.325	65.506
320.01	97.54	24.41	7.44	185.613	17.244	2185.627	61.890	2319.399	65.678
320.05	97.55	24.44	7.45	185.882	17.269	2191.701	62.062	2325.473	65.850
320.08	97.56	24.48	7.46	186.162	17.295	2197.810	62.235	2331.582	66.023
320.11	97.57	24.51	7.47	186.431	17.320	2203.920	62.408	2337.692	66.196
320.14	97.58	24.54	7.48	186.711	17.346	2210.065	62.582	2343.837	66.370
320.18	97.59	24.57	7.49	186.980	17.371	2216.174	62.755	2349.946	66.543
320.21	97.60	24.61	7.50	187.260	17.397	2222.319	62.929	2356.091	66.717
320.24	97.61	24.64	7.51	187.529	17.422	2228.464	63.103	2362.236	66.891
320.28	97.62	24.67	7.52	187.798	17.447	2234.608	63.277	2368.380	67.065
320.31	97.63	24.70	7.53	188.078	17.473	2240.788	63.452	2374.560	67.240
320.34	97.64	24.74	7.54	188.347	17.498	2246.968	63.627	2380.741	67.415
320.37	97.65	24.77	7.55	188.627	17.524	2253.148	63.802	2386.921	67.590
320.41	97.66	24.80	7.56	188.906	17.550	2259.329	63.977	2393.101	67.765
320.44	97.67	24.84	7.57	189.186	17.576	2265.544	64.153	2399.316	67.941
320.47	97.68	24.87	7.58	189.466	17.602	2271.759	64.329	2405.531	68.117
320.51	97.69	24.90	7.59	189.746	17.628	2277.975	64.505	2411.747	68.293
320.54	97.70	24.93	7.60	190.026	17.654	2284.190	64.681	2417.962	68.469
320.57	97.71	24.97	7.61	190.306	17.680	2290.441	64.858	2424.213	68.646
320.60	97.72	25.00	7.62	190.607	17.708	2296.692	65.035	2430.464	68.823
320.64	97.73	25.03	7.63	190.909	17.736	2302.942	65.212	2436.714	69.000
320.67	97.74	25.07	7.64	191.199	17.763	2309.228	65.390	2443.000	69.178
320.70	97.75	25.10	7.65	191.490	17.790	2315.514	65.568	2449.286	69.356

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
320.73	97.76	25.13	7.66	191.770	17.816	2321.800	65.746	2455.572	69.534
320.77	97.77	25.16	7.67	192.050	17.842	2328.086	65.924	2461.858	69.712
320.80	97.78	25.20	7.68	192.329	17.868	2334.372	66.102	2468.144	69.890
320.83	97.79	25.23	7.69	192.609	17.894	2340.694	66.281	2474.466	70.069
320.87	97.80	25.26	7.70	192.889	17.920	2347.015	66.460	2480.787	70.248
320.90	97.81	25.30	7.71	193.158	17.945	2353.372	66.640	2487.144	70.428
320.93	97.82	25.33	7.72	193.438	17.971	2359.693	66.819	2493.465	70.607
320.96	97.83	25.36	7.73	193.718	17.997	2366.050	66.999	2499.822	70.787
321.00	97.84	25.39	7.74	193.987	18.022	2372.406	67.179	2506.178	70.967
321.03	97.85	25.43	7.75	194.267	18.048	2378.798	67.360	2512.570	71.148
321.06	97.86	25.46	7.76	194.557	18.075	2385.155	67.540	2518.927	71.328
321.10	97.87	25.49	7.77	194.837	18.101	2391.547	67.721	2525.319	71.509
321.13	97.88	25.52	7.78	195.117	18.127	2397.939	67.902	2531.711	71.690
321.16	97.89	25.56	7.79	195.397	18.153	2404.366	68.084	2538.138	71.872
321.19	97.90	25.59	7.80	195.677	18.179	2410.758	68.265	2544.530	72.053
321.23	97.91	25.62	7.81	195.957	18.205	2417.185	68.447	2550.957	72.235
321.26	97.92	25.66	7.82	196.226	18.230	2423.613	68.629	2557.385	72.417
321.29	97.93	25.69	7.83	196.506	18.256	2430.075	68.812	2563.847	72.600
321.33	97.94	25.72	7.84	196.786	18.282	2436.502	68.994	2570.274	72.782
321.36	97.95	25.75	7.85	197.065	18.308	2442.965	69.177	2576.737	72.965
321.39	97.96	25.79	7.86	197.345	18.334	2449.463	69.361	2583.235	73.149
321.42	97.97	25.82	7.87	197.636	18.361	2455.925	69.544	2589.698	73.332
321.46	97.98	25.85	7.88	197.916	18.387	2462.423	69.728	2596.195	73.516
321.49	97.99	25.89	7.89	198.196	18.413	2468.921	69.912	2602.693	73.700
321.52	98.00	25.92	7.90	198.476	18.439	2475.419	70.096	2609.191	73.884
321.56	98.01	25.95	7.91	198.755	18.465	2481.952	70.281	2615.725	74.069
321.59	98.02	25.98	7.92	199.046	18.492	2488.450	70.465	2622.222	74.253
321.62	98.03	26.02	7.93	199.337	18.519	2494.984	70.650	2628.756	74.438
321.65	98.04	26.05	7.94	199.627	18.546	2501.552	70.836	2635.324	74.624
321.69	98.05	26.08	7.95	199.929	18.574	2508.085	71.021	2641.857	74.809

FRL

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
321.72	98.06	26.12	7.96	200.230	18.602	2514.654	71.207	2648.426	74.995
321.75	98.07	26.15	7.97	200.542	18.631	2521.222	71.393	2654.994	75.181
321.78	98.08	26.18	7.98	200.844	18.659	2527.826	71.580	2661.598	75.368
321.82	98.09	26.21	7.99	201.167	18.689	2534.430	71.767	2668.202	75.555
321.85	98.10	26.25	8.00	201.479	18.718	2541.034	71.954	2674.806	75.742
321.88	98.11	26.28	8.01	201.823	18.750	2547.638	72.141	2681.410	75.929
321.92	98.12	26.31	8.02	202.157	18.781	2554.277	72.329	2688.049	76.117
321.95	98.13	26.35	8.03	202.501	18.813	2560.916	72.517	2694.688	76.305
321.98	98.14	26.38	8.04	202.835	18.844	2567.555	72.705	2701.327	76.493
322.01	98.15	26.41	8.05	203.158	18.874	2574.194	72.893	2707.967	76.681
322.05	98.16	26.44	8.06	203.492	18.905	2580.869	73.082	2714.641	76.870
322.08	98.17	26.48	8.07	203.814	18.935	2587.579	73.272	2721.351	77.060
322.11	98.18	26.51	8.08	204.137	18.965	2594.253	73.461	2728.025	77.249
322.15	98.19	26.54	8.09	204.471	18.996	2600.963	73.651	2734.735	77.439
322.18	98.20	26.57	8.10	204.805	19.027	2607.673	73.841	2741.445	77.629
322.21	98.21	26.61	8.11	205.149	19.059	2614.383	74.031	2748.155	77.819
322.24	98.22	26.64	8.12	205.494	19.091	2621.128	74.222	2754.900	78.010
322.28	98.23	26.67	8.13	205.838	19.123	2627.873	74.413	2761.645	78.201
322.31	98.24	26.71	8.14	206.193	19.156	2634.653	74.605	2768.425	78.393
322.34	98.25	26.74	8.15	206.548	19.189	2641.398	74.796	2775.170	78.584
322.38	98.26	26.77	8.16	206.904	19.222	2648.179	74.988	2781.951	78.776
322.41	98.27	26.80	8.17	207.270	19.256	2654.994	75.181	2788.767	78.969
322.44	98.28	26.84	8.18	207.646	19.291	2661.775	75.373	2795.547	79.161
322.47	98.29	26.87	8.19	208.002	19.324	2668.626	75.567	2802.398	79.355
322.51	98.30	26.90	8.20	208.368	19.358	2675.442	75.760	2809.214	79.548
322.54	98.31	26.94	8.21	208.723	19.391	2682.293	75.954	2816.065	79.742
322.57	98.32	26.97	8.22	209.067	19.423	2689.144	76.148	2822.916	79.936
322.60	98.33	27.00	8.23	209.412	19.455	2695.995	76.342	2829.767	80.130
322.64	98.34	27.03	8.24	209.745	19.486	2702.881	76.537	2836.653	80.325
322.67	98.35	27.07	8.25	210.090	19.518	2709.768	76.732	2843.540	80.520

Elevation (MSL, ft)	Elevation (MSL, m)	Depth of water from O.S.L		Area (Sq.Kft)	Area (Sq.Km)	Live Capacity		Gross Capacity Total (Live + Dead)	
		ft	m			Volume (M.Cu.ft)	Volume (M.Cu.m)	Volume (M.Cu.ft)	Volume (M.Cu.m)
322.70	98.36	27.10	8.26	210.423	19.549	2716.654	76.927	2850.426	80.715
322.74	98.37	27.13	8.27	210.746	19.579	2723.576	77.123	2857.348	80.911
322.77	98.38	27.17	8.28	211.069	19.609	2730.497	77.319	2864.269	81.107
322.80	98.39	27.20	8.29	211.392	19.639	2737.419	77.515	2871.191	81.303
322.83	98.40	27.23	8.30	211.715	19.669	2744.376	77.712	2878.148	81.500
322.87	98.41	27.26	8.31	212.027	19.698	2751.298	77.908	2885.070	81.696
322.90	98.42	27.30	8.32	212.350	19.728	2758.290	78.106	2892.062	81.894
322.93	98.43	27.33	8.33	212.662	19.757	2765.247	78.303	2899.019	82.091
322.97	98.44	27.36	8.34	212.964	19.785	2772.239	78.501	2906.011	82.289
323.00	98.45	27.40	8.35	213.276	19.814	2779.232	78.699	2913.004	82.487
323.03	98.46	27.43	8.36	213.599	19.844	2786.224	78.897	2919.996	82.685
323.06	98.47	27.46	8.37	213.922	19.874	2793.252	79.096	2927.024	82.884
323.10	98.48	27.49	8.38	214.234	19.903	2800.244	79.294	2934.016	83.082
323.13	98.49	27.53	8.39	214.546	19.932	2807.307	79.494	2941.079	83.282
323.16	98.50	27.56	8.40	214.869	19.962	2814.334	79.693	2948.106	83.481

Annexure - 2
Mobilisation and Calibration Report
Und-1 Reservoir

1 MOBILISATION

1.1 Introduction

Ocean Science & Surveying Pvt. Ltd. (OSaS) was contracted by Narmada Water Resources, Water Supply & Kalpsar Department (WRD) to carry out topographic and bathymetric survey of thirteen reservoirs in the Saurashtra region; namely Bhadar-1, Bhadar-2, Brahmani-1, Und-1, Machhu-1, Machhu-2, Khodiyar, Aji-1, Nara, Tappar, Rudramata, Mitti and Fatehghadh.

This report documents the mobilisation and calibrations carried out by OSaS on board SMB Ocean for bathymetric survey of Und-1 reservoir in Saurashtra region, Gujarat.

The survey team arrived at the survey site on 08th April 2021. After necessary meetings and discussions, the survey team established two reference stations (TBMs) using RTK systems for checking the DGPS consistency on 09th April. The levelling of these TBMs was carried out with respect to the known level of FRL provided by the client. Mobilisation of equipment on board SMB Ocean was started on 09th April. Initial on-board system preparation and equipment checks were completed on 10th April. A bar check was carried out every day before commencing the survey. The topographic survey commenced on 10th April and bathymetric survey commenced on 11th April. Bathymetric survey was completed on 24th April and topographic survey was completed on 09th May 2021.

1.2 HSE Checks

A safety induction was given by the Party Chief prior to survey, detailing personnel responsibilities in the event of an emergency, life jacket location, safety gear locations and procedures and signals for emergencies.

Back deck procedures were explained and enforced with no single man operations and all non-essential personnel keeping clear of operations. PPE included safety boots, hard hats and cover-alls for all personnel involved in back deck operations.

1.3 Survey Equipment list

1.3.1 Navigation and Positioning

Item	Quantity
Hemisphere DGPS system with cables	1
Navigation computer with Hypack software	1
Moxa 8-port cable	4
Hemisphere RTK system with all accessories	3

1.3.2 Single beam Echo sounder

Item	Quantity
Odom MK III single beam echo sounder	2
Dual frequency transducer and mounting pole	2
Bar check	1
MRU-PD	2
TSS HS-50 Heave sensor	1

1.3.3 Auto Level

Item	Quantity
Geomax auto level	1

1.3.4 Power Systems

Item	Quantity
2KVA stabilizer	2
1 KVA generator	3
24V power supply	5
Exide battery 100AH	1

1.3.5 Miscellaneous

Item	Quantity
Monitor	5
Laptop	2
LCD monitors	5
24V power supply	5
Helmets / life jackets	8
Tool box	1
Tripod and Tribrach	4 & 3
Exide battery 100AH	1
Antenna T-section	2 Sets
Echo rolls	52 nos
HP printer	1 nos
UPS	2 Sets
Switch board	9 Sets
Drill machine	1 Set

1.4 Vessel Offset Diagram

The equipment offsets in the Survey Motor Boat (SMB) Ocean are shown in the figure below:

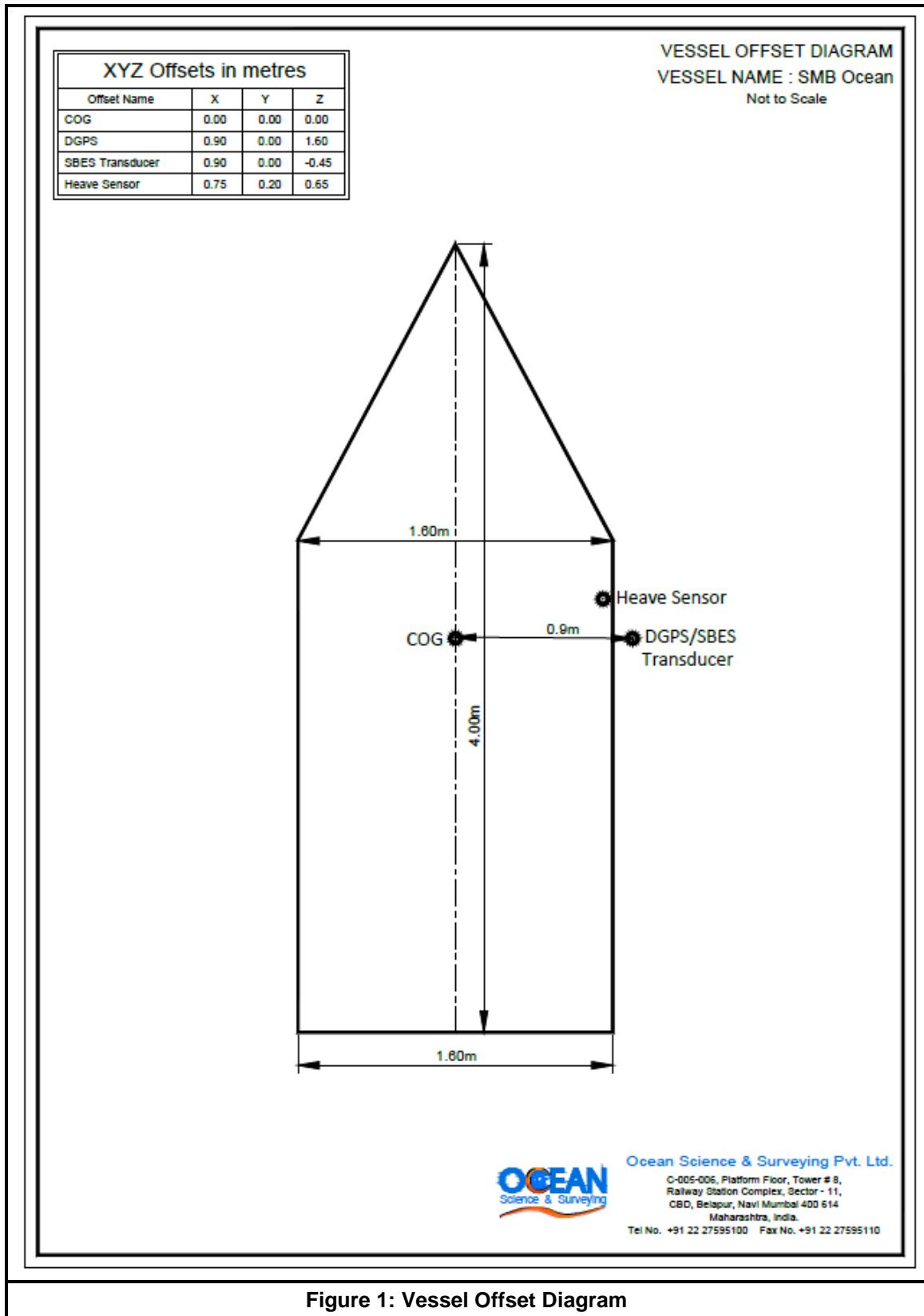


Figure 1: Vessel Offset Diagram

2 EQUIPMENT CALIBRATIONS

2.1 DGPS Calibrations

The details of the DGPS consistency checks are as follows:

In order to determine the integrity and reliability of the positioning system, the system was checked for its consistency during mobilisation.

Two reference stations were established as temporary control points/temporary benchmarks (TBMs). The levelling of these TBMs was completed using an auto level, with respect to the known level of FRL which is given as 98.00m (321.52ft) above MSL, provided by the client. The base stations of the RTK were set up at these positions and two-hour continuous observations using Hemisphere RTK positioning system was conducted to fix the consistency of the position for horizontal control. The system provides real time correction signals, providing centimetre level accuracy. Additional TBMs were established at various parts of the survey area to keep the rover in range with respect to the base station.

The details of reference stations OSaS-TBM-UN-01 and OSaS-TBM-UN-02 are given in **Table 1** and **Table 2**.

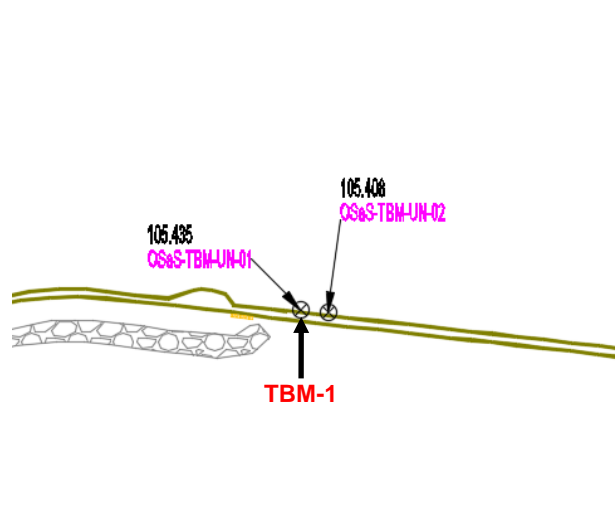


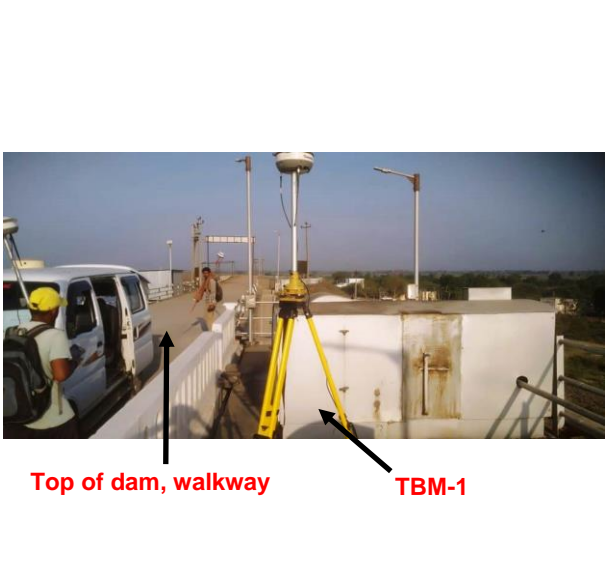
Station Number:	OSaS-TBM-UN-01	Latitude:	22° 24' 21.036" N
Locality:	Nadpur, Gujarat	Longitude:	70° 24' 10.167" E
Geodetic Datum:	WGS84	Northing:	2478423.108m N
Projection:	Mercator	Easting:	644395.386m E
Date:	09 th April 2021	Elevation:	105.435m above MSL
Station Description:	A circle with text UND-TBM-1 is drawn with yellow paint on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam.		
Access:	Road to the top of the reservoir. The TBM is situated on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam, at the northern end.		
Sketch:			
Map:			
Photo:			
Photo:			

Table 1: Details of OSaS-TBM-UN-01

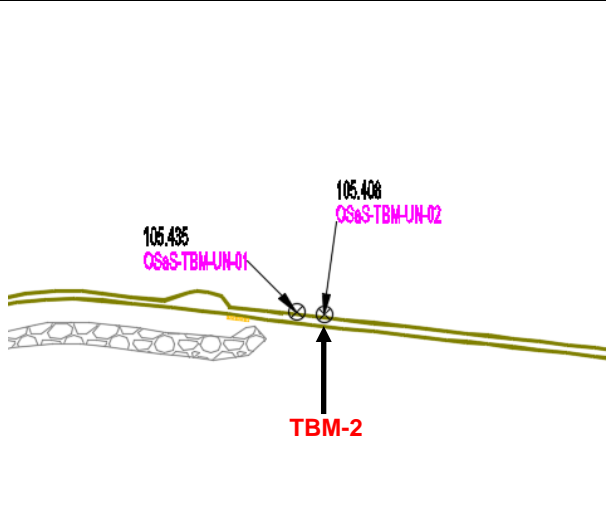



Station Number:	OSaS-TBM-UN-02	Latitude:	22° 24' 20.974" N
Locality:	Nadpur, Gujarat	Longitude:	70° 24' 10.687" E
Geodetic Datum:	WGS84	Northing:	2478421.338m N
Projection:	Mercator	Easting:	644410.271m E
Date:	09 th April 2021	Elevation:	105.408m above MSL
Station Description:	A circle with text TBM-2 is drawn with yellow paint on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam.		
Access:	Road to the top of the reservoir. The TBM is situated on the viewing gallery floor beside the walkway over the spillway, on the crest of the dam, at the northern end. TBM02 is situated 15m east-southeast of TBM01.		
Sketch:			
Map:			
Photo:			
Photo:			

Table 2: Details of OSaS-TBM-UN-02

2.2 Single Beam Echo Sounder

The average speed of sound through the water column was input to the single beam echo sounder when a bar-check was performed before the start of survey operations. The following **Figure 2** shows the bar check extract of the Odom MK III echo sounder used in SMB Ocean.

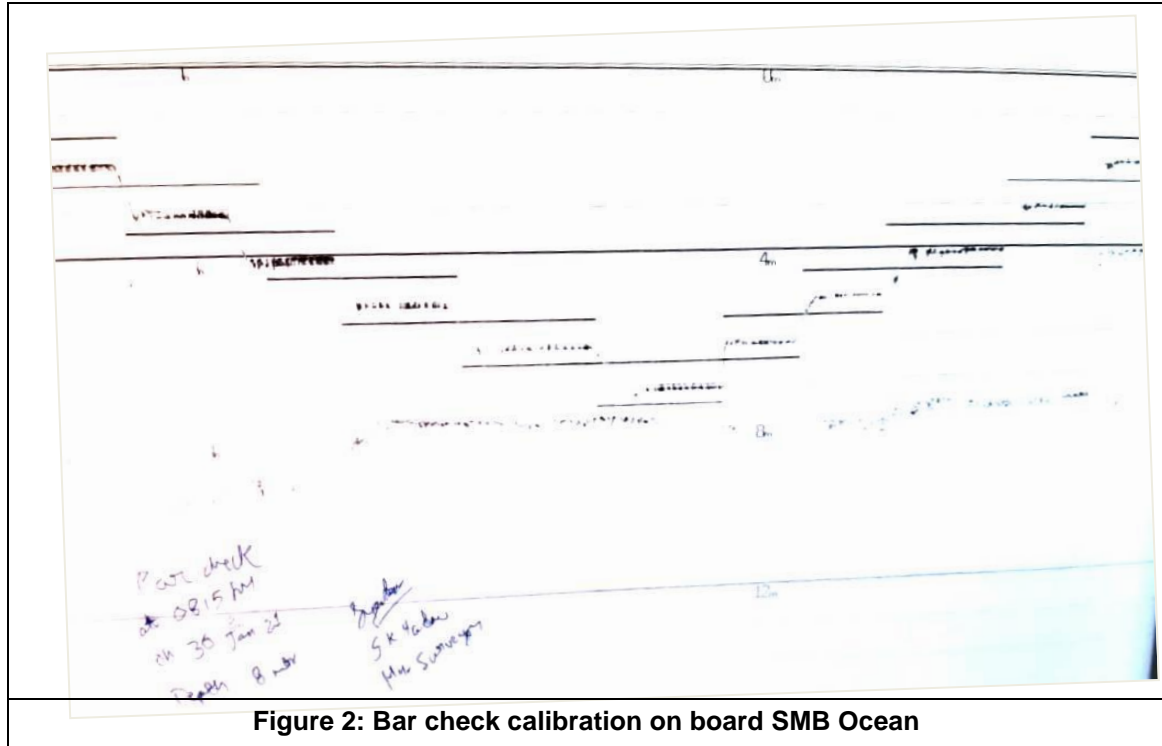


Figure 2: Bar check calibration on board SMB Ocean

3 CONCLUSIONS

Mobilisation for this project, including calibration and verification were carried out on board SMB Ocean in a safe and acceptable manner. All systems performed to the specifications throughout the length of the survey.

Annexure - 3
Previous Data - 2010
Und - 1 Reservoir

The following data represents the original and revised (as per the silt survey in the year 2010) area-capacity details of Und-1 reservoir at an interval of approximately 1.0m.


**The original and revised Area- Capacity details
of**

Und -I Reservoir are given below:

Sr.No.	R.L m.	ORIGINAL		AS PER SURVEYBY IBS IN January- 2010		REMARKS
		Capacity Mcum	AREA Sq.km.	Capacity Mcum	AREA Sq.km.	
1	98.00	72.500	17.688	69.045	15.337	Satellite Image at FRL
2	97.00	57.064	14.570	54.949	12.914	
3	96.00	42.783	11.540	42.598	11.467	
4	95.21	35.311	10.617	33.895	10.301	W.L.during survey
5	95.00	33.326	9.308	31.743	9.208	
6	94.00	24.253	7.139	22.409	7.061	
7	93.00	18.620	5.548	14.770	5.493	
8	92.00	13.225	4.035	9.076	4.003	
9	91.00	9.961	3.215	5.282	2.973	
10	90.10	7.025	2.498	3.103	1.892	MDDL
11	90.00	6.833	2.484	2.916	1.800	
12	89.00	4.914	1.890	1.464	1.125	
13	88.00	3.083	1.374	0.566	0.648	
14	87.00	2.043	1.044	0.136	0.219	
15	86.00	1.062	0.688	0.013	0.042	
16	85.00	0.606	0.484	0.000	0.000	
17	84.00	0.150	0.281	0.000	0.000	
18	83.00	0.052	0.098	0.000	0.000	

The following data represents the final area-capacity table as per the silt survey conducted in the year 2010 at an elevation interval of 0.01m

<u>RULE</u>	<u>LEVEL</u>		
4/7	37.00	70%	36.46
4/8	37.50	80%	37.02
4/9	38.00	90%	37.51
4/10	38.50	100%	38.00



सत्यमेव जयते

Design Discharge
35466 cumec
56000 cumec

**JAMNAGAR IRRIGATION DIVISION,
JAMNAGAR**

UND-1 IRRIGATION SCHEME

FINAL AREA - CAPACITY TABLE
(AS PER SILT SURVEY - 2010)
#JANUARY-2010#

ગુજરાત રાજ્ય

**OFFICE OF THE DEPUTY EXECUTIVE ENGINEER
IRRIGATION SUB DIVISION
DHROL
PHONE-02897-222018**

Jamnagar Irrigation Division JAMNAGAR.									
Area. Elevation. Capacity Table for Und-I Irrigation Scheme as per Project Report									
F.S.L.:-		R.L	Capacity		R.L	Capacity		R.L	Capacity
		98.00	69.05	O.S.L.:-	90.10	3.10	ZERO R.L.:-	85.00	0.00
R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
85.00	278.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85.01	278.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85.02	278.93	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
85.03	278.97	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
85.04	279.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
85.05	279.03	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
85.06	279.06	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
85.07	279.10	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
85.08	279.13	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
85.09	279.16	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
85.10	279.20	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
85.11	279.23	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05
85.12	279.26	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.05
85.13	279.29	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.06
85.14	279.33	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.06
85.15	279.36	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.07
85.16	279.39	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.07
85.17	279.43	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.08
85.18	279.46	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.08
85.19	279.49	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.09
85.20	279.52	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.09
85.21	279.56	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.09
85.22	279.59	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.10
85.23	279.62	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.10
85.24	279.66	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.11
85.25	279.69	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.11
85.26	279.72	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.12
85.27	279.75	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.12
85.28	279.79	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.13
85.29	279.82	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.13
85.30	279.85	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.14
85.31	279.89	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.14
85.32	279.92	0.00	0.00	0.00	0.00	0.00	0.15	0.01	0.14
85.33	279.95	0.00	0.00	0.00	0.00	0.00	0.15	0.01	0.15
85.34	279.98	0.00	0.00	0.00	0.00	0.00	0.16	0.01	0.15
85.35	280.02	0.00	0.00	0.00	0.00	0.00	0.16	0.01	0.16
85.36	280.05	0.00	0.00	0.00	0.00	0.00	0.17	0.02	0.16
85.37	280.08	0.00	0.00	0.00	0.00	0.00	0.17	0.02	0.17
85.38	280.11	0.00	0.00	0.00	0.00	0.00	0.17	0.02	0.17
85.39	280.15	0.00	0.00	0.00	0.00	0.01	0.18	0.02	0.18
85.40	280.18	0.00	0.00	0.00	0.00	0.01	0.18	0.02	0.18

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
85.41	280.21	0.00	0.00	0.00	0.00	0.01	0.19	0.02	0.19
85.42	280.25	0.00	0.00	0.00	0.00	0.01	0.19	0.02	0.19
85.43	280.28	0.00	0.00	0.00	0.00	0.01	0.20	0.02	0.19
85.44	280.31	0.00	0.00	0.00	0.00	0.01	0.20	0.02	0.20
85.45	280.34	0.00	0.00	0.00	0.00	0.01	0.21	0.02	0.20
85.46	280.38	0.00	0.00	0.00	0.00	0.01	0.21	0.02	0.21
85.47	280.41	0.00	0.00	0.00	0.00	0.01	0.22	0.02	0.21
85.48	280.44	0.00	0.00	0.00	0.00	0.01	0.22	0.02	0.22
85.49	280.48	0.00	0.00	0.00	0.00	0.01	0.22	0.02	0.22
85.50	280.51	0.00	0.00	0.00	0.00	0.01	0.23	0.02	0.23
85.51	280.54	0.00	0.00	0.00	0.00	0.01	0.23	0.02	0.23
85.52	280.57	0.00	0.00	0.00	0.00	0.01	0.24	0.02	0.24
85.53	280.61	0.00	0.00	0.00	0.00	0.01	0.24	0.02	0.24
85.54	280.64	0.00	0.00	0.00	0.00	0.01	0.25	0.02	0.24
85.55	280.67	0.00	0.00	0.00	0.00	0.01	0.25	0.02	0.25
85.56	280.71	0.00	0.00	0.00	0.00	0.01	0.26	0.02	0.25
85.57	280.74	0.00	0.00	0.00	0.00	0.01	0.26	0.02	0.26
85.58	280.77	0.00	0.00	0.00	0.00	0.01	0.27	0.02	0.26
85.59	280.80	0.00	0.00	0.00	0.00	0.01	0.27	0.02	0.27
85.60	280.84	0.00	0.00	0.00	0.00	0.01	0.28	0.03	0.27
85.61	280.87	0.00	0.00	0.00	0.00	0.01	0.28	0.03	0.28
85.62	280.90	0.00	0.00	0.00	0.00	0.01	0.28	0.03	0.28
85.63	280.93	0.00	0.00	0.00	0.00	0.01	0.29	0.03	0.28
85.64	280.97	0.00	0.00	0.00	0.00	0.01	0.29	0.03	0.29
85.65	281.00	0.00	0.00	0.00	0.00	0.01	0.30	0.03	0.29
85.66	281.03	0.00	0.00	0.00	0.00	0.01	0.30	0.03	0.30
85.67	281.07	0.00	0.00	0.00	0.00	0.01	0.31	0.03	0.30
85.68	281.10	0.00	0.00	0.00	0.00	0.01	0.31	0.03	0.31
85.69	281.13	0.00	0.00	0.00	0.00	0.01	0.32	0.03	0.31
85.70	281.16	0.00	0.00	0.00	0.00	0.01	0.32	0.03	0.32
85.71	281.20	0.00	0.00	0.00	0.00	0.01	0.33	0.03	0.32
85.72	281.23	0.00	0.00	0.00	0.00	0.01	0.33	0.03	0.33
85.73	281.26	0.00	0.00	0.00	0.00	0.01	0.34	0.03	0.33
85.74	281.30	0.00	0.00	0.00	0.00	0.01	0.34	0.03	0.33
85.75	281.33	0.00	0.00	0.00	0.00	0.01	0.34	0.03	0.34
85.76	281.36	0.00	0.00	0.00	0.00	0.01	0.35	0.03	0.34
85.77	281.39	0.00	0.00	0.00	0.00	0.01	0.35	0.03	0.35
85.78	281.43	0.00	0.00	0.00	0.00	0.01	0.36	0.03	0.35
85.79	281.46	0.00	0.00	0.00	0.00	0.01	0.36	0.03	0.36
85.80	281.49	0.00	0.00	0.00	0.00	0.01	0.37	0.03	0.36
85.81	281.53	0.00	0.00	0.00	0.00	0.01	0.37	0.03	0.37
85.82	281.56	0.00	0.00	0.00	0.00	0.01	0.38	0.03	0.37
85.83	281.59	0.00	0.00	0.00	0.00	0.01	0.38	0.03	0.38
85.84	281.62	0.00	0.00	0.00	0.00	0.01	0.39	0.04	0.38
85.85	281.66	0.00	0.00	0.00	0.00	0.01	0.39	0.04	0.38
85.86	281.69	0.00	0.00	0.00	0.00	0.01	0.39	0.04	0.39

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
85.87	281.72	0.00	0.00	0.00	0.00	0.01	0.40	0.04	0.39
85.88	281.76	0.00	0.00	0.00	0.00	0.01	0.40	0.04	0.40
85.89	281.79	0.00	0.00	0.00	0.00	0.01	0.41	0.04	0.40
85.90	281.82	0.00	0.00	0.00	0.00	0.01	0.41	0.04	0.41
85.91	281.85	0.00	0.00	0.00	0.00	0.01	0.42	0.04	0.41
85.92	281.89	0.00	0.00	0.00	0.00	0.01	0.42	0.04	0.42
85.93	281.92	0.00	0.00	0.00	0.00	0.01	0.43	0.04	0.42
85.94	281.95	0.00	0.00	0.00	0.00	0.01	0.43	0.04	0.42
85.95	281.98	0.00	0.00	0.00	0.00	0.01	0.44	0.04	0.43
85.96	282.02	0.00	0.00	0.00	0.00	0.01	0.44	0.04	0.43
85.97	282.05	0.00	0.00	0.00	0.00	0.01	0.45	0.04	0.44
85.98	282.08	0.00	0.00	0.00	0.00	0.01	0.45	0.04	0.44
85.99	282.12	0.00	0.00	0.00	0.00	0.01	0.45	0.04	0.45
86.00	282.15	0.00	0.00	0.00	0.00	0.01	0.46	0.04	0.45
86.01	282.18	0.00	0.00	0.00	0.00	0.01	0.50	0.04	0.47
86.02	282.21	0.00	0.00	0.00	0.00	0.02	0.55	0.05	0.49
86.03	282.25	0.00	0.00	0.00	0.00	0.02	0.59	0.05	0.51
86.04	282.28	0.00	0.00	0.00	0.00	0.02	0.63	0.05	0.53
86.05	282.31	0.00	0.00	0.00	0.00	0.02	0.68	0.05	0.55
86.06	282.35	0.00	0.00	0.00	0.00	0.02	0.72	0.05	0.57
86.07	282.38	0.00	0.00	0.00	0.00	0.02	0.76	0.05	0.59
86.08	282.41	0.00	0.00	0.00	0.00	0.02	0.81	0.06	0.60
86.09	282.44	0.00	0.00	0.00	0.00	0.02	0.85	0.06	0.62
86.10	282.48	0.00	0.00	0.00	0.00	0.03	0.89	0.06	0.64
86.11	282.51	0.00	0.00	0.00	0.00	0.03	0.94	0.06	0.66
86.12	282.54	0.00	0.00	0.00	0.00	0.03	0.98	0.06	0.68
86.13	282.58	0.00	0.00	0.00	0.00	0.03	1.02	0.07	0.70
86.14	282.61	0.00	0.00	0.00	0.00	0.03	1.07	0.07	0.72
86.15	282.64	0.00	0.00	0.00	0.00	0.03	1.11	0.07	0.74
86.16	282.67	0.00	0.00	0.00	0.00	0.03	1.15	0.07	0.76
86.17	282.71	0.00	0.00	0.00	0.00	0.03	1.20	0.07	0.78
86.18	282.74	0.00	0.00	0.00	0.00	0.04	1.24	0.07	0.80
86.19	282.77	0.00	0.00	0.00	0.00	0.04	1.28	0.08	0.81
86.20	282.80	0.00	0.00	0.00	0.00	0.04	1.33	0.08	0.83
86.21	282.84	0.00	0.00	0.00	0.00	0.04	1.37	0.08	0.85
86.22	282.87	0.00	0.00	0.00	0.00	0.04	1.41	0.08	0.87
86.23	282.90	0.00	0.00	0.00	0.00	0.04	1.46	0.08	0.89
86.24	282.94	0.00	0.00	0.00	0.00	0.04	1.50	0.08	0.91
86.25	282.97	0.00	0.00	0.00	0.00	0.04	1.55	0.09	0.93
86.26	283.00	0.00	0.00	0.00	0.00	0.04	1.59	0.09	0.95
86.27	283.03	0.00	0.00	0.00	0.00	0.05	1.63	0.09	0.97
86.28	283.07	0.00	0.00	0.00	0.00	0.05	1.68	0.09	0.99
86.29	283.10	0.00	0.00	0.00	0.00	0.05	1.72	0.09	1.00
86.30	283.13	0.00	0.00	0.00	0.00	0.05	1.76	0.10	1.02
86.31	283.17	0.00	0.00	0.00	0.00	0.05	1.81	0.10	1.04
86.32	283.20	0.00	0.00	0.00	0.00	0.05	1.85	0.10	1.06

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
86.33	283.23	0.00	0.00	0.00	0.00	0.05	1.89	0.10	1.08
86.34	283.26	0.00	0.00	0.00	0.00	0.05	1.94	0.10	1.10
86.35	283.30	0.00	0.00	0.00	0.00	0.06	1.98	0.10	1.12
86.36	283.33	0.00	0.00	0.00	0.00	0.06	2.02	0.11	1.14
86.37	283.36	0.00	0.00	0.00	0.00	0.06	2.07	0.11	1.16
86.38	283.40	0.00	0.00	0.00	0.00	0.06	2.11	0.11	1.18
86.39	283.43	0.00	0.00	0.00	0.00	0.06	2.15	0.11	1.20
86.40	283.46	0.00	0.00	0.00	0.00	0.06	2.20	0.11	1.21
86.41	283.49	0.00	0.00	0.00	0.00	0.06	2.24	0.11	1.23
86.42	283.53	0.00	0.00	0.00	0.00	0.06	2.28	0.12	1.25
86.43	283.56	0.00	0.00	0.00	0.00	0.07	2.33	0.12	1.27
86.44	283.59	0.00	0.00	0.00	0.00	0.07	2.37	0.12	1.29
86.45	283.63	0.00	0.00	0.00	0.00	0.07	2.41	0.12	1.31
86.46	283.66	0.00	0.00	0.00	0.00	0.07	2.46	0.12	1.33
86.47	283.69	0.00	0.00	0.00	0.00	0.07	2.50	0.13	1.35
86.48	283.72	0.00	0.00	0.00	0.00	0.07	2.54	0.13	1.37
86.49	283.76	0.00	0.00	0.00	0.00	0.07	2.59	0.13	1.39
86.50	283.79	0.00	0.00	0.00	0.00	0.07	2.63	0.13	1.40
86.51	283.82	0.00	0.00	0.00	0.00	0.08	2.67	0.13	1.42
86.52	283.85	0.00	0.00	0.00	0.00	0.08	2.72	0.13	1.44
86.53	283.89	0.00	0.00	0.00	0.00	0.08	2.76	0.14	1.46
86.54	283.92	0.00	0.00	0.00	0.00	0.08	2.80	0.14	1.48
86.55	283.95	0.00	0.00	0.00	0.00	0.08	2.85	0.14	1.50
86.56	283.99	0.00	0.00	0.00	0.00	0.08	2.89	0.14	1.52
86.57	284.02	0.00	0.00	0.00	0.00	0.08	2.94	0.14	1.54
86.58	284.05	0.00	0.00	0.00	0.00	0.08	2.98	0.14	1.56
86.59	284.08	0.00	0.00	0.00	0.00	0.09	3.02	0.15	1.58
86.60	284.12	0.00	0.00	0.00	0.00	0.09	3.07	0.15	1.60
86.61	284.15	0.00	0.00	0.00	0.00	0.09	3.11	0.15	1.61
86.62	284.18	0.00	0.00	0.00	0.00	0.09	3.15	0.15	1.63
86.63	284.22	0.00	0.00	0.00	0.00	0.09	3.20	0.15	1.65
86.64	284.25	0.00	0.00	0.00	0.00	0.09	3.24	0.16	1.67
86.65	284.28	0.00	0.00	0.00	0.00	0.09	3.28	0.16	1.69
86.66	284.31	0.00	0.00	0.00	0.00	0.09	3.33	0.16	1.71
86.67	284.35	0.00	0.00	0.00	0.00	0.10	3.37	0.16	1.73
86.68	284.38	0.00	0.00	0.00	0.00	0.10	3.41	0.16	1.75
86.69	284.41	0.00	0.00	0.00	0.00	0.10	3.46	0.16	1.77
86.70	284.45	0.00	0.00	0.00	0.00	0.10	3.50	0.17	1.79
86.71	284.48	0.00	0.00	0.00	0.00	0.10	3.54	0.17	1.80
86.72	284.51	0.00	0.00	0.00	0.00	0.10	3.59	0.17	1.82
86.73	284.54	0.00	0.00	0.00	0.00	0.10	3.63	0.17	1.84
86.74	284.58	0.00	0.00	0.00	0.00	0.10	3.67	0.17	1.86
86.75	284.61	0.00	0.00	0.00	0.00	0.11	3.72	0.17	1.88
86.76	284.64	0.00	0.00	0.00	0.00	0.11	3.76	0.18	1.90
86.77	284.68	0.00	0.00	0.00	0.00	0.11	3.80	0.18	1.92
86.78	284.71	0.00	0.00	0.00	0.00	0.11	3.85	0.18	1.94

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
86.79	284.74	0.00	0.00	0.00	0.00	0.11	3.89	0.18	1.96
86.80	284.77	0.00	0.00	0.00	0.00	0.11	3.93	0.18	1.98
86.81	284.81	0.00	0.00	0.00	0.00	0.11	3.98	0.19	2.00
86.82	284.84	0.00	0.00	0.00	0.00	0.11	4.02	0.19	2.01
86.83	284.87	0.00	0.00	0.00	0.00	0.12	4.06	0.19	2.03
86.84	284.90	0.00	0.00	0.00	0.00	0.12	4.11	0.19	2.05
86.85	284.94	0.00	0.00	0.00	0.00	0.12	4.15	0.19	2.07
86.86	284.97	0.00	0.00	0.00	0.00	0.12	4.19	0.19	2.09
86.87	285.00	0.00	0.00	0.00	0.00	0.12	4.24	0.20	2.11
86.88	285.04	0.00	0.00	0.00	0.00	0.12	4.28	0.20	2.13
86.89	285.07	0.00	0.00	0.00	0.00	0.12	4.33	0.20	2.15
86.90	285.10	0.00	0.00	0.00	0.00	0.12	4.37	0.20	2.17
86.91	285.13	0.00	0.00	0.00	0.00	0.12	4.41	0.20	2.19
86.92	285.17	0.00	0.00	0.00	0.00	0.13	4.46	0.20	2.20
86.93	285.20	0.00	0.00	0.00	0.00	0.13	4.50	0.21	2.22
86.94	285.23	0.00	0.00	0.00	0.00	0.13	4.54	0.21	2.24
86.95	285.27	0.00	0.00	0.00	0.00	0.13	4.59	0.21	2.26
86.96	285.30	0.00	0.00	0.00	0.00	0.13	4.63	0.21	2.28
86.97	285.33	0.00	0.00	0.00	0.00	0.13	4.67	0.21	2.30
86.98	285.36	0.00	0.00	0.00	0.00	0.13	4.72	0.22	2.32
86.99	285.40	0.00	0.00	0.00	0.00	0.13	4.76	0.22	2.34
87.00	285.43	0.00	0.00	0.00	0.00	0.14	4.80	0.22	2.36
87.01	285.46	0.00	0.00	0.00	0.00	0.14	4.95	0.22	2.40
87.02	285.50	0.00	0.00	0.00	0.00	0.14	5.11	0.23	2.45
87.03	285.53	0.00	0.00	0.00	0.00	0.15	5.26	0.23	2.50
87.04	285.56	0.00	0.00	0.00	0.00	0.15	5.41	0.24	2.54
87.05	285.59	0.00	0.00	0.00	0.00	0.16	5.56	0.24	2.59
87.06	285.63	0.00	0.00	0.00	0.00	0.16	5.71	0.24	2.63
87.07	285.66	0.00	0.00	0.00	0.00	0.17	5.87	0.25	2.68
87.08	285.69	0.00	0.00	0.00	0.00	0.17	6.02	0.25	2.73
87.09	285.72	0.00	0.00	0.00	0.00	0.17	6.17	0.26	2.77
87.10	285.76	0.00	0.00	0.00	0.00	0.18	6.32	0.26	2.82
87.11	285.79	0.00	0.00	0.00	0.00	0.18	6.47	0.27	2.87
87.12	285.82	0.00	0.00	0.00	0.00	0.19	6.63	0.27	2.91
87.13	285.86	0.00	0.00	0.00	0.00	0.19	6.78	0.27	2.96
87.14	285.89	0.00	0.00	0.00	0.00	0.20	6.93	0.28	3.00
87.15	285.92	0.00	0.00	0.00	0.00	0.20	7.08	0.28	3.05
87.16	285.95	0.00	0.00	0.00	0.00	0.20	7.23	0.29	3.10
87.17	285.99	0.00	0.00	0.00	0.00	0.21	7.38	0.29	3.14
87.18	286.02	0.00	0.00	0.00	0.00	0.21	7.54	0.30	3.19
87.19	286.05	0.00	0.00	0.00	0.00	0.22	7.69	0.30	3.23
87.20	286.09	0.00	0.00	0.00	0.00	0.22	7.84	0.30	3.28
87.21	286.12	0.00	0.00	0.00	0.00	0.23	7.99	0.31	3.33
87.22	286.15	0.00	0.00	0.00	0.00	0.23	8.14	0.31	3.37
87.23	286.18	0.00	0.00	0.00	0.00	0.23	8.30	0.32	3.42
87.24	286.22	0.00	0.00	0.00	0.00	0.24	8.45	0.32	3.47

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
87.25	286.25	0.00	0.00	0.00	0.00	0.24	8.60	0.33	3.51
87.26	286.28	0.00	0.00	0.00	0.00	0.25	8.75	0.33	3.56
87.27	286.32	0.00	0.00	0.00	0.00	0.25	8.90	0.33	3.60
87.28	286.35	0.00	0.00	0.00	0.00	0.26	9.05	0.34	3.65
87.29	286.38	0.00	0.00	0.00	0.00	0.26	9.21	0.34	3.70
87.30	286.41	0.00	0.00	0.00	0.00	0.27	9.36	0.35	3.74
87.31	286.45	0.00	0.00	0.00	0.00	0.27	9.51	0.35	3.79
87.32	286.48	0.00	0.00	0.00	0.00	0.27	9.66	0.36	3.83
87.33	286.51	0.00	0.00	0.00	0.00	0.28	9.81	0.36	3.88
87.34	286.55	0.00	0.00	0.00	0.00	0.28	9.97	0.36	3.93
87.35	286.58	0.00	0.00	0.00	0.00	0.29	10.12	0.37	3.97
87.36	286.61	0.00	0.00	0.00	0.00	0.29	10.27	0.37	4.02
87.37	286.64	0.00	0.00	0.00	0.00	0.30	10.42	0.38	4.07
87.38	286.68	0.00	0.00	0.00	0.00	0.30	10.57	0.38	4.11
87.39	286.71	0.00	0.00	0.00	0.00	0.30	10.73	0.39	4.16
87.40	286.74	0.00	0.00	0.00	0.00	0.31	10.88	0.39	4.20
87.41	286.77	0.00	0.00	0.00	0.00	0.31	11.03	0.39	4.25
87.42	286.81	0.00	0.00	0.00	0.00	0.32	11.18	0.40	4.30
87.43	286.84	0.00	0.00	0.00	0.00	0.32	11.33	0.40	4.34
87.44	286.87	0.00	0.00	0.00	0.00	0.33	11.48	0.41	4.39
87.45	286.91	0.00	0.00	0.00	0.00	0.33	11.64	0.41	4.44
87.46	286.94	0.00	0.00	0.00	0.00	0.33	11.79	0.42	4.48
87.47	286.97	0.00	0.00	0.00	0.00	0.34	11.94	0.42	4.53
87.48	287.00	0.00	0.00	0.00	0.00	0.34	12.09	0.42	4.57
87.49	287.04	0.00	0.00	0.00	0.00	0.35	12.24	0.43	4.62
87.50	287.07	0.00	0.00	0.00	0.00	0.35	12.40	0.43	4.67
87.51	287.10	0.00	0.00	0.00	0.00	0.36	12.55	0.44	4.71
87.52	287.14	0.00	0.00	0.00	0.00	0.36	12.70	0.44	4.76
87.53	287.17	0.00	0.00	0.00	0.00	0.36	12.85	0.45	4.80
87.54	287.20	0.00	0.00	0.00	0.00	0.37	13.00	0.45	4.85
87.55	287.23	0.00	0.00	0.00	0.00	0.37	13.15	0.45	4.90
87.56	287.27	0.00	0.00	0.00	0.00	0.38	13.31	0.46	4.94
87.57	287.30	0.00	0.00	0.00	0.00	0.38	13.46	0.46	4.99
87.58	287.33	0.00	0.00	0.00	0.00	0.39	13.61	0.47	5.04
87.59	287.37	0.00	0.00	0.00	0.00	0.39	13.76	0.47	5.08
87.60	287.40	0.00	0.00	0.00	0.00	0.39	13.91	0.48	5.13
87.61	287.43	0.00	0.00	0.00	0.00	0.40	14.07	0.48	5.17
87.62	287.46	0.00	0.00	0.00	0.00	0.40	14.22	0.48	5.22
87.63	287.50	0.00	0.00	0.00	0.00	0.41	14.37	0.49	5.27
87.64	287.53	0.00	0.00	0.00	0.00	0.41	14.52	0.49	5.31
87.65	287.56	0.00	0.00	0.00	0.00	0.42	14.67	0.50	5.36
87.66	287.59	0.00	0.00	0.00	0.00	0.42	14.83	0.50	5.40
87.67	287.63	0.00	0.00	0.00	0.00	0.42	14.98	0.51	5.45
87.68	287.66	0.00	0.00	0.00	0.00	0.43	15.13	0.51	5.50
87.69	287.69	0.00	0.00	0.00	0.00	0.43	15.28	0.52	5.54
87.70	287.73	0.00	0.00	0.00	0.00	0.44	15.43	0.52	5.59

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
87.71	287.76	0.00	0.00	0.00	0.00	0.44	15.58	0.52	5.64
87.72	287.79	0.00	0.00	0.00	0.00	0.45	15.74	0.53	5.68
87.73	287.82	0.00	0.00	0.00	0.00	0.45	15.89	0.53	5.73
87.74	287.86	0.00	0.00	0.00	0.00	0.45	16.04	0.54	5.77
87.75	287.89	0.00	0.00	0.00	0.00	0.46	16.19	0.54	5.82
87.76	287.92	0.00	0.00	0.00	0.00	0.46	16.34	0.55	5.87
87.77	287.96	0.00	0.00	0.00	0.00	0.47	16.50	0.55	5.91
87.78	287.99	0.00	0.00	0.00	0.00	0.47	16.65	0.55	5.96
87.79	288.02	0.00	0.00	0.00	0.00	0.48	16.80	0.56	6.01
87.80	288.05	0.00	0.00	0.00	0.00	0.48	16.95	0.56	6.05
87.81	288.09	0.00	0.00	0.00	0.00	0.48	17.10	0.57	6.10
87.82	288.12	0.00	0.00	0.00	0.00	0.49	17.25	0.57	6.14
87.83	288.15	0.00	0.00	0.00	0.00	0.49	17.41	0.58	6.19
87.84	288.19	0.00	0.00	0.00	0.00	0.50	17.56	0.58	6.24
87.85	288.22	0.00	0.00	0.00	0.00	0.50	17.71	0.58	6.28
87.86	288.25	0.00	0.00	0.00	0.00	0.51	17.86	0.59	6.33
87.87	288.28	0.00	0.00	0.00	0.00	0.51	18.01	0.59	6.37
87.88	288.32	0.00	0.00	0.00	0.00	0.51	18.17	0.60	6.42
87.89	288.35	0.00	0.00	0.00	0.00	0.52	18.32	0.60	6.47
87.90	288.38	0.00	0.00	0.00	0.00	0.52	18.47	0.61	6.51
87.91	288.42	0.00	0.00	0.00	0.00	0.53	18.62	0.61	6.56
87.92	288.45	0.00	0.00	0.00	0.00	0.53	18.77	0.61	6.61
87.93	288.48	0.00	0.00	0.00	0.00	0.54	18.93	0.62	6.65
87.94	288.51	0.00	0.00	0.00	0.00	0.54	19.08	0.62	6.70
87.95	288.55	0.00	0.00	0.00	0.00	0.54	19.23	0.63	6.74
87.96	288.58	0.00	0.00	0.00	0.00	0.55	19.38	0.63	6.79
87.97	288.61	0.00	0.00	0.00	0.00	0.55	19.53	0.64	6.84
87.98	288.64	0.00	0.00	0.00	0.00	0.56	19.68	0.64	6.88
87.99	288.68	0.00	0.00	0.00	0.00	0.56	19.84	0.64	6.93
88.00	288.71	0.00	0.00	0.00	0.00	0.57	19.99	0.65	6.98
88.01	288.74	0.00	0.00	0.00	0.00	0.57	20.31	0.65	7.03
88.02	288.78	0.00	0.00	0.00	0.00	0.58	20.62	0.66	7.08
88.03	288.81	0.00	0.00	0.00	0.00	0.59	20.94	0.66	7.13
88.04	288.84	0.00	0.00	0.00	0.00	0.60	21.26	0.67	7.18
88.05	288.87	0.00	0.00	0.00	0.00	0.61	21.57	0.67	7.23
88.06	288.91	0.00	0.00	0.00	0.00	0.62	21.89	0.68	7.28
88.07	288.94	0.00	0.00	0.00	0.00	0.63	22.21	0.68	7.33
88.08	288.97	0.00	0.00	0.00	0.00	0.64	22.53	0.69	7.39
88.09	289.01	0.00	0.00	0.00	0.00	0.65	22.84	0.69	7.44
88.10	289.04	0.00	0.00	0.00	0.00	0.66	23.16	0.70	7.49
88.11	289.07	0.00	0.00	0.00	0.00	0.66	23.48	0.70	7.54
88.12	289.10	0.00	0.00	0.00	0.00	0.67	23.79	0.71	7.59
88.13	289.14	0.00	0.00	0.00	0.00	0.68	24.11	0.71	7.64
88.14	289.17	0.00	0.00	0.00	0.00	0.69	24.43	0.71	7.69
88.15	289.20	0.00	0.00	0.00	0.00	0.70	24.75	0.72	7.75
88.16	289.24	0.00	0.00	0.00	0.00	0.71	25.06	0.72	7.80

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sqr	M.sft
1	2	3	4	5	6	7	8	9	10
88.17	289.27	0.00	0.00	0.00	0.00	0.72	25.38	0.73	7.85
88.18	289.30	0.00	0.00	0.00	0.00	0.73	25.70	0.73	7.90
88.19	289.33	0.00	0.00	0.00	0.00	0.74	26.01	0.74	7.95
88.20	289.37	0.00	0.00	0.00	0.00	0.75	26.33	0.74	8.00
88.21	289.40	0.00	0.00	0.00	0.00	0.75	26.65	0.75	8.05
88.22	289.43	0.00	0.00	0.00	0.00	0.76	26.97	0.75	8.10
88.23	289.46	0.00	0.00	0.00	0.00	0.77	27.28	0.76	8.16
88.24	289.50	0.00	0.00	0.00	0.00	0.78	27.60	0.76	8.21
88.25	289.53	0.00	0.00	0.00	0.00	0.79	27.92	0.77	8.26
88.26	289.56	0.00	0.00	0.00	0.00	0.80	28.23	0.77	8.31
88.27	289.60	0.00	0.00	0.00	0.00	0.81	28.55	0.78	8.36
88.28	289.63	0.00	0.00	0.00	0.00	0.82	28.87	0.78	8.41
88.29	289.66	0.00	0.00	0.00	0.00	0.83	29.19	0.79	8.46
88.30	289.69	0.00	0.00	0.00	0.00	0.84	29.50	0.79	8.52
88.31	289.73	0.00	0.00	0.00	0.00	0.84	29.82	0.80	8.57
88.32	289.76	0.00	0.00	0.00	0.00	0.85	30.14	0.80	8.62
88.33	289.79	0.00	0.00	0.00	0.00	0.86	30.45	0.81	8.67
88.34	289.83	0.00	0.00	0.00	0.00	0.87	30.77	0.81	8.72
88.35	289.86	0.00	0.00	0.00	0.00	0.88	31.09	0.81	8.77
88.36	289.89	0.00	0.00	0.00	0.00	0.89	31.40	0.82	8.82
88.37	289.92	0.00	0.00	0.00	0.00	0.90	31.72	0.82	8.87
88.38	289.96	0.00	0.00	0.00	0.00	0.91	32.04	0.83	8.93
88.39	289.99	0.00	0.00	0.00	0.00	0.92	32.36	0.83	8.98
88.40	290.02	0.00	0.00	0.00	0.00	0.93	32.67	0.84	9.03
88.41	290.06	0.00	0.00	0.00	0.00	0.93	32.99	0.84	9.08
88.42	290.09	0.00	0.00	0.00	0.00	0.94	33.31	0.85	9.13
88.43	290.12	0.00	0.00	0.00	0.00	0.95	33.62	0.85	9.18
88.44	290.15	0.00	0.00	0.00	0.00	0.96	33.94	0.86	9.23
88.45	290.19	0.00	0.00	0.00	0.00	0.97	34.26	0.86	9.29
88.46	290.22	0.00	0.00	0.00	0.00	0.98	34.58	0.87	9.34
88.47	290.25	0.00	0.00	0.00	0.00	0.99	34.89	0.87	9.39
88.48	290.29	0.00	0.00	0.00	0.00	1.00	35.21	0.88	9.44
88.49	290.32	0.00	0.00	0.00	0.00	1.01	35.53	0.88	9.49
88.50	290.35	0.00	0.00	0.00	0.00	1.02	35.84	0.89	9.54
88.51	290.38	0.00	0.00	0.00	0.00	1.02	36.16	0.89	9.59
88.52	290.42	0.00	0.00	0.00	0.00	1.03	36.48	0.90	9.64
88.53	290.45	0.00	0.00	0.00	0.00	1.04	36.80	0.90	9.70
88.54	290.48	0.00	0.00	0.00	0.00	1.05	37.11	0.91	9.75
88.55	290.51	0.00	0.00	0.00	0.00	1.06	37.43	0.91	9.80
88.56	290.55	0.00	0.00	0.00	0.00	1.07	37.75	0.92	9.85
88.57	290.58	0.00	0.00	0.00	0.00	1.08	38.06	0.92	9.90
88.58	290.61	0.00	0.00	0.00	0.00	1.09	38.38	0.92	9.95
88.59	290.65	0.00	0.00	0.00	0.00	1.10	38.70	0.93	10.00
88.60	290.68	0.00	0.00	0.00	0.00	1.10	39.02	0.93	10.06
88.61	290.71	0.00	0.00	0.00	0.00	1.11	39.33	0.94	10.11
88.62	290.74	0.00	0.00	0.00	0.00	1.12	39.65	0.94	10.16

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
88.63	290.78	0.00	0.00	0.00	0.00	1.13	39.97	0.95	10.21
88.64	290.81	0.00	0.00	0.00	0.00	1.14	40.28	0.95	10.26
88.65	290.84	0.00	0.00	0.00	0.00	1.15	40.60	0.96	10.31
88.66	290.88	0.00	0.00	0.00	0.00	1.16	40.92	0.96	10.36
88.67	290.91	0.00	0.00	0.00	0.00	1.17	41.24	0.97	10.42
88.68	290.94	0.00	0.00	0.00	0.00	1.18	41.55	0.97	10.47
88.69	290.97	0.00	0.00	0.00	0.00	1.19	41.87	0.98	10.52
88.70	291.01	0.00	0.00	0.00	0.00	1.19	42.19	0.98	10.57
88.71	291.04	0.00	0.00	0.00	0.00	1.20	42.50	0.99	10.62
88.72	291.07	0.00	0.00	0.00	0.00	1.21	42.82	0.99	10.67
88.73	291.11	0.00	0.00	0.00	0.00	1.22	43.14	1.00	10.72
88.74	291.14	0.00	0.00	0.00	0.00	1.23	43.46	1.00	10.77
88.75	291.17	0.00	0.00	0.00	0.00	1.24	43.77	1.01	10.83
88.76	291.20	0.00	0.00	0.00	0.00	1.25	44.09	1.01	10.88
88.77	291.24	0.00	0.00	0.00	0.00	1.26	44.41	1.02	10.93
88.78	291.27	0.00	0.00	0.00	0.00	1.27	44.72	1.02	10.98
88.79	291.30	0.00	0.00	0.00	0.00	1.28	45.04	1.02	11.03
88.80	291.34	0.00	0.00	0.00	0.00	1.28	45.36	1.03	11.08
88.81	291.37	0.00	0.00	0.00	0.00	1.29	45.68	1.03	11.13
88.82	291.40	0.00	0.00	0.00	0.00	1.30	45.99	1.04	11.19
88.83	291.43	0.00	0.00	0.00	0.00	1.31	46.31	1.04	11.24
88.84	291.47	0.00	0.00	0.00	0.00	1.32	46.63	1.05	11.29
88.85	291.50	0.00	0.00	0.00	0.00	1.33	46.94	1.05	11.34
88.86	291.53	0.00	0.00	0.00	0.00	1.34	47.26	1.06	11.39
88.87	291.56	0.00	0.00	0.00	0.00	1.35	47.58	1.06	11.44
88.88	291.60	0.00	0.00	0.00	0.00	1.36	47.90	1.07	11.49
88.89	291.63	0.00	0.00	0.00	0.00	1.37	48.21	1.07	11.54
88.90	291.66	0.00	0.00	0.00	0.00	1.37	48.53	1.08	11.60
88.91	291.70	0.00	0.00	0.00	0.00	1.38	48.85	1.08	11.65
88.92	291.73	0.00	0.00	0.00	0.00	1.39	49.16	1.09	11.70
88.93	291.76	0.00	0.00	0.00	0.00	1.40	49.48	1.09	11.75
88.94	291.79	0.00	0.00	0.00	0.00	1.41	49.80	1.10	11.80
88.95	291.83	0.00	0.00	0.00	0.00	1.42	50.12	1.10	11.85
88.96	291.86	0.00	0.00	0.00	0.00	1.43	50.43	1.11	11.90
88.97	291.89	0.00	0.00	0.00	0.00	1.44	50.75	1.11	11.96
88.98	291.93	0.00	0.00	0.00	0.00	1.45	51.07	1.12	12.01
88.99	291.96	0.00	0.00	0.00	0.00	1.46	51.38	1.12	12.06
89.00	291.99	0.00	0.00	0.00	0.00	1.46	51.70	1.13	12.11
89.01	292.02	0.00	0.00	0.00	0.00	1.48	52.21	1.13	12.18
89.02	292.06	0.00	0.00	0.00	0.00	1.49	52.73	1.14	12.25
89.03	292.09	0.00	0.00	0.00	0.00	1.51	53.24	1.15	12.33
89.04	292.12	0.00	0.00	0.00	0.00	1.52	53.75	1.15	12.40
89.05	292.16	0.00	0.00	0.00	0.00	1.54	54.27	1.16	12.47
89.06	292.19	0.00	0.00	0.00	0.00	1.55	54.78	1.17	12.55
89.07	292.22	0.00	0.00	0.00	0.00	1.57	55.29	1.17	12.62
89.08	292.25	0.00	0.00	0.00	0.00	1.58	55.80	1.18	12.69

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
89.09	292.29	0.00	0.00	0.00	0.00	1.59	56.32	1.19	12.76
89.10	292.32	0.00	0.00	0.00	0.00	1.61	56.83	1.19	12.84
89.11	292.35	0.00	0.00	0.00	0.00	1.62	57.34	1.20	12.91
89.12	292.38	0.00	0.00	0.00	0.00	1.64	57.85	1.21	12.98
89.13	292.42	0.00	0.00	0.00	0.00	1.65	58.37	1.21	13.05
89.14	292.45	0.00	0.00	0.00	0.00	1.67	58.88	1.22	13.13
89.15	292.48	0.00	0.00	0.00	0.00	1.68	59.39	1.23	13.20
89.16	292.52	0.00	0.00	0.00	0.00	1.70	59.91	1.23	13.27
89.17	292.55	0.00	0.00	0.00	0.00	1.71	60.42	1.24	13.34
89.18	292.58	0.00	0.00	0.00	0.00	1.73	60.93	1.25	13.42
89.19	292.61	0.00	0.00	0.00	0.00	1.74	61.44	1.25	13.49
89.20	292.65	0.00	0.00	0.00	0.00	1.75	61.96	1.26	13.56
89.21	292.68	0.00	0.00	0.00	0.00	1.77	62.47	1.27	13.64
89.22	292.71	0.00	0.00	0.00	0.00	1.78	62.98	1.27	13.71
89.23	292.75	0.00	0.00	0.00	0.00	1.80	63.49	1.28	13.78
89.24	292.78	0.00	0.00	0.00	0.00	1.81	64.01	1.29	13.85
89.25	292.81	0.00	0.00	0.00	0.00	1.83	64.52	1.29	13.93
89.26	292.84	0.00	0.00	0.00	0.00	1.84	65.03	1.30	14.00
89.27	292.88	0.00	0.00	0.00	0.00	1.86	65.55	1.31	14.07
89.28	292.91	0.00	0.00	0.00	0.00	1.87	66.06	1.31	14.14
89.29	292.94	0.00	0.00	0.00	0.00	1.89	66.57	1.32	14.22
89.30	292.98	0.00	0.00	0.00	0.00	1.90	67.08	1.33	14.29
89.31	293.01	0.00	0.00	0.00	0.00	1.91	67.60	1.33	14.36
89.32	293.04	0.00	0.00	0.00	0.00	1.93	68.11	1.34	14.43
89.33	293.07	0.00	0.00	0.00	0.00	1.94	68.62	1.35	14.51
89.34	293.11	0.00	0.00	0.00	0.00	1.96	69.14	1.35	14.58
89.35	293.14	0.00	0.00	0.00	0.00	1.97	69.65	1.36	14.65
89.36	293.17	0.00	0.00	0.00	0.00	1.99	70.16	1.37	14.73
89.37	293.21	0.00	0.00	0.00	0.00	2.00	70.67	1.37	14.80
89.38	293.24	0.00	0.00	0.00	0.00	2.02	71.19	1.38	14.87
89.39	293.27	0.00	0.00	0.00	0.00	2.03	71.70	1.39	14.94
89.40	293.30	0.00	0.00	0.00	0.00	2.04	72.21	1.40	15.02
89.41	293.34	0.00	0.00	0.00	0.00	2.06	72.72	1.40	15.09
89.42	293.37	0.00	0.00	0.00	0.00	2.07	73.24	1.41	15.16
89.43	293.40	0.00	0.00	0.00	0.00	2.09	73.75	1.42	15.23
89.44	293.43	0.00	0.00	0.00	0.00	2.10	74.26	1.42	15.31
89.45	293.47	0.00	0.00	0.00	0.00	2.12	74.78	1.43	15.38
89.46	293.50	0.00	0.00	0.00	0.00	2.13	75.29	1.44	15.45
89.47	293.53	0.00	0.00	0.00	0.00	2.15	75.80	1.44	15.52
89.48	293.57	0.00	0.00	0.00	0.00	2.16	76.31	1.45	15.60
89.49	293.60	0.00	0.00	0.00	0.00	2.18	76.83	1.46	15.67
89.50	293.63	0.00	0.00	0.00	0.00	2.19	77.34	1.46	15.74
89.51	293.66	0.00	0.00	0.00	0.00	2.20	77.85	1.47	15.81
89.52	293.70	0.00	0.00	0.00	0.00	2.22	78.37	1.48	15.89
89.53	293.73	0.00	0.00	0.00	0.00	2.23	78.88	1.48	15.96
89.54	293.76	0.00	0.00	0.00	0.00	2.25	79.39	1.49	16.03

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
89.55	293.80	0.00	0.00	0.00	0.00	2.26	79.90	1.50	16.11
89.56	293.83	0.00	0.00	0.00	0.00	2.28	80.42	1.50	16.18
89.57	293.86	0.00	0.00	0.00	0.00	2.29	80.93	1.51	16.25
89.58	293.89	0.00	0.00	0.00	0.00	2.31	81.44	1.52	16.32
89.59	293.93	0.00	0.00	0.00	0.00	2.32	81.95	1.52	16.40
89.60	293.96	0.00	0.00	0.00	0.00	2.34	82.47	1.53	16.47
89.61	293.99	0.00	0.00	0.00	0.00	2.35	82.98	1.54	16.54
89.62	294.03	0.00	0.00	0.00	0.00	2.36	83.49	1.54	16.61
89.63	294.06	0.00	0.00	0.00	0.00	2.38	84.01	1.55	16.69
89.64	294.09	0.00	0.00	0.00	0.00	2.39	84.52	1.56	16.76
89.65	294.12	0.00	0.00	0.00	0.00	2.41	85.03	1.56	16.83
89.66	294.16	0.00	0.00	0.00	0.00	2.42	85.54	1.57	16.90
89.67	294.19	0.00	0.00	0.00	0.00	2.44	86.06	1.58	16.98
89.68	294.22	0.00	0.00	0.00	0.00	2.45	86.57	1.58	17.05
89.69	294.25	0.00	0.00	0.00	0.00	2.47	87.08	1.59	17.12
89.70	294.29	0.00	0.00	0.00	0.00	2.48	87.60	1.60	17.20
89.71	294.32	0.00	0.00	0.00	0.00	2.49	88.11	1.60	17.27
89.72	294.35	0.00	0.00	0.00	0.00	2.51	88.62	1.61	17.34
89.73	294.39	0.00	0.00	0.00	0.00	2.52	89.13	1.62	17.41
89.74	294.42	0.00	0.00	0.00	0.00	2.54	89.65	1.62	17.49
89.75	294.45	0.00	0.00	0.00	0.00	2.55	90.16	1.63	17.56
89.76	294.48	0.00	0.00	0.00	0.00	2.57	90.67	1.64	17.63
89.77	294.52	0.00	0.00	0.00	0.00	2.58	91.18	1.64	17.70
89.78	294.55	0.00	0.00	0.00	0.00	2.60	91.70	1.65	17.78
89.79	294.58	0.00	0.00	0.00	0.00	2.61	92.21	1.66	17.85
89.80	294.62	0.00	0.00	0.00	0.00	2.63	92.72	1.67	17.92
89.81	294.65	0.00	0.00	0.00	0.00	2.64	93.24	1.67	17.99
89.82	294.68	0.00	0.00	0.00	0.00	2.65	93.75	1.68	18.07
89.83	294.71	0.00	0.00	0.00	0.00	2.67	94.26	1.69	18.14
89.84	294.75	0.00	0.00	0.00	0.00	2.68	94.77	1.69	18.21
89.85	294.78	0.00	0.00	0.00	0.00	2.70	95.29	1.70	18.29
89.86	294.81	0.00	0.00	0.00	0.00	2.71	95.80	1.71	18.36
89.87	294.85	0.00	0.00	0.00	0.00	2.73	96.31	1.71	18.43
89.88	294.88	0.00	0.00	0.00	0.00	2.74	96.83	1.72	18.50
89.89	294.91	0.00	0.00	0.00	0.00	2.76	97.34	1.73	18.58
89.90	294.94	0.00	0.00	0.00	0.00	2.77	97.85	1.73	18.65
89.91	294.98	0.00	0.00	0.00	0.00	2.79	98.36	1.74	18.72
89.92	295.01	0.00	0.00	0.00	0.00	2.80	98.88	1.75	18.79
89.93	295.04	0.00	0.00	0.00	0.00	2.81	99.39	1.75	18.87
89.94	295.08	0.00	0.00	0.00	0.00	2.83	99.90	1.76	18.94
89.95	295.11	0.00	0.00	0.00	0.00	2.84	100.41	1.77	19.01
89.96	295.14	0.00	0.00	0.00	0.00	2.86	100.93	1.77	19.08
89.97	295.17	0.00	0.00	0.00	0.00	2.87	101.44	1.78	19.16
89.98	295.21	0.00	0.00	0.00	0.00	2.89	101.95	1.79	19.23
89.99	295.24	0.00	0.00	0.00	0.00	2.90	102.47	1.79	19.30
90.00	295.27	0.00	0.00	0.00	0.00	2.92	102.98	1.80	19.38

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
90.01	295.30	0.00	0.00	0.00	0.00	2.93	103.64	1.81	19.47
90.02	295.34	0.00	0.00	0.00	0.00	2.95	104.30	1.82	19.57
90.03	295.37	0.00	0.00	0.00	0.00	2.97	104.96	1.83	19.67
90.04	295.40	0.00	0.00	0.00	0.00	2.99	105.62	1.84	19.77
90.05	295.44	0.00	0.00	0.00	0.00	3.01	106.28	1.85	19.87
90.06	295.47	0.00	0.00	0.00	0.00	3.03	106.94	1.86	19.97
90.07	295.50	0.00	0.00	0.00	0.00	3.05	107.60	1.86	20.07
90.08	295.53	0.00	0.00	0.00	0.00	3.07	108.26	1.87	20.17
90.09	295.57	0.00	0.00	0.00	0.00	3.08	108.92	1.88	20.27
90.10	295.60	0.00	0.00	0.00	0.11	3.10	109.58	1.89	20.37
90.11	295.63	0.01	0.03	0.03	0.96	3.13	110.44	1.90	20.49
90.12	295.67	0.02	0.07	0.05	1.82	3.15	111.29	1.92	20.62
90.13	295.70	0.03	0.10	0.08	2.67	3.18	112.15	1.93	20.75
90.14	295.73	0.04	0.13	0.10	3.53	3.20	113.00	1.94	20.88
90.15	295.76	0.05	0.16	0.12	4.38	3.22	113.86	1.95	21.01
90.16	295.80	0.06	0.20	0.15	5.24	3.25	114.71	1.96	21.14
90.17	295.83	0.07	0.23	0.17	6.09	3.27	115.57	1.98	21.27
90.18	295.86	0.08	0.26	0.20	6.95	3.30	116.42	1.99	21.40
90.19	295.90	0.09	0.30	0.22	7.80	3.32	117.28	2.00	21.53
90.20	295.93	0.10	0.33	0.25	8.66	3.35	118.13	2.01	21.66
90.21	295.96	0.11	0.36	0.27	9.51	3.37	118.99	2.02	21.79
90.22	295.99	0.12	0.39	0.29	10.37	3.39	119.84	2.04	21.92
90.23	296.03	0.13	0.43	0.32	11.22	3.42	120.70	2.05	22.05
90.24	296.06	0.14	0.46	0.34	12.08	3.44	121.55	2.06	22.18
90.25	296.09	0.15	0.49	0.37	12.93	3.47	122.41	2.07	22.30
90.26	296.13	0.16	0.52	0.39	13.79	3.49	123.26	2.08	22.43
90.27	296.16	0.17	0.56	0.41	14.64	3.51	124.12	2.10	22.56
90.28	296.19	0.18	0.59	0.44	15.50	3.54	124.97	2.11	22.69
90.29	296.22	0.19	0.62	0.46	16.35	3.56	125.83	2.12	22.82
90.30	296.26	0.20	0.66	0.49	17.21	3.59	126.68	2.13	22.95
90.31	296.29	0.21	0.69	0.51	18.06	3.61	127.54	2.14	23.08
90.32	296.32	0.22	0.72	0.54	18.92	3.64	128.39	2.16	23.21
90.33	296.35	0.23	0.75	0.56	19.77	3.66	129.25	2.17	23.34
90.34	296.39	0.24	0.79	0.58	20.63	3.68	130.10	2.18	23.47
90.35	296.42	0.25	0.82	0.61	21.48	3.71	130.96	2.19	23.60
90.36	296.45	0.26	0.85	0.63	22.34	3.73	131.81	2.20	23.73
90.37	296.49	0.27	0.89	0.66	23.19	3.76	132.67	2.22	23.86
90.38	296.52	0.28	0.92	0.68	24.05	3.78	133.52	2.23	23.99
90.39	296.55	0.29	0.95	0.71	24.90	3.81	134.38	2.24	24.11
90.40	296.58	0.30	0.98	0.73	25.76	3.83	135.23	2.25	24.24
90.41	296.62	0.31	1.02	0.75	26.61	3.85	136.09	2.26	24.37
90.42	296.65	0.32	1.05	0.78	27.47	3.88	136.94	2.28	24.50
90.43	296.68	0.33	1.08	0.80	28.32	3.90	137.80	2.29	24.63
90.44	296.72	0.34	1.12	0.83	29.18	3.93	138.65	2.30	24.76
90.45	296.75	0.35	1.15	0.85	30.03	3.95	139.51	2.31	24.89
90.46	296.78	0.36	1.18	0.87	30.89	3.97	140.36	2.32	25.02

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
90.47	296.81	0.37	1.21	0.90	31.74	4.00	141.22	2.34	25.15
90.48	296.85	0.38	1.25	0.92	32.60	4.02	142.07	2.35	25.28
90.49	296.88	0.39	1.28	0.95	33.45	4.05	142.93	2.36	25.41
90.50	296.91	0.40	1.31	0.97	34.31	4.07	143.78	2.37	25.54
90.51	296.95	0.41	1.35	1.00	35.16	4.10	144.64	2.38	25.67
90.52	296.98	0.42	1.38	1.02	36.02	4.12	145.49	2.40	25.80
90.53	297.01	0.43	1.41	1.04	36.87	4.14	146.35	2.41	25.92
90.54	297.04	0.44	1.44	1.07	37.73	4.17	147.20	2.42	26.05
90.55	297.08	0.45	1.48	1.09	38.58	4.19	148.06	2.43	26.18
90.56	297.11	0.46	1.51	1.12	39.44	4.22	148.91	2.44	26.31
90.57	297.14	0.47	1.54	1.14	40.29	4.24	149.77	2.46	26.44
90.58	297.17	0.48	1.57	1.17	41.15	4.27	150.62	2.47	26.57
90.59	297.21	0.49	1.61	1.19	42.00	4.29	151.48	2.48	26.70
90.60	297.24	0.50	1.64	1.21	42.86	4.31	152.33	2.49	26.83
90.61	297.27	0.51	1.67	1.24	43.71	4.34	153.19	2.50	26.96
90.62	297.31	0.52	1.71	1.26	44.57	4.36	154.04	2.52	27.09
90.63	297.34	0.53	1.74	1.29	45.42	4.39	154.90	2.53	27.22
90.64	297.37	0.54	1.77	1.31	46.28	4.41	155.75	2.54	27.35
90.65	297.40	0.55	1.80	1.33	47.13	4.43	156.61	2.55	27.48
90.66	297.44	0.56	1.84	1.36	47.99	4.46	157.46	2.56	27.61
90.67	297.47	0.57	1.87	1.38	48.84	4.48	158.32	2.58	27.73
90.68	297.50	0.58	1.90	1.41	49.70	4.51	159.17	2.59	27.86
90.69	297.54	0.59	1.94	1.43	50.55	4.53	160.03	2.60	27.99
90.70	297.57	0.60	1.97	1.46	51.41	4.56	160.88	2.61	28.12
90.71	297.60	0.61	2.00	1.48	52.26	4.58	161.74	2.62	28.25
90.72	297.63	0.62	2.03	1.50	53.12	4.60	162.59	2.64	28.38
90.73	297.67	0.63	2.07	1.53	53.97	4.63	163.45	2.65	28.51
90.74	297.70	0.64	2.10	1.55	54.83	4.65	164.30	2.66	28.64
90.75	297.73	0.65	2.13	1.58	55.68	4.68	165.16	2.67	28.77
90.76	297.77	0.66	2.17	1.60	56.54	4.70	166.01	2.68	28.90
90.77	297.80	0.67	2.20	1.63	57.39	4.73	166.87	2.70	29.03
90.78	297.83	0.68	2.23	1.65	58.25	4.75	167.72	2.71	29.16
90.79	297.86	0.69	2.26	1.67	59.10	4.77	168.58	2.72	29.29
90.80	297.90	0.70	2.30	1.70	59.96	4.80	169.43	2.73	29.42
90.81	297.93	0.71	2.33	1.72	60.81	4.82	170.29	2.74	29.54
90.82	297.96	0.72	2.36	1.75	61.67	4.85	171.14	2.76	29.67
90.83	298.00	0.73	2.39	1.77	62.52	4.87	172.00	2.77	29.80
90.84	298.03	0.74	2.43	1.79	63.38	4.89	172.85	2.78	29.93
90.85	298.06	0.75	2.46	1.82	64.23	4.92	173.71	2.79	30.06
90.86	298.09	0.76	2.49	1.84	65.09	4.94	174.56	2.80	30.19
90.87	298.13	0.77	2.53	1.87	65.94	4.97	175.42	2.82	30.32
90.88	298.16	0.78	2.56	1.89	66.80	4.99	176.27	2.83	30.45
90.89	298.19	0.79	2.59	1.92	67.65	5.02	177.13	2.84	30.58
90.90	298.22	0.80	2.62	1.94	68.51	5.04	177.98	2.85	30.71
90.91	298.26	0.81	2.66	1.96	69.36	5.06	178.84	2.86	30.84
90.92	298.29	0.82	2.69	1.99	70.22	5.09	179.69	2.88	30.97

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
90.93	298.32	0.83	2.72	2.01	71.07	5.11	180.55	2.89	31.10
90.94	298.36	0.84	2.76	2.04	71.93	5.14	181.40	2.90	31.23
90.95	298.39	0.85	2.77	2.06	72.78	5.16	182.26	2.91	31.35
90.96	298.42	0.86	2.82	2.09	73.64	5.19	183.11	2.92	31.48
90.97	298.45	0.87	2.85	2.11	74.49	5.21	183.97	2.94	31.61
90.98	298.49	0.88	2.89	2.13	75.35	5.23	184.82	2.95	31.74
90.99	298.52	0.89	2.92	2.16	76.20	5.26	185.68	2.96	31.87
91.00	298.55	0.90	2.95	2.18	77.06	5.28	186.53	2.97	32.00
91.01	298.59	0.91	2.99	2.22	78.40	5.32	187.87	2.98	32.11
91.02	298.62	0.92	3.02	2.26	79.74	5.36	189.21	2.99	32.22
91.03	298.65	0.93	3.05	2.30	81.08	5.40	190.55	3.00	32.33
91.04	298.68	0.94	3.08	2.33	82.42	5.43	191.89	3.01	32.44
91.05	298.72	0.95	3.12	2.37	83.76	5.47	193.23	3.02	32.56
91.06	298.75	0.96	3.15	2.41	85.10	5.51	194.57	3.03	32.67
91.07	298.78	0.97	3.18	2.45	86.44	5.55	195.91	3.05	32.78
91.08	298.82	0.98	3.22	2.49	87.78	5.59	197.25	3.06	32.89
91.09	298.85	0.99	3.25	2.52	89.12	5.62	198.59	3.07	33.00
91.10	298.88	1.00	3.28	2.56	90.46	5.66	199.93	3.08	33.11
91.11	298.91	1.01	3.31	2.60	91.80	5.70	201.27	3.09	33.22
91.12	298.95	1.02	3.35	2.64	93.14	5.74	202.61	3.10	33.33
91.13	298.98	1.03	3.38	2.68	94.48	5.78	203.95	3.11	33.44
91.14	299.01	1.04	3.41	2.71	95.82	5.81	205.29	3.12	33.55
91.15	299.04	1.05	3.44	2.75	97.16	5.85	206.63	3.13	33.66
91.16	299.08	1.06	3.48	2.79	98.49	5.89	207.97	3.14	33.77
91.17	299.11	1.07	3.51	2.83	99.83	5.93	209.31	3.15	33.89
91.18	299.14	1.08	3.54	2.86	101.17	5.96	210.65	3.16	34.00
91.19	299.18	1.09	3.58	2.90	102.51	6.00	211.99	3.17	34.11
91.20	299.21	1.10	3.61	2.94	103.85	6.04	213.33	3.18	34.22
91.21	299.24	1.11	3.64	2.98	105.19	6.08	214.67	3.19	34.33
91.22	299.27	1.12	3.67	3.02	106.53	6.12	216.01	3.20	34.44
91.23	299.31	1.13	3.71	3.05	107.87	6.15	217.35	3.21	34.55
91.24	299.34	1.14	3.74	3.09	109.21	6.19	218.69	3.22	34.66
91.25	299.37	1.15	3.77	3.13	110.55	6.23	220.03	3.23	34.77
91.26	299.41	1.16	3.81	3.17	111.89	6.27	221.37	3.24	34.88
91.27	299.44	1.17	3.84	3.21	113.23	6.31	222.71	3.25	34.99
91.28	299.47	1.18	3.87	3.24	114.57	6.34	224.05	3.26	35.11
91.29	299.50	1.19	3.90	3.28	115.91	6.38	225.39	3.27	35.22
91.30	299.54	1.20	3.94	3.32	117.25	6.42	226.73	3.28	35.33
91.31	299.57	1.21	3.97	3.36	118.59	6.46	228.07	3.29	35.44
91.32	299.60	1.22	4.00	3.40	119.93	6.50	229.41	3.30	35.55
91.33	299.64	1.23	4.04	3.43	121.27	6.53	230.75	3.31	35.66
91.34	299.67	1.24	4.07	3.47	122.61	6.57	232.09	3.32	35.77
91.35	299.70	1.25	4.10	3.51	123.95	6.61	233.43	3.33	35.88
91.36	299.73	1.26	4.13	3.55	125.29	6.65	234.77	3.34	35.99
91.37	299.77	1.27	4.17	3.59	126.63	6.69	236.11	3.35	36.10
91.38	299.80	1.28	4.20	3.62	127.97	6.72	237.45	3.36	36.21

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
91.39	299.83	1.29	4.23	3.66	129.31	6.76	238.79	3.37	36.32
91.40	299.87	1.30	4.27	3.70	130.65	6.80	240.13	3.39	36.44
91.41	299.90	1.31	4.30	3.74	131.99	6.84	241.47	3.40	36.55
91.42	299.93	1.32	4.33	3.78	133.33	6.88	242.81	3.41	36.66
91.43	299.96	1.33	4.36	3.81	134.67	6.91	244.15	3.42	36.77
91.44	300.00	1.34	4.40	3.85	136.01	6.95	245.49	3.43	36.88
91.45	300.03	1.35	4.43	3.89	137.35	6.99	246.83	3.44	36.99
91.46	300.06	1.36	4.46	3.93	138.69	7.03	248.17	3.45	37.10
91.47	300.09	1.37	4.49	3.97	140.03	7.07	249.51	3.46	37.21
91.48	300.13	1.38	4.53	4.00	141.37	7.10	250.85	3.47	37.32
91.49	300.16	1.39	4.56	4.04	142.71	7.14	252.19	3.48	37.43
91.50	300.19	1.40	4.59	4.08	144.05	7.18	253.53	3.49	37.54
91.51	300.23	1.41	4.63	4.12	145.39	7.22	254.87	3.50	37.66
91.52	300.26	1.42	4.66	4.15	146.73	7.25	256.21	3.51	37.77
91.53	300.29	1.43	4.69	4.19	148.07	7.29	257.55	3.52	37.88
91.54	300.32	1.44	4.72	4.23	149.41	7.33	258.89	3.53	37.99
91.55	300.36	1.45	4.76	4.27	150.75	7.37	260.23	3.54	38.10
91.56	300.39	1.46	4.79	4.31	152.09	7.41	261.57	3.55	38.21
91.57	300.42	1.47	4.82	4.34	153.43	7.44	262.91	3.56	38.32
91.58	300.46	1.48	4.86	4.38	154.77	7.48	264.25	3.57	38.43
91.59	300.49	1.49	4.89	4.42	156.11	7.52	265.59	3.58	38.54
91.60	300.52	1.50	4.92	4.46	157.45	7.56	266.92	3.59	38.65
91.61	300.55	1.51	4.95	4.50	158.79	7.60	268.26	3.60	38.76
91.62	300.59	1.52	4.99	4.53	160.13	7.63	269.60	3.61	38.87
91.63	300.62	1.53	5.02	4.57	161.47	7.67	270.94	3.62	38.99
91.64	300.65	1.54	5.05	4.61	162.81	7.71	272.28	3.63	39.10
91.65	300.69	1.55	5.09	4.65	164.15	7.75	273.62	3.64	39.21
91.66	300.72	1.56	5.12	4.69	165.49	7.79	274.96	3.65	39.32
91.67	300.75	1.57	5.15	4.72	166.83	7.82	276.30	3.66	39.43
91.68	300.78	1.58	5.18	4.76	168.17	7.86	277.64	3.67	39.54
91.69	300.82	1.59	5.22	4.80	169.51	7.90	278.98	3.68	39.65
91.70	300.85	1.60	5.25	4.84	170.85	7.94	280.32	3.69	39.76
91.71	300.88	1.61	5.28	4.88	172.19	7.98	281.66	3.70	39.87
91.72	300.91	1.62	5.31	4.91	173.53	8.01	283.00	3.71	39.98
91.73	300.95	1.63	5.35	4.95	174.87	8.05	284.34	3.72	40.09
91.74	300.98	1.64	5.38	4.99	176.21	8.09	285.68	3.74	40.21
91.75	301.01	1.65	5.41	5.03	177.55	8.13	287.02	3.75	40.32
91.76	301.05	1.66	5.45	5.07	178.89	8.17	288.36	3.76	40.43
91.77	301.08	1.67	5.48	5.10	180.23	8.20	289.70	3.77	40.54
91.78	301.11	1.68	5.51	5.14	181.57	8.24	291.04	3.78	40.65
91.79	301.14	1.69	5.54	5.18	182.91	8.28	292.38	3.79	40.76
91.80	301.18	1.70	5.58	5.22	184.25	8.32	293.72	3.80	40.87
91.81	301.21	1.71	5.61	5.26	185.59	8.36	295.06	3.81	40.98
91.82	301.24	1.72	5.64	5.29	186.93	8.39	296.40	3.82	41.09
91.83	301.28	1.73	5.68	5.33	188.26	8.43	297.74	3.83	41.20
91.84	301.31	1.74	5.71	5.37	189.60	8.47	299.08	3.84	41.31

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
91.85	301.34	1.75	5.74	5.41	190.94	8.51	300.42	3.85	41.42
91.86	301.37	1.76	5.77	5.44	192.28	8.54	301.76	3.86	41.54
91.87	301.41	1.77	5.81	5.48	193.62	8.58	303.10	3.87	41.65
91.88	301.44	1.78	5.84	5.52	194.96	8.62	304.44	3.88	41.76
91.89	301.47	1.79	5.87	5.56	196.30	8.66	305.78	3.89	41.87
91.90	301.51	1.80	5.91	5.60	197.64	8.70	307.12	3.90	41.98
91.91	301.54	1.81	5.94	5.63	198.98	8.73	308.46	3.91	42.09
91.92	301.57	1.82	5.97	5.67	200.32	8.77	309.80	3.92	42.20
91.93	301.60	1.83	6.00	5.71	201.66	8.81	311.14	3.93	42.31
91.94	301.64	1.84	6.04	5.75	203.00	8.85	312.48	3.94	42.42
91.95	301.67	1.85	6.07	5.79	204.34	8.89	313.82	3.95	42.53
91.96	301.70	1.86	6.10	5.82	205.68	8.92	315.16	3.96	42.64
91.97	301.74	1.87	6.14	5.86	207.02	8.96	316.50	3.97	42.76
91.98	301.77	1.88	6.17	5.90	208.36	9.00	317.84	3.98	42.87
91.99	301.80	1.89	6.20	5.94	209.70	9.04	319.18	3.99	42.98
92.00	301.83	1.90	6.23	5.98	211.04	9.08	320.52	4.00	43.09
92.01	301.87	1.91	6.27	6.03	213.05	9.13	322.53	4.02	43.25
92.02	301.90	1.92	6.30	6.09	215.06	9.19	324.54	4.03	43.41
92.03	301.93	1.93	6.33	6.15	217.07	9.25	326.55	4.05	43.57
92.04	301.96	1.94	6.36	6.20	219.09	9.30	328.56	4.06	43.73
92.05	302.00	1.95	6.40	6.26	221.10	9.36	330.57	4.08	43.89
92.06	302.03	1.96	6.43	6.32	223.11	9.42	332.58	4.09	44.05
92.07	302.06	1.97	6.46	6.37	225.12	9.47	334.59	4.11	44.21
92.08	302.10	1.98	6.50	6.43	227.13	9.53	336.61	4.12	44.37
92.09	302.13	1.99	6.53	6.49	229.14	9.59	338.62	4.14	44.53
92.10	302.16	2.00	6.56	6.55	231.15	9.65	340.63	4.15	44.69
92.11	302.19	2.01	6.59	6.60	233.16	9.70	342.64	4.17	44.85
92.12	302.23	2.02	6.63	6.66	235.17	9.76	344.65	4.18	45.01
92.13	302.26	2.03	6.66	6.72	237.18	9.82	346.66	4.20	45.17
92.14	302.29	2.04	6.69	6.77	239.19	9.87	348.67	4.21	45.33
92.15	302.33	2.05	6.73	6.83	241.20	9.93	350.68	4.23	45.49
92.16	302.36	2.06	6.76	6.89	243.22	9.99	352.69	4.24	45.65
92.17	302.39	2.07	6.79	6.94	245.23	10.04	354.70	4.26	45.81
92.18	302.42	2.08	6.82	7.00	247.24	10.10	356.71	4.27	45.97
92.19	302.46	2.09	6.86	7.06	249.25	10.16	358.72	4.29	46.14
92.20	302.49	2.10	6.89	7.11	251.26	10.21	360.74	4.30	46.30
92.21	302.52	2.11	6.92	7.17	253.27	10.27	362.75	4.32	46.46
92.22	302.56	2.12	6.96	7.23	255.28	10.33	364.76	4.33	46.62
92.23	302.59	2.13	6.99	7.29	257.29	10.39	366.77	4.35	46.78
92.24	302.62	2.14	7.02	7.34	259.30	10.44	368.78	4.36	46.94
92.25	302.65	2.15	7.05	7.40	261.31	10.50	370.79	4.38	47.10
92.26	302.69	2.16	7.09	7.46	263.32	10.56	372.80	4.39	47.26
92.27	302.72	2.17	7.12	7.51	265.34	10.61	374.81	4.41	47.42
92.28	302.75	2.18	7.15	7.57	267.35	10.67	376.82	4.42	47.58
92.29	302.79	2.19	7.18	7.63	269.36	10.73	378.83	4.44	47.74
92.30	302.82	2.20	7.22	7.68	271.37	10.78	380.84	4.45	47.90

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
92.31	302.85	2.21	7.25	7.74	273.38	10.84	382.85	4.46	48.06
92.82	302.88	2.22	7.28	7.80	275.39	10.90	384.87	4.48	48.22
92.33	302.92	2.23	7.32	7.86	277.40	10.96	386.88	4.49	48.38
92.34	302.95	2.24	7.35	7.91	279.41	11.01	388.89	4.51	48.54
92.35	302.98	2.25	7.38	7.97	281.42	11.07	390.90	4.52	48.70
92.36	303.01	2.26	7.41	8.03	283.43	11.13	392.91	4.54	48.86
92.37	303.05	2.27	7.45	8.08	285.44	11.18	394.92	4.55	49.02
92.38	303.08	2.28	7.48	8.14	287.45	11.24	396.93	4.57	49.18
92.39	303.11	2.29	7.51	8.20	289.47	11.30	398.94	4.58	49.34
92.40	303.15	2.30	7.55	8.25	291.48	11.35	400.95	4.60	49.50
92.41	303.18	2.31	7.58	8.31	293.49	11.41	402.96	4.61	49.66
92.42	303.21	2.32	7.61	8.37	295.50	11.47	404.97	4.63	49.82
92.43	303.24	2.33	7.64	8.42	297.51	11.52	406.98	4.64	49.98
92.44	303.28	2.34	7.58	8.48	299.52	11.58	409.00	4.66	50.14
92.45	303.31	2.35	7.71	8.54	301.53	11.64	411.01	4.57	50.31
92.46	303.34	2.36	7.74	8.60	303.54	11.70	413.02	4.69	50.47
92.47	303.38	2.37	7.78	8.65	305.55	11.75	415.03	4.70	50.63
92.48	303.41	2.38	7.81	8.71	307.56	11.81	417.04	4.72	50.79
92.49	303.44	2.39	7.84	8.77	309.57	11.87	419.05	4.73	50.95
92.50	303.47	2.40	7.87	8.82	311.58	11.92	421.06	4.75	51.11
92.51	303.51	2.41	7.91	8.88	313.60	11.98	423.07	4.76	51.27
92.52	303.54	2.42	7.94	8.94	315.61	12.04	425.08	4.78	51.43
92.53	303.57	2.43	7.97	8.99	317.62	12.09	427.09	4.79	51.59
92.54	303.61	2.44	8.01	9.05	319.63	12.15	429.10	4.81	51.75
92.55	303.64	2.45	8.04	9.11	321.64	12.21	431.11	4.82	51.91
92.56	303.67	2.46	8.07	9.16	323.65	12.26	433.13	4.84	52.07
92.57	303.70	2.47	8.10	9.22	325.66	12.32	435.14	4.85	52.23
92.58	303.74	2.48	8.14	9.28	327.67	12.38	437.15	4.87	52.39
92.59	303.77	2.49	8.17	9.34	329.68	12.44	439.16	4.88	52.55
92.60	303.80	2.50	8.20	9.39	331.69	12.49	441.17	4.90	52.71
92.61	303.83	2.51	8.23	9.45	333.70	12.55	443.18	4.91	52.87
92.62	303.87	2.52	8.27	9.51	335.71	12.61	445.19	4.93	53.03
92.63	303.90	2.53	8.30	9.56	337.73	12.66	447.20	4.94	53.19
92.64	303.93	2.54	8.33	9.62	339.74	12.72	449.21	4.96	53.35
92.65	303.97	2.55	8.37	9.68	341.75	12.78	451.22	4.97	53.51
92.66	304.00	2.56	8.40	9.73	343.76	12.83	453.23	4.99	53.67
92.67	304.03	2.57	8.43	9.79	345.77	12.89	455.24	5.00	53.83
92.68	304.06	2.58	8.46	9.85	347.78	12.95	457.26	5.02	53.99
92.69	304.10	2.59	8.50	9.90	349.79	13.00	459.27	5.03	54.15
92.70	304.13	2.60	8.53	9.96	351.80	13.06	461.28	5.05	54.31
92.71	304.16	2.61	8.56	10.02	353.81	13.12	463.29	5.06	54.48
92.72	304.20	2.62	8.60	10.08	355.82	13.18	465.30	5.08	54.64
92.73	304.23	2.63	8.63	10.13	357.83	13.23	467.31	5.09	54.80
92.74	304.26	2.64	8.66	10.19	359.84	13.29	469.32	5.11	54.96
92.75	304.29	2.65	8.69	10.25	361.86	13.35	471.33	5.12	55.12
92.76	304.33	2.66	8.73	10.30	363.87	13.40	473.34	5.14	55.28

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
92.77	304.36	2.67	8.76	10.36	365.88	13.46	475.35	5.15	55.44
92.78	304.39	2.68	8.79	10.42	367.89	13.52	477.36	5.17	55.60
92.79	304.43	2.69	8.83	10.47	369.90	13.57	479.37	5.18	55.76
92.80	304.46	2.70	8.86	10.53	371.91	13.63	481.39	5.20	55.92
92.81	304.49	2.71	8.89	10.59	373.92	13.69	483.40	5.21	56.08
92.82	304.52	2.72	8.92	10.65	375.93	13.75	485.41	5.22	56.24
92.83	304.56	2.73	8.96	10.70	377.94	13.80	487.42	5.24	56.40
92.84	304.59	2.74	8.99	10.76	379.95	13.86	489.43	5.25	56.56
92.85	304.62	2.75	9.02	10.82	381.96	13.92	491.44	5.27	56.72
92.86	304.66	2.76	9.06	10.87	383.97	13.97	493.45	5.28	56.88
92.87	304.69	2.77	9.09	10.93	385.98	14.03	495.46	5.30	57.04
92.88	304.72	2.78	9.12	10.99	388.00	14.09	497.47	5.31	57.20
92.89	304.75	2.79	9.15	11.04	390.01	14.14	499.48	5.33	57.36
92.90	304.79	2.80	9.19	11.10	392.02	14.20	501.49	5.34	57.52
92.91	304.82	2.81	9.22	11.16	394.03	14.26	503.51	5.36	57.68
92.92	304.85	2.82	9.25	11.21	396.04	14.31	505.52	5.37	57.84
92.93	304.88	2.83	9.28	11.27	398.05	14.37	507.53	5.39	58.00
92.94	304.92	2.84	9.32	11.33	400.06	14.43	509.54	5.40	58.16
92.95	304.95	2.85	9.35	11.39	402.07	14.49	511.55	5.42	58.32
92.96	304.98	2.86	9.38	11.44	404.08	14.54	513.56	5.43	58.48
92.97	305.02	2.87	9.42	11.50	406.09	14.60	515.57	5.45	58.64
92.98	305.05	2.88	9.45	11.56	408.10	14.66	517.58	5.46	58.81
92.99	305.08	2.89	9.48	11.61	410.12	14.71	519.59	5.48	58.97
93.00	305.11	2.90	9.51	11.67	412.13	14.77	521.60	5.49	59.13
93.01	305.15	2.91	9.55	11.75	414.82	14.85	524.30	5.51	59.29
93.02	305.18	2.92	9.58	11.82	417.52	14.92	527.00	5.52	59.46
93.03	305.21	2.93	9.61	11.90	420.22	15.00	529.70	5.54	59.63
93.04	305.25	2.94	9.65	11.98	422.92	15.08	532.39	5.56	59.80
93.05	305.28	2.95	9.68	12.05	425.61	15.15	535.09	5.57	59.97
93.06	305.31	2.96	9.71	12.13	428.31	15.23	537.79	5.59	60.14
93.07	305.34	2.97	9.74	12.20	431.01	15.30	540.49	5.60	60.31
93.08	305.38	2.98	9.78	12.28	433.71	15.38	543.18	5.62	60.48
93.09	305.41	2.99	9.81	12.36	436.41	15.46	545.88	5.63	60.65
93.10	305.44	3.00	9.84	12.43	439.10	15.53	548.58	5.65	60.81
93.11	305.48	3.01	9.88	12.51	441.80	15.61	551.28	5.67	60.98
93.12	305.51	3.02	9.91	12.59	444.50	15.69	553.98	5.68	61.15
93.13	305.54	3.03	9.94	12.66	447.20	15.76	556.67	5.70	61.32
93.14	305.57	3.04	9.97	12.74	449.89	15.84	559.37	5.71	61.49
93.15	305.61	3.05	10.01	12.82	452.59	15.92	562.07	5.73	61.66
93.16	305.64	3.06	10.04	12.89	455.29	15.99	564.77	5.74	61.83
93.17	305.67	3.07	10.07	12.97	457.99	16.07	567.46	5.76	62.00
93.18	305.70	3.08	10.10	13.05	460.68	16.15	570.16	5.78	62.16
93.19	305.74	3.09	10.14	13.12	463.38	16.22	572.86	5.79	62.33
93.20	305.77	3.10	10.17	13.20	466.08	16.30	575.56	5.81	62.50
93.21	305.80	3.11	10.20	13.27	468.78	16.37	578.25	5.82	62.67
93.22	305.84	3.12	10.24	13.35	471.48	16.45	580.95	5.84	62.84

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
93.23	305.87	3.13	10.27	13.43	474.17	16.53	583.65	5.85	63.01
93.24	305.90	3.14	10.30	13.50	476.87	16.60	586.35	5.87	63.18
93.25	305.93	3.15	10.33	13.58	479.57	16.68	589.05	5.88	63.35
93.26	305.97	3.16	10.37	13.66	482.27	15.76	591.74	5.90	63.51
93.27	306.00	3.17	10.40	13.73	484.96	16.83	594.44	5.92	63.68
93.28	306.03	3.18	10.43	13.81	487.66	16.91	597.14	5.93	63.85
93.29	306.07	3.19	10.47	13.89	490.36	16.99	599.84	5.95	64.02
93.30	306.10	3.20	10.50	13.96	493.06	17.06	602.53	5.96	64.19
93.31	306.13	3.21	10.53	14.04	495.76	17.14	605.23	5.98	64.36
93.32	306.16	3.22	10.56	14.11	498.45	17.21	607.93	5.99	64.53
93.33	306.20	3.23	10.60	14.19	501.15	17.29	610.63	6.01	64.70
93.34	306.23	3.24	10.63	14.27	503.85	17.37	613.32	6.03	64.86
93.35	306.26	3.25	10.66	14.34	506.55	17.44	616.02	6.04	65.03
93.36	306.30	3.26	10.70	14.42	509.24	17.52	618.72	6.06	65.20
93.37	306.33	3.27	10.73	14.50	511.94	17.60	621.42	6.07	65.37
93.38	306.36	3.28	10.76	14.57	514.64	17.67	624.12	6.09	65.54
93.39	306.39	3.29	10.79	14.65	517.34	17.75	626.81	6.10	65.71
93.40	306.43	3.30	10.83	14.73	520.03	17.83	629.51	6.12	65.88
93.41	306.46	3.31	10.86	14.80	522.73	17.90	632.21	6.14	66.05
93.42	306.49	3.32	10.89	14.88	525.43	17.98	634.91	6.15	66.21
93.43	306.53	3.33	10.93	14.95	528.13	18.05	637.60	6.17	66.38
93.44	306.56	3.34	10.96	15.03	530.83	18.13	640.30	6.18	66.55
93.45	306.59	3.35	10.99	15.11	533.52	18.21	643.00	6.20	66.72
93.46	306.62	3.36	11.02	15.18	536.22	18.28	645.70	6.21	66.89
93.47	306.66	3.37	11.06	15.26	538.92	18.36	648.40	6.23	67.06
93.48	306.69	3.38	11.09	15.34	541.62	18.44	651.09	6.25	67.23
93.49	306.72	3.39	11.12	15.41	544.31	18.51	653.79	6.26	67.40
93.50	306.75	3.40	11.15	15.49	547.01	18.59	656.49	6.28	67.57
93.51	306.79	3.41	11.19	15.57	549.71	18.67	659.19	6.29	67.73
93.52	306.82	3.42	11.22	15.64	552.41	18.74	661.88	6.31	67.90
93.53	306.85	3.43	11.25	15.72	555.10	18.82	664.58	6.32	68.07
93.54	306.89	3.44	11.29	15.80	557.80	18.90	667.28	6.34	68.24
93.55	306.92	3.45	11.32	15.87	560.50	18.97	669.98	6.36	68.41
93.56	306.95	3.46	11.35	15.95	563.20	19.05	672.67	6.37	68.58
93.57	306.98	3.47	11.38	16.02	565.90	19.12	675.37	6.39	68.75
93.58	307.02	3.48	11.42	16.10	568.59	19.20	678.07	6.40	68.92
93.59	307.05	3.49	11.45	16.18	571.29	19.28	680.77	6.42	69.08
93.60	307.08	3.50	11.48	16.25	573.99	19.35	683.47	6.43	69.25
93.61	307.12	3.51	11.52	16.33	576.69	19.43	686.16	6.45	69.42
93.62	307.15	3.52	11.55	16.41	579.38	19.51	688.86	6.47	69.59
93.63	307.18	3.53	11.58	16.48	582.08	19.58	691.56	6.48	69.76
93.64	307.21	3.54	11.61	16.56	584.78	19.66	694.26	6.50	69.93
93.65	307.25	3.55	11.65	16.64	587.48	19.74	696.95	6.51	70.10
93.66	307.28	3.56	11.68	16.71	590.18	19.81	699.65	6.53	70.27
93.67	307.31	3.57	11.71	16.79	592.87	19.89	702.35	6.54	70.43
93.68	307.35	3.58	11.75	16.86	595.57	19.96	705.05	6.56	70.60

R.L. in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
93.69	307.38	3.52	11.78	16.94	598.27	20.04	707.74	6.57	70.77
93.70	307.41	3.60	11.81	17.02	600.97	20.12	710.44	6.59	70.94
93.71	307.44	3.61	11.84	17.09	603.66	20.19	713.14	6.61	71.11
93.72	307.48	3.62	11.88	17.17	606.36	20.27	715.84	6.62	71.28
93.73	307.51	3.63	11.91	17.25	609.06	20.35	718.54	6.64	71.45
93.74	307.54	3.64	11.94	17.32	611.76	20.42	721.23	6.65	71.62
93.75	307.58	3.65	11.97	17.40	614.45	20.50	723.93	6.67	71.78
93.76	307.61	3.66	12.01	17.48	617.15	20.58	726.63	6.68	71.95
93.77	307.64	3.67	12.04	17.55	619.85	20.65	729.33	6.70	72.12
93.78	307.67	3.68	12.07	17.63	622.55	20.73	732.02	6.72	72.29
93.79	307.71	3.69	12.11	17.70	625.25	20.80	734.72	6.73	72.46
93.80	307.74	3.70	12.14	17.78	627.94	20.88	737.42	6.75	72.63
93.81	307.77	3.71	12.17	17.86	630.64	20.96	740.12	6.76	72.80
93.82	307.80	3.72	12.20	17.93	633.34	21.03	742.82	6.78	72.97
93.83	307.84	3.73	12.24	18.01	636.04	21.11	745.51	6.79	73.13
93.84	307.87	3.74	12.27	18.09	638.73	21.19	748.21	6.81	73.30
93.85	307.90	3.75	12.30	18.16	641.43	21.26	750.91	6.83	73.47
93.86	307.94	3.76	12.34	18.24	644.13	21.34	753.61	6.84	73.64
93.87	307.97	3.77	12.37	18.32	646.83	21.42	756.30	6.86	73.81
93.88	308.00	3.78	12.40	18.39	649.52	21.49	759.00	6.87	73.98
93.89	308.03	3.79	12.43	18.47	652.22	21.57	761.70	6.89	74.15
93.90	308.07	3.80	12.47	18.55	654.92	21.65	764.40	6.90	74.32
93.91	308.10	3.81	12.50	18.62	657.62	21.72	767.09	6.92	74.48
93.92	308.13	3.82	12.53	18.70	660.32	21.80	769.79	6.94	74.65
93.93	308.17	3.83	12.57	18.77	663.01	21.87	772.49	6.95	74.82
93.94	308.20	3.84	12.60	18.85	665.71	21.95	775.19	6.97	74.99
93.95	308.23	3.85	12.63	18.93	668.41	22.03	777.89	6.98	75.16
93.96	308.26	3.86	12.66	19.00	671.11	22.10	780.58	7.00	75.33
93.97	308.30	3.87	12.70	19.08	673.80	22.18	783.28	7.01	75.50
93.98	308.33	3.88	12.73	19.16	676.50	22.26	785.98	7.03	75.67
93.99	308.36	3.89	12.76	19.23	679.20	22.33	788.68	7.05	75.84
94.00	308.40	3.90	12.80	19.31	681.90	22.41	791.37	7.06	76.00
94.01	308.43	3.91	12.83	19.40	685.19	22.50	794.67	7.08	76.23
94.02	308.46	3.92	12.86	19.50	688.49	22.60	797.97	7.10	76.47
94.03	308.49	3.93	12.89	19.59	691.79	22.69	801.26	7.13	76.70
94.04	308.53	3.94	12.93	19.68	695.08	22.78	804.56	7.15	76.93
94.05	308.56	3.95	12.96	19.78	698.38	22.88	807.86	7.17	77.16
94.06	308.59	3.96	12.99	19.87	701.68	22.97	811.15	7.19	77.39
94.07	308.62	3.97	13.02	19.96	704.97	23.06	814.45	7.21	77.62
94.08	308.66	3.98	13.06	20.06	708.27	23.16	817.74	7.23	77.85
94.09	308.69	3.99	13.09	20.15	711.56	23.25	821.04	7.25	78.08
94.10	308.72	4.00	13.12	20.24	714.86	23.34	824.34	7.28	78.31
94.11	308.76	4.01	13.16	20.34	718.16	23.44	827.63	7.30	78.55
94.12	308.79	4.02	13.19	20.43	721.45	23.53	830.93	7.32	78.78
94.13	308.82	4.03	13.22	20.52	724.75	23.62	834.23	7.34	79.01
94.14	308.85	4.04	13.25	20.62	728.05	23.72	837.52	7.36	79.24

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
94.15	308.89	4.05	13.29	20.71	731.34	23.81	840.82	7.38	79.47
94.16	308.92	4.06	13.32	20.80	734.64	23.90	844.11	7.40	79.70
94.17	308.95	4.07	13.35	20.90	737.93	24.00	847.41	7.43	79.93
94.18	308.99	4.08	13.39	20.99	741.23	24.09	850.71	7.45	80.16
94.19	309.02	4.09	13.42	21.08	744.53	24.18	854.00	7.47	80.39
94.20	309.05	4.10	13.45	21.18	747.82	24.28	857.30	7.49	80.63
94.21	309.08	4.11	13.48	21.27	751.12	24.37	860.60	7.51	80.86
94.22	309.12	4.12	13.52	21.36	754.42	24.46	863.89	7.53	81.09
94.23	309.15	4.13	13.55	21.46	757.71	24.56	867.19	7.55	81.32
94.24	309.18	4.14	13.58	21.55	761.01	24.65	870.49	7.58	81.55
94.25	309.22	4.15	13.62	21.64	764.30	24.74	873.78	7.60	81.78
94.26	309.25	4.16	13.65	21.74	767.60	24.84	877.08	7.62	82.01
94.27	309.28	4.17	13.68	21.83	770.90	24.93	880.37	7.64	82.24
94.28	309.31	4.18	13.71	21.92	774.19	25.02	883.67	7.66	82.47
94.29	309.35	4.19	13.75	22.02	777.49	25.12	886.97	7.68	82.71
94.30	309.38	4.20	13.78	22.11	780.79	25.21	890.26	7.71	82.94
94.31	309.41	4.21	13.81	22.20	784.08	25.30	893.56	7.73	83.17
94.32	309.45	4.22	13.84	22.30	787.38	25.40	896.86	7.75	83.40
94.33	309.48	4.23	13.88	22.39	790.68	25.49	900.15	7.77	83.63
94.34	309.51	4.24	13.91	22.48	793.97	25.58	903.45	7.79	83.86
94.35	309.54	4.25	13.94	22.58	797.27	25.68	906.74	7.81	84.09
94.36	309.58	4.26	13.98	22.67	800.56	25.77	910.04	7.83	84.32
94.37	309.61	4.27	14.01	22.76	803.86	25.86	913.34	7.86	84.55
94.38	309.64	4.28	14.04	22.86	807.16	25.96	916.63	7.88	84.79
94.39	309.67	4.29	14.07	22.95	810.45	26.05	919.93	7.90	85.02
94.40	309.71	4.30	14.11	23.04	813.75	26.14	923.23	7.92	85.25
94.41	309.74	4.31	14.14	23.14	817.05	26.24	926.52	7.94	85.48
94.42	309.77	4.32	14.17	23.23	820.34	26.33	929.82	7.96	85.71
94.43	309.81	4.33	14.21	23.32	823.64	26.42	933.11	7.98	85.94
94.44	309.84	4.34	14.24	23.42	826.93	26.52	936.41	8.01	86.17
94.45	309.87	4.35	14.27	23.51	830.23	26.61	939.71	8.03	86.40
94.46	309.90	4.36	14.30	23.60	833.53	26.70	943.00	8.05	86.63
94.47	309.94	4.37	14.34	23.70	836.82	26.80	946.30	8.07	86.87
94.48	309.97	4.38	14.37	23.79	840.12	26.89	949.60	8.09	87.10
94.49	310.00	4.39	14.40	23.88	843.42	26.98	952.89	8.11	87.33
94.50	310.04	4.40	14.44	23.98	846.71	27.08	956.19	8.13	87.56
94.51	310.07	4.41	14.47	24.07	850.01	27.17	959.49	8.16	87.79
94.52	310.10	4.42	14.50	24.16	853.31	27.26	962.78	8.18	88.02
94.53	310.13	4.43	14.53	24.26	856.60	27.36	966.08	8.20	88.25
94.54	310.17	4.44	14.57	24.35	859.90	27.45	969.37	8.22	88.48
94.55	310.20	4.45	14.60	24.44	863.19	27.54	972.67	8.24	88.71
94.56	310.23	4.46	14.63	24.54	866.49	27.64	975.97	8.26	88.95
94.57	310.27	4.47	14.67	24.63	869.79	27.73	979.26	8.28	89.18
94.58	310.30	4.48	14.70	24.72	873.08	27.82	982.56	8.31	89.41
94.59	310.33	4.49	14.73	24.82	876.38	27.92	985.86	8.33	89.64
94.60	310.36	4.50	14.76	24.91	879.68	28.01	989.15	8.35	89.87

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
94.51	310.40	4.51	14.80	25.00	882.97	28.10	992.45	8.37	90.10
94.52	310.43	4.52	14.83	25.10	886.27	28.20	995.74	8.39	90.33
94.63	310.46	4.53	14.86	25.19	889.56	28.29	999.04	8.41	90.56
94.64	310.49	4.54	14.89	25.28	892.86	28.38	1002.34	8.44	90.79
94.65	310.53	4.55	14.95	25.38	896.16	28.48	1005.63	8.46	91.03
94.66	310.56	4.56	14.96	25.47	899.45	28.57	1008.93	8.48	91.26
94.67	310.59	4.57	14.99	25.56	902.75	28.66	1012.23	8.50	91.49
94.68	310.63	4.58	15.03	25.66	906.05	28.76	1015.52	8.52	91.72
94.69	310.66	4.59	15.06	25.75	909.34	28.85	1018.82	8.54	91.95
94.70	310.69	4.60	15.09	25.84	912.64	28.94	1022.11	8.56	92.18
94.71	310.72	4.61	15.12	25.94	915.93	29.04	1025.41	8.59	92.41
94.72	310.76	4.62	15.16	26.03	919.23	29.13	1028.71	8.61	92.64
94.73	310.79	4.63	15.19	26.12	922.53	29.22	1032.00	8.63	92.87
94.74	310.82	4.64	15.22	26.22	925.82	29.32	1035.30	8.65	93.11
94.75	310.86	4.65	15.26	26.31	929.12	29.41	1038.60	8.67	93.34
94.76	310.89	4.66	15.29	26.40	932.42	29.50	1041.89	8.69	93.57
94.77	310.92	4.67	15.32	26.50	935.71	29.60	1045.19	8.71	93.80
94.78	310.95	4.68	15.35	26.59	939.01	29.69	1048.49	8.74	94.03
94.79	310.99	4.69	15.39	26.68	942.31	29.78	1051.78	8.76	94.26
94.80	311.02	4.70	15.42	26.78	945.60	29.88	1055.08	8.78	94.49
94.81	311.05	4.71	15.45	26.87	948.90	29.97	1058.37	8.80	94.72
94.82	311.09	4.72	15.49	26.96	952.19	30.06	1061.67	8.82	94.95
94.83	311.12	4.73	15.52	27.06	955.49	30.16	1064.97	8.84	95.19
94.84	311.15	4.74	15.55	27.15	958.79	30.25	1068.26	8.86	95.42
94.85	311.18	4.75	15.58	27.24	962.08	30.34	1071.56	8.89	95.65
94.86	311.22	4.76	15.62	27.34	965.38	30.44	1074.86	8.91	95.88
94.87	311.25	4.77	15.65	27.43	968.68	30.53	1078.15	8.93	96.11
94.88	311.28	4.78	15.68	27.52	971.97	30.62	1081.45	8.95	96.34
94.89	311.32	4.79	15.72	27.62	975.27	30.72	1084.74	8.97	96.57
94.90	311.35	4.80	15.75	27.71	978.56	30.81	1088.04	8.99	96.80
94.91	311.38	4.81	15.78	27.80	981.86	30.90	1091.34	9.01	97.03
94.92	311.41	4.82	15.81	27.90	985.16	31.00	1094.63	9.04	97.27
94.93	311.45	4.83	15.85	27.99	988.45	31.09	1097.93	9.06	97.50
94.94	311.48	4.84	15.88	28.08	991.75	31.18	1101.23	9.08	97.73
94.95	311.51	4.85	15.91	28.18	995.05	31.28	1104.52	9.10	97.96
94.96	311.54	4.86	15.94	28.27	998.34	31.37	1107.82	9.12	98.19
94.97	311.58	4.87	15.98	28.36	1001.64	31.46	1111.12	9.14	98.42
94.98	311.61	4.88	16.01	28.46	1004.93	31.56	1114.41	9.17	98.65
94.99	311.64	4.89	16.04	28.55	1008.23	31.65	1117.71	9.19	98.88
95.00	311.68	4.90	16.08	28.64	1011.53	31.74	1121.00	9.21	99.11
95.01	311.71	4.91	16.11	28.75	1015.15	31.85	1124.62	9.26	99.67
95.02	311.74	4.92	16.14	28.85	1018.77	31.95	1128.24	9.31	100.23
95.03	311.77	4.93	16.17	28.95	1022.38	32.05	1131.86	9.36	100.79
95.04	311.81	4.94	16.21	29.05	1026.00	32.15	1135.48	9.42	101.35
95.05	311.84	4.95	16.24	29.16	1029.62	32.26	1139.10	9.47	101.92
95.06	311.87	4.96	16.27	29.26	1033.24	32.36	1142.72	9.52	102.48

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
95.07	311.91	4.97	16.31	29.36	1036.86	32.46	1146.34	9.57	103.04
95.08	311.94	4.98	16.34	29.46	1040.48	32.56	1149.96	9.62	103.60
95.09	311.97	4.99	16.37	29.57	1044.10	32.67	1153.57	9.68	104.16
95.10	312.00	5.00	16.40	29.67	1047.72	32.77	1157.19	9.73	104.72
95.11	312.04	5.01	16.44	29.77	1051.34	32.87	1160.81	9.78	105.28
95.12	312.07	5.02	16.47	29.87	1054.95	32.97	1164.43	9.83	105.84
95.13	312.10	5.03	16.50	29.98	1058.57	33.08	1168.05	9.88	106.40
95.14	312.14	5.04	16.54	30.08	1062.19	33.18	1171.67	9.94	106.96
95.15	312.17	5.05	16.57	30.18	1065.81	33.28	1175.29	9.99	107.52
95.16	312.20	5.06	16.60	30.28	1069.43	33.38	1178.91	10.04	108.08
95.17	312.23	5.07	16.63	30.39	1073.05	33.49	1182.53	10.09	108.64
95.18	312.27	5.08	16.67	30.49	1076.67	33.59	1186.15	10.14	109.20
95.19	312.30	5.09	16.70	30.59	1080.29	33.69	1189.76	10.20	109.76
95.20	312.33	5.10	16.73	30.69	1083.91	33.79	1193.38	10.25	110.32
95.21	312.36	5.11	16.76	30.80	1087.53	33.90	1197.00	10.30	110.88
95.22	312.40	5.12	16.80	30.91	1091.15	34.01	1200.89	10.32	111.04
95.23	312.43	5.13	16.83	31.02	1095.31	34.12	1204.78	10.33	111.20
95.24	312.46	5.14	16.86	31.13	1099.20	34.23	1208.67	10.35	111.36
95.25	312.50	5.15	16.90	31.24	1103.09	34.34	1212.56	10.36	111.51
95.26	312.53	5.16	16.93	31.35	1106.98	34.45	1216.45	10.37	111.67
95.27	312.56	5.17	16.96	31.46	1110.87	34.56	1220.34	10.39	111.83
95.28	312.59	5.18	16.99	31.57	1114.76	34.67	1224.24	10.40	111.99
95.29	312.63	5.19	17.03	31.68	1118.65	34.78	1228.13	10.42	112.15
95.30	312.66	5.20	17.06	31.79	1122.54	34.89	1232.02	10.43	112.31
95.31	312.69	5.21	17.09	31.90	1126.43	35.00	1235.91	10.45	112.47
95.32	312.73	5.22	17.13	32.01	1130.32	35.11	1239.80	10.46	112.63
95.33	312.76	5.23	17.16	32.12	1134.21	35.22	1243.69	10.48	112.79
95.34	312.79	5.24	17.19	32.23	1138.10	35.33	1247.58	10.49	112.94
95.35	312.82	5.25	17.22	32.34	1141.99	35.44	1251.47	10.51	113.10
95.36	312.86	5.26	17.26	32.45	1145.88	35.55	1255.36	10.52	113.26
95.37	312.89	5.27	17.29	32.56	1149.77	35.66	1259.25	10.54	113.42
95.38	312.92	5.28	17.32	32.67	1153.66	35.77	1263.14	10.55	113.58
95.39	312.96	5.29	17.36	32.78	1157.55	35.88	1267.03	10.57	113.74
95.40	312.99	5.30	17.39	32.89	1161.44	35.99	1270.92	10.58	113.90
95.41	313.02	5.31	17.42	33.00	1165.33	36.10	1274.81	10.60	114.06
95.42	313.05	5.32	17.45	33.11	1169.23	36.21	1278.70	10.61	114.22
95.43	313.09	5.33	17.49	33.22	1173.12	36.32	1282.59	10.63	114.37
95.44	313.12	5.34	17.52	33.33	1177.01	36.43	1286.48	10.64	114.53
95.45	313.15	5.35	17.55	33.44	1180.90	36.54	1290.37	10.66	114.69
95.46	313.19	5.36	17.59	33.55	1184.79	36.65	1294.26	10.67	114.85
95.47	313.22	5.37	17.62	33.66	1188.68	36.76	1298.15	10.68	115.01
95.48	313.25	5.38	17.65	33.77	1192.57	36.87	1302.04	10.70	115.17
95.49	313.28	5.39	17.68	33.88	1196.46	36.98	1305.93	10.71	115.33
95.50	313.32	5.40	17.72	33.99	1200.35	37.09	1309.83	10.73	115.49
95.51	313.35	5.41	17.75	34.10	1204.24	37.20	1313.72	10.74	115.65
95.52	313.38	5.42	17.78	34.21	1208.13	37.31	1317.61	10.76	115.80

R.L. in.		Depth in		Live storage		Gross storage		water spr Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M
1	2	3	4	5	6	7	8	9	
95.53	313.41	5.43	17.81	34.32	1212.02	37.42	1321.50	10.77	116
95.54	313.45	5.44	17.85	34.43	1215.91	37.53	1325.39	10.79	116
95.55	313.48	5.45	17.88	34.54	1219.80	37.64	1329.28	10.80	116
95.56	313.51	5.46	17.91	34.65	1223.69	37.75	1333.17	10.82	116
95.57	313.55	5.47	17.95	34.76	1227.58	37.86	1337.06	10.83	116
95.58	313.58	5.48	17.98	34.87	1231.47	37.97	1340.95	10.85	116
95.59	313.61	5.49	18.01	34.98	1235.36	38.08	1344.84	10.86	116
95.60	313.64	5.50	18.04	35.09	1239.25	38.19	1348.73	10.88	117
95.61	313.68	5.51	18.08	35.20	1243.14	38.30	1352.62	10.89	117
95.62	313.71	5.52	18.11	35.31	1247.03	38.41	1356.51	10.91	117
95.63	313.74	5.53	18.14	35.42	1250.92	38.52	1360.40	10.92	117
95.64	313.78	5.54	18.18	35.53	1254.82	38.63	1364.29	10.94	117
95.65	313.81	5.55	18.21	35.64	1258.71	38.74	1368.18	10.95	117
95.66	313.84	5.56	18.24	35.75	1262.60	38.85	1372.07	10.97	118
95.67	313.87	5.57	18.27	35.86	1266.49	38.96	1375.96	10.98	118
95.68	313.91	5.58	18.31	35.97	1270.38	39.07	1379.85	10.99	118
95.69	313.94	5.59	18.34	36.08	1274.27	39.18	1383.74	11.01	118
95.70	313.97	5.60	18.37	36.19	1278.16	39.29	1387.63	11.02	118
95.71	314.01	5.61	18.41	36.30	1282.05	39.40	1391.52	11.04	118
95.72	314.04	5.62	18.44	36.41	1285.94	39.51	1395.42	11.05	118
95.73	314.07	5.63	18.47	36.52	1289.83	39.62	1399.31	11.07	119
95.74	314.10	5.64	18.50	36.63	1293.72	39.73	1403.20	11.08	119
95.75	314.14	5.65	18.54	36.74	1297.61	39.84	1407.09	11.10	119
95.76	314.17	5.66	18.57	36.85	1301.50	39.95	1410.98	11.11	119
95.77	314.20	5.67	18.60	36.96	1305.39	40.06	1414.87	11.13	119
95.78	314.24	5.68	18.63	37.07	1309.28	40.17	1418.76	11.14	119
95.79	314.27	5.69	18.67	37.18	1313.17	40.28	1422.65	11.16	120
95.80	314.30	5.70	18.70	37.29	1317.06	40.39	1426.54	11.17	120
95.81	314.33	5.71	18.73	37.40	1320.95	40.50	1430.43	11.19	120
95.82	314.37	5.72	18.77	37.52	1324.84	40.62	1434.32	11.20	120
95.83	314.40	5.73	18.80	37.63	1328.73	40.73	1438.21	11.22	120
95.84	314.43	5.74	18.83	37.74	1332.62	40.84	1442.10	11.23	120
95.85	314.46	5.75	18.86	37.85	1336.51	40.95	1445.99	11.25	121
95.86	314.50	5.76	18.90	37.96	1340.41	41.06	1449.88	11.26	121
95.87	314.53	5.77	18.93	38.07	1344.30	41.17	1453.77	11.28	121
95.88	314.56	5.78	18.96	38.18	1348.19	41.28	1457.66	11.29	121
95.89	314.60	5.79	19.00	38.29	1352.08	41.39	1461.55	11.30	121
95.90	314.63	5.80	19.03	38.40	1355.97	41.50	1465.44	11.32	121
95.91	314.66	5.81	19.06	38.51	1359.86	41.61	1469.33	11.33	122
95.92	314.69	5.82	19.09	38.62	1363.75	41.72	1473.22	11.35	122
95.93	314.73	5.83	19.13	38.73	1367.64	41.83	1477.12	11.36	122
95.94	314.76	5.84	19.16	38.84	1371.53	41.94	1481.01	11.38	122
95.95	314.79	5.85	19.19	38.95	1375.42	42.05	1484.90	11.39	122
95.96	314.83	5.86	19.23	39.06	1379.31	42.16	1488.79	11.41	122
95.97	314.86	5.87	19.26	39.17	1383.20	42.27	1492.68	11.42	122
95.98	314.89	5.88	19.29	39.28	1387.09	42.38	1496.57	11.44	123

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
95.99	314.92	5.89	19.32	39.39	1390.98	42.49	1500.46	11.45	123.27
96.00	314.96	5.90	19.36	39.50	1394.87	42.60	1504.35	11.47	123.43
96.01	314.99	5.91	19.39	39.62	1399.23	42.72	1508.71	11.48	123.59
96.02	315.02	5.92	19.42	39.75	1403.60	42.85	1513.07	11.50	123.74
96.03	315.06	5.93	19.46	39.87	1407.96	42.97	1517.43	11.51	123.90
96.04	315.09	5.94	19.49	39.99	1412.32	43.09	1521.80	11.52	124.05
96.05	315.12	5.95	19.52	40.12	1416.68	43.22	1526.16	11.54	124.21
96.06	315.15	5.96	19.55	40.24	1421.04	43.34	1530.52	11.55	124.36
96.07	315.19	5.97	19.59	40.36	1425.40	43.46	1534.88	11.57	124.52
96.08	315.22	5.98	19.62	40.49	1429.77	43.59	1539.24	11.58	124.68
96.09	315.25	5.99	19.65	40.61	1434.15	43.71	1543.60	11.60	124.83
96.10	315.28	6.00	19.68	40.73	1438.49	43.83	1547.97	11.61	124.99
96.11	315.32	6.01	19.72	40.86	1442.85	43.96	1552.33	11.63	125.14
96.12	315.35	6.02	19.75	40.98	1447.21	44.08	1556.69	11.64	125.30
96.13	315.38	6.03	19.78	41.10	1451.57	44.20	1561.05	11.66	125.45
96.14	315.42	6.04	19.82	41.23	1455.94	44.33	1565.41	11.67	125.61
96.15	315.45	6.05	19.85	41.35	1460.30	44.45	1569.77	11.68	125.77
96.16	315.48	6.06	19.88	41.47	1464.66	44.57	1574.14	11.70	125.92
96.17	315.51	6.07	19.91	41.60	1469.02	44.70	1578.50	11.71	126.08
96.18	315.55	6.08	19.95	41.72	1473.38	44.82	1582.86	11.73	126.23
96.19	315.58	6.09	19.98	41.84	1477.75	44.94	1587.22	11.74	126.39
96.20	315.61	6.10	20.01	41.97	1482.11	45.07	1591.58	11.76	126.54
96.21	315.65	6.11	20.05	42.09	1486.47	45.19	1595.95	11.77	126.70
96.22	315.68	6.12	20.08	42.22	1490.83	45.32	1600.31	11.79	126.86
96.23	315.71	6.13	20.11	42.34	1495.19	45.44	1604.67	11.80	127.01
96.24	315.74	6.14	20.14	42.46	1499.55	45.56	1609.03	11.81	127.17
96.25	315.78	6.15	20.18	42.59	1503.92	45.69	1613.39	11.83	127.32
96.26	315.81	6.16	20.21	42.71	1508.28	45.81	1617.75	11.84	127.48
96.27	315.84	6.17	20.24	42.83	1512.64	45.93	1622.12	11.86	127.63
96.28	315.88	6.18	20.28	42.96	1517.00	46.06	1626.48	11.87	127.79
96.29	315.91	6.19	20.31	43.08	1521.36	46.18	1630.84	11.89	127.95
96.30	315.94	6.20	20.34	43.20	1525.72	46.30	1635.20	11.90	128.10
96.31	315.97	6.21	20.37	43.33	1530.09	46.43	1639.56	11.92	128.26
96.32	316.01	6.22	20.41	43.45	1534.45	46.55	1643.92	11.93	128.41
96.33	316.04	6.23	20.44	43.57	1538.81	46.67	1648.29	11.94	128.57
96.34	316.07	6.24	20.47	43.70	1543.17	46.80	1652.65	11.96	128.73
96.35	316.11	6.25	20.51	43.82	1547.53	46.92	1657.01	11.97	128.88
96.36	316.14	6.26	20.54	43.94	1551.90	47.04	1661.37	11.99	129.04
96.37	316.17	6.27	20.57	44.07	1556.26	47.17	1665.73	12.00	129.19
96.38	316.20	6.28	20.60	44.19	1560.62	47.29	1670.10	12.02	129.35
96.39	316.24	6.29	20.64	44.31	1564.98	47.41	1674.46	12.03	129.50
96.40	316.27	6.30	20.67	44.44	1569.34	47.54	1678.82	12.05	129.66
96.41	316.30	6.31	20.70	44.56	1573.70	47.66	1683.18	12.06	129.82
96.42	316.33	6.32	20.73	44.69	1578.07	47.79	1687.54	12.07	129.97
96.43	316.37	6.33	20.77	44.81	1582.43	47.91	1691.90	12.09	130.13
96.44	316.40	6.34	20.80	44.93	1586.79	48.03	1696.27	12.10	130.28

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
96.45	316.43	6.35	20.83	45.06	1591.15	48.16	1700.63	12.12	130.44
96.46	316.47	6.36	20.87	45.18	1595.51	48.28	1704.99	12.13	130.59
96.47	316.50	6.37	20.90	45.30	1599.87	48.40	1709.35	12.15	130.75
96.48	316.53	6.38	20.93	45.43	1604.24	48.53	1713.71	12.16	130.91
96.49	316.56	6.39	20.96	45.55	1608.60	48.65	1718.07	12.18	131.06
96.50	316.60	6.40	21.00	45.67	1612.96	48.77	1722.44	12.19	131.22
96.51	316.63	6.41	21.03	45.80	1617.32	48.90	1726.80	12.20	131.37
96.52	316.66	6.42	21.06	45.92	1621.68	49.02	1731.16	12.22	131.53
96.53	316.70	6.43	21.10	46.04	1626.04	49.14	1735.52	12.23	131.68
96.54	316.73	6.44	21.13	46.17	1630.41	49.27	1739.88	12.25	131.84
96.55	316.76	6.45	21.16	46.29	1634.77	49.39	1744.24	12.26	132.00
96.56	316.79	6.46	21.19	46.41	1639.13	49.51	1748.61	12.28	132.15
96.57	316.83	6.47	21.23	46.54	1643.49	49.64	1752.97	12.29	132.31
96.58	316.86	6.48	21.26	46.66	1647.85	49.76	1757.33	12.31	132.46
96.59	316.89	6.49	21.29	46.79	1652.22	49.89	1761.69	12.32	132.62
96.60	316.93	6.50	21.33	46.91	1656.58	50.01	1766.05	12.34	132.77
96.61	316.96	6.51	21.36	47.03	1660.94	50.13	1770.42	12.35	132.93
96.62	316.99	6.52	21.39	47.16	1665.30	50.26	1774.78	12.36	133.09
96.63	317.02	6.53	21.42	47.28	1669.66	50.38	1779.14	12.38	133.24
96.64	317.06	6.54	21.46	47.40	1674.02	50.50	1783.50	12.39	133.40
96.65	317.09	6.55	21.49	47.53	1678.39	50.63	1787.86	12.41	133.55
96.66	317.12	6.56	21.52	47.65	1682.75	50.75	1792.22	12.42	133.71
96.67	317.15	6.57	21.55	47.77	1687.11	50.87	1796.59	12.44	133.87
96.68	317.19	6.58	21.59	47.90	1691.47	51.00	1800.95	12.45	134.02
96.69	317.22	6.59	21.62	48.02	1695.83	51.12	1805.31	12.47	134.18
96.70	317.25	6.60	21.65	48.14	1700.19	51.24	1809.67	12.48	134.33
96.71	317.29	6.61	21.69	48.27	1704.56	51.37	1814.03	12.49	134.49
96.72	317.32	6.62	21.72	48.39	1708.92	51.49	1818.39	12.51	134.64
96.73	317.35	6.63	21.75	48.51	1713.28	51.61	1822.76	12.52	134.80
96.74	317.38	6.64	21.78	48.64	1717.64	51.74	1827.12	12.54	134.96
96.75	317.42	6.65	21.82	48.76	1722.00	51.86	1831.48	12.55	135.11
96.76	317.45	6.66	21.85	48.88	1726.37	51.98	1835.84	12.57	135.27
96.77	317.48	6.67	21.88	49.01	1730.73	52.11	1840.20	12.58	135.42
96.78	317.52	6.68	21.92	49.13	1735.09	52.23	1844.57	12.60	135.58
96.79	317.55	6.69	21.95	49.26	1739.45	52.36	1848.93	12.61	135.73
96.80	317.58	6.70	21.98	49.38	1743.81	52.48	1853.29	12.62	135.89
96.81	317.61	6.71	22.01	49.50	1748.17	52.60	1857.65	12.64	136.05
96.82	317.65	6.72	22.05	49.63	1752.54	52.73	1862.01	12.65	136.20
96.83	317.68	6.73	22.08	49.75	1756.90	52.85	1866.37	12.67	136.36
96.84	317.71	6.74	22.11	49.87	1761.26	52.97	1870.74	12.68	136.51
96.85	317.75	6.75	22.15	50.00	1765.62	53.10	1875.10	12.70	136.67
96.86	317.78	6.76	22.18	50.12	1769.98	53.22	1879.46	12.71	136.82
96.87	317.81	6.77	22.21	50.24	1774.34	53.34	1883.82	12.73	136.98
96.88	317.84	6.78	22.24	50.37	1778.71	53.47	1888.18	12.74	137.14
96.89	317.88	6.79	22.28	50.49	1783.07	53.59	1892.54	12.75	137.29
96.90	317.91	6.80	22.31	50.61	1787.43	53.71	1896.91	12.77	137.4

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
96.91	317.94	6.81	22.34	50.74	1791.79	53.84	1901.27	12.78	137.60
96.92	317.98	6.82	22.38	50.86	1796.15	53.96	1905.63	12.80	137.76
96.93	318.01	6.83	22.41	50.98	1800.52	54.08	1909.99	12.81	137.91
96.94	318.04	6.84	22.44	51.11	1804.88	54.21	1914.35	12.83	138.07
96.95	318.07	6.85	22.47	51.23	1809.24	54.33	1918.72	12.84	138.23
96.96	318.11	6.86	22.51	51.35	1813.60	54.45	1923.08	12.86	138.38
96.97	318.14	6.87	22.54	51.48	1817.96	54.58	1927.44	12.87	138.54
96.98	318.17	6.88	22.57	51.60	1822.32	54.70	1931.80	12.89	138.69
96.99	318.20	6.89	22.60	51.73	1826.69	54.83	1936.16	12.90	138.85
97.00	318.24	6.90	22.64	51.85	1831.05	54.95	1940.52	12.91	139.01
97.01	318.27	6.91	22.67	51.99	1836.03	55.09	1945.50	12.94	139.27
97.02	318.30	6.92	22.70	52.13	1841.00	55.23	1950.48	12.96	139.53
97.03	318.34	6.93	22.74	52.27	1845.98	55.37	1955.46	12.99	139.79
97.04	318.37	6.94	22.77	52.41	1850.96	55.51	1960.44	13.01	140.05
97.05	318.40	6.95	22.80	52.55	1855.94	55.65	1965.41	13.04	140.31
97.06	318.43	6.96	22.83	52.69	1860.92	55.79	1970.39	13.06	140.57
97.07	318.47	6.97	22.87	52.84	1865.89	55.94	1975.37	13.08	140.83
97.08	318.50	6.98	22.90	52.98	1870.87	56.08	1980.35	13.11	141.09
97.09	318.53	6.99	22.93	53.12	1875.85	56.22	1985.33	13.13	141.35
97.10	318.57	7.00	22.97	53.26	1880.83	56.36	1990.30	13.16	141.61
97.11	318.60	7.01	23.00	53.40	1885.81	56.50	1995.28	13.18	141.87
97.12	318.63	7.02	23.03	53.54	1890.78	56.64	2000.26	13.20	142.13
97.13	318.66	7.03	23.06	53.68	1895.76	56.78	2005.24	13.23	142.40
97.14	318.70	7.04	23.10	53.82	1900.74	56.92	2010.22	13.25	142.66
97.15	318.73	7.05	23.13	53.96	1905.72	57.06	2015.19	13.28	142.92
97.16	318.76	7.06	23.16	54.10	1910.70	57.20	2020.17	13.30	143.18
97.17	318.80	7.07	23.20	54.25	1915.67	57.35	2025.15	13.33	143.44
97.18	318.83	7.08	23.23	54.39	1920.65	57.49	2030.13	13.35	143.70
97.19	318.86	7.09	23.26	54.53	1925.63	57.63	2035.11	13.37	143.96
97.20	318.89	7.10	23.29	54.67	1930.61	57.77	2040.08	13.40	144.22
97.21	318.93	7.11	23.33	54.81	1935.59	57.91	2045.06	13.42	144.48
97.22	318.96	7.12	23.36	54.95	1940.56	58.05	2050.04	13.45	144.74
97.23	318.99	7.13	23.39	55.09	1945.54	58.19	2055.02	13.47	145.00
97.24	319.02	7.14	23.42	55.23	1950.52	58.33	2060.00	13.50	145.26
97.25	319.06	7.15	23.46	55.37	1955.50	58.47	2064.97	13.52	145.53
97.26	319.09	7.16	23.49	55.51	1960.48	58.61	2069.95	13.54	145.79
97.27	319.12	7.17	23.52	55.65	1965.45	58.75	2074.93	13.57	146.05
97.28	319.16	7.18	23.56	55.80	1970.43	58.90	2079.91	13.59	146.31
97.29	319.19	7.19	23.59	55.94	1975.41	59.04	2084.89	13.62	146.57
97.30	319.22	7.20	23.62	56.08	1980.39	59.18	2089.86	13.64	146.83
97.31	319.25	7.21	23.65	56.22	1985.37	59.32	2094.84	13.67	147.09
97.32	319.29	7.22	23.69	56.36	1990.34	59.46	2099.82	13.69	147.35
97.33	319.32	7.23	23.72	56.50	1995.32	59.60	2104.80	13.71	147.61
97.34	319.35	7.24	23.75	56.64	2000.30	59.74	2109.78	13.74	147.87
97.35	319.39	7.25	23.79	56.78	2005.28	59.88	2114.75	13.76	148.13
97.36	319.42	7.26	23.82	56.92	2010.26	60.02	2119.73	13.79	148.39

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M ² sm	M ² ft
1	2	3	4	5	6	7	8	9	10
97.37	319.45	7.27	23.85	57.06	2015.23	60.16	2124.71	13.81	148.65
97.38	319.48	7.28	23.88	57.21	2020.21	60.31	2129.69	13.83	148.92
97.39	319.52	7.29	23.92	57.35	2025.19	60.45	2134.67	13.86	149.18
97.40	319.55	7.30	23.95	57.49	2030.17	60.59	2139.64	13.88	149.44
97.41	319.58	7.31	23.98	57.63	2035.15	60.73	2144.62	13.91	149.70
97.42	319.62	7.32	24.02	57.77	2040.12	60.87	2149.60	13.93	149.96
97.43	319.65	7.33	24.05	57.91	2045.10	61.01	2154.58	13.96	150.22
97.44	319.68	7.34	24.08	58.05	2050.08	61.15	2159.56	13.99	150.48
97.45	319.71	7.35	24.11	58.19	2055.06	61.29	2164.53	14.00	150.74
97.46	319.75	7.36	24.15	58.33	2060.04	61.43	2169.51	14.03	151.00
97.47	319.78	7.37	24.18	58.47	2065.01	61.57	2174.49	14.05	151.26
97.48	319.81	7.38	24.21	58.62	2069.99	61.72	2179.47	14.08	151.52
97.49	319.85	7.39	24.25	58.76	2074.97	61.86	2184.45	14.10	151.78
97.50	319.88	7.40	24.28	58.90	2079.95	62.00	2189.42	14.13	152.05
97.51	319.91	7.41	24.31	59.04	2084.93	62.14	2194.40	14.15	152.31
97.52	319.94	7.42	24.34	59.18	2089.90	62.28	2199.38	14.17	152.57
97.53	319.98	7.43	24.38	59.32	2094.88	62.42	2204.36	14.20	152.83
97.54	320.01	7.44	24.41	59.46	2099.86	62.56	2209.34	14.22	153.09
97.55	320.04	7.45	24.44	59.60	2104.84	62.70	2214.31	14.25	153.35
97.56	320.07	7.46	24.47	59.74	2109.82	62.84	2219.29	14.27	153.61
97.57	320.11	7.47	24.51	59.88	2114.79	62.98	2224.27	14.30	153.87
97.58	320.14	7.48	24.54	60.02	2119.77	63.12	2229.25	14.32	154.13
97.59	320.17	7.49	24.57	60.17	2124.75	63.27	2234.23	14.34	154.39
97.60	320.21	7.50	24.61	60.31	2129.73	63.41	2239.20	14.37	154.65
97.61	320.24	7.51	24.64	60.45	2134.71	63.55	2244.18	14.39	154.91
97.62	320.27	7.52	24.67	60.59	2139.68	63.69	2249.16	14.42	155.18
97.63	320.30	7.53	24.70	60.73	2144.66	63.83	2254.14	14.44	155.44
97.64	320.34	7.54	24.74	60.87	2149.64	63.97	2259.12	14.46	155.70
97.65	320.37	7.55	24.77	61.01	2154.62	64.11	2264.09	14.49	155.96
97.66	320.40	7.56	24.80	61.15	2159.60	64.25	2269.07	14.51	156.22
97.67	320.44	7.57	24.84	61.29	2164.57	64.39	2274.05	14.54	156.48
97.68	320.47	7.58	24.87	61.43	2169.55	64.53	2279.03	14.56	156.74
97.69	320.50	7.59	24.90	61.58	2174.53	64.68	2284.01	14.59	157.00
97.70	320.53	7.60	24.93	61.72	2179.51	64.82	2288.98	14.61	157.26
97.71	320.57	7.61	24.97	61.86	2184.49	64.96	2293.96	14.63	157.52
97.72	320.60	7.62	25.00	62.00	2189.46	65.10	2298.94	14.66	157.78
97.73	320.63	7.63	25.03	62.14	2194.44	65.24	2303.92	14.68	158.04
97.74	320.67	7.64	25.07	62.28	2199.42	65.38	2308.90	14.71	158.30
97.75	320.70	7.65	25.10	62.42	2204.40	65.52	2313.87	14.73	158.57
97.76	320.73	7.66	25.13	62.56	2209.38	65.66	2318.85	14.76	158.83
97.77	320.76	7.67	25.16	62.70	2214.35	65.80	2323.83	14.78	159.09
97.78	320.80	7.68	25.20	62.84	2219.33	65.94	2328.81	14.80	159.35
97.79	320.83	7.69	25.23	62.98	2224.31	66.08	2333.79	14.83	159.61
97.80	320.86	7.70	25.26	63.13	2229.29	66.23	2338.76	14.85	159.87
97.81	320.90	7.71	25.29	63.27	2234.27	66.37	2343.74	14.88	160.13
97.82	320.93	7.72	25.33	63.41	2239.24	66.51	2348.72	14.90	160.39

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
97.83	320.96	7.73	25.36	63.55	2244.22	66.65	2353.70	14.93	160.65
97.84	320.00	7.74	25.39	63.69	2249.20	66.79	2358.68	14.95	160.91
97.85	321.03	7.75	25.43	63.85	2254.18	66.93	2363.65	14.97	161.17
97.86	321.06	7.76	25.46	63.97	2259.16	67.07	2368.63	15.00	161.43
97.87	321.09	7.77	25.49	64.11	2264.13	67.21	2373.61	15.02	161.70
97.88	321.12	7.78	25.52	64.25	2269.11	67.35	2378.59	15.05	161.96
97.89	321.16	7.79	25.56	64.39	2274.09	67.49	2383.57	15.07	162.22
97.90	321.19	7.80	25.59	64.54	2279.07	67.64	2388.54	15.09	162.48
97.91	321.22	7.81	25.62	64.68	2284.05	67.78	2393.52	15.12	162.74
97.92	321.26	7.82	25.66	64.82	2289.02	67.92	2398.50	15.14	163.00
97.93	321.29	7.83	25.69	64.96	2294.00	68.06	2403.48	15.17	163.26
97.94	321.32	7.84	25.72	65.10	2298.98	68.20	2408.46	15.19	163.52
97.95	321.35	7.85	25.75	65.24	2303.96	68.34	2413.43	15.22	163.78
97.96	321.39	7.86	25.79	65.38	2308.94	68.48	2418.41	15.24	164.04
97.97	321.42	7.87	25.82	65.52	2313.91	68.62	2423.39	15.26	164.30
97.98	321.45	7.88	25.85	65.66	2318.89	68.76	2428.37	15.29	164.56
97.99	321.49	7.89	25.89	65.80	2323.87	68.90	2433.35	15.31	164.83
98.00	321.52	7.90	25.92	65.95	2328.85	69.05	2438.32	15.34	165.09
98.01	321.55	7.91	25.95	66.16	2336.41	69.26	2445.89	15.38	165.50
98.02	321.58	7.92	25.98	66.37	2343.97	69.47	2453.45	15.41	165.92
98.03	321.62	7.93	26.02	66.59	2351.53	69.69	2461.01	15.45	166.33
98.04	321.65	7.94	26.05	66.80	2359.09	69.90	2468.57	15.49	166.75
98.05	321.68	7.95	26.08	67.02	2366.65	70.12	2476.13	15.53	167.17
98.06	321.72	7.96	26.12	67.23	2374.21	70.33	2483.69	15.57	167.58
98.07	321.75	7.97	26.15	67.44	2381.77	70.54	2491.25	15.61	168.00
98.08	321.78	7.98	26.18	67.66	2389.34	70.76	2498.81	15.65	168.41
98.09	321.81	7.99	26.21	67.87	2396.90	70.97	2506.37	15.68	168.83
98.10	321.85	8.00	26.25	68.09	2404.46	71.19	2513.93	15.72	169.25
98.11	321.88	8.01	26.28	68.30	2412.02	71.40	2521.49	15.76	169.66
98.12	321.91	8.02	26.31	68.51	2419.58	71.61	2529.06	15.80	170.08
98.13	321.94	8.03	26.34	68.73	2427.14	71.83	2536.62	15.84	170.50
98.14	321.98	8.04	26.38	68.94	2434.70	72.04	2544.18	15.88	170.91
98.15	322.01	8.05	26.41	69.16	2442.26	72.26	2551.74	15.92	171.33
98.16	322.04	8.06	26.44	69.37	2449.82	72.47	2559.30	15.96	171.74
98.17	322.08	8.07	26.48	69.58	2457.38	72.68	2566.86	15.99	172.16
98.18	322.11	8.08	26.51	69.80	2464.94	72.90	2574.42	16.03	172.58
98.19	322.14	8.09	26.54	70.01	2472.51	73.11	2581.98	16.07	172.99
98.20	322.17	8.10	26.57	70.23	2480.07	73.33	2589.54	16.11	173.41
98.21	322.21	8.11	26.61	70.44	2487.63	73.54	2597.10	16.15	173.82
98.22	322.24	8.12	26.64	70.66	2495.19	73.76	2604.66	16.19	174.24
98.23	322.27	8.13	26.67	70.87	2502.75	73.97	2612.23	16.23	174.66
98.24	322.31	8.14	26.71	71.08	2510.31	74.18	2619.79	16.26	175.07
98.25	322.34	8.15	26.74	71.30	2517.87	74.40	2627.35	16.30	175.49
98.26	322.37	8.16	26.77	71.51	2525.43	74.61	2634.91	16.34	175.90
98.27	322.40	8.17	26.80	71.73	2532.99	74.83	2642.47	16.38	176.32
98.28	322.44	8.18	26.84	71.94	2540.55	75.04	2650.03	16.42	176.74

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
98.29	322.47	8.19	26.87	72.15	2548.11	75.25	2657.59	16.46	177.15
98.30	322.50	8.20	26.90	72.37	2555.68	75.47	2665.15	16.50	177.57
98.31	322.54	8.21	26.94	72.58	2563.24	75.68	2672.71	16.54	177.98
98.32	322.57	8.22	26.97	72.80	2570.80	75.90	2680.27	16.57	178.40
98.33	322.60	8.23	27.00	73.01	2578.36	76.11	2687.84	16.61	178.82
98.34	322.63	8.24	27.03	73.22	2585.92	76.32	2695.40	16.65	179.23
98.35	322.67	8.25	27.07	73.44	2593.48	76.54	2702.96	16.69	179.65
98.36	322.70	8.26	27.10	73.65	2601.04	76.75	2710.52	16.73	180.07
98.37	322.73	8.27	27.13	73.87	2608.60	76.97	2718.08	16.77	180.48
98.38	322.77	8.28	27.17	74.08	2616.16	77.18	2725.64	16.81	180.90
98.39	322.80	8.29	27.20	74.29	2623.72	77.39	2733.20	16.84	181.31
98.40	322.83	8.30	27.23	74.51	2631.29	77.61	2740.76	16.88	181.73
98.41	322.86	8.31	27.26	74.72	2638.85	77.82	2748.32	16.92	182.15
98.42	322.90	8.32	27.30	74.94	2646.41	78.04	2755.88	16.96	182.56
98.43	322.93	8.33	27.33	75.15	2653.97	78.25	2763.44	17.00	182.98
98.44	322.96	8.34	27.36	75.37	2661.53	78.47	2771.01	17.04	183.39
98.45	322.99	8.35	27.39	75.58	2669.09	78.68	2778.57	17.08	183.81
98.46	323.03	8.36	27.43	75.79	2676.65	78.89	2786.13	17.12	184.23
98.47	323.06	8.37	27.46	76.01	2684.21	79.11	2793.69	17.15	184.64
98.48	323.09	8.38	27.49	76.22	2691.77	79.32	2801.25	17.19	185.06
98.49	323.13	8.39	27.53	76.44	2699.33	79.54	2808.81	17.23	185.47
98.50	323.16	8.40	27.56	76.65	2706.89	79.75	2816.37	17.27	185.89
98.51	323.19	8.41	27.59	76.86	2714.46	79.96	2823.93	17.31	186.31
98.52	323.22	8.42	27.62	77.08	2722.02	80.18	2831.49	17.35	186.72
98.53	323.26	8.43	27.66	77.29	2729.58	80.39	2839.05	17.39	187.14
98.54	323.29	8.44	27.69	77.51	2737.14	80.61	2846.62	17.42	187.56
98.55	323.32	8.45	27.72	77.72	2744.70	80.82	2854.18	17.46	187.97
98.56	323.36	8.46	27.76	77.93	2752.26	81.03	2861.74	17.50	188.39
98.57	323.39	8.47	27.79	78.15	2759.82	81.25	2869.30	17.54	188.80
98.58	323.42	8.48	27.82	78.36	2767.38	81.46	2876.86	17.58	189.22
98.59	323.45	8.49	27.85	78.58	2774.94	81.68	2884.42	17.62	189.64
98.60	323.49	8.50	27.89	78.79	2782.50	81.89	2891.98	17.66	190.05
98.61	323.52	8.51	27.92	79.01	2790.07	82.11	2899.54	17.70	190.47
98.62	323.55	8.52	27.95	79.22	2797.63	82.32	2907.10	17.73	190.88
98.63	323.59	8.53	27.99	79.43	2805.19	82.53	2914.66	17.77	191.30
98.64	323.62	8.54	28.02	79.65	2812.75	82.75	2922.22	17.81	191.72
98.65	323.65	8.55	28.05	79.86	2820.31	82.96	2929.79	17.85	192.13
98.66	323.68	8.56	28.08	80.08	2827.87	83.18	2937.35	17.89	192.55
98.67	323.72	8.57	28.12	80.29	2835.43	83.39	2944.91	17.93	192.96
98.68	323.75	8.58	28.15	80.50	2842.99	83.60	2952.47	17.97	193.38
98.69	323.78	8.59	28.18	80.72	2850.55	83.82	2960.03	18.00	193.80
98.70	323.81	8.60	28.21	80.93	2858.11	84.03	2967.59	18.04	194.21
98.71	323.85	8.61	28.25	81.15	2865.67	84.25	2975.15	18.08	194.63
98.72	323.88	8.62	28.28	81.36	2873.24	84.46	2982.71	18.12	195.04
98.73	323.91	8.63	28.31	81.57	2880.80	84.67	2990.27	18.16	195.46
98.74	323.95	8.64	28.35	81.79	2888.36	84.89	2997.83	18.20	195.88

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
98.75	323.98	8.65	28.38	32.00	2895.92	85.10	3005.39	18.24	196.29
98.76	324.01	8.66	28.41	82.22	2903.48	85.32	3012.96	18.27	196.71
98.77	324.04	8.67	28.44	87.43	2911.04	85.53	3020.52	18.31	197.13
98.78	324.08	8.68	28.48	82.64	2918.60	85.74	3028.08	18.35	197.54
98.79	324.11	8.69	28.51	82.86	2926.16	85.96	3035.64	18.39	197.96
98.80	324.14	8.70	28.54	83.07	2933.72	86.17	3043.20	18.43	198.37
98.81	324.18	8.71	28.58	83.29	2941.28	86.39	3050.76	18.47	198.79
98.82	324.21	8.72	28.61	83.50	2948.84	86.60	3058.32	18.51	199.21
98.83	324.24	8.73	28.64	83.72	2956.41	86.82	3065.88	18.55	199.62
98.84	324.27	8.74	28.67	83.93	2963.97	87.03	3073.44	18.58	200.04
98.85	324.31	8.75	28.71	84.14	2971.53	87.24	3081.00	18.62	200.45
98.86	324.34	8.76	28.74	84.36	2979.09	87.46	3088.57	18.66	200.87
98.87	324.37	8.77	28.77	84.57	2986.65	87.67	3096.13	18.70	201.29
98.88	324.41	8.78	28.81	84.79	2994.21	87.89	3103.69	18.74	201.70
98.89	324.44	8.79	28.84	85.00	3001.77	88.10	3111.25	18.78	202.12
98.90	324.47	8.80	28.87	85.21	3009.33	88.31	3118.81	18.82	202.53
98.91	324.50	8.81	28.90	85.43	3016.89	88.53	3126.37	18.85	202.95
98.92	324.54	8.82	28.94	85.64	3024.45	88.74	3133.93	18.89	203.37
98.93	324.57	8.83	28.97	85.86	3032.02	88.96	3141.49	18.93	203.78
98.94	324.60	8.84	29.00	86.07	3039.58	89.17	3149.05	18.97	204.20
98.95	324.64	8.85	29.04	86.28	3047.14	89.38	3156.61	19.01	204.61
98.96	324.67	8.86	29.07	86.50	3054.70	89.60	3164.17	19.05	205.03
98.97	324.70	8.87	29.10	86.71	3062.26	89.81	3171.74	19.09	205.45
98.98	324.73	8.88	29.13	86.93	3069.82	90.03	3179.30	19.13	205.86
98.99	324.77	8.89	29.17	87.14	3077.38	90.24	3186.86	19.16	206.28
99.00	324.80	8.90	29.20	87.36	3084.94	90.46	3194.42	19.20	206.70
99.01	324.83	8.91	29.23	87.57	3092.50	90.67	3201.98	19.24	207.11
99.02	324.86	8.92	29.26	87.78	3100.06	90.88	3209.54	19.28	207.53
99.03	324.90	8.93	29.30	88.00	3107.62	91.10	3217.10	19.32	207.94
99.04	324.93	8.94	29.33	88.21	3115.19	91.31	3224.66	19.36	208.36
99.05	324.96	8.95	29.36	88.43	3122.75	91.53	3232.22	19.40	208.78
99.06	325.00	8.96	29.40	88.64	3130.31	91.74	3239.78	19.43	209.19
99.07	325.03	8.97	29.43	88.85	3137.87	91.95	3247.34	19.47	209.61
99.08	325.06	8.98	29.46	89.07	3145.43	92.17	3254.91	19.51	210.02
99.09	325.09	8.99	29.49	89.28	3152.99	92.38	3262.47	19.55	210.44
99.10	325.13	9.00	29.53	89.50	3160.55	92.60	3270.03	19.59	210.86
99.11	325.16	9.01	29.56	89.71	3168.11	92.81	3277.59	19.63	211.27
99.12	325.19	9.02	29.59	89.92	3175.67	93.02	3285.15	19.67	211.69
99.13	325.23	9.03	29.63	90.14	3183.23	93.24	3292.71	19.71	212.10
99.14	325.26	9.04	29.66	90.35	3190.80	93.45	3300.27	19.74	212.52
99.15	325.29	9.05	29.69	90.57	3198.36	93.67	3307.83	19.78	212.94
99.16	325.32	9.06	29.72	90.78	3205.92	93.88	3315.39	19.82	213.35
99.17	325.36	9.07	29.76	90.99	3213.48	94.09	3322.95	19.86	213.77
99.18	325.39	9.08	29.79	91.21	3221.04	94.31	3330.52	19.90	214.19
99.19	325.42	9.09	29.82	91.42	3228.60	94.52	3338.08	19.94	214.60
99.20	325.46	9.10	29.86	91.64	3236.16	94.74	3345.64	19.98	215.02

R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.c.ft	M.cum	M.c.ft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
99.21	325.49	9.11	29.89	91.85	3243.72	94.95	3353.20	20.01	215.43
99.22	325.52	9.12	29.92	92.07	3251.28	95.17	3360.76	20.05	215.85
99.23	325.55	9.13	29.95	92.28	3258.84	95.38	3368.32	20.09	216.27
99.24	325.59	9.14	29.99	92.49	3266.40	95.59	3375.88	20.13	216.68
99.25	325.62	9.15	30.02	92.71	3273.97	95.81	3383.44	20.17	217.10
99.26	325.65	9.16	30.05	92.92	3281.53	96.02	3391.00	20.21	217.51
99.27	325.69	9.17	30.08	93.14	3289.09	96.24	3398.56	20.25	217.93
99.28	325.72	9.18	30.12	93.35	3296.65	96.45	3406.12	20.29	218.35
99.29	325.75	9.19	30.15	93.56	3304.21	96.66	3413.69	20.32	218.76
99.30	325.78	9.20	30.18	93.78	3311.77	96.88	3421.25	20.36	219.18
99.31	325.82	9.21	30.22	93.99	3319.33	97.09	3428.81	20.40	219.59
99.32	325.85	9.22	30.25	94.21	3326.89	97.31	3436.37	20.44	220.01
99.33	325.88	9.23	30.28	94.42	3334.45	97.52	3443.93	20.48	220.43
99.34	325.91	9.24	30.31	94.63	3342.01	97.73	3451.49	20.52	220.84
99.35	325.95	9.25	30.35	94.85	3349.57	97.95	3459.05	20.56	221.26
99.36	325.98	9.26	30.38	95.06	3357.14	98.16	3466.61	20.59	221.67
99.37	326.01	9.27	30.41	95.28	3364.70	98.38	3474.17	20.63	222.09
99.38	326.05	9.28	30.45	95.49	3372.26	98.59	3481.73	20.67	222.51
99.39	326.08	9.29	30.48	95.70	3379.82	98.80	3489.30	20.71	222.92
99.40	326.11	9.30	30.51	95.92	3387.38	99.02	3496.86	20.75	223.34
99.41	326.14	9.31	30.54	96.13	3394.94	99.23	3504.42	20.79	223.76
99.42	326.18	9.32	30.58	96.35	3402.50	99.45	3511.98	20.83	224.17
99.43	326.21	9.33	30.61	96.56	3410.06	99.66	3519.54	20.86	224.59
99.44	326.24	9.34	30.64	96.78	3417.62	99.88	3527.10	20.90	225.00
99.45	326.28	9.35	30.68	96.99	3425.18	100.09	3534.66	20.94	225.42
99.46	326.31	9.36	30.71	97.20	3432.75	100.30	3542.22	20.98	225.84
99.47	326.34	9.37	30.74	97.42	3440.31	100.52	3549.78	21.02	226.25
99.48	326.37	9.38	30.77	97.63	3447.87	100.73	3557.34	21.06	226.67
99.49	326.41	9.39	30.81	97.85	3455.43	100.95	3564.90	21.10	227.08
99.50	326.44	9.40	30.84	98.06	3462.99	101.15	3572.47	21.14	227.50
99.51	326.47	9.41	30.87	98.27	3470.55	101.37	3580.03	21.17	227.92
99.52	326.51	9.42	30.91	98.49	3478.11	101.59	3587.59	21.21	228.33
99.53	326.54	9.43	30.94	98.70	3485.67	101.80	3595.15	21.25	228.75
99.54	326.57	9.44	30.97	98.92	3493.23	102.02	3602.71	21.29	229.16
99.55	326.60	9.45	31.00	99.13	3500.79	102.23	3610.27	21.33	229.58
99.56	326.64	9.46	31.04	99.34	3508.35	102.44	3617.83	21.37	230.00
99.57	326.67	9.47	31.07	99.56	3515.92	102.66	3625.39	21.41	230.41
99.58	326.70	9.48	31.10	99.77	3523.48	102.87	3632.95	21.44	230.83
99.59	326.73	9.49	31.13	99.99	3531.04	103.09	3640.51	21.48	231.24
99.60	326.77	9.50	31.17	100.20	3538.60	103.30	3648.07	21.52	231.66
99.61	326.80	9.51	31.20	100.42	3546.16	103.52	3655.64	21.56	232.08
99.62	326.83	9.52	31.23	100.63	3553.72	103.73	3663.20	21.60	232.49
99.63	326.87	9.53	31.27	100.84	3561.28	103.94	3670.76	21.64	232.91
99.64	326.90	9.54	31.30	101.06	3568.84	104.16	3678.32	21.68	233.33
99.65	326.93	9.55	31.33	101.27	3576.40	104.37	3685.88	21.72	233.74
99.66	326.96	9.56	31.36	101.49	3583.96	104.59	3693.44	21.75	234.16

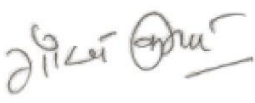
R.L in.		Depth in		Live storage		Gross storage		water spread Area	
Meter	feet	Meter	feet	M.cum	M.cft	M.cum	M.cft	M.sm	M.sft
1	2	3	4	5	6	7	8	9	10
99.67	327.00	9.57	31.40	101.70	3591.52	104.80	3701.00	21.79	234.57
99.68	327.03	9.58	31.43	101.91	3599.09	105.01	3708.56	21.83	234.99
99.69	327.06	9.59	31.46	102.13	3606.65	105.23	3716.12	21.87	235.41
99.70	327.10	9.60	31.50	102.34	3614.21	105.44	3723.68	21.91	235.82
99.71	327.13	9.61	31.53	102.56	3621.77	105.66	3731.25	21.95	236.24
99.72	327.16	9.62	31.56	102.77	3629.33	105.87	3738.81	21.99	236.65
99.73	327.19	9.63	31.59	102.98	3636.89	106.08	3746.37	22.02	237.07
99.74	327.23	9.64	31.63	103.20	3644.45	106.30	3753.93	22.06	237.49
99.75	327.26	9.65	31.66	103.41	3652.01	106.51	3761.49	22.10	237.90
99.76	327.29	9.66	31.69	103.63	3659.57	106.73	3769.05	22.14	238.32
99.77	327.33	9.67	31.73	103.84	3667.13	106.94	3776.61	22.18	238.73
99.78	327.36	9.68	31.76	104.05	3674.70	107.15	3784.17	22.22	239.15
99.79	327.39	9.69	31.79	104.27	3682.26	107.37	3791.73	22.26	239.57
99.80	327.42	9.70	31.82	104.48	3689.82	107.58	3799.29	22.30	239.98
99.81	327.46	9.71	31.86	104.70	3697.38	107.80	3806.85	22.33	240.40
99.82	327.49	9.72	31.89	104.91	3704.94	108.01	3814.42	22.37	240.82
99.83	327.52	9.73	31.92	105.13	3712.50	108.23	3821.98	22.41	241.23
99.84	327.56	9.74	31.95	105.34	3720.06	108.44	3829.54	22.45	241.65
99.85	327.59	9.75	31.99	105.55	3727.62	108.65	3837.10	22.49	242.06
99.86	327.62	9.76	32.02	105.77	3735.18	108.87	3844.66	22.53	242.48
99.87	327.65	9.77	32.05	105.98	3742.74	109.08	3852.22	22.57	242.90
99.88	327.69	9.78	32.09	106.20	3750.30	109.30	3859.78	22.60	243.31
99.89	327.72	9.79	32.12	106.41	3757.87	109.51	3867.34	22.64	243.73
99.90	327.75	9.80	32.15	106.62	3765.43	109.72	3874.90	22.68	244.14
99.91	327.78	9.81	32.18	106.84	3772.99	109.94	3882.46	22.72	244.56
99.92	327.82	9.82	32.22	107.05	3780.55	110.15	3890.02	22.76	244.98
99.93	327.85	9.83	32.25	107.27	3788.11	110.37	3897.59	22.80	245.39
99.94	327.88	9.84	32.28	107.48	3795.67	110.58	3905.15	22.84	245.81
99.95	327.92	9.85	32.32	107.69	3803.23	110.79	3912.71	22.88	246.22
99.96	327.95	9.86	32.35	107.91	3810.79	111.01	3920.27	22.91	246.64
99.97	327.98	9.87	32.38	108.12	3818.35	111.22	3927.83	22.95	247.06
99.98	328.01	9.88	32.41	108.34	3825.91	111.44	3935.39	22.99	247.47
99.99	328.05	9.89	32.45	108.55	3833.48	111.65	3942.95	23.03	247.89
100.00	328.08	9.90	32.48	108.77	3841.04	111.87	3950.51	23.07	248.30

Annexure - 4
Daily Progress Reports
Und-1 Reservoir

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 001

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	08-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Gaurav Sharma			Client Rep.		
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0900	2000	Survey boat and equipment shifted to Und-1			
		Today's coverage		Cumulative coverage	
		Bathymetry: -- sq.km	Line km: --	Bathymetry: -- sq.km	Line km:
		Topo: -- sq.km	Line km: --	Topo: -- sq.km	Line km:
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Levelling, observation, benchmark setup, boat and OBM maintenance.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 002


Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320
Vessel:	OSAS SMB			Date:	09-04-2021
Location:	Und 1 Dam			Sheet No:	1 of 1
Party Chief: Gaurav Sharma				Client Rep.	
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0930	1130	Meeting attended by Party Chief with Section Officer Prashant Bhojani at site office.			
1130	1600	Established two reference stations by DGPS observation.			
1600	1730	Vertical control established by level transfer from existing reference shown by section officer to the newly established reference station (Temporary Benchmark).			
1200	1630	Equipment, boat, OBM and generator maintenance.			
		Today's coverage		Cumulative coverage	
		Bathymetry: -- sq.km	Line km: --	Bathymetry: sq.km	Line km:
		Topo: sq.km	Line km:	Topo: sq.km	Line km:
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Start topographic survey and mobilisation of bathymetry survey boat.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam

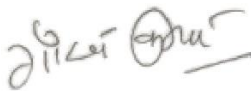
DPR No. 003

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	10-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Gaurav Sharma			Client Rep.		
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK system	SBES system	Auto level		Heave sensor
	Water level meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0800	0900	Boat landed to dam after maintenance			
0900	0915	Land survey team reached site and set up RTK reference station for land survey.			
0930		Land survey started.			
0915	1900	Boat mobilisation in progress.			
	1830	Land survey terminated and reference station secured.			
1830	1845	Land survey team returned to guest house.			
1900	1915	Bathymetric survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: -- sq.km	Line km: --	Bathymetry: sq.km	Line km:
		Topo: 0.44 sq.km	Line km: 17.63	Topo: 0.44 sq.km	Line km: 17.63
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Start bathymetric survey and continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam

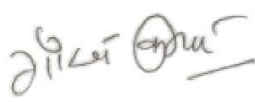
DPR No. 004

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	11-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Gaurav Sharma			Client Rep.		
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK system	SBES system	Auto level		Heave sensor
	Water level meter	Bar check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0815	0830	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0815	0830	Land survey team reached site and set up RTK reference station for land survey.			
0830	0845	Bar check carried out.			
0845		Bathymetric survey started.			
0830		Land survey started.			
	1800	Bathymetry survey terminated and reference station secured.			
	1830	Land survey terminated and reference station secured.			
1830	1900	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 1.12 sq.km	Line km: 44.69	Bathymetry: 1.12 sq.km	Line km: 44.69
		Topo: 0.90 sq.km	Line km: 36.08	Topo: 1.34 sq.km	Line km: 53.71
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam

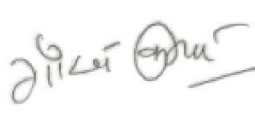

DPR No. 005

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	12-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Gaurav Sharma			Client Rep.		
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0600	0630	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0630	0645	Bar check carried out.			
0645		Bathymetric survey started.			
0700	0745	Land survey team reached site and set up RTK reference station for land survey.			
0745		Land survey started.			
	1600	Bathymetry survey terminated and reference station secured.			
	1700	Land survey terminated and reference station secured.			
1700	1745	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 1.13 sq.km	Line km: 45.10	Bathymetry: 2.25 sq.km	Line km: 89.79
		Topo: 0.73 sq.km	Line km: 29.11	Topo: 2.07 sq.km	Line km: 82.82
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 006

Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320	
Vessel:	OSAS SMB			Date:	13-04-2021	
Location:	Und 1 Dam			Sheet No:	1 of 1	
Party Chief: Gaurav Sharma				Client Rep.		
Survey Personnel:						
1. Amit Bhardwaj		2. Sanjeev Kumar		3.		
4.		5.		6.		
7.		8.		9.		
10.						
Equipment	RTK System		SBES System		Auto Level	
	Water Level Meter		Bar Check		Generator	
	Computer					
Time (hrs)		Activities				
0610	0640	Bathy team reached site and set up RTK reference station for bathymetric survey.				
0640	0700	Bar check carried out.				
0700		Bathymetric survey started.				
0700	0745	Land survey team reached site and set up RTK reference station for land survey.				
0750		Land survey started.				
	1630	Bathymetry survey terminated and reference station secured.				
	1715	Land survey terminated and reference station secured.				
1715	1800	Land survey team returned to guest house.				
			Today's coverage		Cumulative coverage	
		Bathymetry: 1.23 sq.km	Line km: 49.20		Bathymetry: 3.48 sq.km	Line km: 138.99
		Topo: 0.52 sq.km	Line km: 20.91		Topo: 2.59 sq.km	Line km: 103.73
			Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.						
Remarks:						
						
Party Chief				Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 007

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	14-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Gaurav Sharma			Client Rep.		
Survey Personnel:					
1. Amit Bhardwaj		2. Sanjeev Kumar		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)	Activities				
0800	0830	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0715	0800	Land survey team reached site and set up RTK reference station for land survey.			
0800		Land survey started.			
0840	0900	Bar check carried out.			
0900		Bathymetric survey started.			
	1700	Land survey terminated and reference station secured.			
	1730	Bathymetry survey terminated and reference station secured.			
1700	1800	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.85 sq.km	Line km: 34.85	Bathymetry: 4.35 sq.km	Line km: 173.84
		Topo: 0.30 sq.km	Line km: 11.89	Topo: 2.89 sq.km	Line km: 115.62
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 008

Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320
Vessel:	OSAS SMB			Date:	15-04-2021
Location:	Und 1 Dam			Sheet No:	1 of 1
Party Chief: Mansuri M. I.				Client Rep.	
Survey Personnel:					
1. Prasant Panda		2. Amit Bhardwaj		3. Nikhil Rane	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0745	0815	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0745	0800	Land survey team reached site and set up RTK reference station for land survey.			
0800		Land survey started.			
0815	0845	Bar check carried out.			
0850		Bathymetric survey started.			
	1730	Bathymetry survey terminated and reference station secured.			
	1800	Land survey terminated and reference station secured.			
1800	1845	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.68 sq.km	Line km: 27.30	Bathymetry: 5.03 sq.km	Line km: 201.14
		Topo: 0.77 sq.km	Line km: 30.75	Topo: 3.66 sq.km	Line km: 146.37
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 009

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	16-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Amit Bhardwaj		3. Nikhil Rane	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0740	0810	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0745	0800	Land survey team reached site and set up RTK reference station for land survey.			
0800		Land survey started.			
0810	0840	Bar check carried out.			
0840		Bathymetric survey started.			
	1740	Bathymetry survey terminated and reference station secured.			
	1815	Land survey terminated and reference station secured.			
1815	1850	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.58 sq.km	Line km: 23.12	Bathymetry: 5.61 sq.km	Line km: 224.26
		Topo: 0.76 sq.km	Line km: 31.16	Topo: 4.44 sq.km	Line km: 177.53
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 010

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320
Vessel:	OSAS SMB		Date:	17-04-2021
Location:	Und 1 Dam		Sheet No:	1 of 1
Party Chief: Mansuri M. I.			Client Rep.	
Survey Personnel:				
1.Prasant Panda		2.Amit Bhardwaj		3. Nikhil Rane
4.		5.		6.
7.		8.		9.
10.				
Equipment	RTK System	SBES System	Auto Level	Heave sensor
	Water Level Meter	Bar Check	Generator	Hypack
	Computer			
Time (hrs)		Activities		
0805	0830	Land survey team reached site and set up RTK reference station for land survey.		
0830		Land survey started.		
0830	0850	Bathy team reached site and set up RTK reference station for bathymetric survey.		
0850	0910	Bar check carried out.		
0910		Bathymetric survey started.		
	1735	Bathymetry survey terminated and reference station secured.		
	1845	Land survey terminated and reference station secured.		
1845	1930	Land survey team returned to guest house.		
		Today's coverage		Cumulative coverage
		Bathymetry: 0.88 sq.km	Line km: 35.0	Bathymetry: 6.49 sq.km Line km: 259.26
		Topo: 0.62 sq.km	Line km: 24.6	Topo: 5.06 sq.km Line km: 202.13
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours
Plan for next 24 hours: Continue with bathymetric and topographic survey.				
Remarks:				
				
Party Chief			Client Representative	

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 011

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	18-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Amit Bhardwaj		3. Nikhil Rane	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0800	0820	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0820	0840	Bar check carried out.			
0840		Bathymetric survey started.			
	1910	Bathymetry survey terminated and reference station secured.			
0820	0840	Land survey team reached site and set up RTK reference station for land survey.			
0840		Land survey started.			
	1840	Land survey terminated and reference station secured.			
1840	1920	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.92 sq.km	Line km: 36.8	Bathymetry: 7.41 sq.km	Line km: 296.06
		Topo: 0.37 sq.km	Line km: 14.76	Topo: 5.43 sq.km	Line km: 216.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 012

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	19-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Amit Bhardwaj		3. Nikhil Rane	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0815	0830	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0830	0900	Transit from Und1 dam to survey area.			
0900		Bar check carried out and bathymetric survey started.			
	1830	Bathymetry survey terminated and reference station secured.			
0815	0900	Land survey team reached site and set up RTK reference station for land survey.			
0900		Land survey started.			
	1910	Land survey terminated and reference station secured.			
1910	1950	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.52 sq.km	Line km: 20.7	Bathymetry: 7.93 sq.km	Line km: 316.76
		Topo: 0.25 sq.km	Line km: 10.00	Topo: 5.68 sq.km	Line km: 226.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 013


Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	20-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Amit Bhardwaj		3. Nikhil Rane	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0810	0830	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0830	0900	Transit from Und1 Dam to Survey area.			
0900		Bar check carried out and Bathymetric survey started.			
	1850	Bathymetry survey terminated and reference station secured.			
0800	0910	Land survey team reached site and set up RTK reference station for land survey.			
0910		Land survey started.			
	1645	Land survey terminated and reference station secured.			
1645	1735	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.66 sq.km	Line km: 26.4	Bathymetry: 8.59 sq.km	Line km: 343.16
		Topo: 0.18 sq.km	Line km: 7.00	Topo: 5.86 sq.km	Line km: 233.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
			Client Representative		
Party Chief					

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 014

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	21-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0810	0830	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0830	0900	Transit from Und 1 dam to survey area.			
0900		Bar check carried out and bathymetric survey started.			
	1800	Bathymetry survey terminated and reference station secured.			
0800	0910	Land survey team reached site and set up RTK reference station for land survey.			
0910		Land survey started.			
	1710	Land survey terminated and reference station secured.			
1710	1735	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.66 sq.km	Line km: 26.4	Bathymetry: 9.25 sq.km	Line km: 369.56
		Topo: 0.18 sq.km	Line km: 7.00	Topo: 6.04 sq.km	Line km: 240.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 015

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	22-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)	Activities				
0800	0820	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0820	0900	Transit from Und1 Dam to Survey area.			
0900		Bar check carried out and Bathymetric survey started.			
	1800	Bathymetry survey terminated and reference station secured.			
0800	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1800	Land survey terminated and reference station secured.			
1800	1925	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.55 sq.km	Line km: 22.0	Bathymetry: 9.80 sq.km	Line km: 391.56
		Topo: 0.16 sq.km	Line km: 7.00	Topo: 6.22 sq.km	Line km: 247.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 016

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	23-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0800	0820	Bathy team reached site and set up RTK reference station for bathymetric survey.			
0820	0920	Transit from Und1 Dam to Survey area.			
0920		Bar check carried out and Bathymetric survey started.			
	1420	Bathymetry survey terminated and reference station secured.			
0800	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1500	Land survey terminated (Base station disturb due to heavy wind) and reference station secured.			
1500	1625	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.10 sq.km	Line km: 4.0	Bathymetry: 9.90 sq.km	Line km: 395.56
		Topo: 0.13 sq.km	Line km: 5.00	Topo: 6.35 sq.km	Line km: 252.89
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours: Continue with bathymetric and topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 018


Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	25-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0745	0820	Bathymetric survey completed & equipment secured in boat.			
0820	0930	Land survey team reached site and set up RTK reference station for land survey.			
0930		Land survey started.			
	1700	Land survey terminated due to Heavy rain & wind, reference station secured.			
1700	1845	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.31 sq.km	Line km: 12.3	Topo: 6.77 sq.km	Line km: 269.69
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

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Und 1 Dam


DPR No. 019

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	26-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0800	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1905	Land survey terminated and reference station secured.			
1905	2020	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.75 sq.km	Line km: 30.0	Topo: 7.52 sq.km	Line km: 299.69
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 020


Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	27-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0800	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1800	Land survey terminated and reference station secured.			
1800	1930	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.86 sq.km	Line km: 34.44	Topo: 8.38 sq.km	Line km: 334.09
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 021

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	28-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0800	0925	Land survey team reached site and set up RTK reference station for land survey.			
0925		Land survey started.			
	1600	Land survey terminated due to rain and heavy wind and reference station secured.			
1600	1745	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.94 sq.km	Line km: 37.7	Topo: 9.32 sq.km	Line km: 371.79
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 022

Client:	Narmada Water Resources, Water Supply&KalpsarDepartment		Project No:	P34320	
Vessel:	OSAS SMB		Date:	29-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1.Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0800	0925	Land survey team reached site and set up RTK reference station for land survey.			
0925		Land survey started.			
	1900	Land survey terminated and reference station secured.			
1900	2015	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.96 sq.km	Line km: 38.54	Topo: 10.28 sq.km	Line km: 410.33
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 023


Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	30-04-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level	Heave sensor	
	Water Level Meter	Bar Check	Generator	Hypack	
	Computer				
Time (hrs)		Activities			
0800	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1830	Land survey terminated and reference station secured.			
1830	1945	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.59 sq.km	Line km: 23.78	Topo: 10.87 sq.km	Line km: 434.11
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 024

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	01-05-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)	Activities				
0800	0900	Boat shifted to near pump house due to water level going down at previous location..			
0900	1015	Land survey team reached site and set up RTK reference station for land survey.			
1015		Land survey started.			
1545	1600	Land survey terminated due to gusting wind and heavy rain, reference station secured.			
1600	1730	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.39 sq.km	Line km: 15.58	Topo: 11.26 sq.km	Line km: 449.69
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 026

Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320
Vessel:	OSAS SMB			Date:	03-05-2021
Location:	Und 1 Dam			Sheet No:	1 of 1
Party Chief: Mansuri M. I.				Client Rep.	
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0810	0915	Land survey team reached site and set up RTK reference station for land survey.			
0915		Land survey started.			
	1830	Land survey terminated and reference station secured.			
1830	2015	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.39 sq.km	Line km: 15.58	Topo: 12.01 sq.km	Line km: 479.62
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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Und 1 Dam


DPR No. 027

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	0405-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0810	0920	Land survey team reached site and set up RTK reference station for land survey.			
0920		Land survey started.			
	1850	Land survey terminated and reference station secured.			
1850	2030	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.31 sq.km	Line km: 12.30	Topo: 12.32 sq.km	Line km: 491.92
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 028

Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320
Vessel:	OSAS SMB			Date:	05-05-2021
Location:	Und 1 Dam			Sheet No:	1 of 1
Party Chief: Mansuri M. I.				Client Rep.	
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0810	0900	Land survey team reached site and set up RTK reference station for land survey.			
0900		Land survey started.			
	1900	Land survey terminated and reference station secured.			
1900	2015	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.59 sq.km	Line km: 23.78	Topo: 12.91 sq.km	Line km: 515.70
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 029

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSaS SMB		Date:	06-05-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK system	SBES system	Auto level		Heave sensor
	Water level meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)		Activities			
0810	0900	Land survey team reached site and set up RTK reference station for land survey.			
0900		Land survey started.			
	1830	Land survey terminated and reference station secured.			
1830	1950	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.94 sq.km	Line km: 37.53	Topo: 13.85 sq.km	Line km: 553.23
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
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	Approved By	PKT

Und 1 Dam


DPR No. 030

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	07-05-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System	SBES System	Auto Level		Heave sensor
	Water Level Meter	Bar Check	Generator		Hypack
	Computer				
Time (hrs)	Activities				
0815	0855	Land survey team reached site and set up RTK reference station for land survey.			
0855		Land survey started.			
	1815	Land survey terminated and reference station secured.			
1815	1910	Land Survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00	Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 1.14 sq.km	Line km: 45.51	Topo: 14.99 sq.km	Line km: 598.74
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam


DPR No. 031

Client:	Narmada Water Resources, Water Supply & Kalpsar Department		Project No:	P34320	
Vessel:	OSAS SMB		Date:	08-05-2021	
Location:	Und 1 Dam		Sheet No:	1 of 1	
Party Chief: Mansuri M. I.			Client Rep.		
Survey Personnel:					
1. Prasant Panda		2. Nikhil Rane		3.	
4.		5.		6.	
7.		8.		9.	
10.					
Equipment	RTK System		SBES System		Auto Level
	Water Level Meter		Bar Check		Generator
	Computer				Heave sensor
				Hypack	
Time (hrs)		Activities			
0815	0855	Land survey team reached site and set up RTK reference station for land survey.			
0855		Land survey started.			
	1915	Land survey terminated and reference station secured.			
1915	2010	Land survey team returned to guest house.			
		Today's coverage		Cumulative coverage	
		Bathymetry: 0.00 sq.km		Bathymetry: 9.95 sq.km	
		Line km: 0.00		Line km: 397.66	
		Topo: 0.78 sq.km		Topo: 15.77 sq.km	
		Line km: 31.16		Line km: 629.90	
		Weather downtime today: 0 hours		Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with topographic survey.					
Remarks:					
					
Party Chief			Client Representative		

 <p style="text-align: center;">DAILY PROGRESS REPORT</p>	Form No.:	Sy01R
	Revision:	01
	Date:	11/07/2014
	Approved By	PKT

Und 1 Dam

DPR No. 032

Client:	Narmada Water Resources, Water Supply & Kalpsar Department			Project No:	P34320	
Vessel:	OSAS SMB			Date:	09-05-2021	
Location:	Und 1 Dam			Sheet No:	1 of 1	
Party Chief: Mansuri M. I.				Client Rep.		
Survey Personnel:						
1. Prasant Panda		2. Nikhil Rane		3.		
4.		5.		6.		
7.		8.		9.		
10.						
Equipment	RTK System		SBES System		Auto Level	
	Water Level Meter		Bar Check		Generator	
	Computer				Heave sensor	
						Hypack
Time (hrs)		Activities				
0810	0855	Land survey team reached site and set up RTK reference station for land survey.				
0855		Land survey started.				
	1900	Land survey completed and reference station secured.				
1900	2000	Land survey team returned to guest house.				
		Today's coverage			Cumulative coverage	
		Bathymetry: 0.00 sq.km	Line km: 0.00		Bathymetry: 9.95 sq.km	Line km: 397.66
		Topo: 0.46 sq.km	Line km: 18.45		Topo: 16.23 sq.km	Line km: 648.35
		Weather downtime today: 0 hours			Cumulative weather downtime: 0 hours	
Plan for next 24 hours : Continue with equipment and survey boat securing.						
Remarks:						
						
Party Chief				Client Representative		